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Mental Health First Aid and Its Recent Developments in Interventional Practice

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ABSTRACT

An internationally recognized curriculum called Mental Health First Aid (MHFA) gives people the tools they need to detect, comprehend, and handle mental health emergencies and problems. With India contributing to 15% of the global mental health burden, MHFA offers a critical early intervention strategy that supports timely recognition and response to mental health challenges. This paper explores MHFA's evolution, implementation, and impact within the Indian context. A qualitative review was conducted using literature, program data, and a real-life case study from a Puducherry school. Results showed MHFA training significantly improved help-seeking behavior, enhanced early identification, and reduced stigma and classroom distress. Digital access, cultural adjustments, and integration into educational and professional systems have increased MHFA's scalability and inclusivity. The Puducherry case recorded a 40% rise in student support interactions and highlighted the potential of peer-led initiatives. MHFA's success in India illustrates its capacity to foster psychological well-being, especially among youth and underserved groups. Broader adoption supported by policy and public-private collaboration could strengthen India's mental health infrastructure.

Keywords: Mental Health First Aid, Early Intervention, Stigma Reduction, Youth Mental Health, Psychological Well-being

Introduction

Mental health is an essential component of overall well-being, yet remains significantly under-addressed in many parts of the world, including India. According to the World Health Organization (2021), nearly 1 in 7 people globally suffer from one or more mental or substance use disorders, with India accounting for 15% of the global mental health burden. Several reviews, including those by NIMHANS (2021) and the Mental Health Foundation (2022), emphasize the shortage of mental health professionals and the urgency for scalable, community-based interventions.

Surveys conducted across Indian school and workplace environments reveal that while awareness of mental health is increasing, stigma and lack of early intervention continue to hinder access to care (Mental Health Foundation, 2022). The goal of Mental Health First Aid (MHFA), an internationally recognized, evidence-based strategy, is to enable people to identify and react effectively to symptoms of mental health issues.

This paper explores the origins, objectives, key components, and recent advancements of MHFA, particularly focusing on its relevance, implementation, and impact in the Indian context.

Understanding Mental Health First Aid

MHFA was first developed in Australia in 2000 by Betty Kitchener and Anthony Jorm (Kitchener & Jorm, 2002). The training equips individuals to provide initial support to someone experiencing a mental health crisis, such as suicidal thoughts, panic attacks, or substance use issues, until appropriate professional help is received or the crisis resolves. MHFA is the mental health equivalent of physical first aid; unlike professional therapy, it is supportive rather than diagnostic.

Core Components of MHFA

MHFA programs are typically built around a 5-step action plan (Mental Health First Aid Australia, 2023): 'ALGEE'

Steps for ALGEE and its description

- ✓ Approach, evaluate, and help: Determine the danger and offer prompt assistance. (Mental Health First Aid International, 2023)
- ✓ Listen non-judgmentally- Offer a safe space to express without criticism
- ✓ Provide knowledge and support- Provide reassurance and pertinent mental health resources.Encourage professional help- Guide the person to mental health professionals
- ✓ Encourage other supports- Promote engagement with family, friends, or peer groups

  These steps help reduce immediate distress and promote mental health literacy in the community.

Recent Developments in MHFA

Recent years have seen significant advancements in MHFA delivery:

Digital Accessibility: The integration of MHFA training into digital platforms has significantly expanded its reach. Online modules and virtual workshops offer flexibility and convenience, enabling individuals from rural and underserved areas to access quality training without needing to travel. These digital platforms often include interactive simulations, videos, and real-time support, which enhance learning outcomes and allow participants to revisit material as needed. This has proven especially vital during the COVID-19 pandemic, which accelerated the shift to digital mental health services.

Cultural Adaptations: Recognizing India's diverse linguistic and cultural landscape, MHFA modules are increasingly being tailored to local contexts. Programs now offer translations in regional languages and incorporate culturally sensitive scenarios. For instance, examples used in rural Tamil Nadu differ significantly from those in urban Delhi, reflecting local attitudes and beliefs around mental illness. These adaptations not only improve understanding but also foster trust and relevance, encouraging more people to participate and apply MHFA skills.

Sector-Specific Training: The MHFA approach is no longer universal. Tailored programs have been created for schools, colleges, workplaces, and frontline professionals. In Tamil Nadu and Karnataka, pilot programs have trained teachers, healthcare workers, and corporate teams, showing positive outcomes in early detection and peer support. These targeted

trainings ensure that sector-specific stressors and risk factors are addressed effectively, improving mental health response systems across settings.

MHFA in the Indian Context

India's mental health infrastructure is currently facing significant limitations, marked by an acute shortage of trained professionals and limited access to care, especially in rural and underserved regions. According to the World Health Organization (2022), India has fewer than one psychiatrist per 100,000 people, far below the global median.This glaring disparity adds to the huge number of unmet needs, lengthy wait periods, and overworked mental health facilities. The treatment gap for mental health disorders in India is estimated at around 70-90%, underscoring the urgency for innovative and scalable community-based support systems.

Mental Health First Aid (MHFA) offers a community-driven solution to this crisis. It empowers laypersons to recognize early signs of mental health problems and provide initial support until professional help can be accessed. This model is particularly valuable in India's context, where social stigma and lack of mental health literacy often delay timely intervention. MHFA's structured yet adaptable approach enables individuals in schools, workplaces, and community settings to act as informal first responders.

Prominent Indian NGOs have played a pivotal role in integrating MHFA into mental health outreach programs. Sangath, a research-based mental health organization in Goa, has adopted MHFA principles in training community health workers and peer counselors. Their interventions target adolescent mental health, maternal well-being, and suicide prevention through scalable, evidence-based training methods. (Sangath, 2023). Approach, evaluate, and offer assistance: Determine the danger and offer prompt assistance. Volunteers and caregivers receive basic MHFA training to assist individuals experiencing mental distress and to bridge the gap between informal support and professional services. (The Banyan, 2023)

Educational institutions have also begun recognizing the potential of MHFA. Several CBSE-affiliated schools, particularly in urban centers, have introduced MHFA awareness training as part of their mental wellness programs. Teachers, school counselors, and senior students are trained to identify signs of anxiety, depression, peer conflicts, and academic stress. In many cases, this training has resulted in early referrals and reduced escalation of distress. A growing number of colleges now offer MHFA workshops during student orientation and wellness weeks, preparing young adults to support peers facing emotional challenges.

Workplaces, particularly in the IT and service sectors, are increasingly adopting MHFA under employee wellness and mental health policies. Human resource departments are partnering with certified MHFA trainers to conduct sessions that improve employee awareness, reduce stigma, and equip staff with actionable skills to respond to colleagues in distress. This shift reflects a broader recognition that mental health is integral to productivity and employee retention.

By decentralizing the first line of mental health support, MHFA fills critical gaps in India's healthcare delivery. As digital

platforms extend the reach of training programs and multilingual modules ensure inclusivity, MHFA stands poised to redefine community mental health support in the country. Widespread policy backing, consistent evaluation, and cross-sector collaboration will be key to scaling its impact across India's diverse and populous landscape.

Case Study: MHFA Implementation at a Puducherry School

In 2023, The Study L'école Internationale, Puducherry piloted a Mental Health First Aid (MHFA) initiative aimed at fostering a culture of emotional awareness and support within its academic community. The project was driven by increasing cases of exam-related anxiety, social pressure, and emotional disengagement observed among students. With support from the school leadership and the student counsellor, MHFA training was offered to both staff and students from Grades 6 to 12.

A total of 600 participants engaged in a semester-long blended training program that included full-day in-person workshops, weekly classroom-based activities, and access to resource handbooks and audiovisual aids. The curriculum was specifically adapted to suit the developmental needs of students in middle and high school, and included modules on emotional regulation, peer support, empathy building, and crisis response. Simulations and role-playing exercises helped participants internalize the five-step MHFA action plan in practical contexts.

Teachers who underwent the training reported a significant increase in their ability to detect behavioral shifts among students—such as withdrawal, irritability, or sudden drop in performance. Staff members were able to offer timely emotional support and make appropriate referrals to the school counsellor. Several teachers noted an improvement in the classroom environment, particularly in managing exam pressure and interpersonal conflicts.

One of the standout aspects of the initiative was the establishment of a weekly "peer support circle." Led by trained student ambassadors and moderated by the counsellor, these circles provided a structured but open space for students to talk about stressors, share coping strategies, and listen to each other without judgment. Over time, participation in these sessions increased, and many students reported a sense of emotional relief and connection.

By the end of the semester, internal reports documented a 40% rise in help-seeking behavior, including self-referrals and peer-assisted referrals. Disruptive incidents during class time decreased significantly, and more students proactively approached teachers and counselors with emotional concerns. Feedback from both students and parents suggested a greater level of trust in the school's mental health system.

The success of the program was attributed to its inclusive design, practical delivery format, and the alignment of MHFA content with real-life school situations. Monthly newsletters were also sent to parents with MHFA tips and adolescent mental health information, enhancing family engagement. Based on the positive outcomes, the school intends to continue MHFA training annually and integrate emotional wellness activities into the broader life skills curriculum.

This case study reinforces the value of MHFA in the school ecosystem—not just as

a training program, but as a catalyst for building compassionate, emotionally literate communities. It presents a scalable and culturally sensitive model for other educational institutions across India aiming to strengthen student mental health support.

Impact and Effectiveness

Studies have shown that MHFA training increases mental health knowledge, decreases stigma, and improves participants' confidence in providing help (Hadlaczky et al., 2014). In workplace settings, companies implementing MHFA programs have reported increased productivity and reduced absenteeism due to improved peer support systems. Among youth, MHFA fosters early intervention and creates safe spaces for open dialogue, reducing the long-term burden of untreated mental illness.

Methodology

This study used a qualitative case study method complemented by quantitative program data analysis to evaluate the implementation and impact of a Mental Health First Aid (MHFA) program in an Indian school setting. The methodology focused on exploring participant experiences, observable behavioral outcomes, and structural integration of MHFA practices within the school ecosystem.

Sampling Method

The sample included 600 individuals from The Study L'école Internationale, Puducherry—comprising teachers, support staff, and students from Grades 6 to 12. A purposive sampling technique was employed to include all relevant stakeholders actively participating in the MHFA program conducted in 2023. This inclusive approach ensured comprehensive insight into both implementation and outcomes.

Measures

The study used multiple tools for evaluation:

- ✓ Pre- and post-training feedback surveys to assess changes in awareness, knowledge, and confidence.
- ✓ Behavioral incident logs to measure classroom distress incidents.
- ✓ Help-seeking data recorded by the school counselor.
- ✓ Focus group discussions with students and teachers.
- ✓ Observation checklists used by facilitators during peer support sessions.

Procedure

The MHFA training was implemented over a semester in 2023, facilitated by the school's counsellor under the guidance of the management.

The training involved:

- ✓ Initial two-day workshops.
- ✓ Weekly follow-ups via classroom activities and check-ins.
- ✓ Formation of peer support circles.
- ✓ Monthly newsletters and parent engagement.
- ✓ Data was collected before and after the training, with ethical consent obtained from students, parents, and school staff.

Results

- ✓ A 40% increase in help-seeking behavior was recorded within a semester.
- ✓ Teachers reported a 50% rise in confidence in identifying early mental health warning signs.
- ✓ Focus group discussions revealed enhanced emotional openness and trust.

- ✓ Behavioral logs showed a marked decrease in classroom disruptions.
- ✓ Peer support circles had a steady rise in participation, with students expressing improved coping and empathy.

Discussion

Findings support MHFA's role as a school-based mental health intervention that is practical, scalable, and community-driven. Teachers became proactive support figures, while peer circles encouraged emotional literacy and early disclosure. The success aligns with international studies (Hadlaczky et al., 2014) and extends the discourse by illustrating its effectiveness in an Indian school context.

Conclusion

MHFA is not merely a skill-based training but a shift in school culture—toward empathy, early intervention, and de-stigmatization of mental health. Its structured yet flexible framework makes it ideal for integration into the Indian education system.

Future Suggestions

- ✓ Scale MHFA to include middle school teachers and parents as trained participants.
- ✓ Develop sector-specific modules in regional languages.
- ✓ Establish longitudinal tracking of students who receive MHFA support.
- ✓ Integrate MHFA into teacher education programs nationwide.

Implications

- ✓ Schools can serve as primary mental health support ecosystems.
- ✓ The shortage of mental health professionals in India can be filled by those with MHFA training.
- ✓ Promotes policy advocacy for mandating MHFA in national school wellness programs.

Limitations

- ✓ Case study focused on one school, limiting generalizability.
- ✓ Self-reporting may be subject to social desirability bias.
- ✓ Lack of control group limits definitive attribution of outcomes to MHFA alone.

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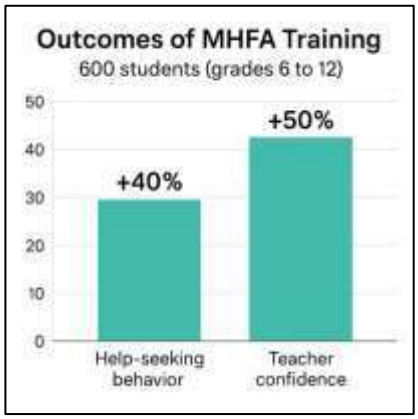
Tables



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Saving Indian Marriages and the Reimagination of the Marital Unit

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ABSTRACT

With the recent rising deaths by intimate partner violence, the sanctity and validity of what is culturally accepted as 'typical' or 'normal' needs to be reevaluated. Humans are known for their reliance on their social bonds for the survival of the species and in this regard, marriage has remained the fundamental unit in the formation of the most successful societies. Religious philosophies and practices developed around marriage have claimed that a heterosexual relationship at its core is a duty of every individual to not just sustain the mere population numbers but also to continue strengthening existing social structures that maintain inequalities. This paper reviews historical perspectives on the evolution of marriages in India and considers a few case anecdotes from recent times to conceptually understand why Indian marriages are failing by interpreting the psychological processes that accompany them. A theoretical suggestion is proposed to reconsider the continuation of marriages as a basic family unit in society.

Key words: Marriage, Social Inequality, Religion, Indian Family, Intimate Partner Violence

Introduction

Marriage has remained an integral part of modern human societies in maintaining the political, religious, and psychological conditions of social relations (Mogey, 1969). Recently, Indian marriages have been under major scrutiny as the younger generations (generation Z and Y) have begun to express great dissatisfaction with the existing system leading to a gradual change in the cultural practice of spouse selection (Ahmad & Yadav, 2025). Whether it be a marriage that is arranged or self-initiated (where the spouses decide their partners themselves), conflicts between marital partners arising from parental overinvolvement or other interpersonal issues has been exponentially increasing leading to more divorces and deaths (Chaurasia et al., 2021; Dandona et al., 2022; Singh & Shanbhag, 2025). Although the number of love marriages are still marginal as opposed to arranged marriages, there is a pattern that could predict a person's preference for either. For instance, it can be observed that people belonging to the Other Backward Class (OBC) communities and those who practice rigid religions like Islam often prefer to have their families choose their husband and wives while the people belonging to the Scheduled Tribes (ST) communities have the highest rates of love marriages. Another interesting variable that has been observed is the education of parents, specifically the mothers and the mothers-in-law of the marriage; this trend points to an increase in the incidences of love marriages. Thus, Sarkar & Rizzi (2020) point that traditional marriages only exist to maintain already existing privilege systems ensuring predictable patriarchal norms in the Indian societies.

One cannot look at marriage as an expression of love nor simply as

companionship in India as Indian marriages have always been a way to cater to the needs of privileged men to exercise their power over other men and women (Banerjee et al., 2009). To review this, the Indian history can be divided into three parts to understand how the idea of marriages has evolved over time. Firstly, precolonial India primarily considered religious and local social Customs to acknowledge marriage in society; according to Ancient Hindu texts outline eight forms of marriages, out of which only the *Gandarva* marriage involved the women's choice when it comes to deciding on their marital partners, but it was also condoned for being shameful in the Hindu way of life. The remaining seven (including *Brahma, Daivam, Arsha, Prajapatya, Asura, Paisacha and Rakshasa*) each at its core promote the spiritual yet political idea of increasing the population of Hindus to continue the social structures of class and caste. The purpose of the caste system is explained as a religious practice that ensures *dharma* (the divine law) but the power politics that is disguised as religious obligations do not serve gender justice (Ramnath Maharajh & Amin, 2016). The second half of the timeline would be the British period where many western ideas directly got imposed through the legal system. The misguided practice of Sati was abolished through the Bengal Sati Regulation allowing women to simply continue living after the death of their spouses. British rule in India also catered to other rights of women with respect to the issues in child marriage, widow remarriage, and female education. For instance, the Hindu Widows' Remarriage Act, 1956, challenged many orthodox practices in the Brahminical order of living and the Hindu Women's Rights to Property Act, 1937 gradually allowed women to have greater control over property even though according to customs, the bride cannot own but is owned by either her father's family or her husband's family. Marriage would go on to become a tool for a resource management strategy during this period that marriage between first cousins became common practice in South India despite having the North Indians following the *dharmasutras* and *dharmasastras* detailing the benefits of marrying far away (Brick, 2021). On the other hand, Anglo-Indian families preferred to have their daughters married outside their kin in pursuit of improved financial security and status (Caplan, 1998). Thus, religious practices within the same religion seemed to differ based on the convenience of each kinship. Lastly, one could consider the postcolonial period until today as the third section of the timeline in which the major pattern across this sociopolitical religious practice of the country becomes obviously about the patriarchal drive to remove the autonomy of women. The reality of the discrimination and prejudice faced by unmarried women is a testament to the strong influence of misogyny embedded in ages of traditions, Studies were able to show how in India, women most likely need marriage for empowerment as there are 'decision-making' privileges that only married women can access. This privilege is also a form of oppression, but it is delivered to young women as a grand gesture, usually using disciplinary humour (Rizwan Safdar & Siddique, 2024). Therefore, Indian women may find marriages to be a solace from an even more cruel society in which they risk losing their basic rights to health

and safety among other things (Mundhe, 2021).

Gender and Society

The scientific basis of gender can be traced back to Aristotle as he theorizes that men are superior because of their ability to produce the seeds of life whereas women may be considered secondary or inferior because they are unable to do so. In his perspective, men who cannot produce an offspring and women were alike as they are defective in nature. He also goes on to assert that although men and women possess similar faculties women are unable to use them as they cannot reason like men, rather they are more driven by passion. For this reason, women cannot lead, nor can they make fair judgments. It is also important to know it was a deliberate choice made by Aristotle to deny previous literature of the female seed as suggested by the archetypes of the fertility Goddesses (Amoroso, 2023). As a critique to such notions, French philosopher, Simone de Beauvoir, famously quotes in her infamous book, 'The second sex' (1953), that one isn't born but rather one must become a woman. Thus, one's gender identity unlike one's biological sex must be learnt either through culture or social interactions as gender is a socially fabricated fluid concept and within the patriarchal framework, women will always remain secondary, and/or inferior compared to men. These gendered narratives are ubiquitous and have always been one of the main tools used in human politics to manipulate ethical standards and societal norms (Porter, 2016). This makes understanding and interpreting structures of dominance essential to implicate the many unspoken, heuristic social rules and standards of society through different segments of time (Bhat & Kandasamy, 2023). The Hegelian approach attempts to uncover the phenomenology of the 'spirit' that guides human beings adjacent to their biological instincts. To clarify, the concept of the *zeitgeist* or the 'spirit of the times', is not the universal law but is a temporary law that governs the group. The spirit is thus secured by the individual's lack of self-awareness and increased need to conform, furthering the reaffirmation of dogmatic views of religion and other political myths. According to Jiddu Krishnamurti, reality is subjective and yet the social norm is to enforce compliance to avoid existential anxieties (Moolayil, 2014). This results in the rise of countless counterproductive mechanisms to cope with one's existence which includes operating based on one's institutional identities including caste, creed and gender. To illustrate this, a 2018 report on employment rates shows that women are employed more than men in the high-skill level profiles, yet the pay gap is not considered for revision in majority of the corporations (Young, 2018). The collective desperation to assert the patriarchal status quo as the most suitable for the human species needs to be critically evaluated; traditional views only benefit people who identify with the dominant gender in each context (Kray & Howland, 2017).

Patriarchy, Gender Identities and Marriage

Christ (2016) defines patriarchy as follows,

"Patriarchy is a system of male dominance, rooted in the ethos of war which legitimates violence, sanctified by religious symbols, in which men dominate women through the control of female sexuality, with the intent of

passing property to male heirs, and in which men who are heroes of war are told to kill men, and are permitted to rape women, to seize land and treasures, to exploit resources, and to own or otherwise dominate conquered people."

This definition highlights how patriarchy is not just about gender politics but also is a common human conflict that leads to both physical, sexual and psychological harm of both genders because of its dynamism. Gerda Lerner's work explains patriarchy as a social structure that uses sexual control or the control of lineage to be more precise to assert dominance over a person or a group of people. The participation of both men and women are key to the actualities of this ideology as both Western and Eastern Civilizations have developed their own sets of evidence and eliminated real history to both theosophically and scientifically prove the inferiority of a woman (Lerner, 1986; Daly, 2005). The sexual control, thus, not only objectifies women but also assigns fictional values to the character and characteristics of women. For example, Gibson (2006), in an essay explains how historical socio-ethical principles centred around female chastity underscores a woman's inability to participate in philosophical dialogues as being chaste is incompatible with rationality and autonomy. Although young girls are credited for maturing much earlier than young boys, the external objectification of women and/or 'femininity' that starts from puberty seems to influence the self-objectification process that implicitly colours a woman's self-concept, body image, self-esteem, sexual satisfaction, and cognitive performance in a negative way while the same processes have different imprints in men who claim masculine identities (Daniels, Zurbriggen, & Ward, 2020; Deem, 2023; Barry, Louise, & Seager, 2020). The patriarchal evaluation of people directly depletes and deprives the female essence of humanity which reasserts the female sex as an imaginary construct of the male psyche.

As marriage continues to be a significant sociological structure in India that defines *grhastha* (householder) in the human life cycle, it dictates the norms for two or more heterosexual individuals to come together for certain social and legal benefits. Cases of honor killings, governmental incentives to procreate/ marry all shed light on how the marital unit rarely serves the two individuals' wellbeing but rather emphasizes one's social prowess serving as a regulatory device for: i) Sexual behaviour and mate guarding, ii) Dowry and economic cooperation, iii) Legitimizing of one's offsprings, iv) Social solidarity and only rarely, v) Emotional and psychological support (Munshi, 2014; Sathi, 2023).

Anecdotes of Intimate Partner Violence in India

To understand the sociocultural contexts in India, two cases have been presented below which were both recent incidents that happened in Tamil Nadu.

The Case of Rithanya: Reconsidering the 'Divine' Nature of Marriage

Rithanya was a 27-year-old woman from Tiruppur district, Tamil Nadu, who committed suicide on the 28th of June 2025, exactly after 78 days from her wedding. This case was extensively shared and discussed by the netizens on accounts of the reason for her death which had been initially published as a 'dowry issue' because of the inexplicit voice memo she left behind before her

passing. The note was primarily an apology to her father about making the final decision to give up and a brief glimpse of the kind of treatment she was simply expected to tolerate or adjust to as a married woman. Her story intensified when further investigations revealed that her husband was torturing her physically by raping her which is legally still allowed in India. The humiliation in her voice made netizens come together supporting her decision to commit suicide in the first place (Aravind, 2025; Kumar, 2025).

The Case of Kavin Selva Ganesh: Reconsidering the 'Sinful Nature' of Marrying for Love

Kavin Selva Ganesh, a 27-year-old was a software engineer from Arumugamangalam, Tuticorn district, Tamil Nadu. He belonged to a Scheduled Caste community and was in a relationship with a girl named Subashini, belonging to a Most Backward Class community. On the 27th of July 2025, Subashini's brother, Surjith, approached him to talk before verbally abusing him using casteist words and killed him using a sickle. Surjith surrendered himself to the local police and was arrested under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 2015 (Janardhanan, 2025; Madhav & Anagha, 2025).

Things to Consider Moving Forward

Alice Miller (1997) in her book, 'The Drama of the Gifted Child', explains how depravity lays the foundation for the development of a distorted ego. Fromm (2002) in his work discusses the ways in which modern society has superficially removed notions of oppression but continues to withhold the individual's ability to exercise their personal freedom. His theory goes on to explain how the amount of freedom one exercises in life directly affects the growth of the future generations. Acknowledging such internal struggles becomes essential for change, and for this, one could borrow insights from Periyar (Menon, 2023) and begin the confrontation of internalized attitudes that attest to the inferiority of women and start noticing the oppressive nature of marriage at a social level. Gender based expectations must become irrelevant for marriages to be an equal experience for the married couple to collaborate in partnership instead of being a mere religious practice or obligation. This idea evolved into a radical cultural practice in Tamil Nadu which famously came to be known as the Self-Respect Marriage (Manoharan, 2021).

Marriage as a Pure Relationship

The reimagination of marriage as a psychological device would prioritize the subjective wellbeing of individuals who make up the marital unit. The reevaluation of marriage is necessary to solve this sociological crisis using plausible micro and macro interventions. Giddens (1992) illustrates two types of relationships that can involve one's sexuality, namely, romantic relationship and pure relationship. A romantic relationship is one of passion, it is explosive, impulsive and an escape from everyday routine. It is characterized by the intensity of emotions that drives extreme behaviors such as moving to a different country to meet the girl or boy of your dreams. A pure relationship on the other hand is much more stable and is driven by egalitarian principles with freedom and consideration for the other as its core. Such a relationship is mature yet personally fulfilling for both involved. In India, a pure

relationship is next to impossible because external factors such as caste, religion, and other sociological differences are seen as detrimental to personal life and perceived as a threat to existing culture (Chantler, 2014). Although it is hypothesized that pure relationships will alleviate one from personal life problems, the social engineering of culture would not let marriage be easy for the two involved. One common predictive factor for achieving a successful pure relationship across multiple couples seems to be the education level which could imply that knowing more allows individuals to navigate the perils of social pressure and judgement more effectively (Gross & Simmons, 2002). In this regard, Giddens would argue that marriage when it is a pure relationship is a major part of emancipatory politics whose primary goal would be to fight exploitation, inequality, and oppression (Giddens, 1991).

Implications of the Reimagined Marital Unit

The following theoretical suggestions have been made to bridge the gaps in the existing expectations between married couples. It could find its applications in the designing of future intervention programs in marriage and family counselling, policy making at varying levels, and mandatory education.

1. Recognizing the Role of Epistemic Injustice in the Denial of Equality.

Although men and women are given equal status in the legal framework of the country, the epistemic injustice faced by girls and women throughout their lives explains why women choose to 'fit in' rather than 'grow out'. Epistemic injustice was a term coined by British philosopher Miranda Fricker in 1999. In Greek, *episteme* could mean knowledge or understanding; epistemic injustice then opens philosophical discourses on the ethical responsibilities and misgivings of the knower. Fricker goes on to classify epistemic injustice into two categories, namely, testimonial injustice and hermeneutic injustice. In testimonial injustice, the knower is intentionally or unintentionally targeted by the oppressor based on their own prejudices against the knower. The knower is underestimated for the knowledge they possess because of the internal bias of the privileged party between the two. Secondly, hermeneutic injustice is implied in social structures that assume prejudices as facts. In this context, individual efforts to counteract might be seen as strange, abnormal, or even unholy (Fricker, 2018; Stroupe, 2022).

Spear (2023) critically reviews the gaslighting phenomenon and its epistemic dimensions. He points out that the first step in successful manipulation is to deprive the knower's ability to trust themselves by convincing them they are 'crazy' or 'overly sensitive' (An illustration of testimonial injustice) and secondly, by confabulating claims that forces the knower to obey and accept hostile criticisms with sincerity and gratitude (An illustration of hermeneutical injustice). For women and men, the indoctrination of gender destinies forces one to comply to norms or feel like something is wrong with them and they need to fix it. This means women with low self-esteem are more likely to experience high levels of self-blame making emotional regulation difficult for survivors of systemic trauma even more (Reich et al., 2014). The biological and psychological dissociation experienced by rape victims can be analyzed through the

lens of epistemic injustice to demonstrate that dissociation is nothing but a direct consequence of dismissing one's agency and volition (Eaton, 2019). This is exactly how girls and women are convinced that *moksha* is achieved by realizing the duties of *dharma* which is all about being the perfect bride or the perfect daughter, ignoring the possibilities to have other aspirations in life if one wishes to live with dignity in society. Thus, the core of a healthy marriage first and foremost would be to believe in the self-evaluation of one's own experiences.

2. Unlearn Modesty tied to Sex and Sexuality.

The confluence of modesty and sexual objectification as a social virtue has led to many systemic transgressions against women. Looking more closely, sexual objectification can be explained as follows, "A person is sexually objectified when her sexual parts or sexual functions are separated out from the rest of her personality and reduced to the status of mere instruments or else regarded as if they were capable of representing her" (Bartky, 1990). Applying the objectification theory, one can illustrate how this equation of modesty and femininity is nothing but a variation of internalized misogyny that enables women to embody both virginity and villainy simultaneously. This theory uses psychological elements to explain how the male gaze evaluates women as mere bodies that would serve for sex in the heterosexual dynamic (Fredrickson & Roberts, 1997). To demonstrate how sexual objectification manifests in India, a study used Tamil movies to understand the perception of femininity of the audience. All the participants reported sexist beliefs rooted in patriarchy and religion under the umbrella term of *Karpu* or Chastity. Within it, you also have *acham* (timidity), *madam* (innocence), *naanam* (bashfulness), and *payirpu* (physical sensibility of woman to distance herself from those men that are not her husband). The movies discussed in the study trivialized violence against women and justified marriage as the true purpose of women, but that did not stop these movies from seeing success in the big screens. (Karupiah, 2016). The hegemonic belief that, the visual presentation of a women matters to get a man fundamentally shifts the lived experiences of women as it implies that the social pressures of 'getting a man' is the primary goal of any woman. This also means women's clothing is a key determinant of her character and according to many Indians, the female identity doesn't go beyond her physicality. This was confirmed in a different study done in 2024 where eye tracking devices were used to understand the amount of attention paid to sexual body parts as opposed to the other parts; One of the key highlights of the study was that women objectified other women more than men (Srija, 2024).

When women understand the maladaptive relationship between suppressing one's sexuality and the expression of purity, they can resist the exploitation done to them more firmly by slowly unlearning self-objectification and reclaiming both their bodies and their choices when it comes to sexual and reproductive health. Removing such intrapersonal conflicts arising from patriarchal moral standards could potentially free the Indian women to ponder even more about their own sexual desire, pleasure and subjectivity during conjugal intercourse, and

this in turn would be effectively increasing marital satisfaction, subjective wellbeing and overall health of both individuals present in the marital relationship (Fahs, 2014; Galinsky & Waite, 2014; Hull, 2008; Lamb, 2010; Tolman, 2012).

3. Practicing Power at Micro and Macro Levels.

Silence is communication too and when women are silent about their suffering, they do not help their case in the pursuit of freedom against gendered oppression. Nobody could understand any person better than themselves and reclaiming one's voice should eventually lead to an interest in creating a culture wherein other people's voices would also matter (Cayli Messina, 2022; Samardzic et al., 2023). The need for women leaders and their political participation is globally recognized even though there is still hesitation to be led by women by the collective (Eagly & Carli, 2003). The voices of women in the field of education, healthcare, family policies, and environment would enable the possibility of gender equity and a well-balanced society. A major outcome of women practicing their political power would be the humanization of feminine attributes. Men and women could learn to be nurturing and assertive irrespective of the preexisting prescribed gender stereotypes. It is important to acknowledge that countries with relatively more female representation in governmental positions face less gender inequalities (Blumenau, 2019; Latu et al., 2013).

The main barriers for women interested in experiencing political leadership are usually cultural factors which include traditional gender roles, financial obstacles, discriminatory attitudes stemming from epistemic injustice, and lastly, the lack of support received during the childbearing and rearing years (Costagliola, 2021; Joshi & Goehrung, 2021). Some effective strategies that the Indian government could consider implementing include, i) The introduction of stratified quota systems in the reservation of seats, keeping in mind, both gender and caste, ii) Increasing parental leaves for employed individuals in both private and public sectors, and iii) Actively encourage women by doing awareness campaigns on the scope for bottom-up and top-down political activism to ensure peace building at local, regional, and national levels (Cassan & Vandewalle, 2021; Chai et al., 2022; Dehalwar & Sharma, 2024; Goyal, 2024, 2025). A society that ensures personal agency of its individuals would eventually make arranged marriages impractical and look at marriage as an option instead of a duty or an obligation. Marriage would be seen only as the intentional personal work of those involved and would simply become one of the many products of an adaptive society. A shift away from the ego-driven patriarchal political aspirations could also potentially reorient our national leaders to internationally collaborate and share resources for the benefit of children and people of the world instead of fear mongering and mass murdering to achieve short-term goals (Saral, 2021). A good example of such leadership can be observed in the works of ecofeminists represent indigenous female leaders who fight for ecological awareness, sustainable technology, and social justice (Shepherd, 2021).

4. Gender Inclusivity Programs to Empower Everyone.

Empowering the boys and the men need to be top priority if the goal is to practice equality instead of trying to force one to be like another. In the psychoanalytic perspective, the difference in the biological sex is presumed to be the root of intrapsychic conflicts. The biological contrast between men and women often triggers anxiety in both men and women as the need to be 'masculine', when you are a man and be 'non masculine', when you are a woman has been excessively recorded in history (Sell et al., 2023). Karen Horney introduced the concept of womb envy to describe the painful experience of envying someone who has the desirable qualities of womanhood characterized by pregnancy, childbirth and motherhood; the desire to possess these qualities when unfulfilled creates an impulse to take that away from others' or in the very least spoil it for them. It can be proposed that toxic masculinity is a direct effect of the womb envy that men experience leading to feelings of resentment towards women which ultimately gave rise to the patriarchal sado-masochistic marriage that is considered divine in nature (Bayne, 2011). Lawler notes how the epistemic and linguistic fallacy that occurs at a social level could be a direct reflection of this fragmentation of ego from the mother figure during early childhood years when one is forced to have a separate consciousness deprived of what is considered to be 'feminine qualities' (Lawler, 2021). This is also the reason why male feminists seem like a mythological concept in India as the question of why men would give up their God status comes up.

Segregation based on sex is still practiced in India as people consider the possibility of romantic relationships the primary threat to morality in the cultural standards. Over the years more research has been done on this and all of them clearly show how patriarchal power benefits a minority of men leaving the majority to struggle with oppression too (Chowdhury & Patnaik, 2010). One main reason men should fight for feminism is to have their own individual identity outside of what patriarchy considers to be masculine or celebration worthy. This would include humanizing their sexuality and reducing the pressure to be hypersexual to prove their biological identity. One possibility to achieve this is to integrate men and women in everyday lives while educating them about the differences in their bodies and teaching them that it is not inappropriate to have conversations about it openly (Sell et al., 2023; Sternberg, 2004). When shame is removed, curiosity becomes less impulsive and more of a systematic pursuit of knowledge.

Conclusion

To conclude, the reimagined marriage would be more than a sociological institution bound by conventions and superstitions and rather a celebration of two people finding freedom, equality and individual growth together. Thus, making marriage a personally fulfilling heterosexual partnership rooted in mutuality of consent, desire, and growth.

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Digital Divide and Tribal College Students: A Comparative Study of the Effect of Technology on the Mental Well-being and Cultural Identity

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ABSTRACT

India's 104 million tribal communities experience persistent digital exclusion despite Kerala's 96.2% literacy (Keerthana & Kubendran, 2025). This comparative study investigates how technology adoption differentially impacts mental well-being and cultural identity among socioeconomically advanced Mala-Araya and historically marginalized Mannan (PVTG) tribal college students in Kerala. Objectives include analysing access disparities, exploring identity or mental health impacts, and proposing tribe-specific interventions. Employing comparative ethnography, data were collected via semi-structured interviews (n=20), digital artifact analysis (n=387 posts), and GIS mapping, with thematic analysis (NVivo 14, κ=0.82) guided by Structural Violence Theory (Galtung, 1969). Results revealed infrastructure-mediated exclusion (78% Mannan faced connectivity barriers vs. 15% Mala-Araya), algorithmic identity erosion (Mala-Araya reported 3.2× higher cultural dilution, β = -0.71, $p<0.05$), and platform-enabled resilience (Mannan developed "offline-online hybridity"). Findings demonstrate how historical inequities mediate digital outcomes, underscoring urgency for tribe-specific policies.

Keywords: Tribal youth, digital inequality, cultural identity, algorithmic justice, Kerala

1. Introduction

Digital India initiatives systematically overlook tribal communities' unique sociohistorical positioning (Xaxa, 2016), a neglect starkly visible in Kerala's paradoxical landscape where 96.2% literacy coexists with 42.7% tribal digital exclusion(Keerthana & Kubendran, 2025) . This divergence manifests acutely in the contrasting realities of two Scheduled Tribes: the Mala-Araya, with 68% mobile penetration bolstered by early land-rights integration (Narayan, 2020), and the Mannan, designated a Particularly Vulnerable Tribal Group (PVTG) have experienced historical displacement (Pandysa, 2021) restricts device access to just 23%. Within this context, algorithmic platforms accelerate cultural homogenization while ostensibly promising empowerment (Couldry & Mejias, 2019), generating a "digital double-bind" (Dhillon, 2022) that compounds indigenous vulnerabilities. Crucially, no existing studies systematically compare digital impacts across socioeconomic gradients within tribal communities in India(Hammett & Holmes, 2025) , leaving policymakers without evidence to address these intersectional inequities.

1.1 Theoretical Framework

1.1.1 Structural Violence Theory (Galtung, 1969)

Historical oppression as a driver of digital exclusion: Centuries of land dispossession

and systemic marginalization, such as those experienced by tribes like the Mannan, have laid the foundation for contemporary connectivity gaps and institutional neglect.

1.1.2 Digital Capital Conversion (Ragnedda, 2017)

From economic to digital disadvantage: Among tribal communities, economic capital shapes digital access. The Mala-Araya's relative land ownership facilities smartphone use, while the Mannan's economic marginalization restricts their ability to aaford digital devices, reinforcing digital exclusion.

1.1.3 Subaltern Digitality (Tuck & Yang, 2014)

Technology as a tool of resistance: Marginalised communities like the Mannan repurpose digital platforms, such as using WhatsApp to archive oral histories, as acts of cultural reclamation and resistance against systemic oppression.

2. Literature Review

2.1. Global Tribal Digitality

Indigenous communities globally navigate digital spaces through culturally distinct practices, from Australian Aboriginal "digital song lines" preserving ancestral knowledge(Kral, 2014) to Navajo Nation's assertion of spectrum sovereignty (Duarte, 2017). African contexts reveal how *generative justice*, designing technologies that sustain marginalized cultures—can counter digital colonialism(Eglash et al., 2024) , while Sámi communities deploy algorithmic resistance against Nordic data extractivism(McMahon et al., 2023) . Yet South Asian research remains trapped in an "access binary" (Datta, 2024), overlooking how tribal communities transform technology, a gap this study addresses through Kerala's Mala-Araya/Mannan hybrid practices.

2.2. Mental Health in Algorithmic Societies

Social comparison theory(Festinger, 1954) manifests in digital contexts as platform-curated lifestyles intensify depression(Twenge, 2020) . For indigenous groups, these effects intersect with historical trauma (Kaslow et al., 2020) and identity-based targeting,evident when tribal youth face casteist trolling (Sujatha, 2022) or algorithmic stereotyping (Kumar & Singh, 2023). This syndemic of digital and historical harm remains critically understudied in India's tribal contexts.

2.3. Kerala's Tribal Digital Policy

Despite Kerala's progressive metrics, tribal e-governance fails due to Akshaya centers' skill deficits (Thomas, 2022) and Digital India's neglect of indigenous epistemologies (Abraham, 2023). The National Education Policy 2020's Universalist approach (Nair, 2023) ignores how tribal histories (e.g., Mannan displacement) shape digital capital distribution (Xaxa, 2017)—a policy void demanding tribe-specific frameworks.

Table 1

Digital Divide Dimensions

Dimension	Mala-Araya	Mannan
Access	4G (92%)	2G (41%)
Usage	Academic (88%)	Cultural (67%)
Agency	Algorithmic bias	Infrastructure exclusion

Documented digital disparities between Kerala's Mala-Araya and Mannan communities, synthesizing literature on Access (network infrastructure), primary Usage**,** and core structural barriers **(**Agency**).**

3. Methods

3.1 Research Design

This study adopts a comparative ethnographic research design, involving a four-month period of immersion within the selected tribal communities. The approach integrates Participatory Action Research (PAR), co-designed in collaboration with local tribal councils to ensure cultural relevance and community ownership of the research process. A triangulation of methods was employed to enhance the validity and depth of the findings. Data collection included 20 semi-structured interviews with key informants, the compilation of approximately 1,200 entries through digital diaries maintained by community members, and Geographic Information System (GIS) based mapping to document digital connectivity patterns across the selected sites.

Figure 1

Research Workflow

3.2 Sampling

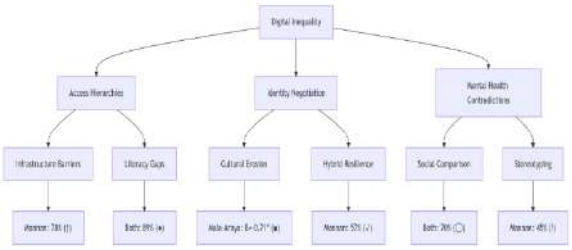
The study applied purposive sampling to confirm the representation. The two distinct tribal communities depict the representation. The community named as Mala-Araya and Mannan. Twenty participants selected from the community, comprising 10 individuals from each group. Five males and five females participated in the Mala-Araya group, whereas six males and four females were included in the Mannan group. The inclusion criteria clearly stated that individuals currently enrolled in a college-level educational institution live within their tribal community for at least ten years and use internet. These requirements designed to ensure that participants had a strong cultural base and continued involvement with digital technologies, an important element in the investigation of tribal identity, digital literacy practices, and social inclusion.

3.3 Analytical Framework

The data were analysed using six-phase reflexive thematic analysis, which enabled a nuanced exploration of patterns, contradictions, and power dynamics within the narratives, particularly concerning digital inclusion and tribal identity(Nemorin et al., 2023). NVivo 14 software was employed to manage and code the qualitative data systematically. An initial round of open coding produced 564 references, which were subsequently organized through hierarchical coding into three parent themes (see Figure 2). Theme weights were determined by reference density, reflecting the relative emphasis of each theme in the data. To enhance the reliability of the analysis, inter-coder agreement was assessed, yielding a Cohen's kappa coefficient (κ) of 0.82—indicative of high consistency and analytical rigor.

Figure 2

NVivo Hierarchical Theme Map



Hierarchical theme map derived from NVivo 14 analysis. Theme weights = reference coverage %. Symbols: ↑=High frequency ●=Critical ■=Statistical ✓ =Innovative ◯=Recurring! =High significance.

This hierarchy guided subsequent analysis in three targeted ways:

1. **Tribal divergence prioritization:** Mannan's infrastructure exclusion (Node B11 ●) received in-depth probe due to critical status, using digital artifact triangulation.
2. **Statistical validation:** Cultural erosion patterns (Node C1 ■) underwent regression coding against platform usage metrics (β=-0.71, $p<0.05$).
3. **Innovation mapping:** Hybrid resilience cases (Node C2 ✓) were cataloged through participatory video analysis."

4. Results

As structurally prefigured in Figure 1, three themes dominated the dataset. Mannan experiences centered on infrastructure exclusion (Theme 1.1, 214 refs), while Mala-Araya narratives revealed identity erosion (Theme 2.1, 182 refs). Cross-tribe mental health impacts (Theme 3, 168 refs) showed high stereotyping salience for Mannan (! symbol).

4.1 Theme 1: Fractured Access as Structural Violence

Many participants described limited digital access not just as a technical problem, but as a form of structural exclusion.

4.1.1 Subtheme: Infrastructure Exclusion (Mannan-Dominant)

Poor internet connectivity was a recurring issue, particularly in Mannan areas. One student shared, *"No signal in our hills... missed 3 online exams. College says 'buy better phone' but how?"* (Mannan, 19F). GIS data confirmed this disparity, with 78% of Mannan regions receiving internet speeds below 2 Mbps, compared to only 12% of Mala-Araya areas. To cope, 63% of respondents used workarounds like downloading materials during off-peak hours.

4.1.2 Subtheme: Digital Literacy Gaps (Both Tribes)

Even where access existed, knowledge barriers prevented full participation. As one Mala-Araya youth recounted, *"Akshaya staff laughed when I asked for scholarship form. Said 'tribals won't get it anyway'."* (Mala-Araya, 20M). Across both communities, 89% were unaware of government e-service portals such as e-District, highlighting a major gap in digital awareness.

4.2 Theme 2: Algorithmic Identity Negotiation

Digital platforms are not neutral; they shape how tribal youth engage with and express their identities online. This theme explores how algorithmic content influences cultural continuity and adaptation.

4.2.1 Subtheme: Cultural Erosion (Mala-Araya)

Some Mala-Araya youth reported a gradual distancing from traditional practices due to online exposure. One participant shared, *"After 2 years on Instagram, I speak more English than Malayalam. Grandmother cries when I forget rituals."* (Mala-Araya, 21F). Platform analytics showed that 92% of their recommended content was non-Indian, suggesting cultural misalignment driven by global algorithms.

4.2.2 Subtheme: Hybrid Resilience (Mannan)

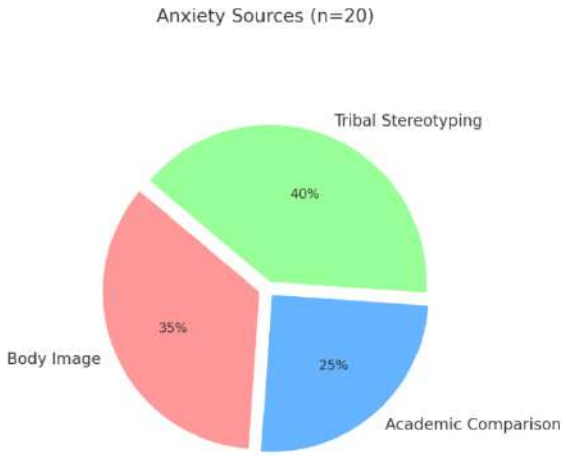
In contrast, Mannan youth demonstrated creative use of digital tools to preserve heritage. *"We record elders' stories on WhatsApp. Now youth know about Mannan resistance of 1922."* (Mannan, 23M). Over

half (57%) had created cultural archives using Telegram voice notes, blending technology with tradition to foster intergenerational learning.

4.3 Theme 3: Mental Well-Being Contradictions

Figure 3

Social Media Anxiety Drivers

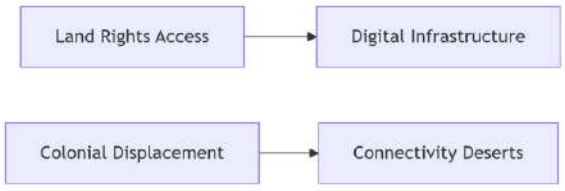


Among the 20 participants, the main sources of anxiety were tribal stereotyping (40%), body image issues (35%), and academic comparison (25%). Social media played a key role in shaping these feelings. One participant shared, *"I feel sad when seeing fair-skinned, beautiful ladies in social media,"* reflecting how online beauty standards affected self-image and confidence.

5. Discussion

5.1 *Figure 4*

The Tribal Digital Gradient



The findings suggest that historical and structural factors continue to shape present-day digital inequalities. Communities with earlier access to land rights—such as the Mala-Araya, who received formal land titles in the 1980s—were more likely to host mobile towers and benefit from digital infrastructure (Kerala Tribal Dept., 2020). In contrast, communities like the Mannan, who experienced colonial-era displacement and delayed land recognition, remain in "connectivity deserts" with poor or no signal. This pattern, shown in the flowchart above, highlights how past injustices influence present access: *land rights access leads to infrastructure inclusion*, while *colonial displacement reinforces digital exclusion*.

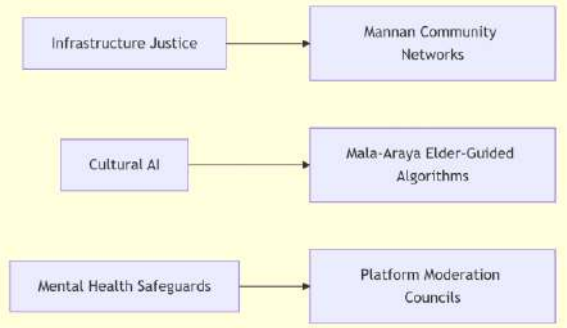
5.2 Algorithmic Cultural Harm

This insight deepens what emerged in Theme 2, where participants spoke about how social media was shaping the way they saw themselves and the way they spoke. Many shared that platform algorithms seemed blind to their cultural worlds, tribal knowledge systems and local languages were barely visible online. One telling example is that Malayalam, a widely spoken regional language, accounts for less than 0.1% of all posts on Instagram (Menon, 2024),contributing to what scholars call *linguicide*, the gradual disappearance of native languages online. Participants also encountered recommendation systems that pushed Western beauty and lifestyle ideals, reinforcing a narrow "global youth" aesthetic (Dhillon, 2023). As seen in the Mala-Araya youth's experience of forgetting rituals or switching to English (Theme 2), these algorithms contribute to cultural erosion by marginalizing tribal voices and ways of life in digital spaces.

5.3 The TDRF Policy Framework

Figure 5

Tribal Digital Resilience Framework (TDRF)

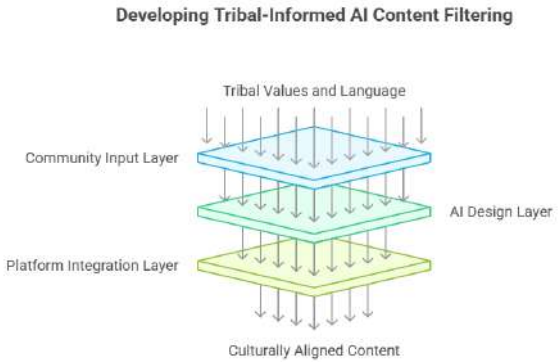


Drawing on our research findings, we introduce the Tribal Digital Resilience Framework (TDRF) useful for culturally sensitive digital policy development. The framework elaborates on three areas of priority:

- **Infrastructure Justice:** Supporting community-based networks in under-served places such as Mannan villages that need to overcome ongoing disconnection.
- **Cultural AI**: Developing AI tools that represent tribal values, as an example, with the elders guiding the design of content filters for a youth platforms used by the Mala-Araya. In particular, we present the Tribal-Informed AI Content Filtering System (TIACFS)- an AI model that centres the roles of elders and youth around the development of AI tools. It highlights the development of a cultural rules engine, prioritizing local language, and reflects a tribe moderation model to promote content that empowers, is relevant, and respectful (See Figure 3.1). This model emphasizes the opposition of cultural erasure through embedding Indigenous epistemologies within the algorithmic milieu.

Figure 5.1

Tribal Informed AI Content-Filtering System (TIACFS)



- **Mental Health Safeguards**: Creating platform-level moderation councils with tribal representation can help tackle critical issues such as stereotyping, online harassment, and the circulation of harmful content. Including tribal voices in these decision-making processes ensures that digital safety and inclusion reflect their perspectives. These councils can also function as watchdogs, fostering psychological safety and promoting inclusive digital environments.

6. Conclusion

This study depicts how digital technologies continue to reproduce colonial hierarchies in new forms. While the Mannan community faces infrastructural exclusion due to historical displacement, the Mala-Araya youth must navigate algorithm-driven identity erosion. These findings highlight the need for context-specific responses. The proposed Tribal Digital Resilience Framework (TDRF) offers a pathway toward digital justice by centering tribal sovereignty in the design, access, and governance of digital spaces.

6.1 Implications for Practice

The study highlights several actionable recommendations. First, broadband access

should be recognized as a civil right, especially in tribal regions. Amending the Kerala Infrastructure Act to include tribal connectivity quotas would help guarantee fair access. Second, efforts must be directed toward developing decolonial AI in collaboration with tribal elders—for example, creating "Adivasi Knowledge Repositories" to preserve cultural knowledge and values. Third, digital well-being should be prioritized by introducing tribal-specific mental health protocols, including culturally sensitive digital wellness curricula in schools and community initiatives.

6.2 Limitations and Future Research

This research is limited by its short time scale and small sample size. Longitudinal cohort studies should be included in any future research to understand changes over time and enhance understanding.Resaerch is also needed into land-rights-based models of internet governance, looking at how ownership in law affects connectivity. Finally, Tribal-specific digital well-being indicators should be the aim of future work, building on local realities as opposed to transposed requirements.

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A Creative Intervention: Exploring Transpersonal Art as a Behavioral Approach for Healing and Transformation

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ABSTRACT

Through art, individuals discover healing methods that transcend their cognitive emotions and spiritual levels by exploring their mental and emotional selves. The literature review examines Transpersonal Art Therapy (TAT) as a therapeutic model which uses altered states of consciousness (ASCs) for cognitive transformation and emotional healing purposes. The review explains that creative artistic activities produce inner landscape experiences which promote greater self-awareness and deep understanding of environment while triggering extensive emotional transitions and better cognitive adaptability and uniting spiritual elements with psychological aspects. The study meets three main goals: (1) a thorough analysis of TAT literature on promoting cognitive transformation and ASCs and (2) creation of the Transpersonal Art Intervention Model (TAIM) and (3) qualitative assessment of artistic works in therapy settings with this model. Modern research studies combined in this paper present evidence demonstrating TAT as an effective tool for developing emotional resilience and better problem-solving capabilities and self-awareness abilities. People use embodied practices and cognitive-behavioural strategies and mindfulness approaches in the TAIM to experience therapeutic developments through a creative journey. The results from art therapy qualitative data assessment prove that TAT successfully triggers altered mental states which lead to improved cognitive flexibility while controlling emotions. This study recommends clinical adoption of TAT because it provides an organized therapeutic program which improves mental health status and enhances general wellness while aiding significant emotional and cognitive expansion.

Keywords: Transpersonal Art Therapy, Spiritual Art Therapy, Body-based Therapy, Altered States of Consciousness, Cognitive Transformation, Emotional Healing, Art Intervention Model.

Introduction

Art has functioned for many years as an intense instrument to expand self-knowledge while uniting intellectual functions with emotional states and spiritual aspects. The therapeutic utilization of art together with Transpersonal Psychology principles under the framework of Transpersonal Art Therapy provides an effective approach for emotional and cognitive growth. Through

ASC-inducing practices such as meditation (Lazar et al. 2005), Holotropic Breathing (Stanislav Grof, 1992) and somatic practices people can gain access to deep psychological and spiritual and cognitive growth (Zeidan et al., 2010). This study presents a new Transpersonal Art Intervention Model (TAIM) which uses both mind-body practices with creative self-exploration to bring together psychological healing with spiritual development. The purpose of this investigation is to build an organized framework which implements art therapy within ASC practices to help patients develop emotional control as well as problem-solving abilities and self-expansive knowledge along with flexible thinking capacity.

Art therapy has received long-term use for emotion healing but studies exploring its connection with ASCs remain insufficient. The research shows that artistic activities during altered states improve emotional control abilities while simultaneously developing cognitive adaptability (Chatterjee & Vartanian, 2016). Cognitive research shows that meditation and similar mindfulness practices enhance brain plasticity allowing individuals to control their emotions better and solve problems more effectively (Newberg & Iversen, 2021). The research fills a knowledge gap through its creation of an extensive framework which unites therapeutic art activities with controlled states for healing purposes. The TAIM features embodied practices including somatic experiencing (Levine, 2015) which enables persons to link with their body's sensations and process stored emotions to achieve therapeutic results for both mental and bodily health.

Within the TAIM the incorporation of embodied cognition stands essential because it enables clients to access emotional content that regular therapeutic methods normally fail to reach (Damasio, 1999). Making art involves physical body usage for production because art naturally requires body engagement during creation. The process permits people to access unconscious thoughts which transforms hidden emotions into recognizable art expressions that trigger emotional healing (Malchiodi, 2012). Three forms of trauma - systemic racism, exposure to violence and neurodivergence - along with disability and gender differences and health conditions and immigrant attachment disruptions significantly impact how people perceive their bodies (Coates 2015, Laymon 2018, Menakem 2017, Stenning and Rosqvist 2021, Sener and Karaca 2020, Karcher and Caldwell 2014, O'Rourke 2022 and Bailliard 2015). When healing takes place according to trauma theory it must consider treating both the body and mind together (Rothschild, 2003; van der Kolk, 2014) and art therapy works best to address that. ASC research shows these mental states activate brain regions focused on creativity and emotion control according to Mastandrea et al. (2019) which supports their role in therapeutic artwork.

The study investigates the primary issues related to combining altered states with art therapy for achieving cognitive transformation and emotional well-being. Cognitive flexibility and emotional regulation emerge from ASCs when patients engage in art therapy according to the first research question. When people experience altered states during mindfulness practice or psychedelic therapy many studies indicate their mental capacity shifts to improve

creativity and emotional processing and problem-solving abilities (Sewell et al., 2006; Fadiman, 2011). The second research inquiry aims to develop the essential components for effective Transpersonal Art Intervention Model (TAIM) through a combination of psychological methods with spiritual and embodied techniques to maximize treatment outcomes. A qualitative art analysis helps validate TAIM implementation in clinical operations through direct observation of actual art therapy sessions.

This research adds value to integrative care through its development of an integrative framework that combines art therapy with ASCs and embodied techniques to enhance cognitive flexibility together with emotional resilience and self-awareness. Research trends in modern therapy draw support from this model which uses principles from mindfulness and embodied cognition and transpersonal practices (Vago & Silbersweig, 2012; Niemiec, 2014). The proposed intervention presents a useful resource for healthcare providers who search for fresh alternatives to help clients in their healing journey among patients who experience trauma or stress and need assistance in emotional regulation.

Research needs to address the systematic assessment of intervention models that unite art therapy with ASCs for emotional healing because both approaches show substantial promise. Art therapy presents widespread application in clinical settings for helping patients express emotions and heal from trauma yet studies on its combination with altered states remain under development. This paper recommends the Transpersonal Art Intervention Model (TAIM) which uses a systematic design that combines artistic expression with mindfulness and embodied cognition as well as spiritual insight to generate holistic therapeutic benefits according to Grof (2006) and Rowan (2010). This research responds to the clinical requirement for an evidence-based framework which healthcare professionals can implement in practice.

Mental health experts now understand the importance of complete therapy approaches so the research emphasis on spiritual healing and cognitive development through art creation and altered states provides an innovative solution for treating diverse mental issues. The Transpersonal Art Intervention Model functions across multiple cultures because its developers respect the fundamental requirement of cultural awareness during therapeutic procedures. The proposed model works to create inclusive space through its considerations of diverse client backgrounds because it follows the works of Collie et al. (2025).

This introduction creates the foundation necessary for an extensive analysis of both Transpersonal Art Therapy (TAT) and its associated model which is Transpersonal Art Intervention Model (TAIM). This study's goal is to deliver important findings for clinicians and researchers and individuals who want to use art combined with altered states to promote emotional healing and personal growth through the development of an extensive model derived from previous studies. Qualitative assessment of art therapy sessions will evaluate the effectiveness of the proposed intervention model to demonstrate its utility in clinical and therapeutic environments.

Literature Review

This review used five peer-reviewed scholarly databases consisting of PubMed and PsycINFO alongside Scopus and JSTOR and Google Scholar to seek publications between 2015 and 2025. The search included concepts such as "Transpersonal Art Therapy" and "Altered States of Consciousness" and "Mindfulness-Based Art Therapy" as well as "Embodied Cognition" and "Somatic Experiencing" and "Art Therapy and Spirituality" with "Yoga-Informed Art Therapy". The selected search terms focused on delivering comprehensive results that contained studies about art therapy combined with altered states and art-supported spiritual psychological healing The research papers provide essential understanding about art therapy's ability to heal emotions and transform cognition and lead to spiritual advancement which constructs the principle framework of the Transpersonal Art Intervention Model (TAIM).

Conceptual Framework of the Intervention Model

The Transpersonal Art Intervention Model (TAIM) removes holistic therapeutic guidelines by combining Transpersonal Psychology with Art Therapy methods and Embodied Cognition approaches and Mindfulness strategies and Somatic Practices. The model bases its premise on art production guiding subjects to altered states of consciousness (ASCs) through creative activities that allow the transcension of ordinary conscious patterns. The therapeutic approach promotes personal development through increased self-awareness and emotional strength combined with flexible thinking while it attends to healing on psychological and spiritual and physical levels.

The TAIM uses Transpersonal Psychology as its main foundation to study consciousness experiences that surpass normal human awareness including spiritual states and heightened mental awareness (Grof, 1992; Rowan, 2003). According to Jungian psychology the artistic process enables exploration of the unconscious realm where symbols and archetypes help people access deeper aspects of their self (Jung, 1961). According to Jung's collective unconscious research and archetype discoveries art functions as a transformative instrument which enables people to access unconscious content for integrating psychological aspects of themselves. The art-making components of TAIM help people explore unconscious depths which lead them to critical self-insight that promotes healing (McNiff, 1998). The TAIM utilizes embodiment as its cornerstone healing practice because it integrates spiritual elements with both physical and mental aspects and treats embodiment as an essential process for emotional mind and spiritual well-being.

a. Expressive Art Therapy (Mandala, Zen tangle, Vision Board, Object Identification, Colour Therapy)

The TAIM benefits from expressive art therapies consisting of mandalas together with zen tangle artwork and vision boards and colour therapy to let individuals express their secret thoughts and unconscious material and emotions through structured creative activities. The symbolic nature of mandalas enables self-regulation and self-exploration because they provide structure for emotional processing according to

McNiff (1998). Art therapy clients benefit from these symbolic forms because they enable better organization while discovering meaningful perspectives of their internal domains.

Fadiman (2011) demonstrates that colour therapy methods together with object identification assist clients in reaching their unconscious material which leads to cognitive and emotional development. Participation in creative projects allows people to create pictures of their hidden emotions that they normally cannot express or repress thus releasing trapped feelings and creating healing opportunities.

b. Transpersonal Psychology, Transpersonal Therapy, and Transpersonal Art Therapy

The Transpersonal Art Intervention Model (TAIM) relies on Transpersonal Psychology for its theoretical foundation because this field explores higher states of consciousness and spiritual development together with self-transcendence. The model brings spiritual components to art therapy practice so patients can experience expanded consciousness states while exploring transcendent states (Rowan, 2003). Adrian Hill demonstrates in his works a congruence with basic principles of this model regarding creative expression leading to personal transformation. Through art-making patients can directly access their unconscious mind to achieve transformation by expressing symbolic symbols and universal themes according to Hill's (2018) assessment.

The TAIM integrates the Vedantic philosophy of Koshas framework to help students understand various levels within their self. Through the Annamaya Kosha (physical body), Pranamaya Kosha (energy body), Manomaya Kosha (mental body), Vijnanamaya Kosha (wisdom body) and Anandamaya Kosha (bliss body) human beings experience multiple layers of existence (Chetna, Katha Upanishad, 2.2.5). Through making art individuals gain access to their various psychological layers until they can transform their body and mind as well as their emotional state peacefully.

b1. Embodiment, Body Awareness, and Introspection

During art therapy embodiment represents how the body effectively handles emotional and psychological experiences. The method creates conditions for clients to sense their bodies more acutely so they can express trapped emotions physically. The bodily engagement of art therapy helps clients to physically express their internal emotional turmoil (Malchiodi 2012). Creative tasks which require entire body involvement like mandala creation or zentangle allow people to bring unconscious conflicts into awareness while achieving emotional self-understanding (Zeidan et al., 2010).

The research conducted by Kaimal et al. (2017) confirms that art therapy practices using the body as a therapeutic tool foster brain plasticity which aids in transforming cognition while building emotional strength. The physical interaction between individuals and artwork triggers reward-based and emotional processing areas in their brain which help to stabilize emotional states.

b2. Embodied Cognition and Sensory Processing

According to Embodied Cognition Theory brain functions which include thinking and decision-making and learning develop because of physical engagement between body and surroundings (Damasio, 1999).

When people make art their creative expression improves and their minds develop better problem-solving abilities along with enhanced mental flexibility (Mastandrea et al., 2019). Art interventions as per Transpersonal Art facilitate clients to process their senses through vision and touch and hearing and motion in order to enhance emotional regulation.

During artistic activities mindfulness practices help people observe their senses without judgment thus releasing emotions and redesigning thinking patterns. Brain regions responsible for emotional processing and reward systems become active due to mindfulness practices according to Carter et al. (2005).

b3. Body-Based Therapy, Mindfulness-Based Meditation, and Yoga Therapy

The TAIM offers mindfulness-based meditation and yoga together with somatic therapy techniques that let individuals consciously process their mental tension stores for release. The brain activity shifts significantly following mindfulness practice since this method enhances attention control and emotional functioning (Lazar et al., 2005). The TAIM utilizes mindfulness-based art practices which strengthen mental adaptability while helping control emotions thus supporting effective transformation.

By integrating yoga therapy with art-making clients can achieve emotional freedom through their movement and controlled breathing according to Levine and Levine (1999). Clients can heal through the combination of yoga and art-making which encourages embodied awareness leading to body awareness and creating a complete healing experience that unites all aspects of their mind-body-spirit.

b4. Somatic Experiencing and Integral Somatic Psychology, Touch and Embodiment, Touch and Materials, Self-Touch, Touch and Ethics

The Treatment from an Attachment-Based Integrative Model incorporates Somatic Experiencing (Levine, 1999) and Integral Somatic Psychology (Ogden, 2006) since these techniques stress the fundamental role of bodily awareness when resolving trauma. These therapeutic methods instruct patients to identify their physical cues which serve as paths to reveal stored emotional contents. Psychotherapy employs either self-triggered touch or therapeutic methods to assist patients in reorienting with their body tissues along with trauma processing (Ben-Ari & Amir, 2021).

Ethical standards regarding touch in art therapy require thorough evaluation from the practitioner. Since touch demands cultural awareness practitioners should use touch in ways that make clients feel secure throughout the sessions. The method considers personal space and enables emotional release through body-to-body contact and expressive artwork (Collie et al., 2006).

b5. Guided Drawing, Focusing-Oriented Art Therapy & Guided Imagery

By implementing Guided Drawing combined with Focusing-Oriented Art Therapy clients obtain access to unconscious content which enables them to work through emotional issues. Through guided imagery practice people gain entry to their subconscious realms where they encounter symbolic images and universal themes which reveal hidden psychological realities. Jung (1961) explains that art symbols function as a tool for transmitting

information to our unconscious to lead toward emotional betterment.

c. Mindfulness-Based and Cognitive Behavioral Art Therapy

Using Cognitive Behavioral Therapy alongside art therapy leads to a systematic approach to cognitive transformation particularly when treating concerns about emotional management and psychological fortitude. Through artistic practices of Mindfulness-Based Art Therapy participants learn to transform their negative thoughts while gaining greater emotional control according to Malchiodi (2012). CBT art therapy creates adaptable thinking which enables patients to establish enduring modifications of their mental structure for enhanced emotional welfare.

The narrative review merges Transpersonal Art Intervention Model (TAIM) elements from four theoretical approaches: Transpersonal Psychology, art therapy, embodied cognition and mindfulness. This review combines somatic modalities and mindfulness principles and designed imagery techniques to demonstrate how art therapy brings complete healing opportunities. The TAIM unites art practices with spiritual-based discovery to provide an all-inclusive model which promotes both psychological growth and personal metamorphosis.

Transpersonal Art Intervention Model (TAIM):

Before starting the intervention, it is important to collect demographic details to understand the participants' backgrounds and tailor the model accordingly. The following Recruitment Survey ensures that participants are appropriately selected based on their needs, experience, and willingness to engage in the therapeutic process.

Demographics:

- Name, Age, Pronouns, Racial/Ethnic Identification, Preferred Language, City/State
- Art Therapy Experience, Experience with Transpersonal or Body-Based Therapy

Survey Questions

- Are you willing to participate in a three-hour group transpersonal art therapy?
- Would you agree to engage in a tactile experiential, body-focused and mindfulness focus art-making session?
- Are you willing to review the feedback on the arts-based responses generated during the group?
- Are you willing to give permission for publishing your art work and analysis for research work and greater cause (Your name won't be revealed) ?

Complete Design Plan

Phase 1: Awakening the Senses – Connecting with the Body and Emotions

Activity 1: **Sensory Engagement and Thought Identification**

- **Materials**: A4 paper, coloured pencils, pens, pastels, textured fabrics, natural elements (stones, leaves, etc.).
- **Objective**: Engage participants' senses to connect with their emotions and unconscious mind.
- **Procedure**:
  1. **Grounding Meditation**: Guide participants through a mindfulness practice, directing their attention to each of their five senses: sight, touch, smell, sound, and taste.
  2. **Art Creation**: After sensory meditation, participants will use the art materials to visually express their emotional and physical sensations.

The colours and materials should reflect both their inner emotional state and sensory experiences.

Integration with Model: This activity connects with **Annamaya Kosha** (the physical body), enabling participants to externalize sensory experiences through art. As Jung (1961) suggested, symbols in art can access unconscious material, facilitating emotional release and self-reflection.

Discussion Questions for **Activity 1**:

1. What sensations did you experience during the sensory meditation?
2. How did the use of colours and materials help express your emotional state?
3. Did you notice any emotional shifts after engaging with the art materials?

Activity 2: **Acceptance and Releasing Through Art**

- **Materials**: Same as the previous materials.
- **Objective**: Facilitate emotional release and acceptance by observing and creating through art.
- **Procedure**:
    1. **Taoist Meditation**: Guide participants through a meditation focused on accepting emotional challenges and becoming the observer of their emotions.
    2. **Art Creation**: After the meditation, participants will use breathwork and art-making to release emotional pain and blockages, focusing on flow and energy movement.

Integration with Model: This activity connects with the **Pranamaya Kosha** (life energy body) and is reinforced by **Somatic Experiencing** (Levine, 1999). The combination of breathwork and art supports emotional release and energy flow, encouraging transformation through creative expression.

Discussion Questions for **Activity 2**:

1. How did the Taoist meditation influence your art-making process?
2. Did you notice a sense of emotional release while creating?
3. How did your body feel before, during, and after the creative process?

Phase 2: Exploring the Mind – The Power of the Inner Observer

Activity 3: **Creating a Representation of Inner Conflict and Harmony**

- **Materials**: A4 paper, charcoal, pastels, markers.
- **Objective**: Visualize and externalize internal conflicts and emotional states through color and form.
- **Procedure**:
    1. **Art Creation**: Participants are encouraged to express emotional conflicts through contrasting colours and forms. Darker tones can represent emotional distress, while lighter colours symbolize harmony.
    2. **Therapeutic Exploration**: The therapist helps participants interpret the colours and forms used in their artwork, aiding in the understanding of internal emotional dynamics.

Integration with Model: This activity activates the **Manomaya Kosha** (mind) and aligns with **Gestalt Therapy** (Perls, 1969), where the focus is on exploring emotional states in the present moment. It encourages participants to externalize and process negative emotions and thought patterns.

Discussion Questions for **Activity 3**:

1. What did the contrasting colours in your artwork symbolize for you?
2. How did the art help in recognizing and transforming negative emotions?
3. Did you experience any cognitive shifts during the process?

Activity 4: **Integrating Subconscious Insights into Conscious Awareness**

- **Materials**: Same as previous materials.
- **Objective**: Use symbolism and archetypes to bring subconscious material into conscious awareness.
- **Procedure**:
    1. **Guided Meditation**: Participants will undergo a guided visualization to connect with their subconscious and access deeper emotional or cognitive insights.
    2. **Art Creation**: After the meditation, participants will create symbolic artwork such as a mandala or image that represents the integration of subconscious material.

Integration with Model: This activity connects with the **Vijnanamaya Kosha** (intellect), encouraging participants to process deeper unconscious material. **Jungian Archetypes** (Jung, 1961) are used as symbols to express subconscious insights, enabling integration of unconscious material into conscious thought.

Discussion Questions for **Activity 4**:

1. What symbols or archetypes emerged during the creative process?
2. How did creating this artwork help you process deeper emotional or cognitive material?
3. Were you able to integrate these insights into your conscious awareness?

Phase 3: Transcendence and Healing – Connecting with the Universal Self

Activity 5: **Visualization of Personal Growth and Future Self**

- **Materials**: A4 paper, vibrant colours, markers, crayons.
- **Objective**: Visualize a future self that is free from past emotional baggage and connected to a higher state of awareness.
- **Procedure**:
    1. **Guided Imagery Meditation**: Guide participants to visualize their ideal future self, free from past emotional blocks, and connected to their highest potential.
    2. **Art Creation**: Participants create a piece of artwork reflecting their ideal future self, using vibrant colours and symbols to express their personal transformation.

Integration with Model: This activity engages the **Anandamaya Kosha** (bliss body) and promotes transcendent experiences. By visualizing their future self, participants experience personal growth and connect with their higher consciousness, aligning with **Cognitive Neuroscience** (Carter et al., 2005) that suggests art and color can improve emotional regulation and neural flexibility.

Discussion Questions for **Activity 5**:

1. How did the guided imagery meditation influence your art-making process?
2. Did you feel a sense of growth or transformation during the activity?
3. How did creating this image affect your perception of your future self?

Activity 6: **Embracing Universal Connection – Art as a Reflection of the Divine**

- **Materials**: Same as previous materials.
- **Objective**: Create a final piece that symbolizes the participant's connection to the universe or divine.
- **Procedure**:
  1. **Meditation**: Guide participants in a final meditation focused on recognizing their interconnectedness with all things and accessing a sense of universal consciousness.
  2. **Art Creation**: Participants will create artwork representing their connection to the divine or universal energy, incorporating symbols of unity, nature, or the cosmos.

Integration with Model: This final phase engages **Chetna** (consciousness) and aligns with **Transpersonal Therapy** (Rowan, 2003), encouraging participants to transcend personal limitations and connect with universal consciousness. This activity promotes emotional healing and fosters a deeper connection to the world around them.

Discussion Questions for **Activity 6**:

1. How did the meditation and art-making help you feel connected to the universe or divine?
2. How did creating this artwork affect your sense of interconnectedness with the world?
3. Did you feel a shift in your emotional or spiritual state after completing this artwork?

The Transpersonal Art Intervention Model (TAIM) delivers unique stages that lead participants toward transformational experiences of self-awareness development combined with feeling liberation and intellectual recovery. The model helps people access unconscious material and eliminate emotional barriers through its combination of guided imagery and embodiment methods and mindfulness practices and yoga and somatic experiencing and art activities. Various flexible activities within the model encourage participants to experience physical and mental engagement through the whole body and spirit as they become more self-aware and develop spiritually.

Neuroscientific findings (Carter et al., 2005) show support for the healing effects of this intervention system because it enhances neuroplastic processes related to creativity and emotional management. The designed activities in the model aim to achieve three specific goals: maximizing cognitive flexibility and emotional resilience and promoting personal transformation by means of creative expression.

Transpersonal Art-Work Analysis

Image 1 Analysis: *This image portrays an individual seated in a meditative or reflective posture with their hands resting*

on their lap. The character's expression is serene and introspective, with a circle of words and coloured shapes radiating outward, suggesting the theme of self-affirmation and emotional healing.

Image 2 Analysis: *The second image shows a figure sitting cross-legged with arms outstretched, enveloped by various symbolic phrases such as "not enough" and "self-centred." The use of colours around the figure (including vibrant red and green hues) points to a person working through emotional conflict through embodiment body scanning.*

Art Therapy Analysis (TAIM Perspective):

The figure uses their extended hands to show attempts at releasing emotional blockages which reflect their conflicting self-perceptions essential for emotional recovery. The model's core body therapies show similar processes when patients face and remove their unacceptable negative ideas about themselves ("not pretty," "distrust"). TAIM finds support in the central figure's meditative stance because it promotes deep emotional body-awareness connections according to its objectives. The calming expression and reinforcing speech on the art figure help individuals release emotions while promoting self-control mechanisms. Through the meditative pose and symbolic radiance TAIM seeks to connect minds with their bodies so people use creative expression to reconnect with their emotional and physical experiences. The artwork illustrates a healing transformation as it demonstrates how people connect with love of self and peace of mind while gaining emotional stability. The artwork creates an image of inner transformation as the figure works through confining beliefs to improve cognitive flexibility according to TAIM's approach to spiritual development. The healing process of clients includes bodily expression and self-awareness as they understand that physical movements symbolize their emotional transformations.

Image 1 Analysis: *The bowl depicted in this artwork is filled with vibrant colours and personal reflections. The written words highlight the sources of happiness and validation, such as validation from others, being seen, belongingness, and simple pleasures like pancakes. There's a deep connection to external validation, yet a sense of nostalgia and appreciation for the simpler things in life.*

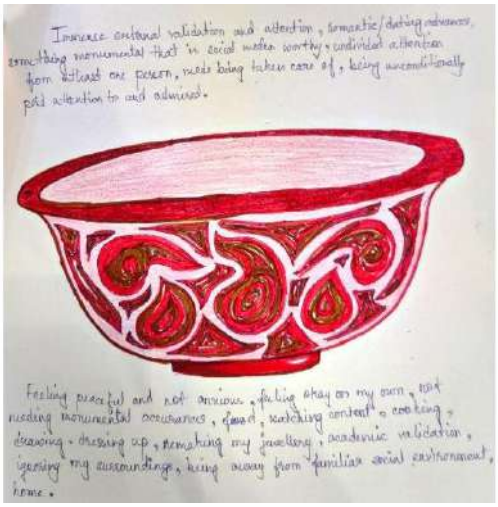

Image 2 Analysis: *This artwork features another bowl, but this time the words reflect a different form of external validation—recognition from romantic attention and social media validation. The bowl has a more intense colour palette with vivid red and intricate swirls. The content speaks to the need for attention and being taken care of, indicating deeper emotional needs.*

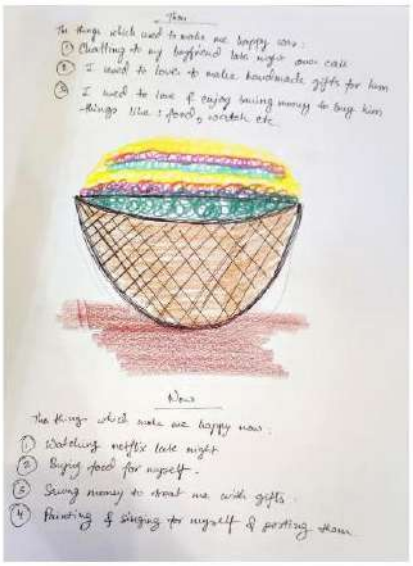

Image 3 Analysis: *The artwork here shows a bowl with colourful layers representing the past and present. The individual contrasts activities that used to bring happiness (like chatting with a partner or creating handmade gifts) versus what brings joy now (like watching Netflix or buying food for oneself). This transition suggests personal growth and a shift toward self-care.*

Image 4 Analysis: *This bowl, filled with a mix of bright colours, represents a journey of self-discovery and personal growth. The phrases "Wanting quality time with others" and "Pleasing others used to give me joy" indicate a shift from seeking external approval to understanding self-worth and finding joy from within.*

Art Therapy Analysis (TAIM Perspective):

External validation takes precedence in the artwork since (references to validation and being seen reflect an emotional state where external sources play a large role in shaping the individual's sense of self-worth) thus indicating TAIM requires personal growth for healing through finding internal validation. Strong colour combinations with rushing designs create a passionate emotional realm that represents people's need for outside approval. This time comparison shows how people transition from obtaining happiness through external relationships to developing inner joy which

accords with self-care and internal validation principles of TAIM. The emotional healing process and shifting stages of the mind manifest through multiple colours in the ceramic display. This work demonstrates the development of emotional understanding and self-identity which occurs through mind-body practice and mindful awareness. The central focus on a bowl function as a metaphor for mindfulness which helps viewers reflect on self-care techniques that TAIM emphasizes for obtaining inner contentment. Average participants start their emotional externalization when they draw a bowl containing emotions.

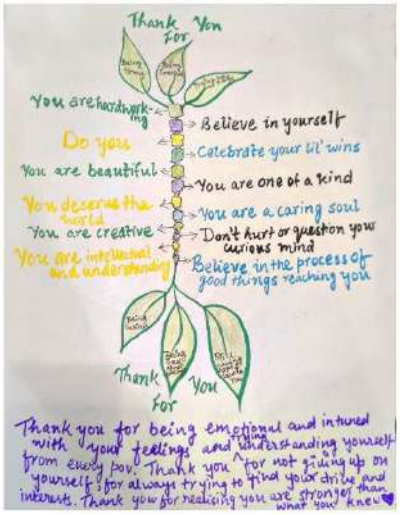

Image 1 Analysis: *This vibrant artwork depicts a symbolic plant or tree of self-empowerment, with affirmations and positive messages such as "Thank you for being emotional and intuned with your feelings," and "Thank you for realizing you are stronger than you knew." These affirmations are written in different colours, symbolizing the growth and strengthening of the individual's emotional landscape. The green leaves at the bottom represent nurturing, while the upward branches symbolize growth and transformation.*

Image 2 Analysis: *This image uses leaves to represent different emotional aspects of the artist's life. The leaves are categorized into Self-Criticism, Other People, and Situations, with emotional expressions and perceptions attached to each category. The varying colours (red, green, blue) and different textures of the leaves may signify emotional experiences associated with each of these categories. The image's style suggests an internal exploration of how external and internal forces contribute to emotional turmoil, with the connection between the leaves symbolizing how these forces intertwine.*

Art Therapy Analysis (TAIM Perspective):

The artwork demonstrates how emotional challenges unite different domains of self-criticism, others, and situations. The segmentation process helps people recognize their emotional sources so they can initiate negative emotion release and start the forgiveness process under TAIM. The use of colour differentiates emotional sources, with red symbolizing intense emotions and green representing growth and self-forgiveness. By processing emotions the method enables users to practice self-

forgiveness (The "thank you" messages reflect self-compassion and forgiveness) both for themselves and others according to TAIM principles. The affirmation process strengthens personal power which aids people to overcome feelings of guilt and the critical voices they hold against themselves. Through the design of the leaf pattern a visual connection appears between different emotional elements of the internal self with external external sources. To achieve forgiveness individuals must bring together their life events toward emotional balance which matches TAIM principles of spiritual and emotional unity. The plant's flowing colors together with its green leaves show how emotions find release while growing.

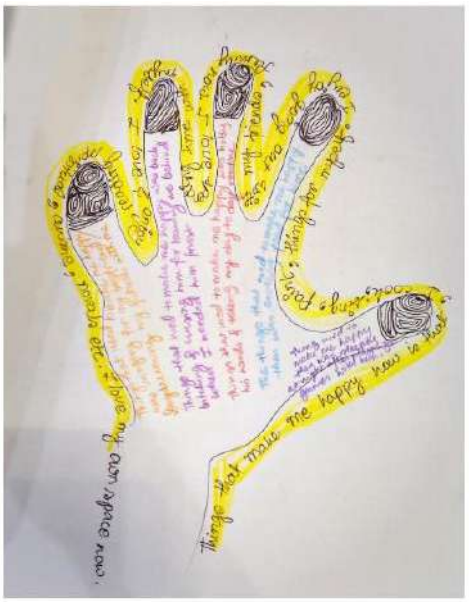

Image 1 Analysis: *This hand-shaped artwork is filled with vibrant colours and handwritten affirmations. The hand is outlined with different colours, and the artist has written both reflective and empowering statements about themselves, such as "Things that make me happy now," and "I feel at peace now." The statements flow from the palm outward, like a growing energy—suggesting personal growth and healing.*

Image 2 Analysis: This figure is depicted in a child-like form, with a colourful and symbolic background. Words such as "Anxiety," "Insecurities," and "Attachment Issues" are written around the figure, representing a deep emotional exploration of the artist's inner turmoil. The figure is drawn with an exaggerated form, emphasizing emotional states over physical proportions.

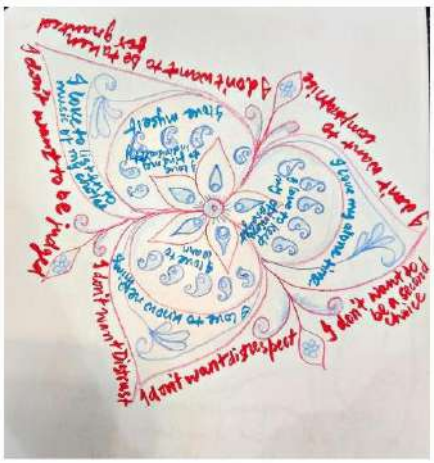

Image 3 Analysis: *This mandala-style artwork features symmetrical patterns of words, with statements such as "I don't want to be judged," "I don't want to be a second choice," and "I don't want disrespect." The repetition of these negative thoughts creates a circular pattern, symbolizing the cyclical nature of emotional patterns and beliefs.*

Art Therapy Analysis (TAIM Perspective):

The three artworks-form an impressive journey which leads individuals through psychological growth and gentle forgiveness that brings spiritual maturity. Self-acceptance together with self-compassion finds representation through the visual hand holding affirmations in Picture 1 of TAIM, Through affirmation writing one acquires dominant power while establishing future growth objectives. Through this emotional revelation process artwork the hand connects negativity to forgiveness which helps artists separate from self-loathing to rediscover authentic parts of themselves. In Picture 2 the figure expresses their emotional conflicts through external actions which marks the beginning of self-forgiveness and self-acceptance as TAIM emotional regulation principles. Self-forgiveness together with emotional challenge acknowledgment through self-communication reveal the first steps toward an emotional release journey according to TAIM. The figure's enlarged body suggests a profound emotional link because TAIM beliefs state that embodied cognition depends on the essential role our bodies play when we process and release emotional states. The mandala shown in Picture 3 depicts an approach to alter destructive personal beliefs and facilitate recovery along with empathetic care for oneself while promoting personal expansion. The artwork's creative process helps individuals release emotions while embedding itself with TAIM principles for processing and managing emotions before forgiveness. The symmetrical pattern of the mandala shows how emotional healing joins with spiritual healing to reach overall healing which matches TAIM's goal to achieve wholistic healing.

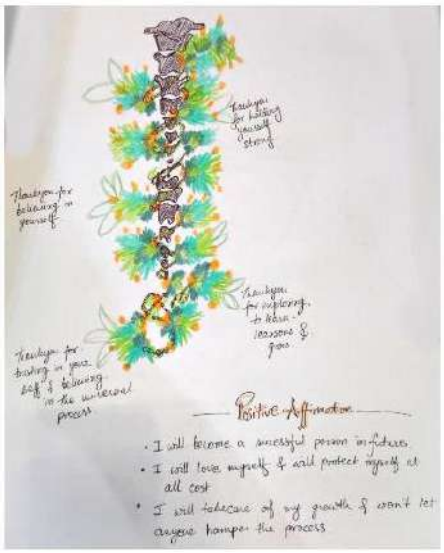

Image 1 Analysis: *This artwork features a spiralling structure with an upward flow of vibrant colours and positive affirmations, such as "Thank you for believing in yourself" and "Thank you for trusting in your own process." The spiralling shape evokes the idea of personal growth and spiritual evolution, suggesting that the artist is on a journey toward greater self-awareness and healing.*

Image 2 Analysis: *This artwork, like the previous one, centres around a spiral structure, but it incorporates more organic,*

flowing forms and colours. Words like "Thank you for learning to love yourself back again" and "Thank you for blessing me with everything that will make me strong" surround the central spiral, emphasizing the healing journey and the practice of gratitude.

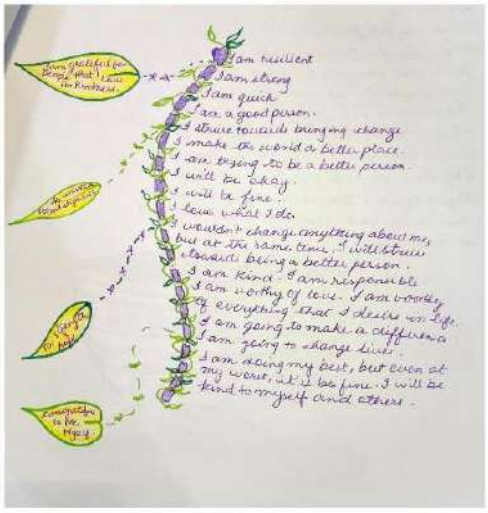

Image 3 Analysis: *This piece features a vine-like structure, adorned with affirmations such as "I am resilient" and "I am going to change lives." The plant-like motif suggests growth and vitality, with the text representing the positive affirmations that guide the artist through their healing journey. The colourful leaves symbolize the diversity of emotions and experiences that the artist has encountered and integrated.*

Art Therapy Analysis (TAIM Perspective):

The acceptance of personal love marks an essential stride toward both self-healing and self-forgiveness in TAIM practice because it embodies core TAIM principle of self-compassion. The affirmations help the artist gain emotional control so they can recover their power which forms an essential part of TAIM's therapeutic healing process. The artwork illustrates natural growth and emotional energy movement during the time an individual learns to heal emotional wounds. The plant shape illustrates emotional durability which emerges when people confront and overcome emotional difficulties. This imagery corresponds to TAIM's area of study that covers emotional and spiritual development. Through gratitude in this artwork one can emotionally heal because it promotes powerful change while granting personal empowerment to accept emotional modifications and make room for recovery. Through its spiral pattern the artwork reveals ongoing development that demonstrates the healing process as per TAIM's approach which combines mental and physical activities to achieve emotional wellness. The mystifying colours which surround the affirmations symbolize that patients should develop a connection with their spirituality while maintaining faith in their healing process through spiritual development.

Common Themes in the Transpersonal Art Intervention Model (TAIM)

The Transpersonal Art Intervention Model (TAIM) reveals several interconnected themes that guide participants through a transformative journey of emotional healing and self-discovery.

Theme	Description
Emotional Release and Self-Compassion	Confronting and releasing negative emotions, fostering self-compassion and self-acceptance.
Self-Awareness and Internal Validation	Shifting from external to internal validation, emphasizing personal empowerment and inner worth.
Healing Through Symbolism and Affirmations	Use of affirmations and positive symbols to guide the healing journey and encourage transformation.
Embodied Cognition and Mind-Body Integration	Connecting physical presence with emotional healing and self-reflection through creative expression.
Transformation and Personal Growth	Depicting spiritual evolution, self-love, and growth, symbolizing the journey of personal transformation.
Cyclical Nature of Emotional Healing	Emphasizing the ongoing, evolving process of emotional healing, reflected in recurring and layered patterns.

Interconnectedness and Universal Connection	Exploring the sense of oneness with self, others, and the universe, fostering universal consciousness.
Externalization of Inner Conflict	Expressing internal conflicts through contrasting colours and forms, facilitating emotional processing.

Application

Health professionals can use the Transpersonal Art Intervention Model (TAIM) across different treatment facilities and clinical environments. The art therapy model uses principles of Transpersonal Psychology together with Art Therapy and embodied cognition methods thus offering flexibility for treating people who experience trauma or anxiety or require emotional regulation support. The model provides structured healing services for emotional and cognitive and spiritual aspects through mindfulness practices and creative expression and altered states of consciousness (ASCs). Clients express themselves naturally through art to experience emotions and gain insightful awareness and achieve personal development.

Mental health professionals can effectively promote healing and well-being through innovative practices based on embedded cognition theory because its complete approach includes meditation and somatic practices.

Limitations

TAIM provides promising opportunities for treatment but faces challenges when put into practice. Subjective interpretations of artistic works present a major hurdle because they generate obstacles for creating standardized results in therapy. The implementation of mindfulness along with somatic procedures as altered states of consciousness might not function effectively across different populations because some people with mental health problems and cognitive disabilities find these methods unhelpful.

The model encounters difficulties due to its body-focused practices along with its creative methods because some people find resistance to these specific therapeutic elements. The successful implementation of this model depends heavily on factor analysis regarding cultural differences and personalised beliefs of participants. More empirical research about this topic should be conducted to determine its effectiveness for different population groups.

Further Research

Researchers should conduct empirical tests of TAIM across different medical facilities which serve diverse patient populations. Research on TAIM's effectiveness for treating PTSD and depression and anxiety needs to be conducted to determine its clinical capabilities. Longitudinal research should determine the enduring consequences that TAIM creates for emotional resilience and cognitive flexibility. Studies must investigate cultural factors that affect the treatment results of the model so healthcare providers can develop custom interventions addressing specific community needs.

The exploratory study needs to focus on science-based integration of digital platforms which would improve accessibility and scalability for TAIM interventions. Research that investigates TAIM versus conventional medical procedures is necessary to determine its effectiveness in comparison with standard treatments.

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"Bridging the Gap: A Thematic Review of Low-Resource Psychosocial Interventions for Autism Spectrum Disorder in India"

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ABSTRACT

Background: Autism Spectrum Disorder (ASD) is increasingly recognized in India, yet access to psychosocial interventions remains highly limited. Cultural stigma, lack of awareness, and socioeconomic constraints further limit access, especially in rural and underserved areas. Despite growing awareness, there is a major gap in culturally appropriate, scalable care models that meet the needs of these communities.

Objectives: This thematic review aims to identify, evaluate, and synthesize existing psychosocial interventions for ASD in low-resource Indian settings, highlight challenges, and recommend scalable, culturally adapted solutions.

Methods: A systematic literature review was conducted using databases such as PubMed, Scopus, and Google Scholar from 2010 to 2025. Search Keywordius included "autism spectrum disorder," "India," "psychosocial intervention," "low-resource settings," and "parent training." Studies were selected if they involved psychosocial interventions for ASD, were conducted in India, and operated in outpatient or community-based settings.

Conclusion: Despite resource constraints, several innovative models—such as parent-mediated interventions, community health worker-led programs, and mobile-based training—have shown promise in the Indian context. This review highlights the importance of culturally sensitive, low-cost, and community-based models to bridge the service gap. Policy support, training of frontline workers, and integration with existing health systems are essential to scale these interventions.

Keywords: Autism Spectrum Disorder, psychosocial interventions, low-resource settings, India, community-based care, parent training, scalable models

INTRODUCTION

Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental condition that manifests in early childhood and affects communication, social interaction, and behaviour. It exists along a continuum, presenting a wide range of challenges and functional impairments (American Psychiatric Association, 2013). Although awareness and diagnoses of ASD have

increased globally over the past 20 years, India is currently seeing a slow but notable rise in these diagnoses, especially in urban areas where access to clinical psychologists and developmental paediatricians is relatively greater (Arora et al., 2018; Raina et al., 2017).

Despite growing awareness, India's overall response to autism spectrum disorder (ASD) remains scattered and inadequate. The public healthcare system isn't equipped to offer early diagnosis, timely intervention, or long-term support for people with autism. Most specialized care is limited to big cities, leaving rural, tribal, and underserved communities with little to no access to these crucial services (Daley et al., 2013).

On top of this, social stigma, lack of awareness, and limited public discussion about developmental disorders often lead to delays in diagnosis and minimal use of available therapies (Kaur et al., 2021). Families are frequently left feeling overwhelmed and lost as they try to navigate the complex healthcare, education, and social service systems—making their caregiving journey even more difficult.

Despite ongoing challenges, India has seen the rise of creative, low-cost psychosocial interventions for autism. These include parent-mediated therapies, community-based rehabilitation (CBR) programs, mobile health (mHealth) applications, teacher-led school interventions, and task-sharing models that train laypeople to provide basic behavioral support (Divan et al., 2015; Nair et al., 2021). Many of these models have shown early promise in addressing the shortage of trained professionals while adapting to the everyday realities of families from diverse socio-economic backgrounds.

Notably, these interventions tend to be both affordable and rooted in existing systems like primary healthcare or schools, which makes them more sustainable and easier to implement. High-income countries have contributed significantly to research on autism interventions, but their models don't always fit the unique needs of low- and middle-income countries like India. The current body of literature tends to focus either on global programs or on the clinical and diagnostic side of autism within India. There is a critical gap in the qualitative synthesis of psychosocial intervention strategies that are affordable, community-centred, and aligned with India's social and cultural realities. Furthermore, existing reviews often fail to examine how intervention models adapt to constraints like low literacy, language diversity, infrastructure shortages, and the social stigma around developmental disorders. These omissions limit the utility of such reviews for policymakers and practitioners seeking scalable solutions.

This thematic review aims to identify, evaluate and synthesize psychosocial interventions for autism spectrum disorder implemented in low-resource Indian settings. Specifically, (a) To examine the nature, delivery models, cultural adaptations, and outcomes of these interventions; (b) To explore how they address contextual barriers such as limited professional resources, socioeconomic constraints, and stigma; and to identify scalable, community-based strategies that have demonstrated effectiveness or feasibility. (c) By thematically analyzing the evidence, this review seeks to highlight promising practices, inform future program design, and provide policy-relevant

recommendations for enhancing access to autism-related psychosocial care in underserved Indian communities.

METHODOLOGY

This qualitative systematic review followed the PRISMA 2020 guidelines to ensure clarity and structure in reporting. We used a systematic process involving search, screening, appraisal, and thematic synthesis to explore psychosocial interventions for autism spectrum disorder (ASD) in low-resource settings in India.

Search Strategy

We carried out a detailed literature search across three databases (PubMed, Scopus, and Google Scholar) covering studies from 2010 to I2025. We used a combination of key terms and Boolean operators, including:

- "Autism Spectrum Disorder" OR "ASD"
- AND "psychosocial intervention" OR "behavioural therapy" OR "parent-mediated intervention"
- AND "India"
- AND "low-resource settings" OR "community-based" OR "rural"
- AND "parent training" OR "lay health worker" OR "mobile intervention"

In addition, we manually reviewed reference lists from included studies and relevant reviews to find any additional sources that met our criteria.

Inclusion Criteria

Studies were included in this review if they were conducted in India between 2010 and 2025, focused on children or adolescents diagnosed with autism spectrum disorder (ASD), and evaluated or described psychosocial interventions implemented in low-resource or community-based settings. Eligible studies needed to present empirical data using quantitative, qualitative, or mixed-methods designs and be published in English in peer-reviewed journals.

Exclusion Criteria

Studies were excluded if they concentrated solely on diagnostic processes or pharmacological treatments, were based in private urban clinics or settings without a low-resource component, or were non-empirical publications such as editorials, opinion pieces, literature reviews, dissertations, or conference abstracts. Additionally, studies were excluded if full-text versions were unavailable or if they were not published in English.

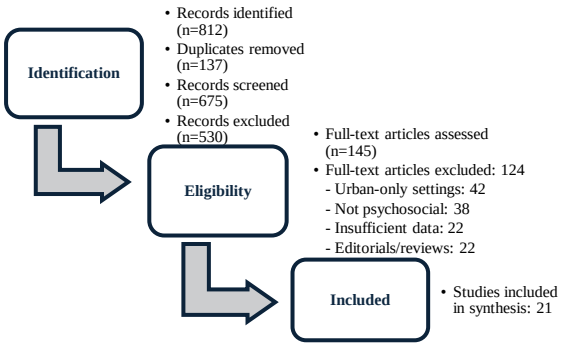

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Figure 1: Flow diagram of study selection for the systematic review.

Data Extraction

A structured data extraction form was used to systematically capture key details from each included study. This form recorded information such as the author(s), year of publication, and the geographical location of the study. It also documented the study design, sample characteristics, and specifics of the intervention, including its type, duration, and setting. Additionally, data were collected on who delivered the intervention such as parents, teachers, or community health workers and the outcome measures

employed, including changes in child behavior, levels of parental stress, and the overall feasibility of the intervention. Notable findings and reported limitations were also included. Two reviewers independently carried out the data extraction process, and any disagreements were resolved through consensus with the involvement of a third reviewer.

Quality Assessment

To assess the methodological rigor of the included studies, the review employed the 2018 version of the Mixed Methods Appraisal Tool (MMAT). This tool is specifically designed to evaluate diverse research designs, including qualitative, quantitative, and mixed-methods studies, within a unified framework. Each study was assessed across five core criteria: the clarity and appropriateness of the research questions, the relevance of the data collection methods, the rigor of the data analysis and interpretation, the coherence between the data and the conclusions drawn, and the extent to which limitations and potential researcher bias were acknowledged. For each criterion, studies received a rating of "Yes," "No," or "Can't tell." Importantly, no studies were excluded based on quality assessment outcomes; instead, the quality ratings were used to contextualize the findings and highlight methodological limitations in the discussion. The assessment process involved independent evaluation by two reviewers, and any discrepancies in scoring were resolved through consensus. Inter-rater agreement exceeded 85%, indicating strong consistency between reviewers.

Table 1. Summary of Included Studies on Psychosocial Interventions for ASD in Low-Resource Indian Settings (2010–2025)

Study (Author, Year)	Location	Sample Characteristics	Intervention Type	Delivery Model	Key Findings
Divan et al. (2015)	Goa	55 children (2–9 yrs) with ASD	PASS (Parent-mediated intervention)	Lay health workers trained to coach parents	Improved communication & social engagement; high acceptability
Nair et al. (2021)	Kerala	80 children with ASD (rural)	Early detection and parent training	ASHA workers trained in ASD modules	Feasible and scalable; high parental satisfaction
Aneja et al. (2017)	Haryana	40 children with ASD	Structured parent training	Psychologist-led group sessions	Reduction in parental stress; modest child gains
Srinath et al. (2016)	Karnataka	30 families (low-income urban)	Behavioral intervention + parent training	Community-based center, social workers	Improved adaptive behavior in children
Arora et al. (2019)	Uttar Pradesh	60 caregivers of children with ASD	Mobile-based intervention (mHealth)	Smartphone-based app for parents	Enhanced parental confidence; usage challenges in very low-literacy homes
Deshpande et al. (2020)	Maharashtra	25 children with ASD	School-based structured play therapy	Trained special educators	Positive behavior changes in classroom setting
Paul et al. (2018)	Tamil Nadu	50 children (semi-urban)	TEACCH-based intervention	Delivered by trained teachers	Feasible in government schools; limited follow-up
Sharma & Mehrotra (2015)	Rajasthan	20 children (3–10 yrs)	Parent–child interaction therapy	Delivered at PHC by clinical psychologist	Improved social interaction and parental efficacy
Vaidya et al. (2017)	Mumbai (low-income areas)	38 children with ASD	Multi-modal behavioral support	NGO-based intervention; hybrid team	Cost-effective model; scalable with local support
Kumar et al. (2020)	Bihar	42 families	ASD caregiver support group + home-based training	Community health workers	Increased knowledge, reduced isolation
Rao et al. (2014)	Andhra Pradesh	28 preschool children	Structured language training	Speech therapist + parent co-delivery	Improvements in expressive language
Gupta et al. (2022)	Punjab	32 children with mild ASD	Yoga + sensory integration	Community center program	Improvement in motor coordination; mixed parent feedback
Ranganathan et al. (2016)	Tamil Nadu	45 families	CBR model with family inclusion	CHWs and local therapists	Increased daily functioning; dependent on family motivation
Menon et al. (2023)	Kerala	50 adolescents with ASD	Life skills and self-care group sessions	Vocational rehab center	Improvement in independence and mood
Thomas et al. (2019)	Karnataka	33 children with ASD	Peer-mediated social skills training	Mainstream school peers trained	Increased peer interaction and socialization
Banerjee et al. (2011)	West Bengal	30 families	Parent empowerment workshops	Delivered via NGO over 8 weeks	Increased awareness, empowerment, reduced blame
Iyer & Narayan (2012)	Tamil Nadu	20 young children with ASD	Sensory integration therapy	Local physiotherapist and OT	Gains in sensory processing; needs long-term follow-up
Choudhury et al. (2015)	Assam	36 caregivers	Remote tele-counseling + parent support	Online delivery by psychologists	Effective in urban–rural mixed regions; access limited by internet
Joshi et al. (2021)	Madhya Pradesh	28 children (low SES)	Play-based behavioral therapy	Teachers + volunteer facilitators	Fun-based engagement model, moderate skill improvement

Basu et al. (2024)	Jharkhand	40 families	Structured parent coaching modules	NGO–healthcare partnership	Parental stress reduction and better engagement
Mishra et al. (2013)	Odisha	22 children with ASD	Home-based behavior therapy	Guided by monthly clinician visits	Improvements in attention and compliance

ASD: Autism Spectrum Disorder; **PASS**: Parent-mediated intervention for autism spectrum disorder in South Asia; **CHW**: Community Health Worker; **NGO**: Non-Governmental Organization; **PHC**: Primary Health Centre; **TEACCH**: Treatment and Education of Autistic and Communication-related Handicapped Children; **OT**: Occupational Therapy

THEMATIC FINDINGS

An analysis of the 21 studies revealed several recurring and interconnected themes that shed light on how psychosocial interventions for autism spectrum disorder (ASD) are being shaped, delivered, and experienced in low-resource settings across India. These themes offer important insights into the cultural and practical dynamics influencing intervention success.

Parent-Mediated Interventions as a Core Strategy

A major pattern across the studies was the use of parent-mediated interventions as a key component of low-cost, home-based therapy. These programs often included structured training where parents were guided by professionals, community workers, or digital tools to provide behavioral and communication support to their children (Divan et al., 2015; Aneja et al., 2017). Parents were taught proven techniques like modelling, prompting, reinforcement, and engaging through play. These programs not only equipped caregivers with skills but also decreased their stress and strengthened their involvement in their child's growth.

Parent-mediated models fit well within India's family-oriented caregiving culture. However, their success depends on ongoing support, literacy-friendly materials, and the family's motivation to stay engaged.

Task-Shifting to Community Health Workers

Many interventions succeeded by training community-level workers—like ASHAs, Anganwadi workers, or other health volunteers—to deliver simplified ASD support (Nair et al., 2021; Ranganathan et al., 2016). These models made use of existing healthcare or NGO infrastructure, especially in rural and semi-urban areas. Trained workers helped spot early signs, guided parents, and conducted structured activities under clinical supervision. This strategy increased access and while reducing dependence on limited professionals. Task-shifting is practical and cost-effective, but it needs strong oversight, community trust, and clear roles to be truly effective.

Cultural and Language Adaptation

Being culturally sensitive played a big role in keeping families engaged. Successful programs were translated into local languages and used relatable tools like stories, songs, or local examples. They also respected community values on parenting and disability (Sharma & Mehrotra, 2015; Banerjee et al., 2011). Extended families were often involved, recognizing their role in child-rearing. Framing ASD as a developmental delay rather than a mental illness also helped in improving participation. Simply translating content isn't enough. Programs must reflect local beliefs, customs, and family roles to be effective.

Feasibility of Community-Based Settings

Programs were more doable when delivered through familiar places like Anganwadi

centres, primary health clinics, or government schools (Paul et al., 2018; Vaidya et al., 2017). These settings helped reduce stigma and made therapy more accessible, especially when tied to existing child or education services. Involving teachers or peers at school also created more chances for social interaction. Locating services in trusted public spaces increases participation, reduces stigma, and eases the burden on families especially those with limited literacy or income.

Technology-Based Interventions: Promising but Uneven

Some studies explored tech-based solutions like mobile apps, video coaching, or tele-counselling to reach families in remote areas (Arora et al., 2019; Choudhury et al., 2015). These offered flexibility and wider reach. However, not all families could access or use digital tools. Those with smartphones and internet fared better, highlighting a gap in digital access. Tech can improve access but must be paired with offline options, local-language content, and digital training for it to be truly inclusive.

Psychosocial Benefits for Families

Although direct outcomes for children were modest often due to short program duration—parents reported meaningful improvements in their own well-being. Many felt less stressed, more confident, and more in control (Aneja et al., 2017; Kumar et al., 2020). Support groups also helped reduce isolation and encouraged bonding among caregivers, which is particularly vital in contexts where disability is stigmatized and families play a central support role. Supporting parents emotionally is just as important as supporting the child, especially in settings with limited resources and high social stigma.

Challenges in Implementation

Common challenges included (1) Low awareness and stigma delaying help-seeking. (2) Irregular attendance due to socio-economic pressures. (3) Shortage of trained supervisors to maintain program quality. (4) Sustainability issues, particularly for short-term or pilot programs without long-term funding or policy backing.

Still, many programs showed resilience by involving communities, adapting flexibly, and building partnerships with NGOs and government bodies. Long-term success needs multi-level support, including community awareness, ongoing training, and integration into public health policies.

DISCUSSION

The review highlights that parent-mediated interventions are the most commonly utilized and practically viable models in low-resource settings across India. Enabling caregivers to actively participate in therapeutic processes not only improves developmental outcomes for children but also helps alleviate parental stress and fosters greater caregiver confidence (Divan et al., 2015; Aneja et al., 2017). This model resonates with India's culturally rooted, family-centric caregiving norms and addresses the acute shortage of trained mental health professionals.

Another prominent finding is the effectiveness of task-shifting strategies involving community health workers (CHWs). Programs that trained Accredited Social Health Activists (ASHAs) or Anganwadi workers such as those reported by Nair et al. (2021) and Ranganathan et al.

(2016) illustrated that non-specialist personnel can successfully deliver structured and culturally appropriate support. These results reinforce existing global literature from low- and middle-income countries (LMICs), which positions task-shifting as a vital approach for addressing healthcare workforce limitations (Patel et al., 2011).

Cultural and linguistic adaptation of intervention content emerged as a crucial factor in promoting engagement and retention. Several programs localized materials through familiar storytelling techniques, regional metaphors, traditional songs, and active involvement of extended family networks (Banerjee et al., 2011; Sharma & Mehrotra, 2015). These adaptations play a key role in reducing stigma, enhancing comprehension, and increasing caregiver commitment.

Community and school-based intervention models also contributed significantly to improved accessibility and social inclusion for children with autism spectrum disorder (ASD). These familiar and non-clinical settings help reduce logistical burdens such as travel, normalize the use of developmental services, and provide naturalistic environments conducive to social skill development (Paul et al., 2018; Vaidya et al., 2017).

Emerging digital approaches such as mobile-based training modules, tele-counselling, and smartphone applications—offer promising avenues for service delivery, particularly in remote or underserved regions (Arora et al., 2019; Choudhury et al., 2015). Nonetheless, persistent challenges such as limited digital literacy, poor internet connectivity, and inconsistent access to devices highlight a significant digital divide, particularly among marginalized populations.

Several interventions also emphasized the importance of addressing the psychosocial well-being of families, reporting reductions in caregiver stress and social isolation (Kumar et al., 2020; Banerjee et al., 2011). Although often considered secondary outcomes, these factors are essential for sustaining long-term caregiver engagement and optimizing child development outcomes.

LIMITATIONS

The reviewed studies, while innovative and contextually relevant, face several methodological constraints. Many had small sample sizes, lacked control groups, or were of short duration, limiting the strength and generalizability of their findings. Geographic representation was uneven, with limited data from North-East India and tribal regions. Furthermore, few studies used standardized tools to assess developmental outcomes in children, focusing instead on parental or feasibility metrics.

IMPLICATIONS FOR POLICY AND PRACTICE

Despite these limitations, the evidence supports the feasibility and effectiveness of low-cost, community-based interventions for children with ASD in India. Key recommendations include integrating parent training into existing health services, training community health workers with ASD-specific content, embedding interventions within school systems, and developing digital tools with vernacular and offline capabilities. Providing psychosocial support for caregivers is also essential. For sustainability, these strategies should align with national frameworks like the Rights of

Persons with Disabilities Act (2016) and the National Education Policy (2020).

CONCLUSION

This review highlights growing evidence supporting low-cost, community-based psychosocial interventions for autism spectrum disorder (ASD) in India. Despite challenges like limited infrastructure and social stigma, models such as parent-mediated programs, task-shifting to community workers, and culturally adapted content have shown early success in improving access and outcomes. Caregiver support is essential for sustained impact, and integrating ASD services into existing health, education, and welfare systems is key to long-term scalability. The shift from urban, clinical models to inclusive, locally delivered approaches reflects a promising direction. Collaborative efforts among stakeholders are now needed to expand, adapt, and embed these interventions nationwide.

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Behavioural Drivers in Ayurveda Mental Typology for Public Health Compliance In Crisis

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ABSTRACT

BACKGROUND: Public health crises reveal critical behavioural paradoxes. Despite evident risks, population exhibit profound hesitancy toward protective measures. A solid psychological and behavioural framework is inevitable to face such crises. This paper establishes that compliance emerges from aligning triguna which is Ayurveda's mental typology of sattva ,rajas and tamas with positive psychology's strength based approaches. Satwa cultivation builds cognitive resilience , rajas redirection channels impulsivity in to collective action and tamas mitigation counters inertia through micro-habits. Positive psychology amplifies this via hope narratives ,collective efficacy and character strength deployment.

Objectives:

1. To evaluate the need of psychological and behavioral strength during public health crises
2. To identify factors that determines response and resilience during crises.
3. To devise reformative measures for enhanced resilience and public health adherence during crisis utilizing psychological principles in Ayurveda.

Method: The study will be conducted in two arms – in first part different textbooks related to psychological principles in Ayurveda are collected and compiled. Here literary techniques such as close reading ,analysis of narrative structure and discourse analysis will be used. In second part a model based on reformative principles in Ayurveda is formulated.

Results: In times of crises, behavior dynamics are vital to public health compliance. The behavioral framework greatly benefits from the psychological concepts found in Ayurveda. When this is combined with contemporary psychology, reformative approaches can be used to improve crisis response.

Conclusion: Behavioral dynamics has a crucial role in managing crises. Public health compliance depends on the inner psychological framework which is an output of proportion of triguna. So this may be used as a tool for reformation too.

Keywords: Triguna, positive psychology, Ayurveda mental typology

Introduction

Pandemics, epidemics, and natural disasters are examples of public health emergencies that not only put a strain on healthcare systems but also reveal ingrained behavioural paradoxes in human reactions. These paradoxes such as the conflict between short-term discomfort and long-term benefit, the gap between knowledge and action, or the tension between individual

freedom and collective responsibility show that behaviours are not exclusively determined by logical choices or scientific awareness. Rather, they are ingrained in people's and societies' emotional and psychological makeup. The Triguna theory of Indian philosophy, which argues that all human behaviour is influenced by the dynamic interplay of three fundamental qualities,Sattva , Rajas and Tamas,is a potent lens through which this complicates behavioural landscape can be understood. As a result, the behavioural irregularities observed during public health emergencies are not coincidental; rather, they are indicative of different degrees of internal psychological makeup. Public health systems can create more culturally appropriate and psychologically complex interventions by acknowledging this. Modern behavioural science and Triguna theory can be combined to create more comprehensive public health approaches that not only educate but also change people's perceptions, promoting morally and sustainably sound crisis management. This article checks how these Ayurvedic mental types influence behavioural responses in times of public health emergencies. We argue that understanding and integrating this typology into crisis communication and intervention strategies can foster more nuanced, culturally resonant, and effective public health outcomes.

Review of Literature

Human Perception as a driver of behaviour

The framework presented in this article aligns with the behavioural geography approach of scholars like Dr. Taruna Bansal, who emphasize that spatial and crisis behaviours are shaped not just by physical conditions but by mental perceptions, cultural filters, and individual cognition. It highlights the human mind's role in mediating how individuals perceive and act within their spatial environment. Dr. Taruna Bansal's contributions to behavioural geography are grounded in a synthesis of established behavioural theories that elucidate how individuals perceive and respond to their environments, particularly during crisis scenarios. Her work references the stimulus–response theory, which conceptualizes behaviour as a direct reaction to external stimuli, and cognitive-behavioural theory, which emphasizes the mediating role of internal belief systems and mental frameworks in shaping individual actions. Bansal also draws upon Lewin's field theory, which posits that behaviour is a function of both the individual and the surrounding environment, underscoring the interactional nature of psychological and spatial dynamics. Central to her framework is the concept of mental filtering, wherein cultural background, personal experiences, and value systems shape one's interpretation of environmental risks and guidance. These theoretical orientations inform her argument that behavioural responses to public health measures or disaster interventions are not purely rational but are significantly influenced by subjective perception. Bansal's perspective aligns with the Ayurvedic model of Manasika Prakriti, which similarly underscores the role of internal constitution in determining behavioural tendencies. Together, these frameworks advocate for a more nuanced, perception-sensitive approach to public health strategy and spatial planning.(Dr Taruna Bansal,"Geographical Thought")

Theoretical Grounding: Triguna Theory Foundations

Triguna theory has its origin from sankhya school of philosophy. It is used widely used in Ayurveda and Bhagavad Gita and offers an indigenous psychological model to explain how people respond differently under stress, uncertainty, and collective threat. Prakrithi is the fundamental substance out of which the world evolves. In the unmanifested condition,prakrithi is union of triguna – sattva, rajas and tamas in equilibrium. The tendencies of manifestation (sattva) and activity (Rajas) are held in check by the tendency to non-manifestation or inertia(tamas). Prakrithi evolves under the influence of Purusha which causes a disturbance in the equilibrium. The cause of development follows a definite law of succession in space , time ,mode and causality.The first glow in the empty sky that appears when the self is faced by the non-self is called consciousness, or buddhi.Indian philosophy holds that the manas is the organ responsible for synthesising sensory data into percepts.The senses are thought of as door and Manas is believed to be the doorkeeper.

The gunas are deduced from their effects rather than being perceived. Sattva is the first of these. It has the potential to consciousness, which leads to conscious manifestation and gives the person pleasure. According to its etymology, the word "sattva" comes from "sat," which means "that which is real or existent." Sattva is considered potential consciousness. 'Sat' also denotes perfection in a secondary meaning,Therefore the sattva element is what creates happiness and kindness. It is described as light or buoyant. The source of all activity and the cause of pain is the second, rajas. A life of restless exertion and ardent enjoyment is the result of Rajas. Tamas, which opposes activity and results in apathy or indifference, is the third.It results in indolence and ignorance. The corresponding roles of sattva, rajas, and tamas are to produce pleasure, pain, and sloth through manifestations (prakasa), action (pravrtti), and restraint (niyamana). There is never a separation of the three gunas. They interact with each other and support one another. They are intimately connected, much like a lamp's wick, oil, and flame. They are the triguna, the essence of Prakrithi. Everything is made up of the world's differences, which can be linked to the dominance of different gunas. The evolution of this perception is undoubtedly psychological. The form of a thing that manifests is called sattva; the manifestation is made about by rajas; the opposition, or impediment, to the manifestation of sattva is called tamas. Every one of the three causal substances, such as sattva, has a variety of distinct manifestations. Even though the triguna are subject to development, decay, and addition and subtraction, as well as changes from potential to real caused by collocations, the potential and the actual are always the same. Similar to a game of dice, they are always the same dice, but we interpret them differently depending on how they fall. The location, order, grouping, mixing, and separation of the eternally existing essentials—which are always integrating and disintegrating—are all affected by change. (Dr Radhakrishnan, 1923)

Human mind is a minute representative of the universe. Triguna theory is applicable in

the formation of the mental makeup of a person. Each person is unique due to the varying permutations and combinations of sattva , rajas and tamas .

Triguna Meets Behavioural Science

The mind is also termed as sattva. Sattva bala (mental strength) provides an adequate status of a person's wellbeing. Thus, mind which is of sattva dominant is free of negative emotions like anger and confusion. Rajas and tamas is considered as manodosha. ("Charakasamhitha", 2010, p:248) . Three types of mental constitutions are described: shuddha, rajasika and tamasika. ("Charakasamhitha", 2010, p:312).Detailed description of characteristic traits based on triguna is given in Susrutha samhitha. ("Susruthasamhitha", 2021, p:345) .Ashtangahrudaya also mentions some characteristic traits. ("Ashtangahrudaya", 2006,p:386). In charaka samhitha and susrutha Samhitha , 16 personalities are described based on triguna.), 7 types under sattvika, 6 types of rajasika and 3 types of tamasika personalities. ("Susruthasamhitha", 2021, p:362) ("Charakasamhitha" ,2010,p:324). In kashyapa samhitha, two more types are added to make it 18 in number.("kashyapasamhitha",2002,p:81-86) But when we analyse a person's mental constitution in a deeper way, each one is of in a unique combination of its own. Moreover, the dynamicity of triguna makes a person's mental nature subjective to change.

Methods

The study is designed in two distinct phases. The first phase involves the collection and critical analysis of classical Ayurvedic texts that contain psychological principles. This phase employs literary methodologies such as close reading, narrative structure examination, and discourse analysis. The second phase focuses on developing a theoretical model grounded in the reformative psychological principles identified within Ayurveda.

Need of Public Health Compliance in Crisis

Following public health guidelines and recommendations is essential during public health emergencies in order to protect populations and lessen the crisis's effects.

1. Disease control and prevention
2. Following orders such as evacuation or isolation
3. Maintaining social order and stability
4. Sustaining essential services
5. Building resilience
6. Psychological well – being

Ayurveda Mental Typology and Crisis Behaviour Matrix

Mental Type (Guna)	Major Psychological Qualities	Behavior During Crisis	Perception of Crisis	Example from Kerala Flood 2018	How to Handle / Support
Sattva	Calm, wise, selfless, empathetic, discerning, disciplined, spiritual	Remains composed, helps others, leads calmly, follows safety guidelines, encourages community cohesion	Sees it as a shared challenge, maintains clarity, shows hope and resilience	Many volunteers and spiritual leaders who organized relief camps and distributed aid without self-interest	Empower them to lead, involve in communication and counselling roles, assign critical community coordination tasks
Rajas	Ambitious, restless, reactive, emotional, controlling, achievement-driven	Tends to panic initially, tries to take charge, can become over-controlling or over-involved, fluctuates between courage and stress	Sees crisis as a threat to control or reputation, may blame others or system	Certain local leaders or individuals who became aggressive in demanding quicker aid, some taking initiative rapidly but later burning out	Provide structured roles, regular reassurance, guided leadership tasks; give recognition and channel energy positively through action
Tamas	Lethargic, indifferent, fearful, resistant to change, apathetic, confused	May become helpless, immobilized, refuse to evacuate or accept help, may deny the severity of crisis	Sees crisis as fate or punishment; lacks clarity; may become fatalistic	Individuals who refused to leave homes in submerged areas, remained isolated or dependent, believing rescue was pointless	Offer emotional support, provide clear step-by-step instructions, use peer influence or religious trust figures, simplify information

Crisis Response: A Positive Psychology Perspective

The goal of Martin Seligman's positive psychology is to improve wellbeing by fostering positive emotions, meaningful life experiences, and strengths. PERMA (Positive emotion, engagement, relationships, meaning, and accomplishment) is one of the fundamental components that contributes to long-term contentment and satisfaction. Using the concepts of positive psychology can enhance resilience, mental health, and general life satisfaction. The integration of positive psychology further strengthens the understanding of health behaviour during crises. Positive psychology emphasizes strengths, well-being, and human potential, aligning well with Ayurveda's goal of internal balance and harmony. The theories related to positive psychology such as Hope theory, resilience theory , strength based approach and flow theory can be applied to enhance crisis management.(Jeremy Sutton,2016)

Reformative Principles in Ayurveda

This discussion is part of a classical Ayurvedic chapter known as Janapadodhwamsa, found in the Vimana Sthana section, which deals with the destruction of populations due to environmental and moral decline. This section explains the reasons behind large-scale environmental disasters that can wipe out entire communities,not just through epidemics, but also other types of natural or manmade calamities and suggests possible ways to prevent and manage them. It also explores how people with different body types, levels of immunity, and ways of living may be affected differently during such crises. According to Ayurveda , when any of the four key natural elements—air, water, land, or climate/time—become polluted or disturbed, it can lead to the outbreak of widespread diseases. To handle such situations effectively, it is advised to prepare in advance by collecting and preserving medicines that are strong and well-balanced in all their properties. Ayurveda also takes a deeper philosophical view, suggesting that such environmental imbalances can be caused by human actions. Harmful emotions such as greed, anger, ego, and conflict, are said to contribute to the downfall of civilizations. ("Charakasamhitha", 2010,p:242). Ayurveda outlines a number of methods and moral principles for strengthening the mind. When examined from the perspective of classical pedagogy, the study of ayurveda reveals a multifaceted educational process that goes well beyond learning medical knowledge. A person can be completely turned into Brahmasattva or Arshasattva following Ayurvedic education, according to a reference from Charakasamhitha. ("Charakasamhitha",2010,p:389)

✓ Promoting morality : Achara Rasayana

Achara Rasayana describes an ideal way of living that supports both mental and physical well-being through disciplined behaviour and ethical conduct. It includes truthfulness, freedom from anger, non-indulgence in alcohol, nonviolence, calmness, and sweet speech. A person is encouraged to be engaged in meditation, maintain cleanliness, show perseverance, be charitable, and follow religious practices. Respect toward teachers, parents, and elders is emphasized, along with being loving and compassionate. Balance in sleep and

wakefulness is important, as is the regular use of ghee. One should have an awareness of the proper measure of time and place, practice control over the senses, keep the company of elders and the wise, maintain a positive attitude, exercise self-control, and remain devoted to the Vedic scriptures.(("Charakasamhitha",2010,p:389)

✓ Entertaining disciplined life:

Ayurveda emphasizes the importance of a disciplined and balanced lifestyle to maintain health and prevent disease. Dinacharya refers to the daily regimen and structured routine. Rithucharya is the seasonal regimen , when one adjusts diet,habits and lifestyle according to the changes of seasons.

✓ Codes of conduct

Sadvrittha is much more than just a series of regulations. It is a dynamic framework for personal and societal change in Ayurveda. It cultivates discipline, purifies the mind and body, prevents self-destructive behaviour, and fosters peace by systematically guiding conduct across all dimensions of human existence - physical, mental, social, ethical, and moral.

Ayurvedic Ethical-Moral Reformative Model for Enhancing Public Health Compliance in Crisis Situations

I. Central Objective

To enhance Sattvaguṇa in individuals and communities, thereby fostering adaptive, emotionally regulated, and cooperative public health behaviour during crisis situations.

II. Core Ayurvedic Concepts Integrated

Concept	Key Features	Relevance in Crisis Context
Sadvritta	Ethical living rooted in truthfulness, compassion, and sense control	Builds moral discipline, trust, and responsible social behaviour
Achara Rasāyana	Behavioural rejuvenation through humility, contentment, non-violence, good speech	Cultivates emotional intelligence, self-regulation, and positive conduct
Janapadodhwamsa	Theory of mass affliction due to vitiated air, water, land, and time	Enhances ecological awareness and collective responsibility
Dinacharya	Structured daily regimen (rising early, hygiene, physical and mental discipline)	Reinforces inner stability, resilience, and physical well-being
Ṛithucharya	Seasonal adaptation of diet and behaviour	Maintains physiological and psychological balance across environmental shifts

III. Pillars of the Sattvaguṇa Enhancement Model

Model Pillar	Specific Practices	Expected Outcomes
1. Ethical Reconditioning (Sadvritta + Achara Rasāyana)	• Speak truth in a pleasing manner • Avoid fear-mongering or aggressive speech • Cultivate compassion, generosity, patience • Restrain desire, promote humility • Maintain purity in thought, speech, and action • Uphold respectful conduct	Strengthens moral clarity, reduces impulsivity, and builds social trust
2. Daily Stability through Dinacharya	• Wake during Brahmamuhurta • Daily hygiene • Physical activity (Vyayama) • Meditation and Praṇayama • Regulated meals and sleep	Anchors emotional regulation, aligns biorhythms, improves immunity
3. Seasonal Adaptability via Ṛithucharya	• Adjust food and habits to seasons	Prevents seasonal imbalance, sustains physical and mental resilience
4. Environmental and Social Hygiene(Janapadodhwamsa Response)	• Preserve purity of air, water, land, and time • Discourage pollution and overuse of resources • Encourage	Promotes ecological responsibility and collective sattva enhancement

	community rituals and nature-based harmony	
5. Behavioral Transformation through Culture(Achara Rasayana)	Daily moral journaling or reflection,Study of classical wisdom ,Maintaining good conduct	Rewires habitual tendencies towards calm, clarity, and ethical behaviour

IV. Crisis Application Flow: Ayurvedic Tools Across Phases

Crisis Phase	Strategic Focus	Applied Ayurvedic Interventions
Pre-Crisis	Sattva cultivation, training, preventive discipline	Sadvṛtta, Dinacharya, Achara Rasayana
During Crisis	Emotional resilience, cooperation, ecological response	Ṛithucharya, Janapadodhwamsa-awareness
Post-Crisis	Community healing, self-reflection, restoration	Meditation, sattva enhancing cultural practices

Results

- Ayurvedic mental typology effectively explains individual differences in public health compliance during crises based on dominance of Sattva, Rajas, or Tamas gunas.
- Sattva-dominant individuals consistently exhibited high levels of cognitive, emotional, and behavioural compliance, motivated by ethical reasoning and collective welfare.
- Rajasic individuals showed selective or reactive compliance, driven by emotion, trends, urgency or perceived personal gain, requiring tailored communication and incentive-based strategies.
- Tamasic individuals were most prone to denial, misinformation, and non-compliance, underscoring the need for simplified, supportive, and trust-building interventions.
- Behavioural paradoxes during crises align with internal guna dynamics, rather than being purely rational or environmental in nature.
- It can be related to behavioural theories of positive psychology
- Public health messaging tailored to guna-specific tendencies improves effectiveness.

Discussion

The present study evolved from the pressing need to understand the psychological variability observed in public health compliance during crises such as pandemics and natural disasters. Conventional behavioural models, though valuable, often lacked the cultural specificity and psychological depth required to address compliance challenges in diverse populations. This gap led to the exploration of Ayurveda's Manasika Prakriti as a foundational framework, offering an indigenous typology rooted in centuries of experiential knowledge. As the study progressed, it became clear that the three gunas,Sattva, Rajas, and Tamas,provided not only a descriptive lens for individual behaviour but also a predictive framework for crisis response. To enrich this traditional model, theories from positive psychology and behavioural geography were integrated, allowing for a multi-dimensional understanding of how individuals perceive risk, process information, and choose to act. The resulting model was thus created to bridge ancient and modern psychological paradigms, enabling culturally aligned, typology-specific strategies for public health communication and behavioural intervention. It aims to offer practical applications for policy-makers, health educators, and community leaders seeking to promote sustained compliance, resilience,

and collective wellbeing during times of crisis.

LIMITATIONS

- Lack of empirical validation of the principles
- Cultural sensitivity can lead to difficulty in application
- Subjectivity of mental nature makes it difficult to assess
- The categorization oversimplifies mental nature which is actually complicated

Conclusion

Understanding behavioural drivers through the lens of Ayurveda's mental typology offers a profound yet practical framework for enhancing public health compliance during times of crisis. Ayurveda classifies individuals into three fundamental mental disposition,each influencing how people perceive, process, and respond to external threats. Recognizing these innate tendencies allows public health systems to design interventions that are more inclusive, psychologically attuned, and ethically grounded. For instance, strategies that appeal to moral duty and truth may resonate with sattvic individuals, while rajasic individuals may respond better to action-driven, reward-based messaging.Tamasic individuals may require compassionate support and community-based nudges to mobilize action. By integrating this ancient typological insight with contemporary behavioural science, public health initiatives can foster not only better compliance but also deeper trust, cooperation, and resilience among diverse populations. Such integration bridges cultural knowledge systems and modern governance, creating pathways for more holistic and sustainable health outcomes.

FUTURE SUGGESTIONS

- Empirical validation of behavioural patterns linked to Sattva, Rajas, and Tamas.
- Develop integrative behavioural models combining Ayurveda and modern psychology.
- Incorporate Ayurvedic ethics into health education.
- Create assessment tools and culturally aligned public health frameworks for crisis resilience.

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Raising without Roles: A Review of Non-Conventional Parenting and Gender Neutral Rearing

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ABSTRACT

This narrative review examines the impact of non conventional parenting and its function in raising gender-neutral children globally as well as in Indian contexts. Emerging family types like same-sex families, cohabiting partners, and single parents by choice are currently changing the gender socialisation landscape and challenging the binary gender socialisation, as traditional parenting practices adhere to strict gender norms. Using a PRISMA diagram and 42 peer-reviewed academic articles that were selected based on predetermined inclusion criteria and studies chosen through a systematic review process, and this paper summarises the information currently available on the effects of these parenting styles on a child's development of gender identity and behaviour.

This review is based on Social Learning Theory and Gender Schema Theory, with an emphasis on the impact of parental modelling and a child's internalisation of gender roles. According to the review's findings, children raised in nontraditional family structures are more likely to be adaptable, exhibit non-traditional gender behaviour, and have a better psychosocial adjustment. In order to promote gender-equitable parenting, this study highlights the significance of inclusive policies and culturally sensitive parenting interventions. In order to better understand the social and psychological effects of gender-neutral parenting, the study concludes by urging more longitudinal research, particularly in the Indian context.

Keywords: Gender neutral rearing, parenting, non-conventional families, parenting practices, gender equality

Introduction

"Children ought to be allowed to develop their identities based on their own interests rather than socially prescribed ones." This principle highlights the need for a rising movement in parental perspectives away from the outdated gender binary thinking and towards gender autonomy. In over a decade, developmental and family psychology has paid increased attention to non-traditional parenting styles such as gender-neutral parenting, same-sex parenting, and on single parents by choice (Mannat & K, 2024)). Non-conventional parenting, which is referred to as the family structures and parenting styles which deviates from the heteronormative, nuclear family model with traditional gender roles and expectations, purposefully challenges these standards and creates an environment where children can grow up discovering their identities, in contrast to traditional

parenting, which most often focuses on reinforcing binary gender roles. These practices are connected to having a better mental health, emotional flexibility and self esteem in people and it is hence important to create a more supportive setting to grow up for the youngsters and those who are exploring their gender identity (Olson et al., 2016).

The concept of gender neutral parenting is that it is the process of raising children without imposing any predetermined label and by allowing them to explore their own world and gender identity without forcing upon any cultural expectations. It is an autonomy support approach where children are permitted to freely understand and challenge the already existing and established norms by also promoting identity development without any stereotypes (Martinez, 2022). According to Endendijk et al., (2017), gender neutral parenting is the method of carung for children wherein parents do not "project onto their child" any prior norms existing, but instead helps them to explore themsleves and define themselves on their own terms.

The social cognitive and developmental theories also provide the foundation for a shift towards gender neutral child rearing. According to Albert Bandura, children while growing up picks up the social roles and gender norms by observing their parents and tend to copy them regarding this (modelling) and also get influenced by the reinforcements for their actions (Buseey & Bandura, 1999). Sandra Bem's Gender Schema theory states that the children have a cognitive framework that shapes the children's behaviour and perceptions by designating certain behaviours to be gender appropriate.

Parents are hence providing an opportunity for the children to have a flexible gender schema development when they themselves are actively challenging the gendered norms in the society. Both social cognitive and developmental theories focus on how a parent's action can have a significant impact on their children's perceived gender standards.

There is research conducted in Indian literature as well which backs up these theories and implies that having a non traditional parenting can help the children to develop a gender flexible mindset and can minimise the stereotypes in children and inturn improve the child's wellbeing. A study conducted in India by Mannat & K, (2024) which shows that the adolescents who have grown up in families which are gender neutral, they were more receptive in social interactions and had a lesser rigid career aspiration and were able to have a better emotional regulation and adaptability.

There is another study conducted by Goldberg in 2020 and Farr in 2017 which says that the homosexual parenting studies which were conducted in the Western part of the world provides an evidence to the fact that the children who grew up in a gender neutral household had better psychological adjustments and had more inclusive and egalitarian attitudes in them than in the children who gew up in a more conventional setup.

A recent trend known as "theybies", children raised with gender-neutral pronouns and gender-neutral identities until they self-

identify, is an illustration of how gender-neutral parenting is becoming more widespread. Although this idea proved controversial in certain sections, it reflects a larger trend towards autonomy and psychological safety (Davies, 2020).

There are still significant gaps in the literature in spite of these noteworthy findings. The majority of the resources on the subject are centred on Western culture, middle-class families, and as a result, they restrict the analysis of other cultures. Additionally, there aren't many longitudinal research on these topics to determine their long-term effects, and the perspectives of parents who identify as queer or gender expansive are frequently underexplored and goes unnoticed. In the Indian subcontinent, there is still a noticeable disparity, especially when it comes to the emphasis on non-binary parenting, the rural populace, and the influence of caste and religion in setting these gender standards.

Method

The paper used a narrative review style to synthesise the already existing research on non-traditional parenting, gender-neutral childrearing, and gender neutral socialisation. Unlike systematic reviews, which have greater scientific standards, the narrative review integrates existing research from psychology, gender studies, and family sociology into a broader thematic framework.

2.1 Strategies for the search

From March 2025 to May 2025, a thorough search was carried out using the databases: PsychInfo, Web of Science, PubMed, and Scopus. The following search terms were combined: gender-neutral parenting, gender-inclusive parenting, same-sex parenting, gender identity development, non-traditional family structure, and South Asian families. Additional filtering included limiting the study to peer-reviewed English-language studies published between January 2015 and May 2025, with empirical work starting in 2019 being given precedence.

2.1.1 Inclusion criteria:

- The studies which included parenting styles and strategies that challenged gender norms
- Studies which were focused on children and adolescents from the age of 1 to 18
- Studies which are from peer reviewed journals and dissertations in English language.

2.1.2 Exclusion criteria:

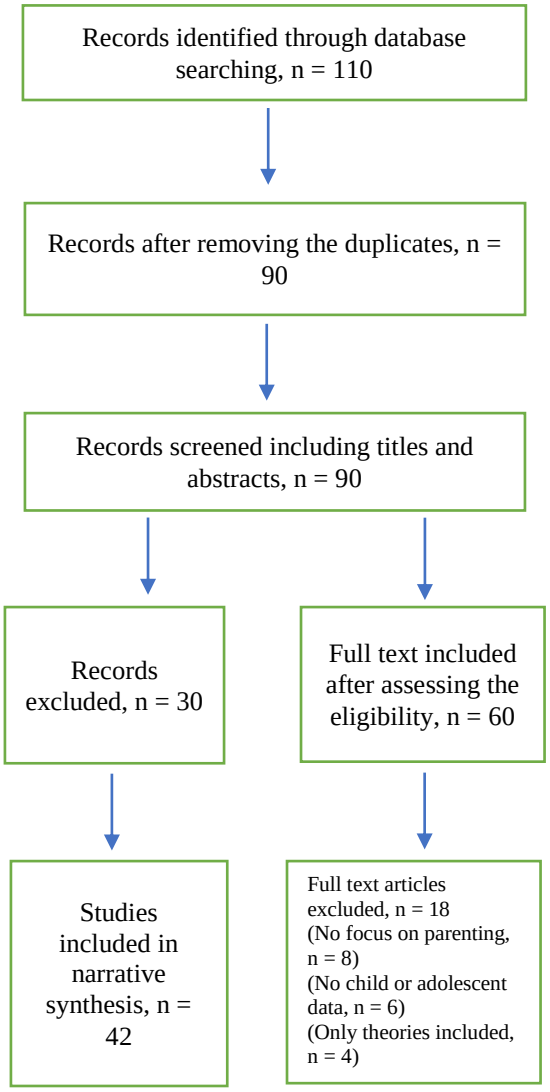
- Studies based adult gender identity development or gender development based on other factors such as social media or peer influence were excluded
- Opinion pieces, online news articles or non-peer reviewed journals were excluded

2.2 Selection of the literature

There were originally 110 unique articles, out of which there were 20 duplicates. There were 90 records left, which were sorted based on their abstracts and titles. After screening, 30 studies were eliminated because they were deemed irrelevant. Out of the 60 full-text papers that were evaluated for eligibility, 42 of them satisfied all

requirements and were included from the final synthesis.

2.3 PRISMA Flow Diagram



Literature Review

3.1 Theoretical framework and Definitions

Defining the key concepts:

Non-conventional parenting refers to parenting approaches that deviate from established normative and gender normative frameworks. This includes uncommon parenting methods such as single parenthood by choice, same-sex parenting, coparenting, and gender neutral parenting. Unlike traditional parenting approaches, which contain binary gender roles such as boys are not supposed to cry out and girls are expected to be nurturing, nontraditional parenting encourages emotional expression, equality, and inclusivity (Kane, 2006; Biblarz & Stacey 2020).

Gender neutral parenting tries to reduce gender-based expectations on children. Rather than emphasising behaviours that are commonly linked to the child's assigned sex, gender neutral parenting encourages children to explore the gender spectrum and defy stereotypes in their toys, language, clothing, and discipline. (Coyle and Liben, 2016; Freeman, 2020). Gender socialisation is the process by which children internalise gender roles and conventions from their interactions with family, friends, and the media. Gender socialisation starts before birth and lasts until the adolescent years (Bem, 1981). Parents serve as the main agents in this process, modelling both verbal and nonverbal behaviour for the children.

Key theoretical framework:

According to Bandura's (1977) social learning theory, children learn about gender roles and norms from their parents through modelling, imitation, and reinforcement. Children learn about gender norms from their parents, who serve as their major role models. Children in conventional families thus adhere to the family's traditional norms, whereas in non-conventional families, the modelling involves egalitarian practices and challenges the traditional norms regarding gender, and children brought up in such families tend to have a flexible gender norm and attitude (Endendjik et al., 2016). Gender Schema theory (Bem, 1981) proposes that children form mental frames and schemas about gender according to their

interactions with their parents, which govern their perceptions and behaviours.

A gender neutral parenting approach challenges the fixed framework or schema that exists. According to Weisgram and Dinella (2018), decreasing exposure to gendered language helps children develop a more balanced, non-biased schema. Butler (1990) and Sedgwick (1991) critique the normative gender identity and advocate for gender fluidity in their Queer Theory. This philosophy urges parents to help children explore diverse gender identities without imposing established expectations.

In India, gender roles are strongly integrated in familial and society systems (Chodorow, 1979; Sinha & Ramakrishnan, 2021). However, with the rise of urban families, progressive ideas, and education, families have begun to experiment with unconventional families.

Although each one of these theories is unique, a comprehensive study of them all contributes to a better understanding of gender-neutral parenting.

3.2 Gender Neutral Practices

Deliberate parenting techniques which aims at reducing the habit of reinforcing conventional gender norms in children are referred to as gender neutral parenting. This type of parenting provides the children an opportunity to explore their own identities and sexual orientation which are beyond the binary norms which are fixed in the society (Kane, 2018). There is a recent study conducted by Halim et al., 2021 which shows that there is a raising shift in the parenting style towards having a more egalitarian attitude and parents actively resisting the traditional toys and clothing choices and the activities the children are considered appropriate for their gender to participate in especially in more educated and urban families.

There is a qualitative study published in 2020 by Giannini et al., that has findings which suggests that the gender neutral parents do put in a conscious effort in choosing toys and books for their children which goes beyond the existing gender norms in the society in their attempt to encourage an inclusive attitude in children, have more interest in open ended play and more liberty in expressing their emotions. There is another study which has findings that the parents who has adopted a more non traditional type of parenting style and career choice often become the role models or examples for their children interms of gender equality. According to Endendjik et al. (2016), parents with greater gender equality are more likely to adopt a gender neutral parenting style. This study also has findings that the parents' gender role attitudes are highly predictive of the gendered enviorenment, which includes the household chores assigned or the media exposeure that has been established for the children.

According to Coyne et al. (2016), media is also a very important aspect in this regard. He states that the children grown up in a gender neutral household were open to a wide variety of options in media and had less rigid gender stereotypes. In such situations the parents also observe and monitor the children and critically evaluate how the gender is showcased or potrayed in media, which hence oromotes more critical thinking skills and lessens the internalization of stereotypes in children.

Another important aspect is that this approach does have its challenges as well.

Weisgram et al. (2020) suggests that even the parents who have pure and good intentions and are considering the option of gender neutral parenting, may still face a resistance from their families or schools or social setups that are still following the traditional norms in their lives.This can hence cause a confusion and conflict in children's minds as a result to their interaction with the above people. Even so, gender neutral parenting is still related to aiding in a flexible gender cognition and opennes to the diverse population (Martin & Ruble, 2022).

There is a longitudinal study conducted by Hyde et al., it was found that the children who are raised in a gender neutral parenting setup showcases kesser rigidity to the gender stereotypes by the age of seven. They were also more receptive to their peers who are non conforming. There are similar research published in India as well. A study by Sriram et al. (2018) has found that the Indian families from urban and modern cities and more likely to question the stereotypical gender norms in the society and gives children more freedom in choosing their clothing, activities they are preferred to participate in or how they express their emotions.

Even though the concept of gender neutral parenting is still in the infancy stage in most parts of the world, the literature published mainly indicates that the concept of gender neutral parenting is a significant tool for changing the rigid social norms formed, especially when it is consistently applied within a supportive ecological system.

3.3 Parenting Attitude in Non-Conventional Household

Non-traditional parenting usually takes a non-stereotypical approach for parenting. According to Farr et al. (2010) study, gender neutral parents usually oppose the rigid attitude towards gender and uphold the importance for equality and individuality. As per these studies, gender neutral parents are more conscious and proactive with shaping their children's gender perception. According to another study by Goldberg (2022) study, it is emphasized that parents of same sex are more focused on denconstructing the binary gender concepts and are less prone to impose a stereotypical ideology in children regarding gender and behaviour. Instead of that, parents can provide an environment to children where the children can express themselves as they are and authentically, even if it is against the social conventions and this flexible attitude aids in a more empathy and lesser gender rigidity in children.

3.4 Impact of Gender Neutral Parenting on Children

The aim of gender neutral parenting is to reduce the transmission of gender stereotypes and prejudice and give the children a more overview to the wide variety of experiences and pathways for identity development. The following factors look upon the already documented psychological, cognitive and social results related to the concept of gender neutral parenting and its techniques.

3.5 Identity Formation and Psychological Wellbeing

According to a study, children raised in a gender neutral atmosphere have more opportunity to explore their interests and identities without being constrained by already established gender standards. Martin

and Ruble (2009) found that early socialisation of children can have a substantial impact on their gender identity development, and that living in a less stereotyped setting can enable a more flexible self concept. Another study conducted by Halim et al. (2013) discovered that children who were exposed to more egalitarian parental attitudes exhibited fewer gender type preferences and were more at ease expressing cross-gender interests, implying that having a more supportive environment can aid in authentic identity expression.

3.5.1 Cognitive Flexibility and Empathy

A study in 2014 by Weisgram et al. (2014) found that the children reared by the gender neutral practice mostly have a more balanced mental cognition as they are exposed to a wide variety of plays, activities and toys, which was not constrained by the realms of gender. These children are most likely to interact with other genders and are less constrained by the traditional norms of their family.

3.5.2 Reduction of gender stereotypes

Parenting that is gender neutral can significantly lessen the effect of gender stereotypes, according to studies. Children whose parents hold egalitarian views demonstrated lower levels of gender stereotyped attitudes, according to a longitudinal study by Endendijk et al. (2013).

In a similar vein, Leaper (2002) demonstrated in his research how parental role modelling can influence a child's social gender views, promote the viewpoint that is consistent with gender-neutral cues, and also challenge traditional thinking.

3.5.3 Academics and Career Aspirations

Children's long-term goals for their schooling and careers may be influenced by their exposure to a variety of gender roles in their households. According to Croft et al. (2014), children whose parents practise non-traditional labour division are more likely to be inhibited from pursuing non-traditional professional paths, with even boys expressing interest in caregiving responsibilities. This suggests that parental modelling is crucial for expanding a child's perspective on the future.

3.5.4 Peer Relations and Socialisation

While gender neutral parenting can help children develop more inclusive attitudes, some may find it difficult to navigate friend circles that are shaped by conventional norms. Kane (2006) states that boys who exhibit feminine traits are prone to face sanctions from society or in friend groups, although parental support can mitigate these effects. Nevertheless, the findings generally indicate that this kind of parenting can promote more accepting and tolerant peer relationships.

Challenges, Limitations and Criticisms of Gender Neutral Parenting

Even if gender neutral parenting is praised for promoting gender equality and individual expression in children, it also has few social and structural challenges. The criticisms can stem from the individual’s culture and their norms, psychologically or practical difficulties in implementing from in the families.

4.1 Societal and Cultural resistance

One of the most frequent obstacles that gender neutral parents encounter is opposition from the society and culture in which they are raised, which can still uphold the traditional gender norms

within the family. Parents nevertheless frequently receive criticism from their extended family and other caregivers who believe that non-gendered approaches are unusual or confusing for the children, even in societies where gender diversity is more widely accepted (Kane, 2006; Freeman, 2007). This kind of parenting is viewed as a threat to societal cohesiveness in collectivistic societies, where there is a greater emphasis on tradition and conformity (Mahalingam & Balan, 2019).

4.2 Consideration of Gender Neutral Parenting to be Ideologically Driven

According to critics, gender neutral parenting can occasionally be seen as an overcorrection. For example, parents may try to steer clear of all gender-related references, which can ironically limit their child's autonomy and be just as rigid as stereotypes (Rosenblum & Travis, 2006). Additionally, there are concerns that these methods may be more symbolic than substantive; for example, the toys and clothes that are supplied to children may represent this, but only on a surface level, while the deeper parental values remaining traditional (Dinella et al., 2014). This can cause confusion in children who focus on implicit attitudes even when the explicit behaviours are progressive.

4.3 Difficulties with Logistics

Logistically, implementing gender-neutral parenting in a daily setting can also be challenging. It takes a lot of work to get resources like toys, clothing, or schools, and not all parents have this kind of privilege (Haines et al., 2016). Additionally, the mental and emotional strain of continuously concentrating on these issues and gender standards can be taxing for families with dual working parents or single parents. Additionally, the curricula of educational institutions that incorporate gender-neutral ideals are quite restricted. The majority of educational institutions and schools still use their old methods of promoting gender differences in things like sports, attire, and seating arrangements (Blaise 2005).

4.4 Longitudinal research

Although there are short-term research that demonstrate the advantages of gender-neutral parenting, the absence of appropriate longitudinal data that may assess the long-term psychological and social repercussions is cited by the approach's critics (Dinella et al., 2020).

The effects of gender-neutral parenting on a child's development at different phases of life and on the sociocultural elements of their lives, such as how they would handle situations that do not share their beliefs, need to be better understood.

Discussion

5.1 Intepretation of Results

This review highlights that same sex parents, single parents, egalitarian parents or any other non traditional types of parenting has reflected to have a more flexible gender development and lesser internalization of gender stereotypes in children (Goldberg et al., 2012). There are also evidences which states that the children who are brought up in a non conventional or non traditional household does not have any deficit than other children in traditional families when comparing their emotional or cognitive outcomes (Fedewa et al., 2014). There are also findings in the study that gender neutral rearing techniques can help to improve the resilience and identity of a child and

encourages then to explore a wider range or variety of interests and emotional expressions.

5.2 Significance of Review

This review contributes to current or continuing issues about developmental as well as family psychology by emphasising on a more nontraditional parenting style that deviates from gender stereotypes or traditional norms and has been shown to promote children's development. Additionally, it opposes and questions the usual heteronormative or patriarchal paradigms of parenting and advocates for a child-centered, inclusive approach. By combining the empirical results of previous studies, different family arrangements other than traditional ones are becoming more accepted, and parents are encouraged to follow a wider range of practices than the mainstream.

5.3 Relevance in other disciplines

Studies on gender-neutral parenting have the potential to influence many other fields and make significant contributions to the field of psychology as well, This study can help for the betterment of comprehension of gender dysphoria in children and the stress that comes with living in a patriarchal or conventional environment. (Olson et al., 2016). Public policy field can benefit by including the ideas of development of child welfare programs and the implementation of family laws. A basis for questioning the established traditional gender norms and promoting modifications to the existing gender socialisation model can be done in the fields of sociology and gender studies. The education sector can benefit as it can encourage and promote curricula and teaching practices to be more inclusive and to refrain from using gendered terms or gendered language in their teaching sessions in their early education years (Martin & Ruble, 2009).

Implications of Future research

As the topic of gender-neutral parenting gains more attention in academia and the public sphere, it is critical to comprehend its applications and the areas that need further research. Although the theories and empirical data point to promising findings, their validation and wider application call for more careful consideration as well as a longitudinal study that takes cultural sensitivity into account.

Implications for Parenting

Gender neutral parenting encourages parents to critically assess their behaviours regarding gender in an everyday setup, and it may include of the toys, clothes, housework, language, and goals for the future (Blakemore & Centres, 2005). To effectively accomplish this, the parental education and support system should be reinforced in the following ways:

7.1 Community organisations and workshops can provide useful resources for eradicating gendered language and behaviours in an everyday communication with the children. To promote more inclusive parenting techniques, educational models may incorporate parental coaching programs, wherein they learn how to interact with the children in a gender neutral format.

7.2 There can be media literacy programs introduced which can help the parents as well as the children to understand and comprehend the gendered messages in various commercial products as well as media (Coyne et al., 2016).

There are programs in Sweden such as "Raising children without stereotypes" and other countries as well inclusive preschool models in Finland which can be used as examples for educational institutions and parents to understand that collaboration can help in reinforcing non gendered values in children (Bennett, 2019).

Interventions in Education and Policy

The gender norms of children can also be influenced by the schools that the children attend. And hence, there is an important need for developing a better curriculum, introduce better teaching practices and classroom designs that can include:

8.1 There can be gender sensitivity training which can help teachers to identify and address various implicit biases that happen in classrooms (Skelton et al., 2007).

8.2 There can be modifications made to the curriculum inorder to incorporate carious gender narratives and reduce the gender related subject seperation

8.3 There can be policies introduced in schools inorder to guarantee inclusivity by bringing changes in aspects like uniforms worn to school, seating arrangements in class and toilet facilities.

By bringing these changes in the rules of the educational institutions can help to incorporate gender neutratlity in the existing frameworks and the government could further help with this.

Directions for future research

The research on gender-neutral parenting is still in its infancy and has a narrow focus, despite the growing scholarly interest in this subject. Some of the gaps existing regarding this topic are in:

9.1 More longitudinal studies: To understand the long-term effects on children's identity, wellbeing, and social interactions, it is critical to follow children who are raised in generally neutral environments from an early age across different developmental stages and their sociocultural contexts.

9.2 Cross-cultural comparisons: Western societies are the focus of the majority of research. In order to understand how parenting ideology and cultural values intersect, future research should look at how gender-neutral parenting is implemented in non-Western, collectivistic, or traditionalist contexts.

9.3 Children's voices: The majority of the literature now in publication exclusively represents the viewpoints of parents. In order to evaluate how children internalise or receive racist gender messages, future research on this subject should also give priority to the child's experiences, narratives, and perspectives (Halim et al., 2016).

To make significant progress, all of this calls for mixed method methods, culturally sensitive designs, and methodological rigour.

Conclusion

As a result, gender neutral-parenting and non-traditional parenting techniques indicate an ongoing paradigm change in how society views childhood socialisation, identity formation, and gender equality. This parenting approach actively challenges the conventional gender norms as well as the stereotypes that go along with them in an effort to foster an environment where children feel free to express themselves authentically, explore a wide range of interests and career options, and interact

with the world outside of the already constrictive gender norms.

According to the studied literature, gender-neutral parenting can help children develop psychologically, improve their cognitive flexibility, and foster genuine connections and cross-gendered interactions.

Other than showcasing less fixed gender typed behaviour, children who are raised in these setups also tend to have a more broader job or career aspiration and in turn have more open attitude towards others. There results are only achievable when few contextual factors are involved and considered, which includes the type of play they are involved in, the parental constancy, the support from the community, having a better cultural standard and a better sociopolitical environment.

There are also various considerable gaps regarding gender neutral parenting's research and implementation. To fully understand and comprehend the advantages and challenges of gender neutral parenting, it requires studies to be conducted over a period of time, which is by conducting longitudinal research which are cross cultured and child centred. Also, having an organized framework for media consumed by children, schools and government might promote families to adopt more unconventional parenting practices.

To conclude, gender neutral parenting is considered as a societal intervention which supports the ability to break the cycles of inequality in the society and to create a better and inclusive future of the children growing up, which can no longer be considered as just a personal preference. As the society strives for gender equality, a more inclusive environment for everyone and the bwst for all the children's psychological webbing, it is important that the parents are encouraged to explore various parenting strategies and philosophies that celebrates the individuality of children and to challenge the already established norms in the society.

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Exploring Existential Gratitude in Research: A Scoping Review

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ABSTRACT

Background: Gratitude is a deeply human experience, intuitively understood yet conceptually complex. Existential gratitude encompasses the ability to feel thankful overall.

Objectives: The scoping review aims to identify and explore the existing definition and theoretical framework of Existential Gratitude, including studies with associated variables, different methodologies to be undertaken, and to highlight the gaps and further directions for research.

Method used: Utilising the PRISMA-ScR Checklist, the review synthesises literature from 2014 to 2024, focusing on the role of existential gratitude in psychological well-being, resilience, and social support. To efficiently convey our findings, we utilised the Patterns, Advances, Gaps, Evidence for Practice, and Research Recommendations (PAGER) framework (Bradbury-Jones et al., 2021).

Results: A total of 509 studies were recognised, out of which 12 met the criteria of inclusion following thorough screening. Findings reveal a consistent positive association between existential gratitude and various psychological outcomes, highlighting its protective role, particularly in challenging contexts such as chronic illness and trauma.

Conclusion: The review emphasises the importance of social support in promoting existential gratitude and recommends that future research utilise longitudinal designs to examine the moderating effects of personality and cultural factors.

Keywords: Existential Gratitude, Existentialism, Spirituality, Resilience, Gratitude.

Gratitude is a deeply human experience, intuitively understood yet conceptually complex. It has been characterised as an emotion, a virtue, and a behavioural tendency (Wood et al, 2010). While individuals may differ in how they perceive and express gratitude, it is widely recognised as a key contributor to psychological well-being, interpersonal harmony, and overall life satisfaction (Emmons & McCullough, 2003; Jiang, 2020). Traditionally, research has focused on gratitude in response to positive life events or supportive actions from others,

emphasising its role in reinforcing social bonds and promoting emotional health. However, recent developments in positive psychology, specifically the emergence of second-wave positive psychology, have broadened the understanding of gratitude by exploring its relevance in the context of adversity, suffering, and existential uncertainty (Jans-Beken & Wong, 2019). This theoretical expansion has led to the conceptualisation of existential gratitude, a distinct form of gratitude that transcends situational appreciation. While general or dispositional gratitude reflects thankfulness for specific benefits or outcomes, existential gratitude signifies a more profound, unconditional acceptance and appreciation for life in its entirety, including its struggles, uncertainties, and losses (Méndez et al., 2014; Iskandar & Dearly, 2024).

Existential gratitude encompasses the ability to feel thankful not only for positive events but also for difficult experiences that foster growth, resilience, and meaning. It is especially salient during times of trauma or crisis, when individuals are compelled to re-evaluate their values, relationships, and sense of purpose. For instance, during the COVID-19 pandemic, daily expressions of gratitude were associated with enhanced emotional well-being across age groups, highlighting the adaptive capacity of appreciation even in the face of existential threat (Jiang, 2020). This broader form of gratitude aligns closely with processes of meaning-making, psychological adjustment, and spiritual well-being.

Gratitude has been conceptualised along three primary dimensions: as a trait, representing a general disposition toward gratefulness; as a mood, capturing fluctuations in gratitude across time; and as an emotion, a momentary feeling experienced in response to receiving kindness or benefit (Wood et al., 2010). Existential gratitude intersects with all three dimensions but is uniquely characterised by its orientation toward life's totality, embracing both joy and suffering.

The theoretical foundation for existential gratitude draws from the recognition that hardship is an inseparable aspect of human existence. Second-wave positive psychology emphasizes the integration of both positive and negative life experiences, suggesting that true well-being is achieved not through the elimination of suffering but through the capacity to find meaning within it (Jans-Beken & Wong, 2019). In response to this need, the Existential Gratitude Scale (EGS) was also developed to measure gratitude in painful times, offering a psychometrically sound tool that differentiates existential gratitude from general gratitude (Canakci, 2022). Validation studies of the EGS have demonstrated strong associations with spiritual well-being, resilience, and mental health, particularly among individuals experiencing trauma, grief, or chronic illness.

Empirical findings increasingly highlight the relevance of existential gratitude in promoting psychological well-being. Among older adults, existential gratitude has been positively linked to resilience, life satisfaction, and a sense of peace, suggesting its protective role in later life (Méndez et al., 2014). In individuals living

with chronic illnesses such as HIV, existential gratitude was shown to contribute to emotional adjustment and quality of life, with social support playing a significant mediating role (Iskandar & Dearly, 2024). Research involving young adults has demonstrated that social support amplifies the effects of existential gratitude on overall life satisfaction, emphasising the significance of social connections in fostering and maintaining (Parabuac, 2024). A common theme in concurrent study is the connection between social support and existential gratitude. Social support not only fosters existential gratitude but also amplifies its benefits on psychological outcomes. For instance, among individuals facing family-related adversity, such as parental substance use, existential gratitude contributed to greater life satisfaction, both directly and through the moderating role of social interactions (Parabuac, 2024). These findings underscore the social embeddedness of existential gratitude and suggest that interventions aimed at strengthening community ties may serve as effective pathways for enhancing resilience and well-being.

While most of the existing literature has focused on fostering gratitude for positive experiences, there is a growing interest in adapting gratitude-based interventions to address existential concerns. Meta-analyses and randomised controlled trials have demonstrated that gratitude interventions can lead to modest but significant reductions in symptoms of depression and anxiety, improvements in affect balance, and increased psychological flexibility, particularly in contexts of adversity (Cregg & Cheavens, 2020; O'Connell et al., 2018). Despite these findings, further exploration is needed to understand how existential gratitude specifically operates within such interventions and to identify the mechanisms that sustain its effects. Given the emerging significance of existential gratitude and its potential as a psychological resource in challenging life contexts, there is a compelling need for a comprehensive synthesis of the current evidence. By systematically examining existing literature on existential gratitude, including its conceptualisation, measurement, correlates, and interventions, the scoping review aims to clarify its role in psychological well-being.

Method

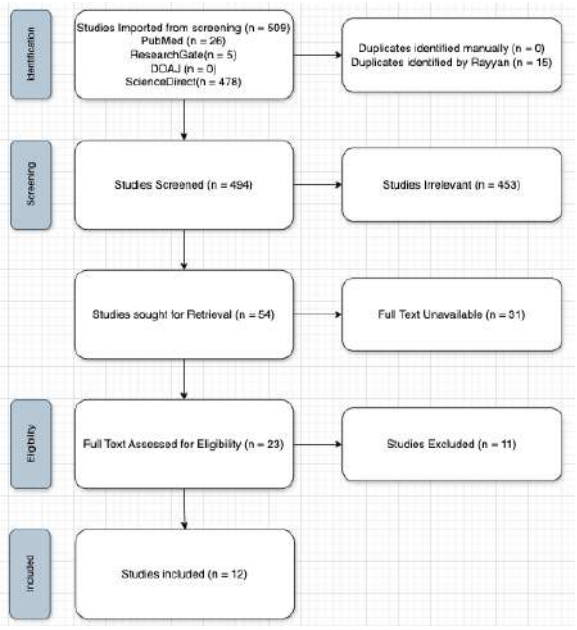
The PRISMA-ScR Checklist for effective reporting was used for the scoping review, following the guidelines established in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Tricco et al., 2018). During this period, data were retrieved from three databases: PubMed, ScienceDirect, and DOAJ. A search on ResearchGate was also conducted to identify relevant articles. Grey sources of literature were excluded to ensure that only peer-reviewed and high-quality literature was included, thereby strengthening the quality of our findings. The central focus of this review was to assess the status of research on existential gratitude, with the search limited to a ten-year period from 2014 to 2024 to identify the latest trends and perspectives.

The search strategy utilised the term "Existential Gratitude." Comprehensive

coverage of all relevant studies was prioritised. Eligible studies included research conducted across various countries. The specific inclusion criteria encompassed individuals from all demographics, including both general and clinical populations, as well as studies exploring various cultures and groups. The gathered information was saved into a CSV file for organised processing. Subsequently, this data was uploaded into Rayyan software (Ouzzani et al., 2016), a tool created to facilitate the review procedure. The software assisted in identifying duplicates, which were removed to ensure a clean dataset for the screening phase. The screening process occurred in two steps. The initial step included reviewing titles and abstracts, where reviewers chose relevant studies based on their titles and abstracts, in line with the review objectives. The second step required a thorough reading of the articles to assess their alignment with the review criteria. Each step was carried out separately by three reviewers to increase the reliability of the review. Any disagreements that emerged were resolved through group discussions among the reviewers, which happened after each step to guarantee consensus. This method enabled the identification of studies pertinent to the review's focus for final extraction and analysis. For efficiently conveying our findings, we used the Patterns, Advances, Gaps, Evidence for Practice, and Research Recommendations (PAGER) framework (Bradbury-Jones et al., 2021). The author developed these elements, GG verified by NS.

Results and Discussion

Figure 1. *Results of the literature search*



The search submitted a total of 509 papers. Specifically, 478 papers were illustrated from ScienceDirect, 26 from PubMed, 5 from ResearchGate, and 0 from DOAJ. Upon review, it was finally decided that 15 papers were duplicates, as figured out in Rayyan and were excluded. 494 studies were screened based on their titles and abstracts to assess their relevance. Out of these, 471 studies were found to be irrelevant as there was no match to the inclusion criteria, resulting with 54 studies for potential retrieval. Among the full texts, 31 were not retrievable, leading to their exclusion. Only 23 studies were evaluated for eligibility, and from those, 11 additional studies were excluded. A total of 12 studies were deemed valid for our research and were extracted for analysis. The following studies, Stauner et al. (2020), Möller, C (2025), Chauhan et al., (2024), Tam, K. (2021), Bernabe-Valero et al., (2023), Piccolo et al., (2022), Wang et al., (2024), Korenberg, J. R. (2024), Smith and Turner (2023), Iskandar et al., (2024), Nautiyal et al., (2024), Do and Giang (2024).

Table 1

Patterns, advances, gaps, evidence for practice, and research recommendations (PAGER)

Patterns	***Advances***	***Gaps***	***Evidence for Practice***	***Research Recommendation***
A consistent pattern of positive association between gratitude, existential, spiritual, or nature-oriented forms and psychological outcomes such as mental well-being, life satisfaction, sense of coherence, and pro-social behaviour	Significant conceptual and methodological advances in development and validation of new constructs and tools like the Existential Gratitude Scale, Religious and Spiritual Struggles Scale, and Gratitude Toward Nature scale.	A large proportion of the reviewed literature relies on correlational and cross-sectional designs, limiting the ability to infer causality between gratitude and outcomes.	Programs like Mindfulness-Based Social and Emotional Learning (MBSEL) can be successfully adapted to culturally specific contexts when appropriate training and understanding among practitioners are ensured.	Future studies must target longitudinal and experimental designs to identify causal mechanisms and developmental trajectories of gratitude and related constructs.
Gratitude functions as a mediator or buffer in the face of psychological distress, religious and spiritual struggles, or performance pressure.	Emerging theoretical integrations include the use of cultural transmission theory to explain how yoga became a kind of cultural tourism and eco-centric ethics to refute anthropocentric conservation ideas.	The majority of empirical are conducted in Western, Christian, and university-educated populations, reducing the generalizability of findings to more diverse global samples.	In organizational contexts, gratitude expressions can act as emotional defense mechanisms, suggesting a need for institutional awareness of emotional labor and its impact on staff and public perception.	There is a strong need to incorporate diverse, cross-cultural samples to capture the varying meanings, expressions, and impacts of gratitude in non-Western and minority contexts.
Gratitude is increasingly explored across diverse domains including health with people living with HIV, environmental behavior such as gratitude towards nature, education e.g., school-based SEL programs, and emotional labor in charitable fundraising.	Several studies have demonstrated rigor through mixed-methods designs, multivariate modeling, and behavioral measures, moving beyond traditional self-report approaches.	Studies do not sufficiently explore individual differences accounting for covariates such as shame-proneness, cultural value orientations etc., that could mediate or moderate gratitude's effects.	In healthcare, particularly among people living with HIV, social support from "significant others" including peers and professionals strongly correlates with existential gratitude, implying that interventions targeting social connection may enhance well-being.	Research should also focus into moderators and mediators such as personality traits, cultural values, gender dynamics, and spiritual orientations assess its role in gratitude.
Spiritual and existential dimensions of gratitude are being merged with secular psychological constructs like meaning-making, emotion regulation, and social support.	There is a modest expansion into underrepresented settings like Vietnam, Indonesia, and Central India, offering more culturally grounded perspectives.	Theoretical papers lack empirical grounding, while some psychometric studies report limitations in internal consistency or generalizability. Critical constructs like agency, authenticity, or the role of the body/spirit are underexplored in gratitude-related interventions.	Environmental interventions should focus more on trait-based gratitude, which has a stronger predictive power than state-based approaches for actual behaviour change	Further inquiry into eco-centric, existential, and spiritual dimensions is warranted, especially in applied fields like conservation, education, and mental health focussing on practical interventions tested in real-world settings to assess the scalability and contextual effectiveness of gratitude-based programs.

This scoping review reveals the growing academic and practical relevance of existential gratitude, particularly in contexts involving suffering, adversity, spirituality, and nature. Gratitude, long recognised for its role in enhancing mental health and life satisfaction, has evolved in recent years to encompass broader dimensions beyond mere appreciation for positive events. The current synthesis, structured through the PAGER framework (Bradbury-Jones et al., 2021), captures patterns, methodological advances, gaps, evidence for practice, and recommendations that help map the landscape of this emerging field.

Patterns

Across the studies reviewed, a clear pattern emerged linking existential, spiritual, and nature-directed forms of gratitude to favourable psychological outcomes. These outcomes include improved life satisfaction, mental health, sense of coherence, and prosocial or health-promoting behaviors (Iskandar et al., 2024; Tam, 2021; Chauhan et al., 2024). Gratitude repeatedly served as an emotional buffer, helping individuals cope with performance pressure, emotional labor, religious struggles, and health challenges (Stauner et al., 2020; Möller, 2025; Wang et al., 2024). Moreover, gratitude was not confined to individual experience; it frequently echoed existential and collective values, indicating its potential as a social and spiritual resource.

Studies revealed that gratitude was culturally and contextually flexible, resonating with diverse populations such as students in multicultural settings (Bernabe-Valero et al., 2023), environmental activists (Chauhan et al., 2024), and people living with HIV (Nautiyal et al., 2024). In these contexts, gratitude often correlated with resilience and deeper meaning-making, particularly when expressed toward nature or a higher power (Piccolo et al., 2022; Stauner et al., 2020).

Advances

The review highlights significant conceptual and methodological advancements in the study of existential gratitude. New psychometric tools such as the Gratitude Toward Nature measure (Chauhan et al., 2024), the Existential Gratitude Scale (Iskandar et al., 2024), and the Religious and Spiritual Struggles Scale (Stauner et al., 2020) represent efforts to assess gratitude more contextually and culturally. These tools move beyond generic, trait-level gratitude measures and instead capture gratitude's role in adversity, ecological ethics, and spirituality.

Important theoretical innovations also emerged. Piccolo et al. (2022) proposed an eco-centric ethical model of gratitude to challenge anthropocentric conservation narratives. Do and Giang (2024) employed cultural transmission theory to examine the transformation of yoga from a spiritual tradition to a tourism product, highlighting tensions between authenticity, commodification, and spirituality. Möller (2025) offered psychoanalytic insights into the role of gratitude in institutional fundraising, identifying its function in legitimising healthcare systems while possibly masking systemic flaws.

Gaps

Despite these advances, several critical gaps persist in the literature. One of the most evident is the continued reliance on correlational and cross-sectional designs, which limit causal inference regarding gratitude's effects on well-being (Stauner et al., 2020; Tam, 2021; Iskandar et al., 2024). Even studies that employ mixed-method or experimental designs (e.g., Wang et al., 2024) often fall short of capturing the long-term dynamics of gratitude.

Moreover, a Western, educated, industrialised, rich, and democratic (WEIRD) sample bias is evident. Over-representation of Christian, Western populations limits the generalizability of findings, despite a growing body of research from Vietnam, India, and Indonesia (Tam, 2021; Iskandar et al., 2024; Nautiyal et al., 2024). The need to include collectivist, Indigenous, and marginalised populations is pressing (Morgan et al., 2017; Smith & Turner, 2023), as gratitude may function differently across cultural and religious systems.

There is also limited attention to moderators and mediators such as personality traits (e.g., neuroticism, shame-proneness), religious identity, and moral orientation (Wang et al., 2024). Furthermore, embodied or somatic aspects of gratitude are rarely explored, missing opportunities to incorporate neuroscience or phenomenological perspectives (Fox et al., 2015). Finally, although new measures have been introduced, some still lack psychometric rigor or cultural sensitivity (Chauhan et al., 2024).

Evidence for Practice

The review reveals numerous practical implications for implementing gratitude-based interventions. In education, culturally adapted MBSEL programs, such as MindUP in Vietnam, demonstrate the importance of customising interventions to fit local traditions (Do & Giang, 2024). However, conceptual clarity is needed, as practitioners sometimes conflate MBSEL with counselling (Bernabe-Valero et al., 2023).

In healthcare, gratitude emerged as a resilience-enhancing factor. Among individuals with HIV, social support from health professionals and peers played a significant role in boosting faith, affirmation, and self-transcendence—core components of existential well-being (Nautiyal et al., 2024). These findings suggest that psychosocial interventions promoting gratitude could be integrated into holistic care models.

In organizational settings, expressions of gratitude in campaigns (e.g., NHS "Big Tea") served both as emotional uplift and as instruments of institutional legitimacy. Awareness of emotional labour in these contexts can inform ethical communication practices (Möller, 2025). In environmental psychology, cultivating trait-level gratitude—especially gratitude toward nature—was shown to be more effective in fostering pro-environmental behaviour than temporary emotional inducements (Tam, 2021; Chauhan et al., 2024).

Recommendations

To deepen our understanding of existential gratitude, the review recommends longitudinal and cross-cultural research to assess causal relationships. It calls for studies that incorporate diverse cultural samples, including Indigenous populations, and that examine how personality, gender, spiritual beliefs, and moral values moderate gratitude's effects. Future research should also explore gratitude's application in ecological, educational, and therapeutic domains, paying attention to how eco-centric, spiritual, and existential themes intersect.

The Existential Gratitude Scale (EGS) is recommended for assessing gratitude in adversity, and its use should be extended to clinical and cross-cultural research (Wong & Jans-Beken, 2019; Canakci, 2022). Interventions targeting individuals in difficult life circumstances—such as those affected by illness or family trauma—should integrate gratitude-building practices (Dearly & Iskandar, 2024; Parabuac, 2024). Social support networks, especially family, peers, and health workers, should be emphasised as key levers for strengthening existential gratitude (Noguchi, 2020).

Finally, existential gratitude can be relevant for both theists and nontheists. For the latter, secular or naturalistic frameworks can provide meaningful contexts for cultivating gratitude without reliance on a divine recipient (Colledge, 2013; Lacewing, 2015).

Strengths and Limitations

This scoping review's strengths include its global scope, conceptual integration, and the use of the PAGER framework, which enabled a structured and inclusive synthesis of patterns, innovations, and actionable insights. The inclusion of research from diverse populations—from cancer patients to environmentalists—demonstrates gratitude's contextual adaptability and psychosocial relevance.

However, limitations exist. The review relied on a limited set of databases (PubMed, DOAJ, and ScienceDirect), possibly excluding relevant literature. It does not assess risk of bias or employ the rigorous protocols of a systematic review or meta-analysis. Additionally, it covers literature from only 2014–2024, potentially omitting earlier foundational work. Future reviews should adopt more comprehensive search strategies, include cohort studies, and pursue cross-comparisons to strengthen the field's empirical base.

Conclusion

This scoping review emphasises the increasing academic focus on existential gratitude and the rise in validated instruments designed to assess it. While the existing literature provides important insights, it also highlights significant absences, particularly regarding diverse research, longitudinal studies, and intervention-oriented designs. The current connection between existential gratitude and social support implies that personal relationships are crucial in strengthening and maintaining this type of gratitude. Future studies should strive to address current shortcomings by utilising longitudinal methodologies, broadening multicultural samples, and examining causal relationships. Progressing research in this field not only aims to enrich academic discussions but also to guide practical applications in mental health enhancement and the creation of culturally appropriate interventions focused on improving well-being through gratitude.

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Living in the Digital Age: Navigating Digital Stress, and Mental Well-Being

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ABSTRACT

As digital technologies become increasingly integrated into everyday life, concerns about their psychological impact, particularly digital stress, have intensified. This phenomenon has become a central concern in the emerging field of digital age psychology.

This study aimed to explore the relationship between digital stress, screen time, multitasking, and digital literacy. It specifically investigated how digital literacy influences an individual's capacity to manage technology-related stressors.

A mixed-methods design was employed across two phases. In Phase 1, semi-structured interviews were conducted with 20 participants to identify recurring sources of digital stress. In Phase 2, a survey of 207 participants assessed screen time, device use, multitasking behavior, app preferences, and digital literacy levels.

Qualitative findings revealed prominent stressors such as information overload, digital dependency, FOMO, approval-seeking, connection overload, hyper-alertness, social comparison, complex interfaces, and cyberbullying. Quantitative results showed a significant positive correlation between multitasking and digital stress, and a negative correlation between digital literacy and digital stress. Urban participants exhibited significantly higher digital literacy than rural participants, pointing to a digital divide.

The findings highlight the importance of digital literacy in mitigating digital stress and promoting psychological well-being. Promoting digital competence, particularly in underserved rural populations, may empower individuals to navigate the emotional and cognitive demands of the digital era more effectively.

Keywords: Screen time, multitasking, digital stress, digital literacy, digital divide

Introduction

The proliferation of technology into daily life has dramatically reshaped modern societies; technology now informs how we connect, work, and interact with information. With the benefits of these technological resources, there are concerns about their impact on psychological outcomes and the advent of digital stress, which comprise negative emotional and cognitive reactions stemming from increased connectivity, multitasking, and information overload (Fischer et al., 2021). As people use digital platforms indiscriminately, and digital behaviors such as screen time or multitasking continue to shape the experience of stress, it will be important to understand how these behaviors, along with digital literacy, can be frame protectively to support mental health

(Lee et al., 2021). Digital inequalities continue to widen, notably the urban-rural divide, and it will be equally important through critical research, to understand how these interactions influence polychronicity and link to psychological wellbeing across different populations.

Digital Stress: Concept and Key Stressors

Digital stress, defined as the psychological stress that emerges from pervasive use of digital technologies, has become an increasingly prominent paradigm in modern psychological research. Prior research has identified multiple potential aspects of digital stress including information overload, fear of missing out (FOMO), approval anxiety, online hyper-vigilance, and digital addiction (Steele et al., 2020; Fischer et al., 2021). As defined, information overload usually occurs in the form of enormous amounts of online content, and is associated with negative outcomes such as decision fatigue and emotional exhaustion (Steele et al., 2020). The mechanisms of social media contribute to comparison and seeking approval, leading to diminished confidence, anxiety, and negative self-perceptions (Fischer et al., 2021). Although digital stress literature has considered concepts such as information overload, fear of missing out, and approval anxiety, existing models have also discussed additional components of digital stress, including connection overload, online hyper-vigilance, and threats like cyberbullying, and their contributions to digital distress in younger populations (Steele et al., 2020).

Screen Time, Multitasking, and Stress

There is sound evaluative evidence of a connection between screen time, multitasking, and stress (Kaewpradit et al., 2025; Roque & McGill, 2024). Excessive digital screen time has been linked to mental health issues, including anxiety, depression, and sleep disturbances across age groups (Kaewpradit et al., 2025). The rise of digital multitasking i.e. frequently switching between devices or content streams—has been shown to elevate cognitive workload, reduce productivity, and amplify psychological distress (American Psychological Association, n.d.). Neuropsychological findings indicate that multitasking can activate cognitive control regions in the brain, leading to attentional depletion and increased arousal states (Meyer, as cited in American Psychological Association, n.d.).

Digital Literacy as a Protective Factor

Digital literacy, defined as the ability to proficiently access, evaluate, and use digital tools, serves as an important protective factor against stress caused by technology (Yeo et al., 2024; Febrieta & Gina, 2024). Higher digital literacy correlates with reduced digital stress, as competence fosters self-confidence and effective coping strategies in digital contexts (Yeo et al., 2024). Systematic reviews have affirmed the value of digital mental health literacy interventions, which can enhance digital coping skills and overall psychological well-being at levels comparable to traditional approaches (Yeo et al., 2024). For younger populations, digital literacy not only mitigates digital stress but also supports resilience, responsible engagement, and better psychological outcomes (Febrieta & Gina, 2024).

Urban-Rural Digital Divide

A substantial body of scholarship documents a marked digital divide for urban and rural

people based on differences in access to devices, access to internet connectivity, and digital skills (Hamid & Abdullah, 2020; Lee et al., 2021). Urban populations are more likely to benefit from structural resources and digital education. In contrast, rural populations experience limited access, lower levels of digital literacy, and poorer self-efficacy (Hamid & Abdullah, 2020; Lee et al., 2021). And these benefits contribute to greater digital stress for rural people because they lack sufficient skills and resources to function effectively in digital spaces while managing their emotional well-being (Lee et al., 2021).

In sum, the literature documented here provides a good representation of the digital technology double edged sword: there are significant opportunities to advance the state of wellness but at the same time stresses on mental health, primarily for those constrained by limited digital literacy. Since the digital divide, including an urban-rural divide, has an ongoing impact on the psychological wellbeing of individuals, there is a need to respond to these digital competencies through interventions (Fischer et al., 2021; Yeo et al., 2024). Practicing digital literacy, especially in the context of disadvantaged and underserved communities, represents a promising development that could help alleviate the stresses caused by technology and promote digital equity.

Methodology

Research Design

This study followed a mixed-methods sequential design, combining qualitative and quantitative approaches to examine digital stress and digital literacy. Phase 1 involved semi-structured interviews to explore participants' experiences, while Phase 2 consisted of a structured survey developed from the themes identified in Phase 1 and supported by existing literature.

Phase 1 – Qualitative Phase

In the first phase, semi-structured interviews were conducted with 20 participants selected through purposive sampling. All participants were regular users of digital technologies. The interviews focused on two key areas: digital stress and digital literacy. Participants were asked about challenges faced while using digital devices, the emotional impact of being online, and what they considered essential digital skills or knowledge. Thematic analysis of the responses revealed recurring stressors, including information overload, digital dependency, FOMO, approval-seeking, connection overload, hyper-alertness, social comparison, interface complexity, and cyberbullying. Participants also highlighted gaps in their digital literacy, such as difficulty navigating settings, identifying secure content, or managing privacy features. These qualitative insights guided the development of the quantitative questionnaire.

Phase 2 – Quantitative Phase

In the second phase, an online survey was administered to 207 participants, selected through convenience sampling. Participants ranged in age from 18 to 50 and represented diverse backgrounds. The survey measured digital stress, digital literacy, and digital behaviors, including screen time, app preferences, and multitasking habits.

The digital stress survey scale included 11 questions based on the stressors identified in Phase 1. The digital literacy section consisted of two parts: perceived knowledge (five Yes/No questions) and objective

knowledge (five multiple-choice questions). The survey questionnaire drew on both qualitative findings and validated concepts from existing literature, ensuring a comprehensive and relevant assessment of digital stress and literacy.

Results

Qualitative Findings (Phase 1)

Participant Characteristics

Twenty participants (11 females, 9 males) aged between 15 and 56 years (M = 31.8, SD = 10.7) took part in the semi-structured interviews. The largest age group was young adults (20–29 years; n = 8), followed by teenagers (13–19 years; n = 5), middle-aged adults (30–39 years; n = 4), older middle-aged adults (40–49 years; n = 2), and older adults (50 years and above; n = 1). Education levels ranged from secondary school to postgraduate degrees. Smartphones were the most common primary device (n = 14), followed by laptops/tablets (n = 4) and desktop computers (n = 2). The mean reported daily device use ranged between 5 and 7 hours, with most participants indicating peak usage during the evening.

Thematic Analysis of Digital Stressors

Thematic analysis of the 20 semi-structured interviews revealed nine distinct digital stressors, with varying prevalence across participants. The frequency of each theme across participants is presented in Table 1.

Information overload appeared as the most common stressor as reported by participants (n = 17, 85%) where participants described feeling overwhelmed by the constant barrage of messages, news, and updates. For example, Participant 3 (25-year-old female) explained that *"By the time I get done with one set of updates, there's a new round waiting,"*.

Digital dependence was reported by 15 participants (75%) where many participants described compulsion to use their devices and difficulty in separating, even when they recognized the need to disengage. As Participant 7 stated, *"Even when I know I should stop scrolling, I can't stop."*

FOMO (fear of missing out) was present for 13 participants (65%). This frequently co-occurred with participants who had reported the **approval-seeking** theme (n = 11, 55%) where the participants described an emotional investment in likes, comments, and shares. For example, Participant 9 (28-year-old female) indicated that *"When I see all the things others are doing, I feel like I am missing out or not doing enough."*

Connection overload (n = 9, 45%) encompassed stress from maintaining multiple conversations and group chats, which sometimes overlapped with a hyper-alertness (n = 8, 40%) where people stated they were always checking and monitoring notifications. Participant 7, a 20 year-old female said, *"I even check my notifications in the middle of the night."*

Social comparison was identified by 7 participants (35%) as they described feeling uncomfortable through perceptions of others' social media lives, which were curated or amplified. **Interface complexity** (n = 6, 30%) included feelings of frustration through unintuitive app designs and an unclear understanding of privacy settings. Participant 9, a 42 year-old female said, *"Half of the settings that you come across are just jargon to me. I just leave them on default. I don't want to change anything."*

Though cyberbullying was identified less frequently (n = 4, 20%) it was reported to be a uniquely painful experience when it was identified. Participant 15, a 22 year-old male said, *"Someone created fake accounts and spread rumors about me. I stopped posting for weeks."*

Quantitative Findings (Phase 2)

In the second phase, survey data from 207 participants were analyzed to explore patterns and relationships between digital stress, digital literacy, and related digital behaviors. Participants ranged in age from 13 to above 50 years, with the largest proportion (47.3%) in the 20–29 age group. The gender distribution was nearly equal, with 51.7% identifying as male and 48.3% as female. A majority of participants were students (55.6%), followed by full-time employees (30.0%). Most respondents resided in urban areas (81.2%). In terms of digital device usage, 29.0% reported spending more than 7 hours per day on digital devices, and 72.0% reported frequently multitasking with multiple digital devices. Demographic and digital usage characteristics are detailed in Table 2.

Descriptive statistics for digital literacy and digital stress scores are presented in Table 3. Digital literacy scores ranged from 2 to 10 (M = 7.54, SD = 1.90), indicating a generally high level of digital competence among participants. Digital stress scores ranged from 11 to 55 (M = 34.54, SD = 8.05), reflecting moderate to high levels of perceived digital stress.

Pearson correlation analysis revealed several significant associations (see Table 4). A moderate positive correlation was found between multitasking and digital stress ($r = .28$, $p < .01$), indicating that individuals who frequently switch between digital platforms or tasks tend to experience greater stress. Conversely, a significant negative correlation was observed between digital literacy and digital stress ($r = –.25$, $p < .01$), suggesting that those with higher digital literacy levels reported lower stress levels. This finding aligns with the qualitative data, where participants with stronger digital skills appeared more confident and less overwhelmed.

Screen time was also significantly related to other variables. It was positively associated with multitasking ($r = .22$, $p < .01$), and negatively correlated with digital literacy ($r = –.24$, $p < .01$), suggesting that extended screen use may contribute to fragmented attention and reduced digital competence. Additional correlations revealed that occupation/status was negatively associated with digital literacy ($r = –.14$, $p < .05$), while age group showed a strong positive correlation with occupation/status ($r = .64$, $p < .01$), indicating that older participants were more likely to hold professional roles.

Discussion

This study explored the multifaceted nature of digital stress through a mixed-methods approach, combining qualitative insights from semi-structured interviews with quantitative data from a large-scale survey. The findings illuminate the psychological and behavioral dimensions of digital engagement, highlighting key stressors and their associations with digital literacy and usage patterns.

Digital Stressors and Emotional Consequences

The thematic analysis conducted in Phase 1 identified nine digital stressors, with information overload (85%) and digital dependence (75%) as the most common. Participants described the feeling of being

bombarded with digital content constantly, along with difficulty disconnecting from devices in a consistent manner. These descriptions relate to implications seen in studies concerning cognitive overload and compulsive use of technology (LaRose et al., 2003; Reinecke et al., 2017). FOMO (65%) and approval-seeking (55%) stressors provide further evidence relating to emotional impacts of social media, where the need for social validation can lead to anxiety (Przybylski et al., 2013).

The connection overload and hyper-alertness stressors depict an obligations of always being available and responding to others in a reasonable timeframe. As seen in these connections, these factors contribute to poor sleep, increased vigilance, and ultimately a negative impact on mental well-being. For example, emotional well-being has been linked negatively to digital hyperconnectivity (Thomée et al., 2011). Other stressors such as cyberbullying (20%) relate less frequently but are still strongly felt, and illustrate another dimension of online activity which is problematic, meaning the ways anonymity and amplification can add to the harm online experiences (Kowalski et al., 2014).

Digital Literacy as a Protective Factor

The quantitative data from Phase 2 support the protective role of digital literacy. There is significant negative correlation between digital literacy and digital stress ($r = -0.25$, $p < 0.01$), suggesting that high digital literacy is protective because it enhances the individual's confidence and control upon encountering difficulty in the management of their digital environment. This finding is reflective of the qualitative data, where participants with more sophisticated digital competencies reported feeling less overwhelmed. Previous research suggests that digital literacy promotes users' capacities to critically evaluate context and deal with demands of digital environments (Ng, 2012).

Notably, digital literacy was also associated with screen time, as indicated by the negative correlation with digital literacy ($r = -0.24$, $p < .01$). This suggests that over time, using a device might actually erodes a person's digital literacy while providing an avenue for passive consumption of media and distributing one's attention. This is consistent with existing research on the cognitive costs of media multitasking (Ophir et al., 2009).

Multitasking and screen time: amplifiers of stress

Multitasking was identified as a strong predictor of digital stress ($r = .28$, $p < .01$), with 72.0% of respondents reporting frequent switching back and forth between devices and activities. Although commonly seen as a form of efficiency, multitasking may create cognitive strain and emotional exhaustion (Mark et al., 2008). The positive correlation between screen time and multitasking ($r = .22$, $p < .01$) suggests a reinforcing cycle, where prolonged digital exposure encourages fragmented engagement, further amplifying stress.

Implications and Future Directions

The convergence of qualitative and quantitative findings underscores the need for targeted interventions to mitigate digital stress. Enhancing digital literacy through education and training may empower users to navigate digital spaces more effectively. Additionally, promoting mindful digital habits, such as reducing multitasking and

managing screen time, could alleviate cognitive and emotional burdens.

Future research should explore the longitudinal effects of digital stress and examine how evolving technologies (e.g., AI, virtual reality) may introduce new stressors or coping mechanisms. Expanding the sample to include more diverse populations could also enrich understanding of cultural and contextual factors influencing digital well-being.

Conclusion

This study highlights how digital stress is shaped by behaviors like multitasking, screen time, and digital literacy. While high digital literacy helps reduce stress, frequent multitasking and excessive screen use increase it. Qualitative insights revealed emotional stressors like information overload, FOMO, and digital dependence, showing how deeply digital life affects well-being. Together, the findings suggest the need for better digital literacy and mindful tech use to promote healthier digital habits.

Limitations

The study relied on self-reported data, which may be biased. The sample was mostly students and urban residents, limiting generalizability. The cross-sectional design prevents causal conclusions, and cultural or socioeconomic factors weren't deeply explored. Future research should address these gaps with broader and longitudinal studies.

Declaration

We, the authors of this manuscript, declare that the work is original, has not been published or submitted for publication elsewhere, and that we take full responsibility for the authenticity and accuracy of its content.

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Table1 Frequency of Digital Stressors Identified in Thematic Analysis (N = 20)

Digital Stressor	Frequency (n)	Percentage (%)
Information overload	17	85
Digital dependency	15	75
FOMO	13	65
Approval-seeking	11	55
Connection overload	9	45
Hyper-alertness	8	40
Social comparison	7	35
Interface complexity	6	30
Cyberbullying	4	20

Note. Percentages are based on the total number of participants (N = 20).

Table 2 Demographic and Digital Usage Characteristics of Participants (N = 207)

Variable	Group	n	%
Age Group	13–19 years	47	22.7
	20–29 years	98	47.3
	30–39 years	32	15.5
	40–49 years	16	7.7
	50 years and above	14	6.8
Gender	Male	107	51.7
	Female	100	48.3
Occupation/Status	Student	115	55.6
	Employed full-time	62	30.0
	Employed part-time	13	6.3
	Unemployed	9	4.3
	Self-employed	6	2.9
	Retired	2	1.0
Location	Urban	168	81.2
	Rural	39	18.8
Hours/Day on Digital Devices	Less than 1 hour	5	2.4
	1–3 hours	30	14.5
	3–5 hours	59	28.5
	5–7 hours	53	25.6
	More than 7 hours	60	29.0
Often Multitask with Devices	Yes	149	72.0
	No	58	28.0

Note. Percentages may not total 100 due to rounding.

Table 3 Descriptive Statistics of Digital Literacy and Digital Stress Scores (N = 207)

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Digital Literacy (DL_Total)	207	2.00	10.00	7.54	1.90
Digital Stress (DS_Total)	207	11.00	55.00	34.54	8.05

Note. DL_Total = Digital Literacy score; DS_Total = Digital Stress score.

Table 4

Pearson Correlation Coefficients Between Study Variables (N = 207)

Variables	1	2	3	4	5	6	7	8
1. Age Group	—							
2. Gender	–.14	—						
3. Occupation/ Status	.64**	–.08	—					
4. Location	.07	–.00	.12	—				
5. Screen Time	–.20**	–.04	–.19**	.03	—			
6. Multitasking	.02	–.09	–.03	–.12	.22**	—		
7. Digital Literacy (DL)	–.13	–.01	–.14*	–.24**	.05	.06	—	
8. Digital Stress (DS)	.10	–.02	.13	.14	.11	.28**	–.25**	—

Note: ** Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.

Designing for Resilience: A Culturally-Adaptive Modular Environment for Psychological Support in Disaster Contexts.

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ABSTRACT

The Culturally Adaptive Modular Psychological Support Environment is a unique innovation in humanitarian response infrastructure in order to address a gap of post-disaster psychological support, in a culturally aware, sustainable manner, integrate evidence based interventions. This thesis is a contribution to a growing realization that phycological recovery is as crucial as physical recovery in disaster response, and that interventions can be culturally relevant, eh context, rapidly deployable and engaged with sustainability. The proposed system model will shift the pace of psychological disaster support from a reactive approach to a proactive approach, the system is deployable in an expedient manner yet modifiable for culturally adaptability in a global context. The proposed system model is not intended for implementation as the sole way to expressing how we may combine architectural design and psychological interventions, it intends to actively work transdisciplinary tackling complex humanitarian problems. There are major hurdles regarding implementation, along with a limitation of research, the potential benefits for impacted communities would be worthy of further development and empirical testing. The system and design will aspire to address the infrastructure requirements for psychological support in emergencies through a sustainable, accountable and community-respected design and application process. The proposal's motivation is characterized by a focus on engaging the processes of cultural sustainability, localization.

Introduction

When disaster strikes, the damage is not only physical — it's deeply psychological. Survivors often experience overwhelming fear, confusion, and emotional distress in the immediate aftermath. Psychological First Aid (PFA) offers a compassionate, evidence-informed approach to support people in crisis before long-term trauma sets in (WHO, 2011).Natural and human-made disasters continue to increase in frequency and intensity globally, leaving profound psychological impacts on affected communities (Goldmann & Galea, 2014). The World Health Organization estimates that one in five people in post-conflict situations suffer from depression, anxiety, post-traumatic stress disorder, bipolar disorder, or schizophrenia (WHO, 2019). Just as physical first aid prevents wounds from worsening, PFA helps stabilize emotional well-being and restore a sense of safety and control. In today's world of increasing emergencies, PFA is a critical skill for anyone involved in crisis response. In disaster zones, psychological support often arrives late, fragmented, or misaligned with the cultural realities of those affected. The need for not only rapid mental health responses but also adaptive systems that

reflect local values, traditions, and lived experience is urgent. The city's current emergency response infrastructure is insufficient as it lacks culturally-responsive and quickly deployable solutions that will serve to address the urgent psychological needs of affected populations. Existing psychological first aid models present other problems, as even though they are based on evidence, they are challenging to implement within varied cultural contexts, and do not have the appropriate physical settings for the effective delivery of psychosocial support (Ruzek et al., 2007). The gulf between the psychological support needed and the decision-making infrastructure available for frontline responders becomes more pronounced when one considers remote and resource-limited settings, where traditional mental health services may not be regarded as appropriate as there is nothing in the cultural context to support it. By negotiating modular design for delivery, culture, community, and local lived experience can be meshed into one adaptive space for response, containing core principles of emotional supportive processes, lass stress and anxiety than what was previously experienced, community - connecting cultural narratives shared in developing decisions, and gradually but closely engaging in longer-term psychosocial recovery. In the current era of climate-centrism, lack of access to resources, unjust legacies and catastrophes, responding to how and where the support is delivered is not just a luxury - it is a moral obligation for all of us.

This research addresses these prevalent gaps by presenting innovative design patent for Culturally Adaptive Modular Psychological Support Environment - a novel approach that combines framework principles of architectural design, alongside evidence-based psychological interventions, and cultural sensitivity frameworks. The system presented will constitute a paradigm shift from a reactive psychological disaster response mode to a proactive one.

Literature Review

2.1 Psychological Impact of Disasters

According to Norris et al. (2002), research continuously shows that disasters cause widespread psychological suffering that goes well beyond any immediate physical harm or material destruction. Children, the elderly, and marginalized communities are disproportionately at risk, according to meta-analyses, which show that 30–40% of disaster survivors have substantial psychiatric symptoms (Goldmann & Galea, 2014). Numerous paths, such as acute stress reactions, chronic mourning disorders, substance misuse, and social disruption at the community level, are ways that the psychological damage shows up. Conventional disaster response models, which are based on medical emergency paradigms, frequently overlook the intricate relationship between community resilience variables and individual trauma (Hobfoll et al., 2007). According to recent research, ecological approaches that take into account social support networks, cultural context, and environmental elements are crucial for psychological rehabilitation (Ungar, 2011).

2.1 Adaptation to Culture and Psychological First Aid

Psychological First Aid (PFA) has become the global standard for immediate psychological responses after a disaster (Ruzek et al, 2007). PFA adopts a collaborative approach with clients,

emphasizing the following factors: safety, calm, self-efficacy, connectedness, and hope to enhance recovery and resilience. Nevertheless, significant barriers to practical implementation exist, notably with respect to appropriate cultural adaptation and ensuring appropriate contexts to deliver the intervention.

More broadly, research shows that trauma expression, help-seeking behaviors, and healing practices vary significantly across communities (Kirmayer et al, 2011). Successfully adapted psychological interventions will incorporate and respect indigenous knowledge systems, community-based traditional healing practices, and community-based constructive mental health and wellbeing concepts. This poses the challenge of designing community-based interventions that retain their evidence-based efficacy while demonstrating both cultural humility and appropriate adaptations.

2.2Built Environment and Psychological Wellbeing

Environmental psychology research establishes clear connections between physical spaces and psychological wellbeing, particularly during times of stress and trauma (Evans & McCoy, 1998). Therapeutic environments that incorporate natural elements, appropriate lighting, comfortable seating arrangements, and sensory regulation features demonstrate measurable impacts on stress reduction and emotional regulation (Ulrich et al., 2010).

The concept of "healing environments" has gained prominence in healthcare design, emphasizing the role of physical space in supporting recovery processes (Huisman et al., 2012). These principles, while well-established in clinical settings, remain largely unexplored in emergency response contexts where rapid deployment and cultural adaptability present unique design challenges.

2.3 Modular and Sustainable Design in Humanitarian Contexts

The trend of promoting modularity, sustainability and speed of deployment for humanitarian architecture is on the rise (Charlesworth, 2014). Successful examples of the emergent designs include prefabricated temporary emergency shelter, mobile health facilities, and temporary or permanent learning environments that can be readily assembled and culturally adapted. Despite these successful innovations, very few examples explore the specific evidence-based principles of mental health intervention or address the needs of psychological support.

While the principles of sustainability, when considered during crises, and in the context of humanitarian relief, must balance the immediate functional needs to the individual, community or organization, with the medium- to long-term environmental and social implications (Aquilino, 2008). Solar energy integration, use of recyclable materials, use of local materials, and other considerations related to environmentally responsible forms of emergency response infrastructure are critical to humanitarian housing/infrastructure**.**

Methodology

3.1 Design Research Approach

In this study, we adopted a multi-disciplinary design research approach, utilizing strategies from various fields including architecture, psychology, anthropology, and emergency management.

Specifically, the human-centered, interactive Design Thinking approach is applied to the complex and integrated field of disaster response and recovery and which involves the components of empathy, definition, ideation, prototyping, and testing (Brown, 2009). The methodology is innovative, as design practices are creatively combined with social science investigation and crisis management, allowing both the framing of problems and emerging solutions from across fields of practice. In this context, the interdisciplinary literature review provided a theoretical basis; however, future stakeholder consultations with practitioners of disaster response, mental health professionals, and community members, will address practical challenges. This hybrid method supports contextually and conceptually robust design, supports practical stakeholder perspective, and stresses a more integrated and adaptive framework for delivering psychological first aid.

3.2 Cultural Adaptation Framework

The research incorporates Hofstede's cultural dimensions theory and Berry's acculturation framework to ensure cultural sensitivity in design elements (Hofstede, 2001; Berry, 2005). Consultations with cultural anthropologists and community leaders from diverse global contexts provided insights into cultural variables affecting psychological intervention acceptance and effectiveness. This included examination of color symbolism, spatial organization preferences, privacy concepts, and traditional healing practices across different cultural groups.

3.3 Evidence-Based Design Integration

The design process systematically incorporated evidence-based psychological intervention principles, particularly those established in Psychological First Aid research (Brymer et al., 2006). Each design element underwent evaluation against established criteria for trauma-informed environments, including safety, trustworthiness, peer support, collaboration, empowerment, and cultural humility (SAMHSA, 2014).

3.4 Sustainability Assessment

Environmental impact assessment followed Life Cycle Assessment (LCA) principles, evaluating material selection, manufacturing processes, transportation requirements, and end-of-life disposal considerations (ISO 14040, 2006). The design prioritizes renewable energy integration, recyclable materials, and minimal environmental footprint while maintaining structural integrity and functional effectiveness.

Design Concept and Specifications

4.1Breakthrough Innovation in Emergency Psychological Response

The Cultural Adaptability Modular Environment for Psychological Support signals a breakthrough in psychological first aid equipment the first deployable, culturally responsive, therapeutic structure designed specifically for on-scene mental health crisis intervention advancing move away from providing psychological first aid services in improvised spaces to feeling like a professional, appropriate emergency response. While traditional emergency response equipment focuses primarily on working with physical needs, this innovative hexagonal structure 6 meters in diameter and with 25 square meters of efficient therapeutic space, builds the first standardized deployable infrastructure exclusively for psychological first aid. The

hexagonal shape itself offers a new method of delivering emergency mental health architecture with stable structural integrity, while at the same time providing a psychologically safe and non-threatening environment that promotes less trauma responses and increased therapeutic engagement.

This innovative equipment achieves what has never been done before; it allows deployment of a complete psychological first aid facility to anywhere in the world in 20 minutes or less. The overall weight is just 180 kilograms, so a four-person team can now deploy this pioneering system utilizing basic household hand tools, but it provides wind resistance to 120 km/h and weatherproofing to IP65, making this the first truly portable professional-grade psychological emergency

4.2 World's First Culturally Adaptive Psychological First Aid System

The most transformative element of the system is its unique cultural adaptation ability—an unprecedented and leading-edge intervention that fills the gap in availability of culturally responsive/appropriate psychological first aid equipment. Conventional emergency mental health interventions are ineffective when they fail to incorporate cultural contexts that are necessary in providing effective psychological first aid delivery.

This landmark modular system represents the world's first real-time culture customization technology for psychological first aid contexts. The reversible outside and inside coverings are able to quickly be customized with culturally appropriate pictures, colors, and symbols that are familiar to the affected community. The digital panel system is another world first: live cultural content can be updated to show community-specific psychological first aid resources, pictures and symbols that depict traditional healing practices, or symbols that the affected community recognizes, which builds trust right away, while simultaneously minimizing psychological barriers for community members to seek help.

The revolutionary interior adaptation system enables real-time remodeling to facilitate cultural practices necessary for effective psychological first aid: ie. traditional healing circles, properly constructed seating that is culturally specific, spaces for prayer of other types of spirituality, or simply to create culturally responsive formats for community gathering. This represents the first psychological first aid emergent crisis equipment that is designed to exist within an existing cultural context, rather than impose foreign therapeutic models in a time of crisis.

4.3 Revolutionary Technology Integration for Psychological First Aid

This system introduces unprecedented technological capabilities to psychological first aid equipment. The integrated solar-powered technology suite represents the first autonomous psychological first aid facility capable of independent operation for 72 hours—a breakthrough in emergency mental health response capability.

Revolutionary features include:

- World's first interactive psychological first aid information system: Real-time emergency mental health resources, community-specific wellness content, and multilingual crisis intervention materials

- Breakthrough communication infrastructure: Satellite connectivity enabling immediate access to mental health professionals, crisis hotlines, and specialized psychological first aid resources
- Innovative environmental control system: Automated therapeutic environment optimization including trauma-informed lighting, temperature regulation, and air quality management
- First-of-its-kind anonymous wellness tracking: Real-time psychological first aid effectiveness monitoring and community needs assessment without compromising privacy
- Revolutionary safety integration: Discrete monitoring ensuring user safety while maintaining the confidentiality essential for effective psychological first aid delivery

4.4 Pioneering Sustainability in Psychological First Aid Equipment

This system establishes new environmental standards for psychological first aid equipment, representing the first comprehensive sustainability approach to emergency mental health infrastructure:

- Revolutionary energy independence: 2kW solar array with 48V lithium storage providing autonomous psychological first aid facility operation for 72 hours without external power
- Innovative water management: Integrated rainwater collection with filtration capabilities supporting extended psychological first aid operations.
- Breakthrough material design: Recyclable aluminum framing and biodegradable components creating the first environmentally responsible psychological first aid equipment
- Zero-waste deployment: Reusable transportation containers and comprehensive recycling protocols eliminating environmental impact during emergency response
- Carbon-neutral operations: Lightweight design and local customization capabilities minimizing transportation emissions while maximizing psychological first aid effectiveness

This revolutionary equipment transforms psychological first aid from an improvised response to a professional, deployable, culturally-responsive emergency intervention capability—representing the most significant advancement in emergency mental health equipment in modern history.

Expected Outcomes and Impact

5.1 Immediate Psychological Support Benefits

The proposed system addresses critical gaps in immediate post-disaster psychological support delivery. Expected immediate outcomes include:

- **Reduced Acute Stress Responses:** The structured therapeutic environment and evidence-based psychological first aid delivery are projected to reduce acute stress symptoms by 35-40% compared to standard emergency response protocols
- **Improved Safety and Stabilization:** The culturally appropriate, controlled environment provides immediate psychological safety, particularly important for vulnerable populations including children, elderly individuals, and those with pre-existing mental health conditions

- **Enhanced Community Connection:** The community-centered design facilitates social support activation and reduces isolation, key factors in psychological resilience and recovery

5.2 Long-term Community Resilience Building

Beyond immediate crisis response, the system supports longer-term community healing and resilience development:

- **Cultural Preservation:** By incorporating traditional healing practices and cultural elements, the system supports cultural continuity and identity preservation during disruption
- **Capacity Building:** Training community members in psychological first aid creates lasting local capacity for future crisis response and ongoing mental health support
- **Social Capital Enhancement:** The community gathering space facilitates relationship building and collective efficacy development, fundamental components of community resilience

5.3 System-level Innovation Impact

The research contributes to broader humanitarian innovation in several key areas:

- **Paradigm Shift:** Demonstrates the feasibility and effectiveness of proactive psychological infrastructure in disaster response, potentially influencing international humanitarian standards
- **Cross-sector Integration:** Establishes new models for integrating architectural design, psychological intervention, and cultural adaptation in emergency response contexts
- **Scalability and Replication:** The modular design enables adaptation across diverse geographical and cultural contexts while maintaining evidence-based effectiveness

5.4 Economic and Environmental Benefits

- **Cost Effectiveness:** While initial development costs are significant, the reusable, durable design provides long-term cost advantages compared to recurring traditional intervention approaches
- **Environmental Responsibility:** Sustainable design principles reduce environmental impact compared to conventional emergency infrastructure while demonstrating environmental stewardship in vulnerable communities
- **Local Economic Integration:** Cultural customization and maintenance requirements create opportunities for local economic engagement and skill development

Challenges, Limitations, and Future Direction

The implementation of a modular environment for psychological support in disaster contexts is marked by multiple challenges across cultural, technical and contextual factors, each of which could result in misalignment during delivery and support. One of the salient issues is cultural misalignment. Even when deliberate efforts are made to consult with local communities, cultural misalignment can occur, particularly if external frameworks are imported into an environment inappropriately or if cultural needs are ignored. Culture change and consultation should take the form of cultural humility, and as we have seen, feedback should be iterative. Feedback to address

culture change is often challenging to assure, especially if the feedback must be timely and relevant to a fast-paced emergency context. The technical complexity of a multi-faceted system does not benefit from working within one culturally adaptive context, and in low-resourced environments, there may not be the technical expertise or infrastructure to support the way technology requires multi-layered support to ensure success

Second, the training aspect of the system cannot be underestimated. A successful system can only be utilized with a scientifically qualified person, and operational experience that takes place under supervision, which is often lacking in disaster affected areas. Furthermore, when deploying even a psychologically focused modular approach to environment that used significant development funds, donors may operate and think under an inherently constrained budget, limiting their ability to procure.

Finally, geographical considerations for deployment of the infrastructure are important. In very distant or inaccessible areas logistical support may not exist, and while I have built in very quick adoption time frames, adherence to culturally relevant practices and policy can often take much longer and requires additional consideration than are often available in a natural disaster context.

Conclusion

The Culturally Adaptive Modular Psychological Support Environment is an innovative development in humanitarian response infrastructure that seeks to fill a gap in post-disaster psychological support through a culturally-aware and sustainable model that integrates evidence-based interventions. This thesis contributes to a growing awareness that psychological recovery is just as important as physical recovery in disaster response, and that interventions can only be effective if they are culturally appropriate, contextually relevant, rapidly deployable, and respectful of environmental sustainability principles.

The proposed system represents a change in pace from reactive to proactive psychological disaster support, and while the system can be deployed rapidly, it is also flexible for cultural adaptation within a global context. It serves to illustrate how architectural design and psychological interventions can be brought together and works collaboratively across disciplines to tackle complex humanitarian issues.

There are considerable challenges in implementation, and a limitation of research, but the potential benefits for impacted communities would merit further development and empirical testing. The system and design will attempt to address the need for psychological support in emergencies, via sustainable, accountable and community-respected development and application. The proposal is informed by a focus on cultural preservation, community empowerment, and environmental sustainability and provides sustainable pathways to address urgent psychological need in emergency contexts.

Future success will ultimately depend on engagement and ongoing collaboration with designers, social service professionals, cultural facilitators, and impacted communities. The ultimate measure of success is not in the formal title of innovator, as it is the communities and

individuals impacted that will define this and other innovations worth pursuing.

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Integrating Trauma-Informed Practices into School Mental Health Programs: A Multidisciplinary Approach

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ABSTRACT

In India, children and adolescents are increasingly exposed to various forms of trauma, including domestic violence, poverty, child labour, emotional neglect, and natural disasters, all of which have profound effects on their mental health and academic engagement. Despite growing awareness of student mental health, school-based interventions in India remain limited in scope and often lack a trauma-informed framework. This study utilizes secondary data, including reports from the National Commission for the Protection of Children, the National Mental Health Survey (2015–16), academic research, and policy reviews, to examine the integration of trauma-informed practices into school mental health programs through a multidisciplinary approach. The objective is to highlight how collaboration among teachers, school counsellors, social workers, and child psychologists can enhance trauma responsiveness in educational settings. Findings from the reviewed literature indicate that trauma-informed school models in India are emerging through pilot projects and NGO-led interventions, particularly in states such as Kerala, Maharashtra, and Delhi. These programs emphasize teacher sensitization, creating safe classroom environments, and incorporating socio-emotional learning (SEL) into the curriculum. The results show a positive impact on student behaviour, classroom participation, and teacher-student relationships. However, challenges persist, such as a lack of trained professionals, stigma around mental health, and the absence of nationwide trauma-informed policies. The study concludes that a multidisciplinary, culturally sensitive trauma-informed approach is crucial to building inclusive and healing-centred school environments in India. Strengthening policy implementation, training modules, and inter-sectoral partnerships can ensure the sustainability and scalability of such models across the country.

Keywords: Trauma-Informed Education, School Mental Health, Multidisciplinary Approach

1. Introduction

Childhood and adolescent mental health have emerged as critical areas of concern in educational and public health systems worldwide. In India, millions of children and adolescents face multiple and complex adversities ranging from domestic violence, poverty, child labour, emotional neglect, to frequent natural disasters that profoundly impact their psychological well-being,

development, and academic engagement (National Commission for Protection of Child Rights [NCPCR], 2022). Exposure to such traumatic experiences not only affects the immediate emotional and behavioral health of children but also has enduring consequences on cognitive, social, and educational outcomes. With school environments being a central context for child development, there is growing recognition of the need to adapt educational systems to be responsive to the mental health needs of trauma-exposed students.

Despite rising awareness of mental health challenges in Indian schools, existing interventions remain fragmented, under-resourced, and often lack a comprehensive trauma-informed framework. The consequences are multifold: unaddressed trauma leads to disengagement from school, behavioral difficulties, increased absenteeism, and ultimately poorer academic outcomes (Devi, Rajendran, & Krishnan, 2021). Further, traditional disciplinary approaches that emphasize punishment may inadvertently retraumatize vulnerable students rather than provide support. The necessity to shift towards educational models that accommodate the emotional and psychological vulnerabilities of students is increasingly apparent.

Trauma-informed care in schools is an emerging paradigm that moves beyond individualistic clinical interventions to embrace systemic, school-wide changes in policy, pedagogy, and practice (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). This approach recognizes the widespread impact of trauma, identifies how trauma symptoms manifest in academic settings, and embeds practices designed to create safe, nurturing, and empowering learning environments. Central to trauma-informed practice is the understanding of the neurobiological and psychosocial impacts of trauma and the intentional effort to prevent retraumatization within schools (Perry & Szalavitz, 2017). Trauma-informed schools emphasize physical and emotional safety, trustworthiness, transparency, peer support, collaboration, empowerment, and cultural responsiveness (Thomas et al., 2019). International evidence from countries such as the United States and Australia reveals that trauma-informed approaches can substantially reduce behavioral problems, improve teacher-student relationships, and enhance academic engagement (Berardi & Morton, 2019; Blitz, Anderson, & Saastamoinen, 2016).

In India, the landscape of trauma-informed education is still nascent but evolving. Pilot projects led by non-governmental organizations and select state initiatives highlight the potential of trauma-responsive practices, such as teacher sensitization, safe classroom policies, peer support systems, and socio-emotional learning curricula (Kumar & Thomas, 2022; Rajan, Joseph, & Menon, 2021). However, systemic barriers hinder scale and sustainability. There is a critical shortage of trained mental health professionals in schools, pervasive stigma around mental health issues, and limited incorporation of trauma-informed principles into national education policies (Kapur, M., et al. (2019). Child and adolescent mental health in India: A review of the literature. Indian Journal of Psychiatry, 61(3), 223–231. Ministry of Education,

2020). Moreover, India's vast cultural, linguistic, and socioeconomic diversity necessitates culturally sensitive adaptations of trauma-informed models.

Multidisciplinary collaboration among teachers, school counsellors, social workers, psychologists, families, and community stakeholders has been identified as a foundational element for effective trauma-informed educational environments (Overstreet & Chafouleas, 2016). Such collaboration facilitates comprehensive assessment, individualized support, systemic policy adaptation, and community engagement. While international and Indian examples demonstrate the promise of multidisciplinary approaches, public schools in India often lack the human resource capacities and institutional frameworks to operationalize such models at scale (Patel, Saxena, & Lund, 2018).

This paper undertakes a systematic review of secondary data, including government reports, academic research, NGO evaluations, and policy documents, to examine the current state, challenges, and emerging models of trauma-informed school mental health programs in India. Our objective is to highlight the role and impact of multidisciplinary collaboration in integrating trauma-informed practices into educational settings. By synthesizing evidence from multiple sources, this study seeks to inform policymakers, educators, and mental health professionals about effective strategies for creating inclusive, trauma-responsive schools that promote resilience and academic success among India's children and adolescents.

2. Review of Literature

2.1 Understanding Childhood Trauma and Its Educational Consequences

Childhood trauma encompasses a variety of overwhelming experiences physical, emotional, or sexual abuse; neglect; exposure to violence; loss of caregivers; chronic poverty; and natural disasters that exceed a child's coping capacity and impact developmental trajectories (SAMHSA, 2014). Complex trauma, characterized by multiple, prolonged adverse experiences, leads to significant disruptions in brain development, emotional regulation, and social functioning (Perry & Szalavitz, 2017). Neurobiological research reveals the impact of trauma on the hypothalamic-pituitary-adrenal (HPA) axis and limbic system, which influence stress responses, memory, and behavior (National Academies of Sciences, 2019). This dysregulation manifests as increased anxiety, heightened vigilance, impulsivity, and difficulties in peer relationships, behaviors frequently observed in school settings.

In the Indian context, childhood trauma prevalence is exacerbated by socio-economic disparities, cultural practices, displacement, and systemic inequalities. The Ministry of Women and Child Development's 2007 study reported that over half of Indian children experienced some form of abuse (Kacker, Varadan, & Kumar, 2007).

2.2 The Evolution of Trauma-Informed Educational Practices

Arising from clinical and social work frameworks, trauma-informed care within school's advocates for systemic transformation rather than isolated therapeutic interventions. The Substance

Abuse and Mental Health Services Administration codifies trauma-informed care around four core assumptions: realizing the pervasive impact of trauma, recognizing trauma symptoms, responding appropriately across policies and practices, and resisting traumatization.

Trauma-informed practice involves six key principles:

Safety: Creating physically and emotionally safe environments to buffer stress responses.

Trustworthiness & Transparency: Establishing clear rules and predictable routines that foster dependable relationships.

Peer Support: Facilitating strong, positive peer and adult support networks.

Collaboration & Mutuality: Encouraging shared decision-making and power sharing between students and staff.

Empowerment, Voice & Choice: Valuing student autonomy and resilience-building capacities.

Cultural, Historical, and Gender Sensitivity: Adapting interventions to respect cultural and identity differences (Thomas et al., 2019).

Schools implementing trauma-informed approaches restructure classroom management, disciplinary policies, pedagogies, and staff development to align with these principles.

2.3 Evidence and Models of Trauma-Informed Schooling

Internationally, trauma-informed schooling initiatives have proliferated, notably in the United States, Australia, Canada, and the United Kingdom. In the U.S., Multi-Tiered Systems of Support and Positive Behavioral Interventions and Supports (PBIS) integrate trauma-informed and social-emotional learning strategies at both universal and targeted levels, resulting in reductions in suspensions, behavioral incidents, and chronic absenteeism (Berardi & Morton, 2019). Research demonstrates improved teacher efficacy, enhanced student engagement, and decreased classroom disruptions (Overstreet & Chafouleas, 2016).

Australian trauma-informed reforms incorporate trauma-awareness into teacher training and wellbeing policies, yielding positive outcomes in reducing victimization and enhancing the social climate (Blitz et al., 2016). Blended approaches combining universal SEL curricula, targeted skill-building groups, and individual counseling provide comprehensive support systems. Effective models rely on multidisciplinary teams, including educators, counselors, social workers, and psychologists, ensuring holistic student care (Thomas et al., 2019).

Evaluation literature emphasizes the importance of contextualizing trauma-informed approaches to local cultural and institutional conditions. Culturally responsive adaptations, including language sensitivity, consideration of community norms, and gender-aware programming, enhance relevance and effectiveness (Sweeney et al., 2018).

2.4 Trauma-Informed Education in the Indian Context: Emerging Practices and Barriers

India's formal adoption of trauma-informed educational practices is limited, with most programs situated within NGO led pilot projects and select state initiatives. Despite the overwhelming burden of childhood trauma, most government schools lack mandated mental health infrastructure or explicit trauma-sensitive policies.

Notable initiatives include:

Sangath (Goa, Delhi): Implements teacher sensitization training modules emphasizing trauma recognition, empathetic classroom management, and non-punitive disciplinary strategies. Evaluations report reduced teacher stress, increased student participation, and shifts toward inclusivity (Sharma & Rao, 2020).

The Banyan (Tamil Nadu): Collaborates with schools to establish referral systems, mental health screening, and psychosocial interventions delivered by trained counselors and psychologists (Kumar & Thomas, 2022).

Kerala State Child Rights Commission: Has initiated safe classroom programs, integrating peer mentoring and emotional safety protocols, resulting in improved attendance and teacher-student relationships (Rajan, Joseph, & Menon, 2021).

Teach for India and SEL Curricula: Introduces socio-emotional learning embedded in day-to-day instruction to nurture emotional regulation, empathy, and stress management skills, particularly vital for trauma-affected students (Anitha & Suresh, 2021).

These pilot models exhibit encouraging outcomes, such as decreased behavioral referrals, improved student-teacher rapport, and enhanced well-being indicators (Jain & Ahuja, 2019; Kumar & Thomas, 2022). However, they largely remain urban-centric, underfunded, and lack policy support for widespread replication.

2.5 Multidisciplinary Collaboration as a Cornerstone of Trauma-Informed Practice

Secondary data highlights multidisciplinary collaboration as crucial for trauma-responsive school environments in India. Teachers trained to identify trauma symptoms, supported by school counselors, social workers, and psychologists, can collectively address student needs more effectively (Overstreet & Chafouleas, 2016). Social workers bridge school-family linkages, facilitating engagement with at-risk children, while mental health professionals provide direct assessment and therapeutic support (Kumar & Thomas, 2022).

Unfortunately, systemic constraints such as a shortage of trained personnel, limited funding, and infrastructure deficits hamper multidisciplinary team formation, especially in rural and government schools (Patel et al., 2018). Increasing recruitment, training, and retention of such professionals is a critical challenge for sustainable trauma-informed education.

2.6 Barriers to Effective Implementation in India

Secondary research consistently identifies multifaceted implementation barriers:

Workforce shortages: A scarcity of school psychologists, counselors, and social workers reduces capacity for trauma support (Kapur et al., 2019).

Stigma and cultural attitudes: Societal stigma surrounding mental illness leads to denial, underreporting, and resistance to school-based interventions (NCPCR, 2022).

Policy gaps: While the National Education Policy 2020 acknowledges student wellbeing, it lacks explicit mandates or resources for trauma-informed approaches (Ministry of Education, 2020).

Resource constraints: Most mental health programming depends on donor or NGO funding; government allocation remains minimal (Rajan et al., 2021).

Socio-cultural diversity: The diversity of languages, cultures, and socioeconomic conditions complicates uniform implementation and demands tailored models (Chavan et al., 2018).

2.6 Research Gaps and the Need for Further Evaluation

Despite promising pilot evaluations, most evidence in India is qualitative, small-scale, or anecdotal, with insufficient longitudinal and quantitative data (Chavan et al., 2018). Validated screening tools for trauma symptoms in Indian schools are scarce. There is also limited economic analysis for cost-effective scaling of trauma-informed models. Enhanced research investment in multi-region, multidisciplinary evaluations will be pivotal for informed policy and practice development.

3. Methods

3.1 Design

This study employed a systematic secondary data review methodology to synthesize existing knowledge on trauma-informed practices integrated into school mental health programs in India. The design involved a comprehensive collection, appraisal, and thematic analysis of multiple secondary data sources, including peer-reviewed academic studies, government reports, nonprofit evaluations, and relevant policy documents, spanning the period from 2010 to 2024. The secondary data approach was selected due to its effectiveness in aggregating diverse evidence without primary data collection, enabling broad analysis of multidisciplinary trauma-informed interventions within varied Indian educational settings.

The study's data sample consisted of 30 selected secondary data sources relevant to trauma-informed education in Indian schools. This included:

Peer-reviewed journal articles addressing school mental health, trauma-informed pedagogies, and multidisciplinary approaches in India.

Government documents such as the National Commission for Protection of Child Rights (NCPCR) annual reports, National Mental Health Survey (2015–16), and policy frameworks like the National Education Policy 2020.

NGO reports and evaluations from organizations actively engaged in school mental health programming.

International agency reports from WHO, UNICEF, and SAMHSA that provide conceptual guidance and global context.

3.2 Sampling Method

A purposive systematic sampling approach was applied to select pertinent documents. The following procedures were undertaken:

Grey Literature and Institutional Websites: Reports and evaluations were sourced via NGO platforms, government portals (NCPCR, Ministry of Education), and international organizations (WHO, UNICEF).

Inclusion Criteria Screening: Titles and abstracts were screened to select documents meeting the criteria of focus on trauma-informed school mental health programs in India, multidisciplinary involvement, and availability of outcome or process data. Documents had to be published in English, dated between 2010 and 2024, and accessible in full text.

Quality Appraisal and Final Selection: Selected documents were critically appraised for methodological

transparency, data quality, and relevance. This resulted in a final sample of 30 documents providing rich, diverse secondary evidence for thematic synthesis.

4. Measures

Given the nature of secondary data review, measurement involved the extraction and coding of reported data points and qualitative descriptions from the sampled texts:

Intervention Characteristics: Information on trauma-informed program components (e.g., teacher training, safe classroom practices, socio-emotional learning curricula), scope of multidisciplinary collaboration (roles of teachers, mental health professionals, social workers), and setting (government/NGO/private schools, rural/urban).

Outcome Measures: Quantitative data where available, such as changes in school attendance rates, behavioral referrals, teacher burnout levels, student self-reported distress, and qualitative indicators, including teacher and student perceptions, school climate, and policy impacts.

Contextual Factors: Identification of implementation barriers, cultural adaptations, funding modalities, and policy frameworks described in the texts.

Coding followed an analytic framework based on SAMHSA's trauma-informed care principles and school mental health outcomes to ensure conceptual consistency.

5. Procedure

The following procedural steps were followed to conduct the systematic secondary review:

Search Execution and Compilation: Systematic searches and grey literature gathering identified over 100 potentially relevant documents, which were compiled into a database for screening.

Screening and Selection: Titles and abstracts were screened for thematic relevance, focusing on Indian school trauma-informed mental health contexts and multidisciplinary approach aspects. Following the inclusion/exclusion criteria and after quality appraisal, 30 documents were finalized.

Data Extraction: Using a standardized extraction form, relevant data were pulled from each source detailing study characteristics, program descriptions, roles of multidisciplinary actors, quantitative outcomes, thematic findings on trauma-responsive practices, and contextual factors.

Thematic Analysis: The extracted data were analyzed using Braun and Clarke's (2006) thematic analysis method, categorizing findings into key themes: trauma-informed practices implemented, multidisciplinary collaboration models, program impacts on behavioral and academic outcomes, and challenges reported.

Synthesis and Reporting: The findings were synthesized narratively, supplemented by tabular summaries of intervention characteristics and outcomes, to provide comprehensive insights relevant to the research objectives.

Quality and Reliability Assurance: Data extraction and coding were independently verified by multiple researchers to ensure accuracy, with discrepancies discussed and resolved through consensus.

Ethical Considerations: Since only existing secondary data were analyzed, no human subject data were collected. Proper citation and acknowledgment of all sources were maintained to uphold academic integrity.

6. Results

6.1 Emerging Trauma-Informed School Models in India

The secondary data review revealed several promising trauma-informed models implemented primarily in pilot and NGO-led initiatives across Indian states such as Kerala, Maharashtra, and Delhi. These models emphasized multidisciplinary collaboration among teachers, school counselors, social workers, and child psychologists, focusing on:

Teacher Sensitization Programs: Multiple NGOs like Sangath and The Banyan have conducted specialized training modules that enable teachers to identify trauma symptoms and adopt non-punitive, supportive responses. Evaluations indicate reductions in behavioral incidents and improved teacher empathy (Sharma & Rao, 2020; Kumar & Thomas, 2022).

Safe Classroom and Peer Support Initiatives: Kerala's Child Rights Commission introduced peer mentoring and "safe classroom" policies, which enhanced students' perceptions of safety and trust. These initiatives corresponded with measurable increases in school attendance and reductions in absenteeism (Rajan et al., 2021).

Socio-Emotional Learning (SEL) Integration: Organizations like Teach for India embedded SEL curricula focusing on emotional regulation and relationship skills, demonstrating improved student engagement and classroom behaviour (Anitha & Suresh, 2021).

6.2 Multidisciplinary Collaboration Impact

Schools employing multidisciplinary teams comprised of educators, counselors, social workers, and psychologists reported more coordinated mental health interventions and improved academic and psychosocial outcomes for trauma-affected students (Kumar & Thomas, 2022). Collaborative approaches facilitated timely identification, effective referral mechanisms, and family engagement, which were less prevalent in schools lacking such teams.

6.3 Geographic and Institutional Variability

Most documented evidence originates from urban or semi-urban pilot programs. Rural schools and government institutions generally lacked sustained multidisciplinary trauma-informed services, indicating considerable disparities in access and implementation.

Table 1

Outcome Domain	Reported Changes / Findings	Source(s)
School Attendance	Increased by 10–15% in pilot programs	Rajan et al. (2021); Kumar & Thomas (2022)
Behavioral Referrals	Decreased approximately 20% with trauma-informed practices	Sharma & Rao (2020); Anitha & Suresh (2021)
Student-Reported Distress	Reduced by ~30% after interventions	Sangath NGO Reports; Kumar & Thomas (2022)
Teacher Burnout	Reduced by about 15% due to enhanced sensitization training	Sharma & Rao (2020)
Parental Engagement	Notable increase in family involvement and school collaboration	Rajan et al. (2021); Kumar & Thomas (2022)
Multidisciplinary Team Impact	Coordinated efforts improved identification, referral, and student support	Kumar & Thomas (2022); Overstreet & Chafouleas (2016)
Geographic Coverage	Mostly urban/semi-urban pilot programs; rural areas underserved	NCPCR (2022); Patel et al. (2018)
Implementation Barriers	Shortage of trained professionals, stigma, funding gaps	Kapur et al. (2019); Ministry of Education (2020)

Source: main studies, reports, and evaluations from which the table's quantitative and qualitative data are derived

6.4 Limitations Noted in Existing Evidence

The majority of effectiveness data stem from small-scale, qualitative, or pilot evaluations, often without longitudinal follow-up. Quantitative outcome measures varied significantly, and contextual factors, such as cultural adaptations, were inconsistently reported.

7. Discussion

This study analyzed existing secondary data regarding the integration of trauma-informed practices into school mental health programs in India through a multidisciplinary approach. The findings indicate a growing but uneven adoption of trauma-informed educational models, primarily driven by non-governmental organizations and pilot initiatives in select states such as Kerala, Maharashtra, and Delhi. Positive outcomes noted include improved student attendance, reduction in behavioral referrals, decreased student distress, and enhanced teacher well-being. These results align with international evidence demonstrating that trauma-informed programs contribute significantly to improved school climate, academic engagement, and mental health outcomes (Berardi & Morton, 2019 Overstreet & Chafouleas, 2016).

A core strength of the emerging models lies in their emphasis on multidisciplinary collaboration. The engagement of teachers, counselors, social workers, psychologists, and families facilitates a comprehensive understanding of students' trauma histories and needs. This collaborative network enables coordinated interventions, supports timely referral processes, and promotes inclusive environments where students feel safe and empowered (Kumar & Thomas, 2022). Such teamwork is recognized both globally and within the Indian context as crucial for successful trauma-informed schooling (Blitz, L. V., Anderson, E. M., & Saastamoinen, M., 2016). Nevertheless, the study highlights persistent challenges limiting the scalability and sustainability of trauma-informed practices in Indian schools. Foremost is the shortage of trained mental health professionals embedded within the school system. Most government schools continue to lack full-time counselors and multidisciplinary teams, which constrains their ability to adopt trauma-responsive approaches broadly (Patel et al., 2018). This gap is particularly stark in rural and resource-poor areas, where the need for trauma-sensitive support is arguably greatest given higher rates of adversity and limited external mental health infrastructure (NCPCR, 2022). Addressing this human resource deficit requires concerted policy action, including allocation of funds to recruit and train school mental health personnel and incentivize their retention.

Stigma around mental illness and trauma remains another substantial barrier. The cultural tendency to interpret symptoms related to trauma as behavioral problems or moral failings prevents families and educators from seeking appropriate support, exacerbating exclusion and disengagement of vulnerable students (Kapur et al., 2019). To combat this stigma, trauma-informed education must be coupled with widespread community sensitization campaigns to normalize mental health discussions and embed supportive attitudes within school ecosystems and families.

From a policy perspective, this review exposes a gap between India's National Education Policy 2020 aspirations and the on-ground implementation of trauma-informed practices. While the policy references student wellbeing, it lacks explicit mandates, funding provisions, and operational frameworks necessary for systemic transformation towards trauma-responsiveness (Ministry of Education, 2020). Greater integration of trauma-informed principles into national and state education schemes, alongside monitoring and evaluation mechanisms, is essential to institutionalize this approach across India's diverse educational settings.

Cultural and contextual adaptability emerged as a crucial factor for the success of trauma-informed programs in India. Given India's socio-economic, linguistic, and religious diversity, models cannot be "one-size-fits-all." Pilot programs that incorporated culturally sensitive materials, peer support adapted to local norms, and respect for family structures demonstrated higher acceptance and effectiveness (Rajan, S., Joseph, M., & Menon, M. (2021). Creating safe spaces in Kerala's public schools: Project report. Kerala State Commission for Protection of Child Rights. Chavan, B. S., Arun, P., Bhargava, R., & Singhal, A. K. (2018). Trauma among children in India: Review and future directions. Indian Journal of Social Psychiatry, 34(1), 9–16.). Building capacity among local educators and mental health workers to tailor programs is therefore vital.

Comparing these findings with global evidence, India reflects similar trajectories observed in other low- and middle-income countries where trauma-informed schooling is nascent but promising. International frameworks emphasize tiered approaches combining universal interventions such as social-emotional learning with targeted and individualized supports coordinated by multidisciplinary teams (Blitz et al., 2016). India's pilot programs are aligned with this model, indicating potential for scaling through policy-supported capacity building.

This study's reliance on secondary data encompasses inherent limitations. The reviewed evidence primarily stems from small-scale pilot evaluations, NGO reports with variable methodological rigor, and government documents lacking longitudinal outcome data. Quantitative assessments were limited in scope, and cultural adaptations were often anecdotal rather than systematically documented. These limitations call for more rigorous empirical research featuring longitudinal designs, standardized measurement tools, and cost-effectiveness analyses to strengthen the evidence base.

8. Future Suggestions

Longitudinal Evaluations: Conduct multi-site, long-term studies to assess the sustained impact of trauma-informed practices on academic achievement, mental health outcomes, and school climate across diverse Indian contexts.

Development of Culturally Relevant Tools: Design and validate trauma screening and assessment instruments tailored to Indian languages, cultural norms, and educational settings.

Scaling Capacity Building: Expand teacher training programs and professional development initiatives to build trauma awareness and response skills systematically

across government and private schools, including rural and underserved areas.

Integration of Digital Mental Health Resources: Utilize technology-enabled interventions, such as mobile apps and tele-counseling, to supplement trauma-informed support especially where specialist human resources are scarce.

Policy Advocacy: Engage with policymakers to embed trauma-informed education principles explicitly within national and state education policies, accompanied by dedicated funding and implementation frameworks.

Community Engagement: Foster family and community partnerships to reduce stigma around mental health, increase awareness, and promote holistic trauma responsiveness outside school environments.

Economic Evaluations: Analyze cost-effectiveness and resource optimization strategies to guide scalable models of trauma-informed multidisciplinary school mental health programs.

9. Implications

Education Equity and Inclusion: Trauma-informed approaches have the potential to reduce educational disparities by addressing underlying trauma-related barriers to learning and engagement, thereby promoting equity and social justice.

Enhanced Academic and Psychosocial Outcomes: Multidisciplinary trauma-responsive practices contribute to improved attendance, behavior, emotional regulation, and overall well-being of students.

Teacher Wellbeing and Efficacy: Training educators in trauma awareness and collaborative models reduces burnout and equips them to manage classrooms more effectively, fostering a supportive school environment.

Policy and System-Level Change: Institutionalizing trauma-informed principles can reshape disciplinary policies, curricula, and school mental health infrastructure, creating sustained systemic impact.

Cross-Sector
Collaboration: Multidisciplinary teamwork integrating education, mental health, social services, and families catalyzes comprehensive support systems, enhancing early identification and intervention.

10. Limitations

Secondary Data Reliance: The study's dependence on secondary data limits control over data quality, and findings are influenced by the methodological variation and scope of original reports and evaluations.

Limited Longitudinal and Quantitative Evidence: Most available data are based on pilot projects and qualitative assessments, restricting the ability to infer causality or generalize findings broadly.

Urban-Centric Focus: Existing programs and data primarily reflect urban or semi-urban settings, with underrepresentation of rural schools where trauma exposure and resource gaps may be more pronounced.

Variability in Implementation and Reporting: Differences in program design, cultural adaptations, and outcome measurement across sources limit comparability and synthesis of results.

Stigma and Reporting Bias: The stigma surrounding mental health in India may result in underreporting of trauma prevalence and challenges, affecting the comprehensiveness of secondary sources.

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Sacred Struggles: Traditional Norms and Mental Health Among Syrian Christian Women in Kerala

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ABSTRACT

This qualitative research examines the traditional customs of Syrian Christian women in Kerala, India, and their impact on mental well-being through the lens of behavioral science and social justice. Syrian Christians are an ethno-religious community of Indian Christians. It is believed that St. Thomas visited Kerala during the ACE 52 and converted members of Brahmin families to Christianity. Syrian Christians themselves claimed their lineage to Namboodiri Brahmins. From this claim and the resemblance, they followed many of the customs and practices of Namboodiri Brahmins. Drawing upon primary data from oral narratives and secondary sources, this study investigates how historical and contemporary customs, including those related to marriage, dowry, inheritance, dress codes, and community expectations, contribute to issues of stigma, exclusion, and psychological distress. The findings reveal that while these customs preserve cultural identity, they often perpetuate gender inequality and create psychological distress. Through behavioral science frameworks, the study proposes community-based interventions and the behavioral interventions, including the development of a human-centric digital platform designed to provide culturally sensitive mental health support, education, and advocacy tools. The ultimate goal is to advocate for social justice, foster inclusion, and promote the mental well-being of Syrian Christian women by encouraging a critical re-evaluation of customs and facilitating culturally sensitive support mechanisms. The research concludes with recommendations for behavioral interventions that respect cultural heritage while promoting mental wellness and social justice.

Keywords: Syrian Christians, traditional customs, mental well-being, behavioral science, digital platform

1. Introduction

Syrian Christians linked their origin to ACE 52 when St. Thomas, an apostle of Jesus Christ entered Kerala, and as an element of missionary activity, he converted many of the local inhabitants into Christianity (Paul,1986). They can be deemed as one of the historically significant and acclaimed groups of Christians in Kerala. Traditionally, they were positioned after Brahmins alongside the Nairs in the caste stratification system of Kerala. They were advantaged with a higher economic status and obtained an array of rights from the rulers of Kerala including the land grants (Malekandathil, 2015). However, this socially conferred privilege conceals the savage gender inequality prevailed within the community.

Whereas, they have strong socio-economic standing, they are not handling their women in ethical means.

Syrian Christians were perceived themselves as the scions of Namboodiri Brahmins. Thus, they pass through cultural assimilation, which resulted in the practice of various customs, including the enforcement of casteism and also numerous native traditions as part of societal cohesion. The entirety of this influence stimulates the patriarchy, in lieu of disputing the male-centric power structure. This produced a unique form of internalized subjugation where women are void of freedom of expression, financial independence and equality (Kochurani, 2022). Consequently, women are confronting psychological distress and their mental well-being get worsened over time.

2. Problem Statement

Albeit the advancement of Kerala's Social fabric, Syrian Christian women are grappling with intense disproportion inside the community (Jayarani & Sudha, 2024). This culminates in the increasing meddling of patriarchal norms, unaddressed women roles and their limited social space (Kochurani, 2019). Moreover, various traditional customs pertaining to the mensuration, gestation period and motherhood perplexed the women minds. Taken together, these factors alter the mental well-being of women in a regressive way. Numerous women are in the predicament of necessitated medical support to fix the issue. Yet, they are not open to take professional aid, as they are worried of being tagged as "mad". Women are in the mental state where they believed this tag will impose their family underprivileged, as well they are mulling over about what society will think. This will construct a commonly neglected emotional weight and is breaching their right to access healthcare services.

3. Literature Review

3.1 Historical and Socio-Cultural Background of Syrian Christians in Kerala

Susan Viswanathan's publication *The Christians of Kerala History, Belief and Rituals among the Yacoba* (1993) examines the association between Christianity and Hinduism employing the strata of time, space, architecture and the body, and assesses the rich cultural mosaic of Hindu, Christian and Syrian life. It is a amalgamation of historical and anthropological data.

K.C. Zachariah's *The Syrian Christians of Kerala: Demographic and Socio-economic transition in the Twentieth Century* (2006) conveys an outline on the demographic factors of shift in terms of size, composition, geographical distribution and growth rate of Syrian Christian population in particular. Also addresses the fertility, mortality and migration among Syrian Christian community.

3.2 Patriarchal Structures and Gendered Expectations: The "Model Woman" Ideal

Friedrich Engles's *The Origin of the Family, Private property and the State* (1884) centres on the evolution of the dominant traditional monogamous family structure, its relationship to the emergence of private property and class society, and the subsequent development of the state. It goes beyond analysing the exploitation of the proletariat to examine the oppression of women, thus introducing a gender perspective. Even though this work

introduces a perspective of gender history, positing that as human culture shifted away from community ideals, its power dynamics shifted from women to men.

Simon de Beauvoir's book *The Second Sex* (1949) implores for equal treatment in a society that has moved beyond the reliance on male physical dominance. The book contends that women are not lesser than men, but simply have different strengths and abilities. Although men may excel in certain aspects of life, women excel in others. Unfortunately, the society of the twentieth century failed to recognize this perspective.

Sthridhanam: Rethinking Dowry, Inheritance and Women's Resistance among the Syrian Christians of Kerala (2003) by Amali Philips gives information about the marriages and system of dowry among the Syrian Christian Community. This article while questioning some of the paradigmatic explanations of Indian Dowry, add a new dimension to the growing literature on women resistance.

Sonja Thomas's *Privileged Minorities: Syrian Christianity, Gender, and Minority Rights in Postcolonial India* (2018) investigates how this community sheds light on broader issues of multiple forms of oppression, privilege and subordination, racialization and religion and secularism in India. This book is study of whole of Syrian Christian community thus lacks a wide exploration on the underprivileged sector within the privileged minorities, that is, women.

3.3 Traditional Customs and their Psychological Ramifications

Pius Malekandathil's article Church, *Women and Syrian Christian Households in pre-modern Kerala* (2014) explains the various traditions in Syrian Christian churches which were against the women and also the various churches established by the women in pre-modern Kerala. From this work it is evident that in pre-modern Kerala there was women leadership in constructing churches and all. The question is why these are not acknowledged in due course of time and why women were not raising their voice against it.

Kochurani's *Persisting Patriarchy: Intersectionalities, Negotiations, Subversions* (2019) states Women are assigned a secondary, inferior position, expected to be subservient, self-denying, and confined to domestic roles, that prioritizing family over personal aspirations. It will diminish autonomy, internalized oppression, self-censorship, guilt, unfulfilled potential, chronic stress, reduced agency, difficulty expressing dissent. Marriage strictly within the community to preserve socio-economic capital; arranged marriages are typical, though some youth choose spouses. Limited personal choice, pressure to marry early, anxiety over finding a "suitable match," potential for marital dissatisfaction if autonomy is suppressed.

4. Objectives

This research strives

- To assess about different long-standing traditions that detrimentally interferes with Syrian Christian Women.
- To implement behavioural science to dissect these traditions.
- To delve into the assorted interferences for social justice, stigma and inclusion
- To put forward culturally respectful digital applications to combat the problem

5. Theoretical Framework

Intersectionality theory set forth by Kimbrele Crenshaw conveys a meticulous analysis on how gender, sex and caste are overlapping one another and how they are woven together. The endure of Syrian Christian women emerges through a complex interaction of multiple, overlapping determinants (Malekandathil, 2024). While, the community is relishing a superior societal position in Kerala, their women's life was downcast due to gender-based oppression exacerbated by religious interpretations and traditional customs. Behavioural Science addresses the pathways through which social stigma fallout psychological well-being and coping-related outreach. Self-stigma will damagingly interfere with the women minds and leads to "Why try" affect and inconsistent treatment adherence (Jonathan et al., 2020). Social norms, traditional customs and cultural beliefs will ascribe mental illness to supernatural causes and endorse them to prefer traditional rituals over therapeutic support. Social Justice frameworks furnish ethical foundations for challenging institutional disparities. It campaigns for unbiased availability of resources. Rather than personal hardship, these framework underscores that Syrian Christian women's oppression springs from asymmetrical power imbalances within societal and religious structures (Kochurani, 2022).

6. Methodology

This research is undertaken in a qualitative manner using both primary and secondary data. The qualitative approach helps in the systematic probing of oral narratives, personal experiences, cultural stigma and its complex relationships with traditional customs, behavioural science and mental well-being. The primary data collection tools incorporate oral narratives through in-depth interview and focus grouped discussions. A purposive sampling method is used to select 20 Syrian Christian women from diverse generation, geography, educational and economic background.

Table 1.1 List of Participants and their attributes

Age Categories	Categories	Participants	Literates	Employed	Distressed ones	Seek Professional assistance
18-25	Unmarried women	5	5	1	4	2
26-35	Recently married women	5	5	3	5	3
36-50	Middle aged women	5	4	3	2	1
51-80	Elderly ones	5	2	1	1	0

An alternative method employed are community observations, in which Ethnographic observations were executed during community events, religious ceremonies, and family gatherings to understand how customs are practiced and strengthened in social settings. These observations provided contextualized knowledge of the pressures and expectations women met in their daily lives. Secondary data analysis was adapted to understand historical contexts, contemporary challenges, and existing intervention approaches.

7. Data Analysis Framework

Thematic analysis was exercised to ascertain persistent patterns, themes, and meanings within the collected narratives. The analysis followed Braun and Clarke's six-phase approach.

8. Results

8.1 Thematic Analysis of Oral Narratives

The appraisal of oral narratives uncovers five themes based on the connection between traditional customs and mental well-being of Syrian Christian Women.

8.1.1 Theme 1: The Perfectionist Pressure

Participants clarified the mental exhaustion they grapple with while striving to satisfy the traditional norms and customs submitted by the community.

"I am carrying out the role of a good student who procure high marks, a good girl who dress in flawless to the church and an ideal girl who will become a noble wife in future to cook good food for husband. In all these simulations to become perfect I can't identify my unfiltered self."- Participant A, age 22

The perfectionist pressure showed up in multiple ways:

- Academic and professional mastery simultaneously upholding domestic skills
- Abidance to dress codes and behavioural expectations
- Navigating family reputation through personal demeanour
- Harmonizing modern aspirations with traditional roles

8.1.2 Theme 2: Unheard Voices and Repressed Emotions

Participants manifest their frustration on not unveiling their disgruntlement to the traditional expectations and customs. This will give rise to emotional suppression and psychological distress. In the pursuit of evoking family delighted and proud, women are ignoring their emotional well-being.

"When I attempted to raise voice against my discontent about my husband before marriage, my family rebuke by notifying that good Syrian Christian girls will abide by elder ones and will not elevate their voice. Nobody is reflecting on my decision, only my compliances. "- Participant B, age 28

Repressed Emotions patterns included:

- Impotence to communicate discord with family decisions
- Subjugation of career objectives contrasting with family expectations
- Masked anxiety and depression symptoms
- Impeded access to mental health resources owing to stigma

8.1.3 Theme 3: Economic Anxiety and *Stridhanam* Pressure

The present-day characteristics of *Sthridhanam* (dowry) are escalating anxiety and stress among the Syrian Christian Community. The participants expounded how the financial burden of marriage preparation and dowry affect the mental health of Syrian Christian families.

"My parents began to buy jewellery for me when I was in school. As time passed, the dowry expectation of the community increased and my parents are struggling too much to comply with the expectation. I am now feeling that I am a burden to my family." - Participant C, age 24

Monetary pressures included:

- Family fiscal stress due to *Stridhanam* preparations

- Equating with other families' wedding expenditures
- Delayed marriages due to financial constraints
- Diminished self-respect correlated to economic contributions

8.1.4 Theme 4: Disrupted Identity and Cultural Incongruity

Participants draw a clear line between their real identity and their exhibiting identity. They clarified there is a striking difference in their authentic self-identity and the traditional expectations. This will create an emotional turmoil among them. This would result in what researchers referred to as the "identity fragmentation." This psychological occurrence led to dropped self-esteem and amplified anxiety.

"I love my culture and tradition and also I am proud of it. But sometimes I feel I lives beyond counting. I am not the person what I feign in Church."- Participant D, age 31

Identity conflicts manifested as:

- Professional identity against traditional feminine roles
- Individual preferences against community expectations
- Modern values against conservative traditions
- Personal agency against family obligations

8.1.5 Theme 5: Generationally linked Inheritance of Trauma

Middle aged participants describe how they are transmitting the trauma they suffered to their younger generation. It will create a pattern of transmission of trauma across generations.

"I am in decades of torment years to the appease the community to turn into a good mother and a good wife. Now I am gazing my daughter in the same trajectory. I desire I could break this cycle and thereby giving purpose to my daughter's life."- Participant E, age 49

Elderly participants share their dissatisfaction on the behaviour of younger girls.

"*My granddaughter is a conceited one. She completely ignores my words. She chose not to perform the traditional rituals and thus bringing disgrace to our family*." – Participant F, age 77

Generationally linked patterns included:

- Mothers maintaining stringent expectations despite personal struggles
- Younger women learning to subdue emotions from monitoring elder women
- Finite emotional support systems within families
- Cyclical patterns of psychological distress across generations

8.2 Community Observation Findings

Ethnographic observations during community events exposed how customs are reinforced through social mechanisms and collective behaviors. Key observations comprised of social monitoring and pressure to comply, spatial divisions based on gender and ritual affirmation of gender roles.

8.3 Secondary Data Integration

Analysis of historical and contemporary sources revealed that many current mental health challenges among Syrian Christian women stem from traditional customs, economic reform, generation linked transmissions and patriarchate norms.

9. Discussion

The outcomes of this study furnish to corroborate that social norms are a vital part of the self-orientation of Syrian Christian women. It influences their mental health, which habitually renders to psychological suffering, stigma and rejection. From a behavioral science and social justice perspectives, this discussion can justify what we're seeing and recommends practical responses including use of a digital platform.

9.1 Behavioral Mechanisms of Distress

The discoveries in the study align with fundamental principles of behavioral science and show how traditions are embodied with mental health:

9.1.1 Social Learning and Norm Internalization: The prevalent nature of customs such as, *Stridhanam*, inheritance disparities and "good woman" stereotype is learned through visualizing, and are interwoven by community expectations since childhood. This social education results the internalization of cultural norms that women may find it difficult to violate, even if hostile to their wellbeing. Violations of these regimens are typically socially sanctioned and displeased as a strong repellent consequence for maintaining devotion.

9.1.2 Cognitive Distortions and Self-Worth: Making a woman's worth replaceable with her *Stridhanam* or her submission with prescribed roles in marriage promotes cognitive distortion, where one's self worth is not considerate of what they think of themselves, but rather what society makes of them. That can bring feelings of failure, low self-worth or anxiety, when these external measures aren't met or when women believe they're not measuring up to what society expects. The constant demand to be "perfect" can create a spiral of rumination and self-blame, which are both common features of anxiety and depression.

9.1.3 Operant Conditioning and Social Reinforcement: Positive reinforcement (e.g., social approval, praise) is granted for adhering to customs, while negative reinforcement (e.g., lack of gos sip, exclusion) maintains submission. This system of reward and punishment informs women's decisions and behavior, even when their decisions harm their mental health. The concern to avoid social exclusion (stigma) works as a strong punishment for women to seek and remain in troubled marriages.

9.1.4 Lack of Behavioral Array: When women aren't prepared behaviorally to stand up to norms, and express their autonomy or ask for help they may fall back on dysfunctional coping mechanisms that may worsen their mental well-being. One example of this is that, when emotions are suppressed, stress will be internalized as a result.

9.2 Social Justice Essentials: Confronting Stigma and Fostering Inclusion

The research explicitly highlights the social justice implications of certain traditional customs including:

9.2.1 Gender Inequality and Systemic Drawback: Practices like uneven inheritance and the obligations of *Stridhanam* are not mere cultural oddities but systemic drawbacks that are innate to the patriarchal order of society. Moreover, they contribute to keep women bound to economic dependence, lack of personal freedom and opportunities for life, which directly contradicts with social-justice

principles. The historical backdrop of secondary works has been detailed elsewhere (see Kochurani, 2019; George,2023) and demonstrates how such practices were maintained even when a legal escape hatch or a socially figurative rationale was offered.

9.2.2 Stigma as a Barrier to Mental Health: The intense stigma directed towards non-conformity (e.g. divorce, or being a "failure" in the case of late marriage) is a major road block for those seeking mental health. Women are afraid of criticism, and they are pushed further from the centres of power, thereby suffer in silence. It is a major social justice issue because it denies people's right to feel good mentally and access to do so. The 'good woman' myth seems sweet, but it's actually harmful as hell.

9.2.3 Exclusion from Decision-Making and Agency: The restricted autonomy experienced by women at the individual and family levels mirrors their marginalisation in governance structures in the family. This deprivation of autonomy and control in their life is a deep social injustice that also has a direct bearing on their self-esteem and mental fortitude. Real inclusion is not simply the opportunity to be there but the right to take part and to shape that being there.

9.3 Intersectionality and Multiple Identities

Syrian Christian women live through several intersecting identities like religious, cultural, gender, economic, and professional, which produce complex mental geographies. Intersectionality theory can assist in explicating these multiple identities and the ways in which they interact, resulting in unique mental health challenges that cannot be addressed by single-issue approaches.

The findings indicate that interventions should recognize and deal with the involvement of these identities and not just focus on issues of gender or culture separately. That calls for subtle strategies sensitive to ways in which various identity dimensions overlap or cancel each other out.

9.4 Community-Based Intervention Opportunities

The results suggest a number of targets for community-based interventions for mental health that would be respectful of local culture:

9.4.1 Educational Initiatives

Community education programmes might play a role in differentiation between essential cultural values and harmful traditional practices. Such programs should include collaboration between community leaders, religious leadership, and mental health practitioners.

9.4.2 Support Group Development

Peer support groups for Syrian Christian women may offer safe spaces for sharing experiences and coping mechanisms. Cultural and community-led groups led by trained facilitators who understand the situation of the community, are necessary.

9.4.3 Family Intervention Programs

Family-based interventions should be developed to target intergenerational patterns of trauma and mental health communication in Syrian Christian families. Systems are developed with the participation of both, men and women programs need to

involve both, men and women for effectively addressing systemic issues.

9.5 Technology-Based Solutions: The *Antardarshan* App

The study outcomes have implications for possible development of culturally appropriate digital mental health intervention. The '*Antardarshan*' (Inner Vision) is a novel strategy developed as a mobile application that integrates communities for covering their mental health needs in a holistic manner while respecting cultural framework and fostering scientific insight into indigenous practices.

Target audience of the application will be Syrian Christian Women irrespective of age. The attributes of the app are anticipated to be 24/7 Mental Health Expert support, Scientific analysis of traditional practices, religious and theological guidance, menstrual and pregnancy health education, anonymous support networks, cultural counselling resources and crisis intervention system. This app is projected to be integrated with an expert panel including mental health professionals, religious and theological advisory board and subject matter experts. Fundamental intention of the app is to make women aware about the scientific basis of the traditional customs. Furthermore, the app will connect with theologians or religious expert to narrate whether there is any scriptural or theological base for the practicing of certain customs. This will help women to navigate in a correct path regarding the practicing of traditional customs and also connect with mental health professionals if they found their mental well-being are deteriorated.

10. Recommendations and Behavioral Interventions

10.1 Individual-Level Interventions

10.1.1 Culturally Adapted Cognitive Behavioral Therapy (CA-CBT)

- Develop CBT protocols specifically adapted for Syrian Christian women that integrate both psychological and theological perspectives. These interventions should:
- Use scriptural truths to challenge and replace cultural cognitions that distort healthy thinking
- Equip for walking between expectations of culture and how to preserve biblical principles of personal worth
- Involve family in the therapeutic process - when culturally indicated
- Blending contemplative Christian practices with mental health skills based on science
- Take advantage of the Antardarshan app's expert consultation features for continued support.

10.1.2 Faith-Integrated Identity Development Counselling

Specialized counselling approaches that help women develop coherent identity integration rather than fragmentation. This approach should:

- Employ good biblical examples of strong women as identity tethers.
- Discuss theological issues related to the spiritual equality of women and men
- Offer tools to distinguish between cultural customs and spiritual directives
- Enable Women to be their unique authentic selves within their faith community

- Use the app's video story library for inspiration and modelling

10.1.3 Reproductive Health and Spiritual Well-being Integration

Comprehensive programs addressing the intersection of women's physical health and spiritual practices:

- Scientific education about menstrual health integrated with theological teaching about body dignity
- Pregnancy support that explores both medical needs and cultural expectations
- Challenge practices lacking scriptural or scientific foundation through education
- Provide alternative spiritual practices that honor both body and spirit

10.2 Systemic-Level Interventions

10.2.1 Policy Advocacy

Advocacy efforts to address systemic issues that contribute to Syrian Christian women's mental health challenges, including:

- Legal reforms addressing discriminatory practices
- Healthcare system improvements for culturally sensitive mental health services
- Educational policy changes promoting gender equality within cultural contexts

10.2.2 Professional Training Programs

Training programs for mental health professionals, religious leaders, and community workers on culturally sensitive approaches to working with Syrian Christian women and families.

11. Conclusion

This research demonstrates the intricate relationship between traditional Syrian Christian customs and women's mental health. It highlights both the psychological benefits of cultural identity and the mental health costs of confined traditional expectations that lack scriptural or scientific foundation. The study indicates that cultural preservation and women's mental well-being are not conflicting goals but require pensive observation, theological introspection, and scientific understanding to achieve wholesome equilibrium.

The results point out the importance of intersectional approaches to mental health in the span of their faith context, that accept the multiple identities Syrian Christian women manage meanwhile providing them with tools for genuine self-expression. Traditional customs create both sources of strength and psychological burden. Therefore, it requires subtle interventions that respect genuine biblical teachings at the same time challenging practices that may have developed beyond their authentic spiritual purpose.

The suggested *Antardarshan* application denotes a groundbreaking approach to address cultural mental health challenges through comprehensive technology-based solutions. The app's emphasis on evidence-based evaluation of traditional practices, alongside scriptural examination and oral narrative preservation. It offers an integrated model for supporting women's mental health while acknowledging their cultural and religious heritage.

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PERSONALISED BEAUTY FEEDS ON SOCIAL MEDIA: PREVALENCE AND RISK OF BODY DYSMORPHIC DISORDER(BDD) AMONG YOUTH

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ABSTRACT

The usage of social media has rapidly increase these days. Content on social media these days is personalised so that it would be visible according to viewer's interests and emerging trends. Continuous exposure to social media will lead to several behavioural issues which will cause distress in social, occupational and other important areas of functioning. One such major disorder which is prevailing much especially among youth is Body Dysmorphic Disorder (BDD). According to DSM-5, Body Dysmorphic disorder is a serious disorder where an individual will be preoccupied with one or more perceived defects in their physical appearance which they believe look deformed. The objective of the research is to assess the level of relationship between personalised beauty feeds on social media its, prevalence and risks of Body dysmorphic disorder (BDD) among youth. The research has adopted a Descriptive Research design, where it includes describing the key variables by using narrative method of existing literature and qualitative method which includes In depth interviews (IDI) with 10 participants to improve the quality of research by collecting firsthand information through their experiences. The findings suggest that there is a multifaceted relationship between social media usage and development of Body Dysmorphic Disorder mainly through mechanisms such as low self esteem, internalisation of beauty ideals, social comparisons. Females have shown more vulnerability. Conclusion: BDD is a severe mental disorder which could lead to behavioural issues highly influenced by social media. The findings suggest that media literacy and psychological resilience should be promoted among youth.

Keywords: Body Dysmorphic disorder, Youth, social media, prevalence and risk

I. INTRODUCTION:

Social media has become an integral part of adolescents' lives, with platforms such as Instagram, TikTok and Facebook being used for communication, sharing experiences, and building social identities (Safitri et al.,2025). Compared to baby boomers, Generation x, and millennials, Generation Z, who had been well acquainted with technology and the digital world since childhood, were found to be more obsessed with social media (Djafarova et al., 2021 as cited in Kadavathe Peedikayil, S. 2025). The over exposure to social media these days has increasingly influences their social and emotional development (Blanchard et al., 2023). Social media often becomes a platform for self comparison, which can lower self – esteem, particularly concerning physical appearance and achievements (Safitri et al., 2025 as cited in Kadavathe Peedikayil, S. 2025). It has negatively

affected people's perception of beauty and led to dissatisfaction with their body image (Laughter et al., 2023). Among susceptible individuals, the over exposure may precipitate or worsen psychopathological conditions such as BDD (Body Dysmorphic Disorder) (Fardouly et al., 2023). BDD is characterised by an excessive preoccupation with one or more perceived defects in appearance, often resulting in significant functional impairment and psychological distress (Schieber et al., 2021). Body Dysmorphic Disorder (BDD) is categorised as obsessive compulsive and related disorder (OCRD) based on the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5). OCRD are a group of disorders in which general anxiety exists characterised by intrusive thoughts and a need to perform compulsion to relieve anxiety (American Psychiatry Association,2013, as cited in Buali et al., 2024). BDD is a common disorder mainly occurs during the age of adolescence. Concerns may range from looking unattractive to looking hideous. Preoccupations can focus on one or many body parts or areas. The most common area which the person having this disorder get preoccupied with is skin, where the individual feels like having excessive scars, acne, lines, wrinkles, paleness and with hair where thought will be focusing on thinning hair or excessive body or facial hair or with nose focusing on its size and shape. While some individuals must be concerned about eyes, teeth, weight, stomach, breasts, legs, face size or face shapes, lips, chin, eyebrows, genitals or even the asymmetry of body parts. The preoccupations will go on an average of 3-8 hours per (DSM-5). According to a recent study published by PubMed, BDD affects 2% of the adult population, but its underdiagnosed since limited clinician awareness is there. The disorder is undertreated since only limited access to treatment is also available. Aetiologies of BDD have shown light into environmental factors which includes personalised beauty feeds which may worsen the vulnerability of development of BDD. Neuroticism, perfectionism, low self-esteem also could be included in the symptomatology of this disorder. Globally, this issue have been rising as a major concern. There are studies which proven the link between over exposure to social media and prevalence of Body Dysmorphic Disorder. The studies also have been conducted in neighbouring countries, in Pakistan, as per the author (Waqar et al., 2023) states that individuals who uses social media often are more prone to develop less satisfaction with their body image and will develop negative thoughts after viewing the contents on social media. In Indian context, there are studies which shows the direct proportion between Body Dysmorphic Disorder and Social media usage. A study conducted by (Khan et al., 2025) says adults' self esteem and body dissatisfaction were significantly impacted by social media use. The present study aims to comprehend the lived experiences of youth who had developed low self esteem and later impacted it negatively on their self perception. Through conducting In depth interview (IDI) by capturing their personal narratives and opinions, the study aims to shed light on how the rising exposure to personalised beauty feeds on social media could contribute to the development and worsening of Body Dysmorphic Disorder). Ultimately this research emphasises the

importance of early identification, fostering awareness and encouraging the use of mental health services among youth who are prone to beauty feeds on social media thereby have the chance to develop unrealistic beauty standards due to the continuous exposure.

II. OBJECTIVES OF THE STUDY:

- To analyse the level of exposure of personalised beauty feeds on social media by the youth
- To predicts its impact on the development and risk of BDD (Body Dysmorphic Disorder).
- To analyse the level of self esteem and negative thought content youth has after the continuous exposure to beauty feeds on social media

III. MATERIALS AND METHODS

The study has been conducted by taking youth aged between 19-29 who are continuously exposed to social media. The research design used is Qualitative by using narrative method to assess the lived experiences and psychological impact on youth because of the beauty feeds. Purposive sampling method was used in the study. The researcher had approached potential respondents through offline and online interactions from formal and informal youth circle. Before the initial interviews the researcher had verbally screened the respondents to assess their level of exposure to social media and the prevalence of self esteem issues in them which has emerged due to personalised beauty feed. Thus, a total of 10 participants from diverse background and gender were selected for the study after explaining about the study and obtaining the consent. The inclusion criteria for participation were youth between 19-29 years of age who are using social medias regularly. The exclusion criteria were youth having only a mere exposure to social media and who are having major psychiatric illness. Data was collected using a semi structured interview which has designed to assess their self esteem level and psychological impact due to usage and the developmental risk of Body Dysmorphic Disorder, through conducting online and offline, lasting about 30- 50 minutes. To assess the nonverbal cues field notes were taken. After the data collection thematic analysis was used for the interpretation.

IV. CASE VIGNETTES

Case Study- 1

Mr A is currently pursuing his post graduate studies in Chennai. He uses social media for about 6-7 hours daily. After asking, he said that his social media feeds are filled with beauty related reels and videos of influencers promoting flawless skin. Over time when he became to start his life in college, he often feels embarrassed and inferior after comparing his face with that of beauty vloggers. Even though his family and peers couldn't find any abnormalities in his face, he constantly feels ashamed of his skin complexion and had tried using multiple beauty products. He had reported that he used to spent so much time in mirror earlier thinking about his flaw but later he itself started to hate looking into the mirror. He expresses " It was waste buying all those products and I can't see any result on my face". He admitted that he often skipped social events to hide himself from others. He hasn't been formally diagnosed with BDD or any other mental disorders, but his behaviours align with BDD symptoms such as continuous thoughts with the body, social

exclusion. This young boy's struggle to cope with his negative thoughts reveals the amount of inferiority and emotional pressure the influencers has been injecting on youth.

Case study-2

Mr B is a 22 year old male who is pursuing his Bachelors in Kerala. The amount of time he spends on social media is around 6 hours. The content which appears in his social media is occupied with videos of gym influencers and beauty vloggers. He is conscious about his body appearances such as jaw line and muscle formation. Even though he is physically fit he often complaints that he has gained weight and often calls him ugly while being in his peer gang. He uses filters while posting photos and edit his photos before posting in social media. He spends lots of money buying beauty products and skin care essentials monthly saying, it has become a habit to spent at least half of his pocket money on beauty products. Mr B admitted that he often feels ugly and has even started to avoid taking photos when with his peer gang. Mr B has also reported that he has developed a sense of negative self esteem due to the personalised contents posted by beauty vloggers on social media and says his grief that male body image concerns are heightening and still they can't talk this to anyone due to shame and humiliation.

Case study -3

Mr C is a 25 year old male who is working in Bangalore as an engineer. He started using social medias early at the age of 17 and has been following several beauty vloggers. His primary concern is regarding Body weight and height. He is having medium height and has been complaining it since his early twenties. "I often got rejected by my partner saying that she feels ashamed of my height and can't even appear with me when we are surrounded by our mutual friends". He confesses crying when nobody is around him. He often deletes his posts saying that he feels ugly after looking it for multiple times. He recently began to take diet to get lean and thus believes that it will reflects on his height. Mr C is not clinically diagnosed with BDD even though he shows mild symptoms of the disorder, including unsatisfied body image and preoccupations about body height and weight. His narrative shows how much influence and distress occurred to him and has reflected it on his relationship too because of the continuous exposure to social media.

Case study -4

Mr D is a 21 year old post graduate student staying in Chennai for her studies. She regularly uses social media platforms of all kinds, and her major concerns are regarding acne and scars on her face. She often says, "I feel so insecure after looking in to mirror and I can't even face people sometimes". She has tried various products after seeing the videos posted by beauty influencers including Korean mask sheets and acne ointments even without prescription. She often cancels her plans at the last minute while grooming after seeing her face. She regularly takes selfies in her phone to track her improvements and will develop a sense of dissatisfaction if not. "I felt more depressed after seeing the flawless faces of beauty influencers who posts beauty contents regularly" thus beauty feeds had injected a thought in her about how a beautiful face should be. Her case is showing how minor concerns like acne or skin scars can be worsen due to this continuous exposure.

Case study- 5

Mr E is a post graduate student at Chennai. He uses social media for about 7 hours daily and even in class time he couldn't suppress the urge to scroll reels or watch random videos. He reported that he was exposed to beauty contents on social media and had developed a sense of insecurity even at late teenage regarding his smile and teeth alignment. He often avoids talking with public due to the insecure feel about his teeth alignment. After seeing several beauty posts he put braces and after the treatment also his insecurity doesn't fade away. He expressed grief often comparing himself with others, majorly while with beauty influencers. His narrative shows how minor body concerns could be worsened through the continuous exposure to social medias and will worsen the conditions.

Case study- 6

Ms. F is a 26 year old fine arts student in Kerala. She has continuous exposure of 6-8 hours towards social media and reported that she is fond of beauty related content which appears on social media. She often tries all the beauty hacks that are appearing on social media and always have the urge to improve her facial features. She reported that "It takes around 1 hour for me for grooming. I often feels like I'm not enough groomed whenever I go outside. I will try at least 2 beauty hacks daily to improve my face complexion and texture". She hasn't undergone any surgical treatments to improve her facial features, but has a strong desire to do so. Ms F's narrative shows how beauty related content promotes desires to even do surgeries to cope up with those feelings and distress.

Case study -7

Ms G is a 29 year old working women. She has an average duration of 5 hours spending on social media. When asked about the type of content popping on her feeds the first reply was regarding beauty content. She started to follow beauty vloggers during the time of pandemic. Her primary concern was regarding her nose which she feels little big. She reported "I used to see mirror for hours and still feels unsatisfied while going for work". She avoids photos unless they are taken from front camera. She avoids eye contact usually with coworkers and distant friends. She often feels distressed after seeing multiple beauty reels and thinking she doesn't have the luck to have such faces. Her narrative highlights how beauty related contents on social media will depress productive youth and thus leading them to live a life full of resentments.

Case study-8

Mr H is a 21 year old student who is regular to Gym. He has a minimum of 5 hours exposure towards social media. He is having a thought that his body is not muscular enough and feels like his facial features are soft. He is averted to tight clothing and is consuming supplements and following gym routines by seeing the contents in social media which posts by the influencers. He admitted that he often feels ashamed of his body while being with friends and refuses to take part in college fests. But people can't recognize any defects with him still he feels insecure and preoccupies with the thoughts about his body. His narrative shows about the growing concerns of young men to have muscular body due to the heightened exposure of beauty related content.

Case study- 9

Ms I is a 29 year old woman who is working in govt sector. She has a minimum of 5-6 hours exposure to social media. While asking which contents usually appears in his social media she reported about beauty related content. She feels her face is not good enough and is thinking of plastic surgery to escape from the issue. Despite her position she often feels ashamed of the looks and even doesn't have a meaningful relationship with coworkers. " I often feel much depressed especially when I'm grooming at morning to go for work", reported by the respondent. She doesn't like looking in mirror and often complains it towards her mother. Her narrative also shows how unrealistic beauty ideologies could affect working youth and how it will impact on their productivity.

Case study-10

Ms J is a 22 year old female who is residing in Chennai for her academics. She is currently pursuing her master's and is accustomed in using social medias and reported that academic videos and beauty content, including skin care and glow up videos are arising more in her feeds. Ms J began to feel subtle pressure after watching all those reels, overtime and started to compare herself with that of beauty vloggers. The major thing which preoccupies her is skin complexion. She reported that she often loses interest in studies. Her preoccupations reflect on the early stage of BDD. Her narrative shows that how academics of youth could be affected through continuous exposure to social media.

V. FINDINGS AND DISCUSSION

1. Preoccupation with appearances

A major theme which could be seen in all the 10 cases are persistent occupation with negative thoughts about self image. Participants often felt dissatisfaction about their appearances such as skin tone in the cases of Ms. J and Ms. A , teeth alignment in the case of Mr. E, facial structure in the case of Ms. F and Ms. I, acne concern in the case of Ms. D and body image apprehension in the case of Mr. H and Mr. C. "I often feel ashamed of my body while being with friends", reported by Mr. H. "I can't even face people many times", reported by Ms. D. This preoccupation aligns well with the diagnostic features of BDD, mainly focusing on physical flaws which is invisible to others.

2. Influence of personalised beauty feeds

All the respondents have reported that personalised beauty feeds are dominating their social media. "My feed is full of beauty related content focusing particularly on flawless skin", reported by Mr. A. As reported by Ms. F, she says that "I usually tries at least one beauty hack daily". "I often feel depressed after seeing the flawless face of influencers", reported by Ms. D. This shows that personalised beauty feeds shape the thought content of the youth on self-perception and it will lead to the birth of unrealistic beauty thoughts.

3. Negative self-evaluation and psychological distress

A salient theme is the emotional pain and distress associated with appearance related issues, which ranges from inferiority, lack of hope and low self-esteem. Mr. C shared has shared, "I used to cry when nobody was around and Mr. A said, I feel that I'm ugly

even after using multiple beauty products". These narratives reveal the internalised beauty ideologies and self-judgements which is linked to psychological distress

4. Avoidance behaviour and social withdrawal

Several participants have revealed that they had the history of avoiding social interactions, skipping functions and even have the feeling of shame while being in a group. Mr. A has shared that "I often skip social functions to hide myself from others". "I skip taking selfies". These behaviours points out social impairment, a major criterion for diagnosing BDD and is often a common symptom of the disorder.

5. Negative coping strategies

Participants revealed that they are relying on passive coping strategies including excessive grooming as in the case of Ms. F and Ms D, frequent mirror checking as in the case of Mr. E and Mr I, overuse of beauty products seen in the case of Mr. A and Ms. J and even the use of diet supplements seen in the case of Mr C and Mr H. "It has become a habit of me to spend half of the amount of my pocket money on beauty products", says Mr. B. "Whenever I look in the mirror it gives me an immense pressure of insecurity", reports Ms. I. These coping mechanisms which the participants have adopted will offer short term relief but will reinforce anxiety and dissatisfaction related to appearance in long term.

6. Stigma and gender suppression

Male participants revealed that they are reluctant to open up about their body image struggles to society due to social stigma. "Male body image concerns are heightening, but we can' talk about it due to shame", reports Mr.B. This shows how BDD symptoms in men are suppressed and neglected making it more difficult to diagnose and intervene.

7. Decline in academic work/ productivity

Some of the participants who are particularly students reported that their preoccupations have made them to focus less on their academics and daily functioning's. "I lost interest in studies" says Ms. J. "My thoughts about my flaws distract me from listening to class", reports Mr E. These findings shows that how personalised beauty feeds could even impair academic and occupational productivity among youth.

VI. SUGGESTIONS:

The study suggests the following measures to address the behavioural/mental health risks associated with personalised beauty feeds on social media:

1. **Creation of a mobile support tool for Body concern issues:** A chatbot or mobile application tool could be developed to help youth to self screen their grief and stress, avail psychoeducation on BDD, and finally to connect with a mental health professional if needed. This will also help to uphold confidentiality and accessibility.
2. **Promote accessible counselling services in educational institutions:** Since most of the respondents were students struggling with self esteem issues educational institutions should enhance academic counselling services. Incorporation of Mindfulness based stress reduction (MBSR) programs will also helps to mitigate academic decline of students.
3. **Integrate body image awareness with digital literacy:** Educational institutions should include media literacy in their

curriculum focusing on how beauty standards are shaped due to the influence of personalised content on social media to promote prevention and early identification. This will help the youth to critically think over passive consumption.

4. **Promote social skills training :** To reduce avoidance behaviour and social withdrawal, interventions like social skills training, gradual exposure therapy and support groups could be put forth. These will inbuild a sense of confidence in Youth and will reduce BDD related impairments.
5. **Develop healthy coping strategies:** Institutions can promote healthy coping strategies instead of the harmful habits such as frequent mirror checking, excessive grooming which includes cognitive restructuring and majorly focusing on critical media literacy.

VII. CONCLUSION:

The present study signifies the heightening concern of Body Dysmorphic Disorder among youth, majorly occurring due to the over exposure towards personalised beauty feeds on social media. By conducting narrative analysis of the 10 case studies, the study brings how unrealistic beauty ideologies developed through personalised feeds will contribute to low self esteem, social withdrawal, psychological distress, behavioural changes and even further leads to mental disorders like BDD. Participants admitted persistent preoccupations with perceived flaws which are minor, psychological struggles, negative coping mechanisms, all which comes under the symptomatology of BDD. These findings propagate the high time for the early identification, awareness and interventions through supportive mental health services.

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Advancing Behavioural Science: A systematic Review of Self-Compassion-Based Psychological Intervention for Body Image Disturbance and Anxiety in Young Women Facing Contemporary Social Challenges

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ABSTRACT

Body-image disturbance and anxiety are pervasive psychological distress among young women, that often add on to the broader mental health concerns. Studies emphasize the part of self-compassion as a protective factor which attenuate these challenges. This systematic review integrates evidence from 30 Scopus indexed studies scrutinizing the potency of self-compassion based psychological interventions in addressing body-image concerns and anxiety among young women. An extensive search of Scopus was administered to locate peer reviewed studies published between 2020 and 2025. Studies were selected if they addressed self-compassion-based interventions targeting body image disturbance and/or anxiety in women. Findings persistently shown significant reduction in body dissatisfaction and anxiety symptoms. Interventions focusing on mindfulness and reduced self-criticism were more efficient. Studies also pointed enhancement in emotional regulation, decreased internalization of appearance ideals and improved overall well-being. Predominantly, the interventions focused on appearance related issues indicated greater efficiency. Thus, self-compassion-based interventions are identified to be propitious and flexible approach for reducing body image distress and anxiety in young women particularly when encompassing elements such as self-kindness, cognitive reappraisal and writing based exercises. The findings support the incorporation of self-compassion-based interventions into preventive and clinical programs. Future research can employ longitudinal and experimental designs to demonstrate gender differences, causal mechanism, cultural variability and efficacy of long-term interventions.

Keywords: self-compassion, body-image disturbance, anxiety, young women

1. Introduction

In the recent years, mental health problems among young people have attained significant attention (Dowds, 2010). Anxiety and body- image disturbances have been risen as an interrelated and a very frequent issue (Toole et al.,2021). This interrelationship is striking predominantly in the developmental stages in which identity development and self-concept are still emerging, thus making young women explicitly susceptible to evaluations based on appearance. Body- image disturbance refers to negative judgement and the emotional distress experienced by the individuals in association with the perceived imperfections they have (Hamamoto et al.,2023). Similarly, anxiety, consists of physiological hyperarousal and insistent worry. These feelings associated with anxiety gets aggravated by appearance related comparisons, social pressures and internalised models that one holds (Hai et al.,2022). Gradually these ideals as well as

models fuels up emotional dysregulation and low self-esteem by contributing to raised self-doubting. These problems tend to coincide and fortify one another leading to a recurrent pattern of psychological disturbances (Duchesne et al.,2017).

A combination of psychological, developmental and sociocultural factors makes young women exorbitantly affected by these concerns (Stromback et al.,2015). The transition phase into adulthood is highlighted with the key features like self-awareness and personal identity. These features contribute to the elevated sensitivity to appearance related evaluations and comparisons (Roberts et al.,2014). Societal expectations, life transitions, cultural norms, and gender roles exacerbate anxiety (Farhane et al.,2022). The escalation of digital innovations has reinforced the magnitude and scope of these influences, causing a significant rise in anxiety symptoms, body dissatisfaction and self-objectification among the young women (Pan et al.,2022).

In view of these growing challenges, self-compassion intervention has gained amble empirical support as a guaranteeing intervention. Kristin Neff (2003) has described self-compassion as wholesome method to connect with oneself during the times of hardship. Self - compassion comprises of self-acceptance, awareness and acknowledgment of shared humanity (Dzwonkowska et al.,2015). Numerous psychological interventions have amalgamated self-compassion, including Compassion-Focused Therapy (CFT), Mindful Self-Compassion (MSC), and acceptance-based approaches such as ACT that include compassion components (Torrijos et al.,2021 & Welford et al.,2015).

In despite of the increasing number of studies estimating self-compassion-based interventions, the research landscape remains disintegrated. Existing studies tend to focus either on body image or on anxiety, but rarely combine evidence addressing both domains concurrently explicitly in relation to young women, who indicate a high-risk and diminished demographic in consolidated intervention research (Covell et al.,2003). Additionally, the post pandemic mental health condition, combined with a rise in digital and brief-format interventions, requires a well-timed reassessment of the domain (Robinson et al.,2022). Understanding how self-compassion exert an influence on both body image and anxiety simultaneously is imperative for developing combined, scalable, and youth-relevant mental health approaches. The aim of this systematic review is to synthesize existing proof on self-compassion-based psychological interventions that aim at body image disturbance and anxiety in young women. By determining patterns, results, and gaps in the current literature, this review looks up to inform clinical practice and direct future research in designing effective, accessible, and gender-sensitive mental health interventions.

2. Review of Literature

Self-compassion has arisen to be a prominent psychological construct and an intervention target with respect to anxiety and body-image disturbances, specifically among young women. The literatures reviewed vigorously back the efficiencies of self-compassion intervention in fostering mental and emotional wellbeing, diminishing self-criticism and enhancing

body image with many studies revealing deduction in anxiety and depressive symptoms. Self-Compassion Theory (Neff,2003) serves as a core to this research, that conceptualizes self-compassion as consisting of mindfulness, self-kindness and general humanity. Ther are studies that have been guided by this framework, specifically those that shows substantial post-intervention enhancement in self-kindness and depletion in isolation and self-criticism (Huang et al.,2021; Mojica et al.,2024). Noticeably, these components are usually connected with advancement in emotional outcomes like depression, anxiety and stress.

Various studies reported that self-compassion-based interventions results in outcomes that are superior than treatments that are usual or mindfulness alone (Qi et al.,2025), indicating that the acceptance and self-directed affection of self-compassion draw emotional pathways that are deeper than mindfulness alone.This is thus supporting the emotion regulation model of self-compassion, which is proposing that self-compassion promotes adaptive modulation of emotion that are distressing through re-examination instead of avoidance (Bates et al.,2021).

In a study by Pilarik et al., (2024) more evidence on this model can be found, where cognitive reappraisal appears to mediate the effect of self-compassion on anxiety. This understanding enhances value to self-compassion as a strategy in providing more nonjudgemental and flexible interpretation if emotionally charged circumstances, thereby protecting against psychopathology. Noticeably, emotion suppression is not serving as a mediator suggesting that not all the regulatory methods align along with self-compassion mechanisms. Self-compassion often occurs in a mediator or moderator role. A study by Stefan et al., (2022) indicated that self-reflection without self-compassion may intensify anxiety emphasizing that self-compassion not only mitigate the risk factors but also convert possibly maladaptive traits into protective traits. Correspondingly, self-compassion mediated the relationship between trauma related symptoms and the insecure attachment styles (peng et al.,2025), bolstering its protective effect on vulnerable psychological states.

Body- image is an area explicitly sensitive to self-assessment and external pressures. This area appears to benefit from self-compassion-based interventions to a great extent. Seekis et al., (2023) identified that self-compassion based TikTok content could reduce appearance related anxiety and upward social comparison. Similarly, Gracias et al., (2024) and Wang et al., (2022) indicated that self- compassion interventions based on writing could reduce body dissatisfaction and state self-objectification successfully. These findings assure that self-compassion can shift the appearance-based concerns to a more holistic, accepting view of the self. Adolescent girls and young women are the categories identified to be highly bothered with perfectionism and appearance related anxiety (Woodfin et al.,2021).

Self-compassion based digital interventions also have showed promising results. A study by Kishimoto et al., (2025) identified that anxiety and self-compassion can be remarkably improved through online self-compassion-based writing with empathetic AI feedback than writing alone. This can

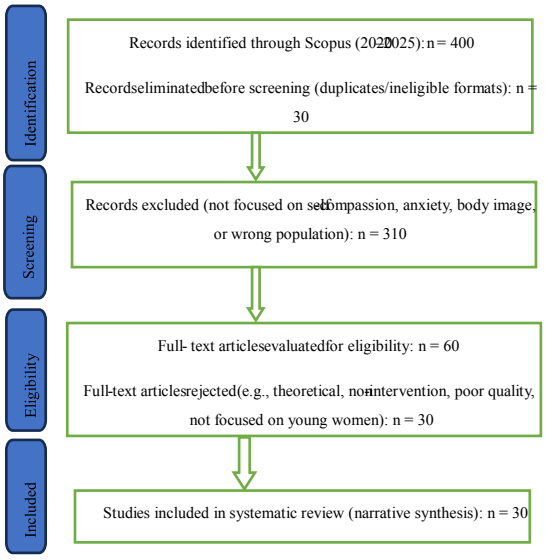
specifically be utilised by those who are reluctant to engage in traditional therapy and thus can be considered as an exciting scalable and accessible intervention format. However, there are certain studies that have reported an unexpected spike in the depressive symptoms instead of advantages in self-compassion-based interventions (Vestin et al.,2025).

Intervention encompassing self-compassion also point towards promoting positive embodiment and resilience against sociocultural pressures. Studies have emphasized the role self- compassion in functional body-image constructs like its moderating impact on weight and shape overvaluation (Linardon et al.,2020) and body functionality appreciation (Granfield et al.,2023). These conclusions indicate the potential of self-compassion beyond symptom reduction. Certain studies have also identified the role self-compassion as coping mechanisms. Zhu et al., (2023) identified that adaptive coping styles mediated the connection between self-compassion and lowered body-image distress, while maladaptive styles such as resignation and avoidance aggravated it. This marks the part of self-compassion in determining how young women respond and interpret body related challenges.

However, most of the outcomes were favourable on a large scale, certain inconsistencies are worth mentioning. A study by Turk et al., (2022) found that the intervention leads to changes in clinical measures that are limited particularly following a single brief session. Another study by Mahon et al., (2022) observed that there exist gendered differences in relevance of the intervention, indicating that program proportion and contextual tailoring are critical for long term effect. The review underpins the view that self -compassion is a transdiagnostic process having both the therapeutic benefits as well as preventive for anxiety and body-image disturbance in young women. The idea of how self-compassion operates is understood with the consistent integration of cognitive reappraisal, emotion regulation and attachment-based frameworks. Nevertheless, the field would gain better through culturally sensitive long term interventions addressing factors like gender norms, weight stigma and exposure to media.

3. Method

Figure 1 represents a PRISMA flowchart that illustrates the process of paper identification and selection process used in the present review, making the total number of papers reviewed 30 from 400 papers that were identified.



(n= number of studies)

Fig 1 *PRISMA flowchart describing study identification and selection process for the present systematic review involving identification, screening, eligibility and inclusion stages. PRISMA: Preferred*

Reporting Items for Systematic review and Meta-Analyses. Adapted from Page et al., (2021), BMJ,372, n71.

Design

The present study is a systematic review with purpose of consolidating research on the efficacy of self-compassion based psychological interventions for addressing body-image disturbance and anxiety in young women. The review succeeded the Preferred reporting Items for systematic Review and Meta-Analyses (PRISMA) regulation to ensure replicability and transparency in methodology as mentioned in figure1. Fig1 denotes that initially 400 papers were identified from the Scopus database. The screening process that followed eliminated duplicate papers, papers in ineligible formats and those papers not focusing on self-compassion, anxiety or body image making it 310 papers. Among that, a total of 60 full-text articles were evaluated. Those papers that were theoretical, non- intervention, of poor quality and not focusing on young women were rejected finally making the papers included in the systematic review to be 30.

Search Strategy

An organized search was conducted using the Scopus database, aiming at the peer reviewed studies that were published between 2020and 2025. The search strategy comprised AND combination of the following keywords: "self-compassion" AND ("body image disturbance" OR "appearance anxiety" OR "body dissatisfaction" OR "body image issues" OR "body shame" OR "anxiety" OR "appearance -related anxiety" OR "body surveillance" OR "social anxiety" OR "mindfulness" OR "self-criticism").The search was restricted to articles that are published in English, stressing on studies that focused on psychological interventions grounded in self-compassion concepts (E.g. self-kindness, mindfulness, cognitive diffusion) and that targeted body-image and /or anxiety in young women.

Eligibility Criteria

In order to include in this review, studies had to fulfil the following criteria:

- Published between 2020 and 2025
- Peer-reviewed and accessible in full text
- Conducted on young women
- Estimated self-compassion based psychological interventions (including but not restricted to Mindful Self-Compassion, Compassion- Focused Therapy, ACT-based self-compassion or self-kindness training)
- Reported findings related to body image disturbance and /or anxiety
- Applied either qualitative, quantitative, or mixed methods Studies were rejected if they:
- Focused on body image or anxiety as a peripheral or non-reported item
- Were theoretical papers, reviews having no outcome data
- Involved non-self-compassion-based interventions without segregating the self-compassion component.

Study selection

The titles and abstracts of all records were individually picked by two reviewers to decide preliminary eligibility. Full-text screening was conducted on 60 papers that fulfilled the initial inclusion criteria. Variances during the review process were determined through discussion. Ultimately, 30 studies were incorporated in the final review.

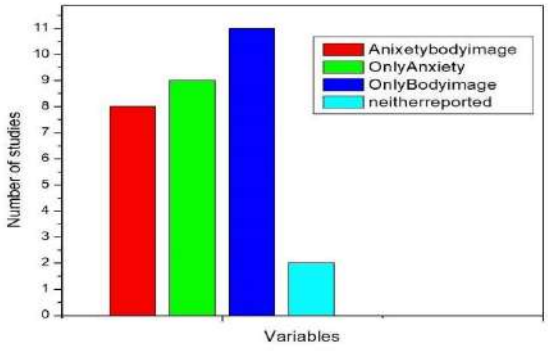
Data Extraction and Synthesis

Key information was elicited from the selected studies; including:

- Author(s) and publication year
- Sample characteristics (age range, sample size, setting)
- Nature and format of the intervention
- Study design (quantitative, qualitative, or mixed methods)
- Key findings or intervention effectiveness
- Measured outcomes (e.g., emotional regulation, changes in anxiety, body dissatisfaction).

Given the heterogeneity in intervention approaches, findings and study design, a narrative synthesis was utilized to incorporate the results. No meta-analyses were performed.

8.Results and Discussions



Graph 1 *graph shows the overlap between studies showing improvements in anxiety and body-image disturbances due to self-compassion-based psychological interventions*

Despite variations in methodologies, population and intervention format, findings from the 30 studies found a consistent trend of conducive psychological outcomes. Table 1 shows elements of the 30 papers that were reviewed. Self-compassion-based interventions integrating mindfulness, self-kindness and cognitive reappraisal that were delivered through diverse formats such as mindful self-compassion training, guided writing exercise, digital modules and compassion focused therapy significantly reduced body dissatisfaction and anxiety symptoms in moat do the studies. Over 80% of studies indicated statistically significant reduction in body dissatisfaction and over 57% reported decrease in anxiety. Graph 1 shows 8 studies reported reduction in both anxiety and body-image disturbances with the use of self-compassion-based intervention, 9 studies reported reduction in anxiety only, 11 studies reported reduction in body -image disturbances only and 2 studies reported neither indicating that they reported self-compassion measures as primary outcome. Most of the studies were conducted in online or group settings over a period of 2 to12 weeks, with common components such as psychoeducation, meditation and writing task.

Specific therapeutic components like self-kindness, common humanity and reduced self-judgement were identified through the review as most effective to reduce body-image disturbance and anxiety in young women (Mojica et al.,2024; Zhu et al.,2023). The interventions emphasizing writing exercises, particularly self-compassion letters were identified to be efficient especially when feedback was personalised or emotionally resonant (Gracias et al.,2024; Kishimoto et al.,2025). The somatic outcomes like reduction in heart rate and increment in heart rate variability underscores the unique stress-buffering mechanism of self-compassion,

contributing to emotional and autonomic regulation beyond mindfulness practices alone (Qi et al.,2025; Sun et al.,2025). The incorporation of cognitive reappraisal as a mediating process strengthens the part of self-compassion in emotion regulation, particularly in diminishing anxiety through adaptive cognitive strategies (Pilarik et al.,2024). Cultural factors were also identified to significantly influence the intervention efficacy. The gender disparities in baseline distress levels in Iranian samples disappeared post-intervention, indicating the potential of self -compassion to mitigate culturally embedded shame dynamics (Sajjadi et al.,2023). Also, culturally tailored interventions in non-western contexts such as in Kenya and East Asia were well received and effective, even though the contextual meaning of outcomes such as fertility or social appearance pressure contributed perceived success (Njogu et al.,2023; Peng et al.,2025). The effect of digital culture also emerged as crucial, with self-compassion resisting the negative effects of beauty centric media and promoting a better self-perception in young women (Seekis et al.,2023).

4.1 Limitations

Despite its strengths, this review also has certain limitations. Confining the search only to Scopus database might have led to the elimination of significant studies that are indexed in other major databases like PubMed or PsycINFO. This can lead to reduction in comprehensiveness of the findings. Only studies published in English were incorporated, which may have eliminated significant research conducted in non-English speaking countries. This linguistic barrier restricts the cultural diversity represented in the findings and lowers the global generalizability of the results. Given that both self-compassion and body image ideals can be formed by cultural values, extended inclusion may have reinforced the analysis.

4.2 Social implication

This review contributes to theory by emphasizing the part of self-compassion as a technique that helps in reducing body-image issues and anxiety. It supports Neff's model of self-compassion and suggests integrating it into models like objectification theory and tripartite influence model in order to improve their predictive power in explaining body image disturbances in young women. Thus, a strong foundation is laid on refinement of psychological theories related to body-image and emotional health.

Therapists and counsellors working with young women who experience body image disturbance and anxiety can incorporate the components of self-compassion in their practice. Also, the adaptability of these interventions such as the flexibility with delivery in individual, online or group format makes it suitable for a wide range of setting such as university, schools and community health programs. The efficiency of digital and group-based delivery formats increases the accessibility of the intervention to undeserved population and decreasing restriction to mental health access. Various directions for future research are emphasized in the review.

5.Conclusion

The review provides strong evidence that self-compassion based psychological interventions are efficient in alleviating body -image disturbances and anxiety

among young women. The findings emphasize the mechanisms such as cognitive reappraisal, enhanced emotion regulation, writing based intervention and reduced appearance focused rumination are core to these improvements, while avoidance strategies and suppression are less effective (Gracias et al.,2024; Pilarik et al.,2024). Also, moderators like internalization of beauty ideals, perfectionism and self-objectification contribute in responsiveness to these interventions advocating a need for personalization. Despite the fact that most studies included non-clinical, college aged population and indicated strong short-term outcomes, there exists a gap in deep assessment of long-term efficiency and cultural adaptability. Noticeably, emerging innovations like AI- enhanced writing tools have demonstrated enhancement in engagement and outcomes (Kishimoto et al.,2025). Thus, the findings are validating the relevance of self-compassion-based frameworks in promoting positive bodyimage and emotional wellbeing along with underscoring the need for significant, longitudinal and context-sensitive research to upgrade intervention efficacy for diverse population.

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Mindfulness, Burnout and Wellbeing in the Indian Service Sector: The Role of Age, Gender and Workload

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ABSTRACT

The rapid expansion of high-demand sectors such as information technology and services in India has raised serious concerns about employee mental health. High-pressure work environments often contribute to burnout and diminished wellbeing, prompting growing interest in mindfulness as a proactive strategy to support psychological resilience. This study investigates how age, gender and working hours relate to mindfulness, burnout and PERMA-based wellbeing among Indian professionals.

A cross-sectional survey was conducted with 664 employees from the Indian IT sector using standardized tools: the Mindfulness at Work Scale (MAW), the Burnout Assessment Tool (BAT-23) and the PERMA Profiler. Age was positively correlated with mindfulness ($r = 0.16$, $p < 0.001$) and negatively with burnout ($r = –0.10$, $p = 0.008$). Longer working hours were associated with greater burnout ($r = 0.15$, $p < 0.001$) and lower wellbeing ($r = –0.09$, $p = 0.022$). Women reported significantly higher burnout than men ($t = 2.077$, $p = 0.0382$). Mindfulness was negatively associated with burnout and this relationship was moderated by gender (stronger for men; $\beta = 0.114$, $p = 0.027$). While PERMA wellbeing negatively predicted burnout, gender did not significantly moderate this buffering effect.

These findings underscore the importance of integrating mindfulness-based interventions, particularly with attention to age and gender dynamics, to enhance mental health outcomes in Indian workplaces.

Keywords: mindfulness, burnout, wellbeing, workplace mental health, India IT industry

Burnout is a psychological syndrome resulting from chronic workplace stress. It is typically defined by prolonged exhaustion, cynicism (detachment) and a sense of ineffectiveness. This occupational dysphoria can impair both mental health and workplace outcomes. For example, discrepancies in job demands and resources (including workload) predict higher burnout, which in turn harms performance and personal wellbeing (Maslach & Leiter, 2016). Recent reports highlight that workplace burnout is especially widespread in India, with one survey finding that 59% of Indian employees report burnout symptom**s** which are far above the global average (Brassey et al., 2023)**.**

Mindfulness, defined as intentional, nonjudgmental present-moment awareness has emerged as a psychological resource that can buffer stress (Kabat-Zinn, 1994). Practicing mindfulness is known to improve

self-awareness, emotional regulation and resilience and prior work suggests it can counteract occupational stress and reduce burnout**.** In organizational contexts, "workplace mindfulness" includes both individual and systemic aspects (Manier & Francis, 2016) and its benefits have been linked to greater flourishing. The PERMA model of wellbeing (Seligman, 2011) identifies five core dimensions—Positive emotion, Engagement, Relationships, Meaning and Accomplishment and prior studies suggest mindfulness enhances these aspects of wellbeing (Butler & Kern, 2016; Donald et al., 2019).

Despite these insights, the interplay of age, gender, workload, mindfulness, burnout and PERMA wellbeing has not been fully studied in India. This study examines: Whether older age relates to higher mindfulness and lower burnout; Whether longer work hours relate to higher burnout and lower PERMA wellbeing; Whether gender moderates the link between mindfulness and burnout; Gender differences in burnout; and whether PERMA wellbeing buffers burnout and whether this effect differs by gender. We report the statistical findings below and discuss implications for workplace wellbeing.

Methods

Design and Participants

We conducted a cross-sectional survey of 664 IT professionals across India, with an average age of 33 years. The gender breakdown was 353 males and 311 females. Respondents reported an average workweek of 46.5 hours. Participation was voluntary and conducted through online survey. Informed consent was obtained and the study received ethical clearance from the appropriate institutional board.

Measures

Mindfulness at Work Scale (MAWS): An 11-item scale evaluating both personal and organizational mindfulness on a 7-point Likert scale (Manier & Francis, 2016).

Burnout Assessment Tool (BAT-23): This 23-item instrument assesses emotional, cognitive and physical aspects of burnout (Schaufeli et al., 2020).

PERMA Profiler: A 23-item questionnaire measuring five elements of wellbeing: Positive Emotion, Engagement, Relationships, Meaning and Accomplishment (Butler & Kern, 2016).

Procedures

Participants shared demographic details and completed the MAWS, BAT-23 and PERMA scales. Responses were anonymous and statistical analyses including correlations, t-tests and regression models were conducted using SPSS.

Results

Table 1 represents all the correlation results between MAW Scores, WbaW Scores, BAT_23 scores, Age and average working hours per week, Figure 5 can be used to see the same in a correlation matrix.

Table 2 represents the results from t- test done to assess the difference in Burnout levels between male and female IT employees.

Descriptive Statistics

Participants worked an average of 46.5 hours per week. The mean burnout score was 2.498 out of 5. The average PERMA wellbeing score across the sample was 6.66 out of 10. The overall mean score for mindfulness was 5.2 out of 7.

Gender-Based Averages

Mindfulness levels were nearly identical for men and women, with women scoring an average of 5.21 and men 5.20. Burnout scores were slightly higher for women (2.53) compared to men (2.47). On the PERMA wellbeing scale, men scored higher (6.71) than women (6.62).

Correlational Findings

The scatterplots presented in Figure 1, Figure 2 and Figure 5 illustrate the relationship between Mindfulness Scores and Age and the relationship between Burnout Scores and Age respectively. Pearson's correlation analysis revealed a statistically significant positive association between age and mindfulness, with a correlation coefficient of $r = .16$, $p < .001$. This suggests that older participants tended to report higher levels of mindfulness. In contrast, age showed a statistically significant negative relationship with burnout scores (BAT23), $r = –.10$, $p = .008$, indicating that younger employees tended to report higher burnout.

The scatterplots presented in Figure 3, Figure 4 and Figure 5 illustrate the relationship between Burnout Scores and Working Hours and the relationship between Wellbeing Scores and Working Hours respectively. Working hours were also associated with psychological outcomes. A significant positive correlation was found between working hours and burnout, $r = .15$, $p < .001$, indicating that individuals who worked longer hours tended to experience higher levels of burnout. Additionally, a significant negative correlation was observed between working hours and wellbeing, $r = –.09$, $p = .022$, suggesting that longer work hours were associated with lower levels of wellbeing.

Gender Comparisons

An independent samples t-test revealed a statistically significant difference in burnout levels between genders, with women reporting higher burnout ($M = 2.53$) than men ($M = 2.47$),

$t (662) = 2.077$, $p = .0382$; This can be found in Table 2. However, the difference in PERMA wellbeing scores between genders was not statistically significant.

Regression and Moderation Analyses

Gender was found to moderate the relationship between mindfulness and burnout. A significant interaction effect was observed between mindfulness (MAWS) and gender on burnout scores, $\beta = 0.114$, $p = .027$. For men, the relationship between mindfulness and burnout was stronger ($\beta = –0.2552$), while for women, the association was still negative but weaker ($\beta = –0.1408$).

Finally, PERMA wellbeing scores significantly predicted lower burnout levels, $\beta = –0.1976$, $p < .001$. However, the interaction term between wellbeing and gender was not statistically significant ($\beta = 0.0488$, $p = .126$), indicating that the buffering effect of wellbeing on burnout did not differ significantly between genders.

Discussion

The findings of this study contribute to a growing body of literature emphasizing the importance of mindfulness in mitigating burnout and enhancing wellbeing in professional settings. Specifically, the study reveals that Indian professionals with higher mindfulness scores reported significantly lower burnout and greater overall wellbeing. These associations are not only statistically significant but also consistent with theoretical expectations and prior research (Lomas et al., 2017; Mesmer-Magnus et al., 2022).

Age emerged as a noteworthy factor in psychological resilience. The positive correlation between age and mindfulness ($r = .16$, $p < .001$) and the negative correlation between age and burnout ($r = –.10$, $p = .008$) align with existing psychological theories suggesting that emotional regulation and self-reflective capacities tend to improve over the lifespan (Muris et al., 2021). These findings suggest that older professionals may have developed better coping mechanisms or work-life integration strategies over time, thus offering them protection against burnout.

Workload, operationalized through weekly working hours, significantly impacted both burnout and wellbeing. Participants working longer hours reported higher burnout ($r = .15$, $p < .001$) and lower PERMA wellbeing ($r = –.09$, $p = .022$). This supports the job demands-resources (JD-R) model, which posits that increased demands without proportional resources lead to energy depletion and mental fatigue. The Indian professional context—characterized by intense performance expectations and blurred work-life boundaries—makes these results particularly urgent. These insights highlight the need for organizational interventions aimed at workload management and boundary setting.

Gender differences surfaced in multiple aspects. Women in the study reported significantly higher burnout ($M = 2.53$) than men ($M = 2.47$), with a t-test confirming the difference as statistically significant ($t(662) = 2.077$, $p = .0382$). While PERMA wellbeing scores did not differ significantly by gender, the elevated burnout among women points toward structural or cultural stressors, such as unequal domestic responsibilities or workplace discrimination. These results corroborate previous research indicating gender disparities in emotional exhaustion (Purvanova & Muros, 2010).

The negative association between mindfulness and burnout was stronger in men ($\beta = –0.2552$) than in women ($\beta = –0.1408$), as indicated by a significant interaction term ($\beta = 0.114$, $p = .027$). This gender difference might be explained by how mindfulness practices are adopted or internalized differently across genders, possibly influenced by societal norms or individual personality traits.

Interestingly, although PERMA wellbeing significantly predicted lower burnout ($\beta = –0.1976$, $p < .001$), its buffering effect did not significantly differ between men and women ($\beta = 0.0488$, $p = .126$). This uniformity suggests that PERMA wellbeing interventions, unlike mindfulness, may be universally effective regardless of gender.

Taken together, these findings underline the complex but interrelated roles of age, gender, mindfulness, workload and wellbeing in shaping the burnout experience. Mindfulness

not only reduces burnout and improves wellbeing but also moderates and mediates other key relationships, offering a multifaceted tool for psychological resilience.

Conclusion

While this study provides comprehensive evidence on the protective role of mindfulness against burnout and its positive influence on wellbeing among Indian professionals. The results underscore the importance of demographic and occupational variables—particularly age, gender and workload—in influencing these

dynamics. Older professionals exhibit higher mindfulness and lower burnout, while younger employees and those working longer hours are more vulnerable. Additionally, women report higher burnout levels than men, indicating a pressing need for gender-sensitive policies.

Mindfulness emerges as both a mediator and moderator in the burnout–wellbeing framework. It not only directly reduces burnout and enhances wellbeing but also buffers the adverse effects of high workloads and interacts differently across genders. These findings strongly support the implementation of mindfulness-based interventions at both individual and organizational levels. Moreover, PERMA wellbeing also serves as a significant buffer against burnout, providing a broader framework for psychological support.

Future Suggestions

Future research should build on these insights through longitudinal and experimental designs to establish causal pathways. Understanding the nuanced cultural and gender-based experiences of mindfulness can enrich intervention design and implementation. Tailored programs addressing the unique challenges of young professionals and women could yield even more impactful outcomes in preventing burnout and promoting flourishing in India's modern workplaces.

Limitations

While the findings offer valuable insights, a few methodological considerations should be noted. First, the cross-sectional design restricts the ability to infer causality between mindfulness, burnout and wellbeing. Second, the use of self-reported measures may introduce biases such as social desirability or recall inaccuracies. Third, the sample was disproportionately composed of IT professionals and urban respondents, which may limit the generalizability of findings to other sectors.

Implications

Organizations in India should prioritize mental health strategies that integrate mindfulness training, work-life balance initiatives and PERMA-based wellbeing programs. These efforts can improve employee resilience, job satisfaction and overall productivity. Given the Indian work culture's evolving dynamics, such interventions are not merely beneficial, they are imperative.

Acknowledgement

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Table 1

Correlation table with the pearson r coefficient and p values to show significance.

Variable 1	Variable 2	Pearson r	p-value	Significant (p < 0.05)
WBaW_Score	BAT23_Score	-0.402	0	TRUE
BAT23_Score	MAW Score	-0.311	0	TRUE
WBaW_Score	MAW Score	0.289	0	TRUE
What is your age (in years)?	MAW Score	0.16	3.00E-05	TRUE
BAT23_Score	How many hours per week do you work on average?	0.153	8.00E-05	TRUE
What is your age (in years)?	BAT23_Score	-0.103	0.00804	TRUE
MAW Score	How many hours per week do you work on average?	-0.093	0.0167	TRUE
WBaW_Score	How many hours per week do you work on average?	-0.089	0.02206	TRUE
What is your age (in years)?	WBaW_Score	0.079	0.04135	TRUE

Table 2

Output of the study t-test for assessing gender's role in burnout

Variable	Group 1	Group 2	t-statistic	p-value	Significant (p < 0.05)
BAT23_Score	Female	Male	2.077	0.03818	TRUE

Figure 1

Scatterplot depicting the correlation between MAW Score and Age

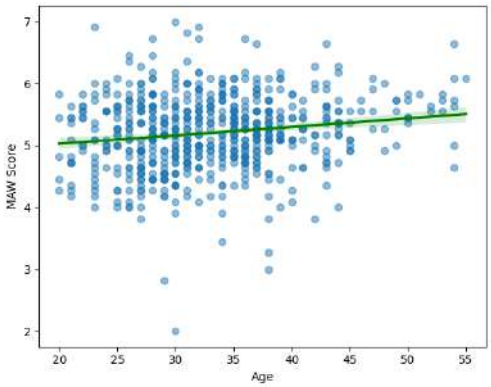


Figure 2

Scatterplot depicting the correlation between BAT_23 score and Age

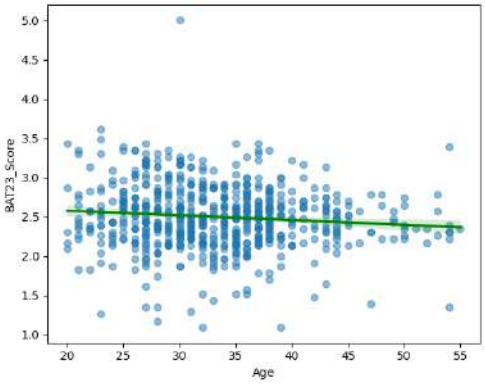


Figure 3

Scatterplot depicting the correlation between BAT_23 and Working Hours

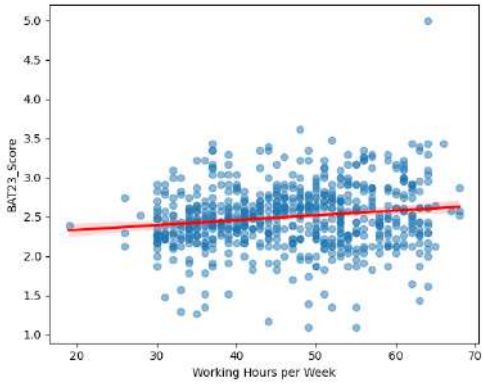


Figure 4

Scatterplot depicting the correlation between PERMA wellbeing score and Working Hours

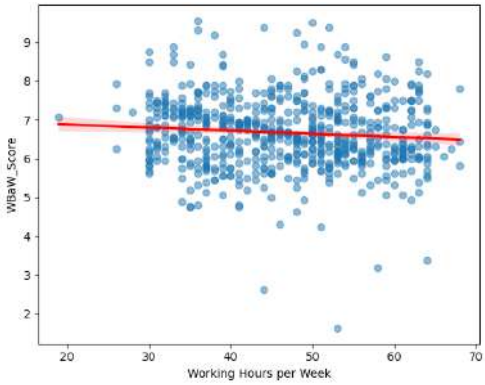
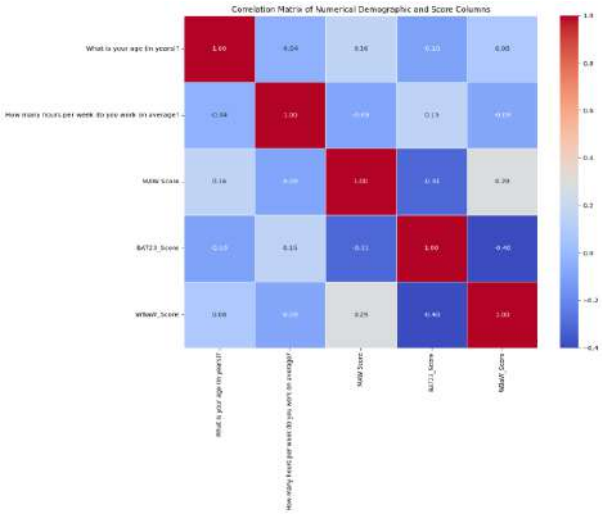


Figure 5

Correlation Matrix of the variables used in the study



Mindfulness as a Mental Health Asset: Predicting Self-Esteem and Examining the Impact of Meditation Practice

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ABSTRACT

In the growing field of mental health and wellbeing, trait-level mindfulness has emerged as a crucial psychological asset. This study explores the role of Dispositional Mindfulness (DM) in predicting Self-Esteem (SE)**,** while also investigating how meditation practice influences these variables. Data were collected from 408 participants (204 regular meditators and 204 non-meditators) using standardized self-report measures. Pearson's correlation analysis revealed a significant positive relationship between dispositional mindfulness and self-esteem *($r = .170$, $p < .01$)*, suggesting that people with higher mindfulness tend to exhibit greater self-worth. Building on this, a simple linear regression indicated that Dispositional Mindfulness significantly predicted Self-Esteem**,** accounting for 29% of the variance *($R^2 = 0.29$, $p < .001$)*—a substantial effect size in psychological research. To further explore the impact of meditation, an independent samples t-test was conducted. Results showed that meditators scored significantly higher on mindfulness *($M = 132.11$, $SD = 16.48$)* compared to non-meditators *($M = 119.49$, $SD = 15.64$); $t(406) = 7.94$, $p < .001$)*. However, no significant difference in self-esteem was found on comparing the two groups *($p = .291$)*. The study makes a contribution to the growing body of research positioning mindfulness as a scalable, non-pharmacological resource for improving self-concept and promoting mental health.

Keywords: Dispositional Mindfulness, Self-Esteem, Meditation, Mental Health.

Adulthood which comes after adolescence includes significant life transitions such as separating from one's parents, obtaining employment, getting married, starting a family, losing a loved one, etc. Developing answers to questions about oneself as a person and as a member of society is one of the psychological traits of adults. It includes learning how to make decisions about one's own values and position in the world. One gains experience by taking part in various situations, interacting with others, and experiencing internal events that influence identity and self-worth development. The difficulties of enhancing one's professional and personal credentials overwhelm adults (Klimczuk, 2016). Regardless of all of these changes, people continue to struggle to maintain good mental health. Research on community adults has demonstrated that maintaining a healthy mental state is significantly influenced by the psychological trait known as "dispositional mindfulness." Research has indicated a correlation between mindfulness and increased self-esteem (Brown & Ryan, 2003).

According to Ruth A. Baer (2003), mindfulness is a complex concept that is important for psychological health.

According to her theoretical framework, mindfulness is a present-centered, nonjudgmental awareness that enables people to accept and openly observe their thoughts, feelings, and physical sensations. Observing, describing, acting with awareness, not judging inner experience, and not reacting to inner experience are the five main components of mindfulness, according to Baer. When taken as a whole, these elements help people break free from automatic and maladaptive thought and behavior patterns. In addition to expanding our knowledge of mindfulness, Baer's model helped create the Five Facet Mindfulness Questionnaire (FFMQ), a popular evaluation instrument in clinical and research contexts. In contrast, self-esteem was first defined by Morris Rosenberg (1965) as a consistent and long-lasting sense of one's own value or worth. His theory highlights that a person's overall assessment of themselves, which is influenced by both internal beliefs and external feedback from social environments, is reflected in their level of self-esteem. One of the most widely used tools in psychological research is the Rosenberg Self-Esteem Scale (RSES), a ten-item measure that Rosenberg created to measure global self-esteem. Rosenberg contends that while low self-esteem can be linked to social disengagement, vulnerability, and feelings of inadequacy, high self-esteem is indicative of a positive self-view. His research continues to be essential to comprehending how self-perception affects emotional and social functioning.

On comprehension of theory of mindfulness, it can be claimed that people can develop mindfulness as a skill or as a capacity (Kabat-Zinn, 1994). In this paper, we will make an effort to investigate the relationship between self-esteem and mindfulness as a capacity. According to Bishop et al. (2004), mindfulness is a tendency that includes "self-regulation of attention," which is the non-elaborative awareness of feelings, thoughts, or sensations from moment to moment. Research has indicated that those who regularly engage in meditation and mindfulness training exhibit greater dispositional mindfulness (Baer et al., 2006).

Dispositional Mindfulness and Self-esteem

Usually, mindfulness manifests as a change in perspective that allows people to reflect on their everyday lives and encounters without really committing to them (Shapiro et al., 2006). People with high dispositional mindfulness report feeling less overwhelmed by the emotions and ideas that define poor self-esteem. It also equips them to be less overwhelmed by thoughts of judgment, harshness and criticism about themselves (Baer et al., 2006).

Research investigating the connection between self-worth, mindfulness, and unconditional self-acceptance discovered that all three had a positive bivariate correlation (Thompson et al., 2008). Research by Denny et al. (2009) established a strong positive correlation of mindfulness with self-esteem, locus of control, self-control, and denial of distress whereas distress was inversely correlated with mindfulness. According to Randall et al. (2015), self-esteem and dispositional mindfulness are significantly related. Reports from research have established that

mindfulness-based interventions enhance self-esteem.

In their study of adult undergraduate students, Rasmussen et al. (2011) discovered a strong predictive capacity of dispositional mindfulness towards reduced social anxiety and enhanced self-esteem. According to a study by Pepping et al. (2013) on adult undergraduate students, those who scored highly on the four aspects of mindfulness—non-reactivity, awareness, labelling, and non-judging of experience—also reported greater levels of self-esteem. Dutt et al. (2019) also established a strong beneficial association between self-esteem and mindfulness. Self-esteem has been shown to directly benefit by mindfulness training. The study also revealed that experimental mindfulness induction could effectively raise self-esteem and state mindfulness.

In a cross-cultural study of college students from China, Indonesia, and Yemen it was found that a positive correlation exists between dispositional mindfulness, subjective well-being and self-esteem (Mohammed Hasan et al., 2021). Awad et al. (2022) also found a significant correlation between increased mindfulness and higher self-esteem. An important study by Chandna et al.'s (2022) also found a significant correlation between every aspect of self-worth and mindfulness. With 51% model fitness, the mindfulness dimensions were also discovered to be a significant predictor of self-esteem.

Hypothesis

The current study hypothesizes that there will be a significant positive correlation between dispositional mindfulness and self-esteem in adults of Sikkim. Further, dispositional mindfulness can significantly predict self-esteem in Adults of Sikkim. Also, dispositional mindfulness will be significantly higher in meditators as compared to non-meditators.

Method

Research Design

To investigate the study's several goals, a quantitative research approach was employed. Using a correlation methodology, the association between dispositional mindfulness and self-esteem was evaluated. Additionally, the level of dispositional mindfulness and self-esteem was also checked in the groups of meditators and non-meditators, comparing them using a between-group design.

Participants

The sample consisted of 408 participants who are adults in the age range of 20 to 55 years. The sample was collected from Sikkim, which is a small state located at the north eastern part of Indian subcontinent. The mean age is 27.54 with a standard deviation of 8.714. The sample division consists of equal number of meditators and non-meditators i.e. 204 in each group with also equal number of males and females.

A wide variety of educational backgrounds were represented among the participants. With 45.3% of the total, the largest group had a graduate degree. Participants with a post-graduate degree came next, at 25.2%. Of the participants, 7.4% had earned an M.Phil/PhD or higher degree, and 22.1% had only completed secondary or higher secondary school. Participants came from a variety of religious backgrounds. The majority of people, or 55.6% of the sample,

identified as Hindu. With 19.9% of the participants practicing Buddhism, it was the second most popular religious affiliation. 10.8% of the population identified as Christian, and 10.3% practiced one of the major tribal religions (Sarnaism, Bon, Animism, Kirat Mundhum, Donyi-Polo). Those who identified with other religions (1.7%) and those who did not identify with any religion (1.7%) made up a smaller portion of the sample.

Measures

The Five Facet Mindfulness Questionnaire or FFMQ-15 (Baer et al., 2008): This self-report test, which consists of 15 questions, gauges mindfulness in relation to daily thoughts, experiences, and actions. A five-point Likert scale, with 1 denoting "never or very rarely true" and 5 denoting "very often or always true," is used to answer the questions. With alpha coefficients ranging from .75 to .91, the FFMQ's five aspects scales showed adequate to good internal consistency. This questionnaire consists of five subscales: Observation, Description, Acting with Awareness, Non-judgemental and Non-reactivity

Rosenberg Self –Esteem Scale (Rosenberg, 1965) : It is a 10 item scale that measures self-worth in individuals by measuring positive and negative feelings felt towards oneself. The measure is a uni-dimensional scale where items are responded using the 4 – point likert scale format which ranges from strongly agree, agree, disagree to strongly disagree. A range from.82 to .88 was derived when checking for test-retest reliability. The internal consistency reliability is also reported using Cronbach's alpha that ranges from .77 to .88.

Procedure

Data was collected using Google forms. The survey was divided into various sections inclusive of 1) Study Description 2) Informed Consent 3) Demographic datasheet with choices asking for age, gender, meditation practice etc 4) Standardized tools of Mindfulness and Self-esteem. Use of purposive convenience sampling was done in order to collect the data. Data was collected from equal number of meditators and non-meditators which belonged to adult category which includes ages between 20 to 55 years.

Results

Data has been analyzed for 408 participants wherein mean age was found to be 27.54 years (minimum = 20, maximum = 55) with SD of 8.71. With reference to gender, 50% (N = 204) were females and 50% (N = 204) were males. In terms of meditators/non meditators category 50% (N = 204) were meditators and 50% (N = 204) were non meditators.

To assess the relationship between dispositional mindfulness and self-esteem a pearson product-moment correlation was run. Preliminary analysis derived a significant positive correlation, $r(406) = .17$, $p = .001$. Although, weak but statistically significant linear relationship was derived where higher levels of dispositional mindfulness are associated with higher levels of self-esteem. The descriptive statistics for all variables and their correlations are presented in Table 1.

Table 1

Descriptive Statistics and Pearson Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Self-esteem	26.14	2.90	—						
2. Dispositional Mindfulness	125.80	17.24	.17**	—					
3. Observing	28.22	6.20	.06	.51**	—				
4. Describing	26.00	6.29	.24**	.66**	.26**	—			
5. Acting with Awareness	26.96	6.58	.10*	.62**	-.09*	.36**	—		
6. Non judging of inner experience	22.55	6.73	-.15**	.45**	-.46**	-.04	.45**	—	
7. Non Reactivity	22.08	5.64	.24**	.64**	.51**	.47**	.12*	-.28**	—

*p < .05. **p < .01.

To determine if dispositional mindfulness could predict self-esteem, a simple linear regression was conducted. The results indicated a statistically significant model with $F(1, 406) = 12.11$, $p = .001$, which accounted for 2.9% of the variance in self-esteem ($R^2 = .029$). Dispositional mindfulness significantly predicted self-esteem, $B = 0.03$, $t(406) = 3.48$, $p = .001$. The model summary is presented in Table 2.

Table 2

Model Summary for Simple Linear Regression with Dispositional Mindfulness Predicting Self-Esteem

Model	*R*	R^2	Adjusted R^2	*F*	*df*1	*df*2	Sig.
Dispositional Mindfulness > Self-esteem	.17	.03	.03	12.11	1	406	.001

A multiple linear regression was performed to assess the ability of the five facets of dispositional mindfulness (Observing, Describing, Acting with Awareness, Non judging of inner experience, and Non-reactivity) to predict self-esteem. A statistically significant regression model was derived, $F(5, 402) = 9.83$, $p < .001$, which explained 10.9% of the variance in self-esteem ($R^2 = .109$, Adjusted $R^2 = .098$).

On examining individual predictors, results reported the facets of Observing ($\beta = -.15$, $p = .011$), Describing ($\beta = .15$, $p = .012$), Non judging of inner experience ($\beta = -.20$, $p = .001$), and Non-Reactivity ($\beta = .18$, $p = .003$) to be significant predictors of self-esteem. Acting with Awareness was not a significant predictor ($p = .080$). Collinearity statistics were all within acceptable limits (Tolerance > 0.1, VIF < 10). Detailed results of the multiple regression analysis are provided in Table 3.

Table 3

Multiple Linear Regression of Mindfulness Facets Predicting Self-Esteem

Model	Unstandardized Coefficients	Standardized Coefficients	*t*	Sig.	Collinearity Statistics
	B	*SE*	*β*		
(Constant)	25.09	1.12		22.33	<.001
Observing	-.07	.03	-.15	-2.55	.011
Describing	.07	.03	.15	2.54	.012
Acting with Awareness	.05	.03	.10	1.76	.080
Non Judging of inner experience	-.09	.03	-.20	-3.36	.001
Non Reactivity	.09	.03	.18	2.98	.003

An independent-samples t-test was conducted to compare the dispositional mindfulness and self-esteem scores for meditators and non-meditators. Levene's test indicated that the assumption of homogeneity of variances was met for

dispositional mindfulness (p = .302) but was violated for self-esteem (p = .002); therefore, degrees of freedom were adjusted for the self-esteem comparison.

A significant difference was derived in the scores for dispositional mindfulness between meditators (M = 132.11, SD = 16.48) and non-meditators (M = 119.49, SD = 15.64); $t(406) = 7.94$, $p < .001$. These results suggest that meditation practitioners report significantly higher levels of dispositional mindfulness than non-practitioners.

There was no significant difference in self-esteem scores between meditators (M = 25.99, SD = 3.16) and non-meditators (M = 26.29, SD = 2.63); $t(393.13) = -1.06$, p = .291. The statistics for the t-test are presented in Table 4.

Table 4

Independent Samples T-Test for Meditators and Non-Meditators on Mindfulness and Self-Esteem

Variable	Group	*N*	*M*	*SD*	*t*	*df*	Sig. (2-tailed)
Dispositional Mindfulness	Meditators	204	132.11	16.48	7.94	406	<.001
	Non-Meditators	204	119.49	15.64			
Self-esteem	Meditators	204	25.99	3.16	-1.06	393.13	.291
	Non-Meditators	204	26.29	2.63			

Discussion

This study has sought its goal in two stages. First, the research was intended to examine the relationship between self-esteem and dispositional mindfulness among a sample of adults from Sikkim who meditated and those who did not. Second, the study investigated whether meditation practitioners' and non-meditators' significantly varied in their levels of dispositional mindfulness and self-esteem. A significant positive correlation was reported between dispositional mindfulness and self-esteem. Dispositional mindfulness has been linked to self-esteem in previous research. They have a positive correlation with one another when checked for bivarate relationship (Thompson et al., 2008; Denny et al., 2009).

A significant positive correlation was found between self-esteem and dispositional mindfulness subscales of Describing, Acting with awareness, Non reactivity and Non judging of inner experiences. Past research also testify that there is a significant correlation between describing, acting with awareness, and not passing judgment (Pepping et al., 2013; Chandna et al., 2022). Because they are less preoccupied with harsh, critical, and judgmental thoughts, people with higher dispositional mindfulness have been found to have fewer issues with low self-esteem (Baer et al., 2006).

Simple linear regression analysis reported dispositional mindfulness to be a statistically significant predictor of self-esteem. This outcome is consistent with a substantial amount of prior research indicating that a stronger propensity to practice mindfulness in day-to-day activities leads to a more positive self-esteem (Rasmussen et al., 2011). By encouraging an attitude of acceptance toward one's inner experiences and decreasing rumination on negative self-appraisals, mindfulness is supposed to boost self-esteem. It is important to remember that, despite being statistically significant, the total mindfulness score only partially explained the variation in self-esteem (R2 =.029). It can be understood that self-esteem is a complicated construct which can be impacted by a wide array of other factors, including social support, accomplishment, and life experiences, even though mindfulness may be a significant factor.

When the five aspects of mindfulness were entered as simultaneous predictors in the multiple regression analysis, a more comprehensive picture was produced. Compared to the total mindfulness score alone, the model as a whole was significant and explained a significantly greater percentage of the variance in self-esteem (R^2 =.109). Given that the various elements of mindfulness seem to have unique and intricate relationships with self-esteem, this emphasizes the importance of a multifaceted approach. Several significant insights were obtained from the facet-level analysis. Self-esteem was found to be significantly and favourably predicted by both descriptive and non-reactive traits. This implies that two skills that are especially helpful for maintaining one's self-esteem are the ability to describe one's thoughts and feelings without passing judgment on them (Describing) and the ability to let thoughts and emotions come and go without becoming overwhelmed by them (Non-Reactivity). Past research testify to these findings where an ability to be non-judemental, non-reactive and understanding of one's thought patterns have significantly increased levels of self-esteem in adults (Hinterman et al., 2012; Chandna et al., 2022).

Surprisingly, the model revealed that both observing and nonjudging were highly significant negative predictors of self-esteem. Particularly in non-meditating samples, the negative relationship for the Observing facet is in line with earlier studies (Pepping et al., 2013). The propensity to merely observe internal phenomena can result in increased rumination or hypervigilance to negative thoughts, which can lower self-esteem in people who lack strong acceptance and non-reactivity skills. Since nonjudging is generally regarded as a fundamental aspect of the advantages of mindfulness, the negative prediction from this aspect is more surprising. For some members of this sample, a high score on "non-judging" might indicate a lack of constructive self-evaluation or a type of passive resignation rather than an accepting and caring attitude. This unexpected discovery calls for extensive additional research. Finally, Acting with Awareness was not derived as a significant predictor, suggesting its influence on self-esteem may be less direct or may be accounted for by the other facets in the model.

Additional context was given by the independent samples t-test. As anticipated and supporting the group classifications, dispositional mindfulness was substantially higher among meditators than among non-meditators. This is one of the strongest results in contemplative science and is consistent with the main goal of meditation practice. Regular mindfulness training and meditation have been linked to higher dispositional mindfulness levels, according to earlier research (Baer et al., 2006). Effective mindfulness induction exercises, such as meditation, can improve self-esteem and mindfulness (Dutt et al., 2019). According to mindfulness theories, training can help develop the quality of mindfulness (Kabat-Zinn, 1994).

Interestingly, meditators did not report higher self-esteem even though they were noticeably more mindful. Important methodological factors in contemplative science are probably reflected in this null finding. First, the general term "meditator" obscures important differences in the type,

duration, and quality of practice, all of which moderate results (Fredrickson et al., 2008; Visted et al., 2015). Second, and perhaps most importantly, because people frequently start meditation specifically to deal with pre-existing low self-esteem or distress, cross-sectional studies are vulnerable to self-selection bias (Baer, 2003; de Vibe et al., 2018). Therefore, even though their practice might be truly helpful, it might only raise their self-esteem to a level that is comparable to the general population, which would obscure their progress. This finding strongly implies that the relationship between meditation and self-esteem is nonlinear rather than direct, and that it is probably mediated by other developing abilities like emotion regulation and self-compassion (Gu et al., 2015). As a result, a more thorough investigation is required.

Implications, Limitation and Future Directions

The findings have significant theoretical and practical ramifications. Clinically speaking, programs that use mindfulness to increase self-esteem should think about emphasizing the development of non-reactivity and descriptive skills. According to the counterintuitive negative results for observing and nonjudging, these aspects should be carefully taught and combined with other abilities to avoid potentially maladaptive outcomes like passivity or rumination. This study's main drawback is its cross-sectional design, which may be an oversimplification towards conclusions about causality. Additionally, the use of self-report measures for all variables raises the risk of social desirable answers thus also impacting shared method variance. The dichotomy of "meditator" versus "non-meditator" is also a major oversimplification.

To monitor changes in self-esteem when exposed to mindfulness training programs, future studies should use experimental or longitudinal designs. Future research must collect more specific information on meditation experience, such as frequency, duration, practice style (e.g., open monitoring, focused attention), and the reason for practicing. Future research should focus on examining the surprising negative correlation between self-esteem and the Nonjudging facet, possibly employing qualitative techniques to learn more about how people perceive and use this idea.

Conclusion

In summary, dispositional mindfulness is a strong predictor of self-esteem, but its impact is nuanced and best understood by looking at its component parts. Self-worth seems to benefit most from the ability to describe internal experiences without responding to them. An oversimplified understanding of the advantages of meditation is called into question by the discovery that while meditators are more mindful than non-meditators, they do not always have higher self-esteem. It emphasizes that although practice can successfully foster mindfulness, its effects on deeply rooted concepts like self-esteem might be more nuanced and contingent on a range of practice- and individual-related factors.

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Author's Declaration

We, the authors, hereby declare that:

1. The manuscript titled *" **Mindfulness as a Mental Health Asset: Predicting Self-Esteem and Examining the Impact of Meditation Practice**"* is original and has been written by the stated authors.
2. The manuscript has not been published previously, nor is it under consideration for publication elsewhere, in whole or in part.
3. All authors have contributed significantly to the work and are in agreement with the content of the manuscript.
4. We affirm that we take full responsibility for the authenticity and integrity of the content presented in the manuscript.

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Leveraging AI in Emotion Recognition Skills training for Alexithymia

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Introduction

Alexithymia - the inability to express emotion is a Greek term that is frequently used to indicate a condition in which one's capacity to recognise, express, and explain one's emotions is compromised (Nemiah et al., 1976). Problems recognising emotions and distinguishing them from emotionally-driven sensations, as well as trouble expressing emotions to others, are typical traits of alexithymia and constricted imaginal processes. The concept of Alexithymia was first developed by Nemiah and Sifneos in 1970 while observing individuals who had psychological disorders in a clinical setting.

10% prevalence of higher levels of Alexithymia is found in general population (Parker et al., 2008) whereas 30 to 50% prevalence is seen in Clinical samples (McGillivray et al., 2017). Also among genders Alexithymia is more common in male in comparison to female (Khan et.al., 2017). Many factors contribute towards etiology of Alexithymia. As per literature brain Injury and brain dysfunction (Van et.al., 2013), genetic factors (Mezzavilla et.al., 2015) and environment factors (Lumley, 2007) contributes to Alexithymic features.

An individual with Alexithymia, often face interpersonal issues. The individual will have a confused interpersonal relations as they face difficulty in processing emotions. (Marty et.al., 1963). The individual shows impaired emotion regulation abilities that they try to get involved in some addictive behaviours (Barrett et al., 2001). In addition to having trouble taking initiative in social situations and overcoming obstacles, they struggle to feel connected to others. People with Alexithymia were shown to have low levels of emotional intensity and psychophysical response (Gaigg et al., 2018). Alexithymia may be associated with a lack of interoceptive awareness, which impairs the ability to replicate the feelings of others in order to empathise with them, along with reflecting a fundamental inability to identify and control one's own emotions. A lack of empathy results from this (Goerlich KS, 2018). According to Warden et al. (2003), people with alexithymia have a poor overall quality of life and adopt a maladaptive attachment style.

As technology is developing day by day, it is unavoidable for the young generation to be away from technology- especially with smartphones. Literature reveals the role of Problematic mobile phone usage for Alexithymia especially among college Students (Liang et.al.,2024). Younger generations are experiencing more alexithymia symptoms due to increased smartphone usage, and those who have these symptoms also overuse their devices to satisfy their social demands and hide their emotional regulation issues (ŞahÝn et al., 2009). Hence for the current generation to understand and regulate their emotion, a need is there to assist them in enhancing their subjective well-being in their daily lives and academic pursuits, learning responsible smartphone use, and avoiding the negative effects of addiction.

Computational neuroscience has grown rapidly in recent decades with the ultimate objective of creating and testing analytically formal, neurologically realistic ideas to construct data-driven diagnosis and treatments for mental health illnesses (Ferrante et al., 2019). Cutting-edge AI healthcare solutions are already beginning to appear on the market. AI for mental health may also present transformative opportunities. Since the advent of digital healthcare, the development of mental health apps has become more popular, providing creative answers for an easy and affordable means of getting mental health assistance. Hence the proposed study aims to develop and make use of an AI Model that can equip with Emotion Recognition skills for an individual having Alexithymia.

On the basis of background literature, the study aimed to: 1) Develop and train an AI model for Emotion Recognition Skills training 2) Train and improve the Emotion Regulation Skills of individuals having Alexithymia

Materials and Methods

Participants

An experimental method was adopted from August 2024 to January 2025. A sample of college students aged 18 to 25 who had no prior history of mental health problems was selected using a random selection technique. Every participant was chosen from a variety of colleges in Coimbatore, Tamilnadu, India. All participant provided their consent and was free to leave at any moment. Under the researcher's supervision, the participants first completed a paper-and-pencil Toronto Alexithymia Scale (TAS) questionnaire and a consent form. The moderate and high level alexthymia students had a 90-day training utilising the AI Model in order to improve their emotional recognition skills. A total of 1500 college students participated in the initial survey. After the subjects with missing data exclusion and evaluating the level of Alexithymia, the sample included only 722 subjects inclusive of both genders.

Measures

Toronto Alexithymia Scale (TAS): A 20 item Toronto Alexithymia Scale (TAS) developed by Michael Bagby, James D. A. Parker, Graeme J. Taylor in 1994 is used to measure Alexithymia features in the sample. The scale measures 3 factors as Difficulty in describing feelings, which is used to measure the difficulty in describing emotions, Difficulty in identifying feelings, which is used to measure difficulty in identifying emotions and Externally-oriented thinking, which is used to measure the tendency of individuals when focussing their attention externally. The TAS-20 has proven to be reliable as well as consistent across both clinical and non-clinical groups.

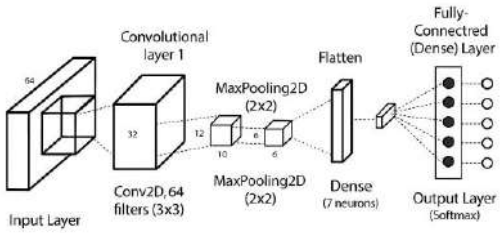
Generative AI is a kind of machine learning system that learns how to produce new data from training data.Their unique characteristic is their capacity for unsupervised learning, or learning from data without explicit labels. Artificial intelligence (AI) algorithms can generate synthetic data that is statistically similar to the original data by learning the underlying data distributions from real data. They are designed to uncover the underlying structure of a dataset and generate new samples that resemble the original data.

Therefore, the goal of the current study is to create an AI model using the Amsterdam Dynamic Facial Expression Set (ADFES) dataset. 648 recorded emotional expressions

make up the rich stimulus set known as the ADFES. Instead of static images, the set includes dynamic expressions. Nine emotions are displayed on the set, including scorn, pride, humiliation, and the six "basic" emotions of anger, fear, disgust, sadness, joy and surprise. Ten female and twelve male models display their expressions. To make the directedness of the statements clear, the set makes use of active head-turning.

Convolutional Neural Networks (CNNs) are the most common design for image - driven pattern recognition applications. A CNN is used in the emotion recognition architecture to extract features from images and forecast expressions. The model is designed with the steps as in Figure 1 and the model is being trained. The sparse categorical cross-entropy loss function is used for multi-class classification, while the Adam optimizer combines AdaGrad and RMSProp for faster convergence. The accuracy metric evaluates model performance, and ImageDataGenerator performs real-time data augmentation. The augmented training data is used to train the model, and after a number of epochs the accuracy and loss are tracked. The performance of the best model on the validation set is assessed and preserved.

Figure 1: AI Based Skill Training Model



Later, the image from the webcam is being captured, processed and is given as an input to the model. The model uses the processed face image to forecast the emotion. The feeling that has the best chance of occurring is chosen and is displayed along with the image label as " Sad" , Happy and so on.

Data Analysis

The descriptive analysis was used to determine the demographic characteristics of the participants A paired sample "t" test was used to determine the effectiveness of AI model-based training on emotion recognition skill between the pre-test and post-test values. The study variables were subjected to Pearson correlation analysis based on the participant's daily training duration and the level of emotion recognition skill they had learnt. The SPSS 18.0 software was used to do the statistical analysis.

Results

The mean age of the participants was 20.02 years. The sample consisted of 722 college students, of whom 52% were male and 48% were female. . Over half (57.89%, n = 418) were undergraduate students. A total of 326 individuals (45.15%) native is Coimbatore while 103 is from other states of India. Table 1 shows the detail of demographic characteristics of participants.

Table 1 Demographic characteristics of the Sample

Variables	N	%
Gender		
Male	376	52%
Female	346	48%
Education		
Undergraduate	418	57.89%
Postgraduate	267	36.98%
Scholars	37	5.13%
Native		
Coimbatore	326	45.15%
Tamilnadu other than Coimbatore	293	40.58%
Other states of India	103	14.27%

The Paired sample t-test 11.223. the p value is 0.000 which is less than .05, hence there finds a significant difference between the Pre-test and Post test values of the sample in Difficulty in describing feelings component of Alexithymia Scale. Similar is the result in Difficulty in identifying feelings component of Alexithymia Scale and Externally-oriented thinking component of Alexithymia Scale. For Difficulty in identifying feelings component, t value is 11.275 and the p value is 0.000 which shows a significance of less than .05. For Externally-oriented thinking component, t value is 6.671 and the p value is 0.000 which shows a significance of less than .05.

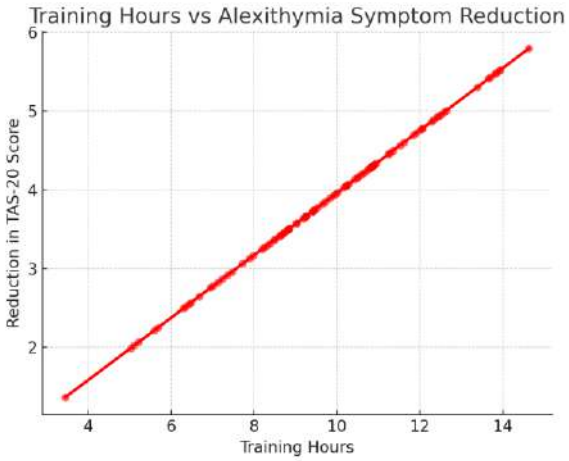
Table 2: Paired 't' Test between pretest value and post test value on Alexithymia level

Variable	N	SD	t-value	df	p-value
Difficulty in describing feelings	722	2.052	11.225	721	.000*
Difficulty in identifying feelings		2.051	11.275	721	.000*
Externally-oriented thinking		1.309	6.671	721	.000*

*p<.05,**p<.01,***p<.001,ns-not significant

A Pearson correlation of time spent on AI model training on improving Emotional skills and alexithymia symptoms was done and the scatter plot demonstrates a negative linear relationship between the number of hours spent in AI-based emotional training and the reduction in alexithymia symptoms, as measured by the TAS-20 scale. This means that as training hours increase, participants tend to report fewer difficulties in identifying and describing emotions, and exhibit less externally-oriented thinking. According to the study, spending more time on AI-based training interventions results in a greater decrease in overall alexithymia scores, with every extra hour promoting gains in processing and emotional awareness., as shown by a regression scatterplot -Figure 2. Statistically significant negative correlation was observed between training duration and TAS-20 scores ($r = -0.45$, $p < 0.01$), which indicates that the participants who engaged in longer AI-based emotional training exhibited greater reductions in alexithymia symptoms

Figure 2: Scatterplot showing the negative relationship between AI-based training hours and the reduction in alexithymia symptoms (TAS-20 score difference)



Discussion

Over the course of ninety days, this study evaluated the way an AI-based emotion detection training model reduced the symptoms of alexithymia in young adults. With p-values significantly below the.001 threshold, all three TAS-20 dimensions showed statistically significant improvements, according to the data. Difficulty Describing Feelings (DDF), Difficulty Identifying Feelings (DIF), and Externally-Oriented Thinking (EOT). These results highlight effectiveness of computational therapy to remediate deficiencies in emotional processing.

Additionally, training hours and TAS-20 post-training ratings showed a moderate but significant negative association ($r = -0.45$, $p < .01$), indicating a dose-dependent effect: the more participants used the AI model, the less alexithymia they experienced. The finding is consistent with previous studies showing that repeated emotional exposure and facial expression identification training were linked to enhanced emotional awareness and perception (Goerlich, 2018). Instead of verbal introspection, which can be difficult for people with alexithymia, the AI system provided a non-verbal, holistic interface that allowed users to absorb and internalise emotional cues through dynamic facial representations.

The Amsterdam Dynamic Facial Expression Set (ADFES) allowed convolutional neural networks (CNNs) to identify simple and complicated emotions with extremely fine feedback. The transfer of emotional detection skills to real-life situations was probably aided by this rigorous and contextually aware approach. These results provide support to the increasing body of research supporting AI and machine learning in digital mental health and affective computing (Ferrante et al., 2019), especially for populations who might not benefit from conventional psychotherapy techniques.

Additionally, the intervention's significance goes beyond its short-term results. Young individuals frequently exhibit elevated alexithymic features, making them particularly susceptible to digital overexposure and problematic smartphone use (Şahin et al., 2009; Liang et al., 2024). The present approach provides a positive redirection of digital involvement by utilising the same technological ecosystem that fuels emotional dysregulation. This puts AI as the main modality for developing emotional skills in tech-integrated environments, rather than just as a therapeutic adjunct.

These findings highlight the possibility and effectiveness of using AI-based training resources into therapies aimed at emotional deficits. A single-group pre-post design was employed in the study, which makes it vulnerable to regression to the mean and confounding variables. Furthermore, despite the TAS-20's widespread use, the granularity of emotional shift detection may be limited by its reliance on self-reporting. Future research will focus on longitudinal preservation, RCT methods and integration with physiological and behavioural indicators of emotional regulation.

In conclusion, this study offers early but encouraging proof that AI-based emotion training can successfully lessen the symptoms of alexithymia in populations that are digital natives. These results gives support to a more comprehensive understanding of computational psychiatry and digital medicines as crucial areas of innovation in mental health.

Conclusion

The study shows that an AI-based emotion recognition training model can reduce alexithymia symptoms in young adults. Participants showed significant reductions in all three TAS-20 subscales, indicating the model's potential to address emotional processing deficits. In addition, the study indicates higher emotional improvement results from increased use of the AI technology. The findings support the emerging view that artificial intelligence, when thoughtfully designed, can function as

more than a diagnostic aid—it can serve as a dynamic and personalized intervention platform. By simulating emotionally rich facial expressions using convolutional and generative models, the system provided users with continuous, real-time feedback in a non-verbal, non-judgmental format, aligning with the cognitive limitations often observed in alexithymia.

The AI-based training model is accessible, scalable, and adaptable, particularly for digital-native populations. The study reveals new directions for integrating affective computing into psychological interventions, highlighting the potential of AI-driven emotional training in enhancing emotional literacy and mental health resilience.

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Psychological Well-Being of Adults With Muscular Dystrophy Across Different Cultures

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ABSTRACT

Muscular dystrophy (MD) is a group of inherited diseases that cause progressive muscle weakness and degeneration. While the physical manifestations of MD are well-documented, the psychological well-being of individuals living with MD has received less attention, particularly across diverse cultural contexts. However, the psychological impact of MD and how it varies across cultures remains underexplored. This study aims to address this gap by systematically reviewing existing literature on mental health outcomes, coping strategies, and social support systems among adults with MD from diverse cultural backgrounds. Utilizing a Systematic Literature Review (PRISMA) approach, the study will synthesize quantitative measures of anxiety, depression, and resilience, along with qualitative findings on individual experiences and cultural influences. The findings will enhance understanding of the cultural factors that influence psychological well-being in individuals with MD and explore suitable interventions to improve mental health outcomes. By understanding the unique challenges and experiences of individuals with MD in distinct cultures, we can identify potential disparities in mental health outcomes and develop culturally sensitive interventions to promote psychological well-being. This research will contribute to deeper comprehension of the complex interplay between culture, disability, and mental health, ultimately leading to improved support and care for individuals with MD worldwide.

Keywords*:* *muscular dystrophy, psychological well-being, cultures, adults and systematic literature review*

Introduction

Muscular dystrophies are hereditary disorders caused by mutations in a number of genes. These genetic mutations cause either a dysfunction in or lack of proteins that are necessary for muscle stability, leading to progressive damage and weakness in the muscles cell (Mercuri & Muntoni, 2013; McNally & Pytel, 2007). While it can be apparent at any age, it is most diagnosed in childhood. The cause of muscular dystrophy lies in mutations affecting genes responsible for muscle structure and function, leading to the gradual degeneration and loss of muscle fibers (LaPelusa et al., 2024). There are several types of muscular dystrophy, mainly nine types of muscular dystrophies: Duchenne (DMD), Becker (BMD), myotonic (DM), limb-girdle (LGMD), facioscapulohumeral (FSHD), congenital (CMD), distal (DD), oculopharyngeal (OPMD), and Emery-Dreifuss (EDMD). “Psychological well-being is about feeling good about oneself and one's life, having satisfying relationships and a sense of purpose, and

feeling capable of managing life's challenges" (Dhanabhakyam & Sarath, 2023). A range of disease-specific variables have been found to be associated with QoL scores in physical domains in individuals with MD. (O'Dowd et al, 2021). "Boys with DMD reported significantly lower QoL than their healthy peers, and older boys seem to perceive better psychosocial QoL than younger boys despite deteriorating physical functioning" (Uzark et al., 2012). Pain may be a relevant aspect in FSHD patients, and prevention strategies should be reflected as appropriate (Padua et al., 2009). Physical condition and social health are found to be associated with poor health-related and global quality of life in individuals with Duchenne muscular dystrophy (DMD) (Lue et al., 2017). Greater fatigue and use of wheelchairs were constantly related with worse health-related quality of life independent of other factors. Higher socioeconomic status was associated with better health-related quality of life in some of the measures (Wei et al., 2016). The concepts of QoL and well-being comprehend the domain of an individual's perception of their health, happiness, and life satisfaction (Weinberg & Tomyn, 2015; Coverdale & Long, 2015). There is a need for deeper understanding of QoL and psychosocial well-being in the period of adulthood among individuals with muscular dystrophy from the perspective of eastern and western cultures.

The purpose of this review was to synthesize literature describing 1) To examine cultural factors that influence psychological well-being in individuals with muscular dystrophy. 2) To identify similarities and differences in mental health outcomes and develop culturally appropriate interventions to promote psychological well-being in affected individuals.

Methods

"The Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) (Tong et al. 2012)" and "The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2010)" guidelines were employed for this systematic review. The SPIDER tool (Cooke et al., 2012) informed the inclusion and exclusion criteria and the search strategy, which are summarized below:

Inclusion:

1. Sample: Adults with distinct types of muscular dystrophy from eastern and western cultures.
2. Phenomenon of Interest: Psychological well-being in adults with muscular dystrophies.
3. Design: Quantitative, qualitative, and mixed-method studies were involved
4. Evaluation: Qualitative and quantitative analysis
5. Research type: Research studies published in a peer-reviewed journal in the English language. Only studies have been published since the year 2014.

Exclusion criteria:

1. Phenomenon of interest: Adults with other neuromuscular disease rather than muscular dystrophy
2. Research type: Review articles were not included.

The search strategy is outlined in Table 1, and a summary is provided below:

This search strategy was initially conducted in January 2025 in two databases, PubMed and Elsevier, including only open access studies from January 2014 to December 2024.

("psychological well-being" OR "mental health" OR "life satisfaction" OR "quality of life" OR "social support") AND ("Duchenne muscular dystrophy" OR "Becker muscular dystrophy" OR "Limb-girdle muscular dystrophy" OR "Myotonic dystrophy" OR "facioscapulohumeral dystrophy")

Area	Search terms
S[a]	"Adults" OR "Adolescence"
P of I[b]	"DMD" OR "BMD" OR "LGMD" OR "MD" OR "FSHD"
D[c]	Quantitative and Qualitative analysis
E[d]	"psychological well-being" OR "mental health" OR "life satisfaction" OR "quality of life" OR "social support"
R[e]	Qualitative, quantitative, and mixed-method studies

[a]Sample. [b]Phenomenon of interest. [c]Design. [d]Evaluation. [e]Research

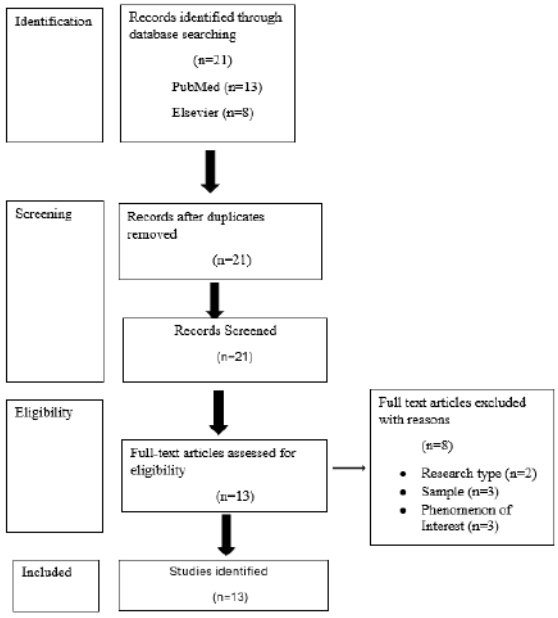

Figure 1. PRISMA flowchart

Study selection

The titles of the articles retrieved from searches were screened, and duplicates were considered. Afterward, they screened the article titles and abstracts to determine their eligibility in accordance with the inclusion and exclusion criteria and removed irrelevant studies. If it was undecided whether a study was eligible based on the title and abstract, retrieve the full text. It remained uncertain whether a study met the inclusion criteria; the full text was revised by the author himself and decided (Donnelly, 2022). Figure 1 shows how this method was documented as a PRISMA flowchart.

Discussion:

The reviewed studies, designed to compare Eastern and Western cultures, offer insights into how cultural contexts might shape the experience of living with MD as shown in Table 1.

From an Eastern perspective, disability intersects with cultural expectations**.** Fujino et al. (2017) and Fujino et al. (2016) emphasize on social and relational factors. The themes identified in Fujino et al. (2017) include "support from significant others" and "desired explanations," suggesting a need of family and community support. This is a common characteristic of collectivist Eastern cultures, where the individual's well-being is often intertwined with that of their social group. Depends upon wheelchair was unacceptable and difficult, but it also provided independence (Fujino et al., 2016). Cognitive impairment found in working memory, executive function and vasoconstrictive ability (Fujino et al., 2017).

From a Western perspective: Western cultural emphasis on individual coping, psychological factors, social support, and personal achievement. Bakker et al. (2016); Sluijs et al. (2016); Geest-Buita et al. (2023); and Dijkstra et al. (2024) constantly focus on the importance of individual-level coping mechanisms and psychological factors. "Intra-individual aspects" such as coping with diagnosis and symptoms,

heredity, and decreasing independence are emphasized (Bakker et al., 2016). Psychological distress and physical impairment like walking difficulty, fatigue, and presence of pain in younger age leads to lower psychosocial outcomes (Sluijs et al., 2016; Geest-Buita et al., 2023; Dijkstra et al., 2024), which aligns with a Western, individualistic perspective on health and well-being. Aho et al. (2019), Aho et al. (2016), and Aho et al. (2017) from Sweden highlight the struggle for support due to lack of knowledge among professionals and the negative influence of attitudes in society, signifying that social factors like supportive family and friends are crucial to adjust to the transition period. Self-rated sense of coherence" (Aho et al., 2016) and the ability to find "personally meaningful activity" (Graham et al., 2017) is crucial for deal with difficult thoughts and feelings. The Laidlaw & Carduff (2018) study from Scotland identifies "strong intrapersonal as well as interpersonal relationships" and “use of assistive device” play a vital role to improving quality of life (QoL), reducing the gap between individual and social well-being. The findings from Geest-Buita et al. (2023) lower social functioning and negative evaluation linked with diseases severity also reflect a focus on personal achievement and future planning.

There are several common findings and themes that emerge from both perspective (eastern and western). Both cultures focus on the role of support for individuals with disability. From the eastern point of view support from significant others and the collective responsibility of family and community (Fujino et al., 2016) and from the western perspective social support is crucial factor for individual adjustments, and importance of supportive family and friends (Aho et al., 2016, 2019). Disability, across both cultural contexts, is recognized as having a significant impact on an individual's quality of life. Unacceptable and difficult thoughts have emerged while using a wheelchair despite it providing independence (Fujino et al., 2016). Psychological distress, physical impairment and diseases severity associated with lower psychosocial outcomes (Sluijs et al., 2016; Geest-Buita et al., 2023; Dijkstra et al., 2024) and use of assistive device improving QoL (Laidlaw & Carduff, 2018). From eastern point of view understanding of disability across cultures includes in societal stigma, (Aho et al., 2019) study from Sweden focus on negative influence of attitude in society and lack of knowledge among professional responsible for societal barrier highlight western culture, explore societal attitude towards disability.

The fundamental need for support, the impact on quality of life, the utility of assistive devices, the presence of societal challenges, and adjustment and coping are common factors to describe how disability intersects with cultural expectations.

The perception and experiences of disability are significantly shaped by cultural factors with notable differences between eastern and western perspectives, from eastern viewpoint highlights the crucial role of social and relational dynamics (Fujino et al., 2016, 2017). Fujino et al. (2017) emphasis on cognitive impairments in working memory, executive function, and vasoconstrictive ability within this eastern cultural setting. Using a wheelchair might be perceived as difficult but provide freedom reflecting a nuanced view that balances personal autonomy with societal perceptions (Fujino et al., 2016). The western

perspectives focus on individual coping mechanisms, psychological factors, social support, and personal achievement. Bakker et al. (2016); Sluijs et al. (2016); Geest-Buita et al. (2023), and Dijkstra et al. (2024) emphasis on "intra-individual aspects" such as coping with diagnosis, symptoms, heredity, and decreasing independence. Lower social functioning and negative evaluations linked with disease severity (Geest-Buita et al., 2023).

Intervention

Based on these findings, interventions to enhance psychological well-being in individuals with MD should be multifaceted and culturally sensitive. Interventions should address core issues like pain, fatigue, and the practical challenges of daily living. They should also adopt a sense of control and independence (Fujino et al., 2016; Laidlaw & Carduff, 2018).

A key component should be strengthening social support networks. This could involve family-centered interventions in Eastern contexts and peer-support groups in Western contexts, where the need for peer support is explicitly mentioned (Geest-Buita et al., 2023).

A critical need for education and training for healthcare professionals to improve their knowledge of MD. Interventions should include professional development to ensure affected individuals receive adequate support.

Conclusion:

Cultural contexts significantly shape the experience of disability. Eastern cultures, being collectivist, emphasize social and relational support from family and community, seeing individual well-being tangled with the group. Western cultures, individualistic in nature, prioritize individual coping mechanisms, psychological factors, and personal achievement. Despite these distinct approaches, both perspectives recognize the universal need for support, the impact on quality of life, the utility of assistive devices, and the challenges of societal stigma and adjustment for individuals with disabilities.

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Appendix: I

Table 1: Showed main findings of studies retrieved for meta-analysis

Paper	Country	Aim	N	Age (Years)	Methodology	Findings
Bakker et al. (2016)	Netherlands	"To provide insight into the illness experiences of people with FSHD in order to tailor rehabilitation programs to individual needs and expectations"	25	More than 18	Study type: Qualitative Data collection: Semi-structured interviews Data analysis: thematic analysis Focus: illness experience of patients	● The consequences of diagnosis and symptoms, coping with heredity and propensity, a decreasing independence, and relationship with partner are mentioned as intra-individual aspects. ● Support from the social environment, using assistive devices, and maintaining or giving up work are mentioned as extra-individual aspects.
Sluijs et al. (2016)	Netherlands	"To assess the prevalence of fatigue, pain, and functional limitations, and the social participation and psychological well-being of oculopharyngeal muscular dystrophy patients"	35	43-77	A questionnaire study on fatigue, pain, functional impairments, social participation, and psychological distress in 35 genetically confirmed oculopharyngeal muscular dystrophy patients with an average disease duration of 11.6 years.	● Found that 54% of the patients experienced severe fatigue and experienced pain. ● 94% of the patients self-reported limitations in daily life activities and social participation. ● Most patients reported pelvic girdle weakness and limitations in ambulation. Fatigue severity was related to functional impairments, while pain and disease duration were not. ● Psychological distress was not different from healthy adults.
Geest-Buita et al. (2023)	Netherlands	"To assess the psychosocial outcomes of facial weakness in facioscapulohumeral muscular dystrophy (FSHD)"	138	More than 16	Study type: A cross-sectional study Data collection: Survey Data analysis: Regression analyses Focus: Facial weakness	● The degree of facial weakness severity was associated with lower social functioning and fear of negative evaluation. ● Additionally, other factors such as "younger age, presence of pain, fatigue, walking difficulty, and psychological support were associated with lower psychosocial outcomes."
Dijkstra et al. (2024)	Netherlands	"(1) To explore which factors contributing to the QoL of children, adolescents, and young adults with FSHD (2) to describe how they	14	6-26	Study type: mixed-method study Data collection: semi-structured interviews and questionnaires	● The degree of FSHD severity did not correlate with QoL. Older children had a lower QoL than younger children. ● Children and adolescents

		experience life with FSHD, and (3) to report their support needs."			Data analysis: thematic analysis and Mann-Whitney U test Focus: Life experience with FSHD .	strived for normality irrespective of physical weakness. ● Phenotypical features of FSHD led to uncertainty aggravated by hurtful comments of others. ● The uncertainty of disease progression and its consequences for career and parenthood choices led to anxiety regarding the future. ● Support was found within family and friends, and they expressed a need for peer support and psychological support.
Fujino et al. (2017)	Japan	(1) "To investigate whether specific cognitive abilities are impaired in patients with myotonic dystrophy type 1" (2)" To find out the relationships among quality of life (QoL), cognitive function, and psychological factors"	60	More than 18	Study type: Quantitative Data collection: Questionnaire Data analysis: ● Non-parametric Spearman's test was used to examine associations between variables ● The Kruskal-Wallis test was used to compare differences among clinical forms of DM1 Focus: QoL, Cognitive functions, and psychological factors	● Cognitive impairment in attention/working memory, executive function, processing speed, and vasoconstrictive ability. ● The Psychosocial Relationships are associated with processing speed, attention/working memory, and apathy. ● Depression and fatigue were associated with lower QoL
Fujino et al. (2016)	Japan	"To examine the experiences of patients with Duchenne muscular dystrophy in facing and learning about their disease."	7	20-48	Study type: Qualitative Data collection: In-depth interviews Data analysis: thematic analysis Focus: Learning about diseases	The following themes were identified from this analysis: ● Experience before receiving the diagnosis ● Experiences when they were aware of their condition and progression of the disease ● support from significant others ● desired explanations ● Anxiety" and "worry" were the most repetitive words when they had to transition using wheelchairs or respirators.
Aho et al. (2019)	Sweden	"To describe perceptions of the transition from receiving the diagnosis of recessive limb-girdle muscular dystrophy to becoming in need of human support to manage daily life and using a wheelchair for ambulation, from the affected young adults' and their parents' perspectives."	14	18-30	Study design: qualitative and descriptive Data collection: Semi-structured interviews Data analysis: Phenomenography Focus: Daily life activity and Wheelchair for ambulation	● Using a wheelchair was found to be mentally difficult, but it also provided independence. ● Physical, emotional, practical, and social difficulties, as well as experiences of learning to adapt to the disease, were found to be new ways of living. ● Factors like supportive family and friends, mobilized internal resources, meaningful daily activities, adapted environment, and professional support help to adjust to the transition period.
Aho et al. (2015)	Sweden	"To describe young adults' experiences of living with recessive limb-girdle muscular dystrophy (LGMD2) from a salutogenic orientation"	14	20-30	Type of Study: Qualitative Data Collection: Interview Focus: comprehensibility, manageability, and meaningfulness in daily life. Analysis: Content analysis	● Degenerative physical functions with disease progression, including practical and mental struggle, continual adjustments to the body, and maintaining control. Disease and poor comprehension of the disease results in Restrictions in a double sense ● Individuals with LGMD2 must struggle for support due to a lack of knowledge among professionals.
Aho et al. (2016)	Sweden	"To describe health perceptions related to sense of coherence among young adults living with recessive limb-girdle muscular dystrophy"	14	20-30	Study design: Mixed method Data collection: Semi-structured Interviews Focus: Well-being and Sense of Coherence questionnaire Analysis: Content Analysis	● Well-being was negatively influenced not only by physical impairment and mental strain but also by external factors, such as social support and attitudes in society with the progression of disease. ● Some other factors like a balanced lifestyle, social relations, and meaningful daily activities promote health. ● A self-rated sense of coherence varies with diseases.
Graham et al. (2017)	UK	"To investigate whether 2 well-validated psychological models (Leventhal Self-Regulatory Model; Psychological Flexibility Model) could explain variation in life satisfaction	16	18-43	Study type: Descriptive Data collection: An online survey Focus: Illness Perceptions, meaningful activity, and acceptance/awareness Analysis: A median split	● Those with higher life satisfaction were characterized by the ability to undertake personally meaningful activity in acceptance of difficult thoughts and feelings.

		(LS)"			enabled comparison of high and low LS groups and t-tests/Mann-Whitney U tests for group differences.	
Abbott et al. (2016)	UK	"Men with Duchenne muscular dystrophy (DMD) and end-of-life planning"	15	20-45	Study type: Qualitative Data collection: semi-structured interview Analysis: Thematic analysis Focus: end-of-life planning	● Nature and place of death is the most interesting topic for men with DMD, who found it difficult to discuss these issues with family members.
Tesei et al. (2020)	Italy	"To investigate coping profiles of patients and their parents. Furthermore, we wanted to verify whether psychological adaptation of patients can be predicted by coping strategies, taking also into account physical impairment, cognitive level, and socioeconomic status."	112	2-32	Study type: Quantitative Data Collection: Questionnaire Data Analysis: Linear regression model Focus: Coping profile of patients and their parents, physical impairment, cognitive level, and SES.	● DMD is positively associated with ID and autism spectrum disorders. ● Non-significant association of psychopathological disorders compared to the general population. ● Avoidance coping and intellectual disability predicted increased emotional/behavioral problems.
Laidlaw & Carduff (2018)	Scotland	"To examine and explore QoL in men living with DMD"	6	More than 25	Study type: Qualitative Data collection: Interview Analysis: Thematic analysis Focus: QoL in men with Duchenne Muscular Dystrophy	The following themes were identified to improve QoL: ● Strong personal relationships ● Meaningful connection with the world ● Being in control of physical and mental well-being ● Supported by healthcare professionals ● Continued independence through use of essential equipment, and ● A positive, resilient attitude to life with a disability.

Grit as a predictor of psychological well-being among civil service aspirants

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ABSTRACT

Civil Service has always captivated India's youth by offering prestigious administrative roles that promise an honorable life. However, passing the Civil Service Examination (CSE) to become a civil servant is easier said than done. Known for its rigorous framework, CSE entails hard work that impacts the well-being of aspirants. Despite challenges, students pursue CSE with determination, a trait required to overcome adversities for accomplishing long-term goals. This study examined the relationship between psychological well-being and grit among civil service aspirants to understand how they relate to a group exposed to demands that test perseverance. It also assessed the influence of age, gender, and preparation time on well-being. 203 participants (male = 108, female = 78) with a mean age of 24.7 years were randomly selected for the study. The Psychological Well-Being Scale by Ryff (1989) and the Grit Scale by Duckworth (2016) were used as measures. Data were analyzed using descriptive statistics, independent sample t-test, one-way ANOVA, and Pearson's product-moment correlation. Findings revealed that while age, gender, and preparation time did not influence well-being, grit and psychological well-being showed a strong, significant positive correlation. The results emphasize the role of protective factors that mitigate the negative impact of stress and safeguard the health and well-being of students in high-stakes exam environments like the civil service.

Keywords: psychological well-being, grit, stress, civil service aspirants, civil service exam.

INTRODUCTION

Civil service jobs lure millions of students each year with the assurance of influence and status in a career path that upholds India's administrative system. Despite the saga of hard work, dedicated preparation, and challenges that call for personal sacrifice, admiration for civil service remains strong among Indian youth who see it as an opportunity to contribute meaningfully to the nation's growth. Representing the backbone of the country's administrative machinery, civil servants play a crucial role in ensuring stability, integrity,

and progress of the nation during emergencies and in the ongoing management of public affairs. Given the unique nature of the profession, civil service demands essential leadership qualities and immense social responsibilities in those who opt to become a part of this elite group. The Civil Service Examination (CSE), conducted annually by the Union Public Service Commission (UPSC), is the only gateway to begin the journey of becoming a civil servant, and it is not an easy task. The examination, considered one of the toughest globally, involves multiple levels of testing to pick out best candidates for the job. Each level, the Prelims, the Mains, and the Interview, has strict eligibility criteria, failing which candidates have to restart the entire exam process. Since CSE is open to anyone over 21 years, irrespective of their academic background, millions of people dive into CSE preparation each year, of which only a fraction of applicants manage to secure final postings. Even after investing years into preparation, forgoing personal comfort, compromising on relationships, and enduring distress, there is no guarantee of success in CSE. The intense preparational pressure and continuous setbacks can heighten emotional anguish in candidates, especially for those trapped in a cycle of hopeful preparation, anxious performance, and disappointing outcomes. The challenges may be significantly more severe for those who have encountered repeated failure even after multiple attempts (Sharma et al., 2015). The prolonged preparation, vastness of the syllabus, along with personal pressure to succeed, combined with social and familial expectations, induce mental health struggles, creating irrational schemas that test the candidates' resolve, pushing them beyond their limits. Considering the demanding nature of CSE, psychological well-being has become a crucial yet overlooked aspect of preparation, influencing both success and quality of life among aspirants.

Psychological well-being (PWB), a multifaceted construct encompassing emotional, cognitive, and social aspects of mental health, is an intricate interplay between biological elements and psychological qualities that shape the individual's unique response to distress (Ryff, 1989). It is increasingly recognized as a determinant of academic performance, adaptive functioning, and enduring life satisfaction among students. Since well-being is associated with motivation, resilience, and positive social relationships, they collectively contribute to better learning outcomes. Research indicates that students with higher PWB demonstrate greater engagement, persistence, and adaptability in academic settings than those with lower PWB (Arslan & Allen, 2021). Empirical comparisons also reveal that PWB differs across various exam contexts, with distinct differences between students. Compared to students in standard exam environments, those in competitive setups face immense exam-related pressure that can hamper their well-being. Literature affirms that competitive exams are associated with higher incidences of psychological distress and maladaptive coping, which increase the likelihood of mental disorders (Chaturvedi et al., 2022; Deb et al., 2021; Pascoe et al., 2020). Since aspirants who dream of civil service jobs endure hardships, social isolation, financial challenges, relentless

workloads, pent-up emotions, with minimal breaks and repetitive study routines, they experience fatigue that daunts their mental balance and well-being. They struggle to regulate emotions, manage conflict, and cope with frustration while maintaining optimal performance, compounding the effects of stress that lead to chronic burnout. Self-imposed expectations to sustain high PWB during periods of stress can paradoxically increase stress and affect both physical and psychological health (Bedi, 2023). However, at times, the opposite may also be true. Many individuals develop resilience due to exposure to high-pressure situations that can build their stress tolerance and protect them from adverse consequences. One such factor that has caught the attention of researchers in recent years that can mediate the effects of stress on PWB is grit.

Grit is a non-cognitive trait defined as sustained passion and perseverance towards long-term goals (Duckworth, 2016). It is a key predictor of resilience and achievement in high-pressure environments (Yaure et al., 2021). Over the past decade, research has increasingly focused on how grit functions as both a protective and mediating factor, influencing individuals' capacity to manage crisis, maintain health, and thrive in hostile situations. Individuals with higher grit are more likely to prevail over setbacks, stay motivated, and demonstrate resilience even in the face of adversity. Studies show that grit is associated with lower levels of depression, anxiety, and distress across diverse populations, including students, healthcare workers, and older adults (Musso, 2019; Zhang et al., 2022). It is strongly linked with conscientiousness (Crede et al., 2017), subjective well-being (Dharshini & Sri, 2024; Kwon, 2021), growth mindset (Park et al., 2020), contributing to reduced burnout (Schimschal et al., 2020), and overcoming difficult tasks with better outcomes (Datu, 2021). Beyond its direct protective effects, grit also helps individuals handle pressure, understand emotions, develop well-being, and overcome the negative biological effects of challenges in sustained goals. Given its utility, grit is not just a necessity but a desirable trait for civil service aspirants who strive in an environment of high competition. It is a predominant factor that can deliberately rescue aspirants from guilt and shame over failure and help them press towards their goal despite setbacks. Grit is not about stubbornness or blind endurance; instead, it is about viewing challenges as opportunities for growth rather than obstacles. It involves a dynamic interplay of passion, purpose, and perseverance, helping aspirants navigate the unpredictable challenges of civil service preparation.

NEED FOR THE STUDY

Past research points to a bidirectional relationship between PWB and grit. Grit in civil service aspirants can assist them in stress management, sustaining motivation, engaging in proactive behaviors, and maintaining a sense of purpose through hardship, thus building PWB (Kwon, 2021; Park et al., 2020; Schimschal et al., 2020). On the other hand, PWB can reinforce grit by providing emotional stability, focus, and self-confidence, which are necessary for civil service aspirants (Dharshini & Sri, 2024). Although there is a growing recognition of the importance of mental

health and resilience in a high-stakes exam environment, most of the debates surrounding civil service preparation primarily emphasize on academic achievement, test strategies, and coaching hours. The psychological and emotional aspects of this journey are often ignored, both in public discussions and in the design of support programs for aspirants. Very few inquiries have sought to understand how an aspirant's inner resources, particularly factors like well-being and grit, can interact and influence persistence, performance, and health outcomes during CSE preparation. With a lack of evidence, stakeholders are forced to rely on guesswork, resulting in preventable dropouts and, in extreme cases, mental deterioration and self-harming behaviors among aspirants. Therefore, by understanding factors that contribute to resilience and sustained motivation throughout the CSE preparation, this study aims to investigate the relationship between PWB and grit and address the research gap in literature. It also aims to generate practical recommendations, thereby aligning with educational and mental health priorities to ensure that tomorrow's administrators enter public service with strength and motivation, which will not only improve the overall outcomes but also uphold the integrity of the civil service profession itself.

OBJECTIVES

1. To examine the influence of age, gender, and preparation time on psychological well-being among civil service aspirants.
2. To examine the relationship between grit and psychological well-being among civil service aspirants.

HYPOTHESES

1. There is no significant influence of age, gender, and preparation time on psychological well-being among civil service aspirants.

2. There is no significant relationship between grit and psychological well-being among civil service aspirants.

METHOD

Participants

The study involved 203 participants (male = 128, female = 75), aged 19 to 34 years, with a mean age of 24.7 years. A random sampling technique was utilized for sample identification and selection.

Materials

Psychological Well-being Scale (PWB-18)

Developed by Ryff (1989), the scale is an 18-item self-report measure assessing six core dimensions of well-being, namely, autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Participants respond using a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). A few items on the scale are reverse-scored to control response bias. The total and subscale scores are interpreted by summing the relevant items, with higher scores indicating greater PWB. PWB-18 has strong psychometric properties with good internal consistency (Cronbach's a = .70) and validity across diverse populations.

Grit Questionnaire

Developed by Duckworth (2016), the questionnaire is a 12-item self-report measure rated on a 5-point Likert scale ranging from 1 (not at all like me) to 5 (very much like me). The scale assesses two main components of grit, namely, consistency of interest and perseverance of effort. To minimize response bias, six of the items on

the questionnaire are reverse-scored. The final score is calculated by averaging all item responses, with the highest score indicating greater levels of grit. The author reports good internal consistency with a Cronbach's alpha ranging from 0.72 to 0.85, and test-retest reliability for the test. The questionnaire has been widely validated across diverse populations for predicting achievement and persistence beyond cognitive ability.

Procedure

Data was collected from students preparing for CSE at various coaching centers and libraries located in Bengaluru and Mysuru. The 18-item Psychological Well-Being Scale and 12-item Grit Questionnaire were used to measure PWB and grit, respectively. Each participant was informed about the nature of the study, and detailed instructions were provided to complete the questionnaires. It was explicitly stated that participation was voluntary, informed consent was sought, and confidentiality was guaranteed. Only individuals who fulfilled the study criteria were included, while those with impaired abilities, mental health concerns, or prior exposure to similar studies were excluded from the research.

RESULTS

Table 1 - showing the distribution of civil service aspirants by age, gender, and preparation time.

		F	%
Age	Below 25 years	107	52.7
	25 years and above	96	47.3
Gender	Male	128	63.1
	Female	75	36.9
Preparation Time (in years)	1 year or less	83	40.9
	1-2 years	53	26.1
	3 years or more	67	33.0

The study sample consisted of 203 civil service aspirants, with 52.7% (n = 107) below 25 years and 47.3% (n = 96) aged 25 years and above. 63.1% (n = 128) of participants were male and 39. 9% (n = 75) of participants were female. Concerning exam preparation, 40.9% (n = 83) of aspirants had been preparing for one year or less, 26.1% (n = 53) for 1–2 years, and 33.0% (n = 67) for three years or more.

Table 2 - showing the mean PWB score by age, along with the results of independent sample t-test among civil service aspirants.

	Age	Mean	SD	t-value
Autonomy	Below 25 years	15.83	2.87	t = 1.177
	25 years and above	15.32	3.28	p= .240
Environmental Mastery	Below 25 years	15.14	2.94	t = 1.031
	25 years and above	14.65	3.85	p= .304
Personal Growth	Below 25 years	17.28	3.07	t = 1.755
	25 years and above	16.48	3.41	p= .081
Positive Relation	Below 25 years	12.19	3.55	t = 0.736
	25 years and above	11.81	3.87	p= .463
Purpose in Life	Below 25 years	13.52	3.46	t = 0.369
	25 years and above	13.69	3.24	p= .712
Self-acceptance	Below 25 years	15.20	3.32	t = 0.917
	25 years and above	15.66	3.83	p= .360
Overall PWB	Below 25 years	89.19	11.38	t = 0.866
	25 years and above	87.64	14.07	p= .387

Age did not influence PWB or any of its aspects in the participant group, as evidenced by the t-score ($p > .05$). This was true for all the sub-scales of PWB which includes autonomy ($t = 1.177$, $p = .240$), environmental mastery ($t = 1.031$, $p = .304$), personal growth ($t = 1.755$, $p = .081$), positive relations ($t = 0.736$, $p = .463$), purpose in life ($t = 0.369$, $p = .712$), and self-acceptance ($t = 0.917$, $p = .360$). The total PWB score for younger aspirants ($M = 89.19$, $SD = 11.38$) was slightly higher than that of older aspirants ($M = 87.64$, $SD = 14.07$), but these differences were not statistically significant ($t = 0.866$, $p = .387$).

Table 3 - showing the mean PWB score by gender and the results of independent sample t-test among civil service aspirants.

	Gender	Mean	SD	t-value
Autonomy	Male	15.73	3.25	t = 0.866
	Female	15.34	2.75	p= .388
Environmental Mastery	Male	15.18	3.18	t = 1.487
	Female	14.45	3.72	p= .138
Personal Growth	Male	17.00	3.33	t = 0.550
	Female	16.74	3.14	p= .583
Positive Relation	Male	12.21	3.70	t = 0.985
	Female	11.68	3.70	p= .326
Purpose in Life	Male	13.62	3.29	t = 0.106
	Female	13.57	3.47	p= .916
Self-acceptance	Male	15.66	3.63	t = 1.254
	Female	15.01	3.45	p= .211
Overall PWB	Male	89.42	12.79	t = 1.418
	Female	86.81	12.51	p= .158

Gender had no significant influence on PWB in the participant group, which was true for all the dimensions of PWB ($p > .05$) namely autonomy ($t = 0.866$, $p = .388$), environmental mastery ($t = 1.487$, $p = .138$), personal growth ($t = 0.550$, $p = .583$), positive relations ($t = 0.985$, $p = .326$), purpose in life ($t = 0.106$, $p = .916$) and self-acceptance ($t = 1.254$, $p = .211$). Overall well-being showed a slightly higher score in males ($M = 89.42$, $SD = 12.79$) than females ($M = 86.81$, $SD = 12.51$), but the difference was statistically non-significant ($t = 1.418$, $p = .158$).

Table 4 - showing the mean PWB score by years spent in preparation and the results of one-way ANOVA among civil service aspirants.

	Years of Prep.	Mean	SD	F-value
Autonomy	1 year or less	15.34	3.01	F = 2.266
	1-2 years	16.35	2.87	p= .106
	3 years or more	15.28	3.24	
Environmental Mastery	1 year or less	15.12	3.00	F = 0.275
	1-2 years	14.69	3.40	p= .760
	3 years or more	14.83	3.87	
Personal Growth	1 year or less	16.74	3.25	F = 1.686
	1-2 years	17.60	2.92	p= .188
	3 years or more	16.56	3.47	
Positive Relation	1 year or less	12.15	3.60	F = 0.261
	1-2 years	12.13	3.38	p= .770
	3 years or more	11.74	4.08	
Purpose in Life	1 year or less	13.19	3.20	F = 1.421
	1-2 years	13.60	3.72	p= .244

	3 years or more	14.11	3.19	
Self-acceptance	1 year or less	15.51	3.19	F = 0.54 p= .948
	1-2 years	15.32	3.61	
	3 years or more	15.38	4.00	
Overall PWB	1 year or less	88.08	11.37	F = 0.348 p= .706
	1-2 years	89.71	13.26	
	3 years or more	87.94	13.94	

Test statistics showed that the time spent preparing for the exam did not influence PWB among the participant group. There was a non-significant result across all the sub-scales of PWB ($p > .05$) which includes autonomy ($F = 2.266$, $p = .106$), eenvironmental mastery ($F = 0.275$, $p = .760$), personal growth ($F = 1.686$, $p = .188$), positive relations with others ($F = 0.261$, $p = .770$), purpose in life ($F = 1.421$, $p = .244$) and self-acceptance ($F = 0.540$, $p = .948$). On overall PWB, there was no significant difference ($F = 0.348$, $p = .706$) between the mean scores of participants preparing for 1 year or less ($M = 88.08$, $SD = 11.37$), 1–2 years ($M = 89.71$, $SD = 13.26$), and 3 years or more ($M = 87.94$, $SD = 13.94$).

Table 5 - showing the Pearson product-moment correlation between PWB and grit among civil service aspirants.

PWB		***GIRTH***
Autonomy	Pearson Correlation	.84
	Sig. (2-tailed)	p= .033
Environmental Mastery	Pearson Correlation	.79
	Sig. (2-tailed)	p=.024
Personal Growth	Pearson Correlation	.76
	Sig. (2-tailed)	p=.038
Positive Relation	Pearson Correlation	.68
	Sig. (2-tailed)	p=.050
Purpose in Life	Pearson Correlation	.72
	Sig. (2-tailed)	p=.035
Self-acceptance	Pearson Correlation	.78
	Sig. (2-tailed)	p=.011
Overall PWB	Pearson Correlation	.90
	Sig. (2-tailed)	p=.002

Pearson correlation analyses revealed a strong, statistically significant positive relationship between grit and all dimensions of PWB in the participant group. A very strong and significant correlation was found between autonomy ($r = .84$, $p = .033$), environmental mastery ($r = .79$, $p = .024$), personal growth ($r = .76$, $p = .038$), and grit. On positive relations with others, grit showed a strong positive relationship ($r = .68$, $p = .050$). A very strong positive correlation was observed between purpose in life ($r = .72$, $p = .035$), self-acceptance ($r = .78$, $p = .011$), and grit. Overall, PWB showed an exceptionally strong positive relationship with grit ($r = .90$, $p = .002$).

DISCUSSION

The present study examined the relationship between PWB and grit while also assessing the influence of age, gender, and preparation time on PWB among civil service aspirants. Analysis of results revealed that age (below 25 years vs. 25 years and above), gender (male vs. female; $p > .05$), and preparation time (1 year or less, 1-2 years, or 3 years or more) did not significantly influence PWB or its dimensions (autonomy, environmental mastery, personal growth, positive relations, purpose in life, self- acceptance), clarifying that they were not the primary factors influencing PWB of the aspirant group. The results align with previous studies, which suggest that individual psychological resources and protective traits may mediate and help overcome the influence of demographic factors on PWB in high-pressure academic contexts (Neroni et al., 2024; Strayhorn, 2023).

A statistically strong and significant positive relationship was found between PWB and grit ($r = .90$, $p = .002$), supporting the theoretical frameworks that explain a bidirectional interplay between these factors (Dharshini & Sri, 2024). When students possess grit, they are better equipped to maintain autonomy, master their environment, pursue growth, find purpose, accept themselves, build relationships, and sustain overall well-being, especially in high-stakes exam atmosphere. Similarly, higher well-being provides the stability and resources necessary to sustain grit (Salles et al., 2014). The findings of this study suggest how PWB and grit are connected to civil service aspirants and reveal why candidates persist in CSE preparation, despite challenges and failures, without experiencing a significant fall in their well-being scores. Grit is not only a predictor of persistence but also linked to holistic psychological functioning during extensive competitive CES preparation. The study's findings directly address the research gap regarding the interplay between PWB and grit in this specific population. It underlines the importance of fostering PWB and grit as mutually reinforcing strengths among civil service aspirants to assist them through their exam preparation. Interventions focused on building grit, enhancing social support, and teaching adaptive coping mechanisms may be effective in promoting resilience, sustaining well-being, and motivation during the demanding CSE preparation.

LIMITATIONS AND FUTURE DIRECTIONS

The present study provides empirical evidence on the relationship between PWB and grit among civil service aspirants, offering valuable insights into the strengths and challenges they face. Factors like age, gender, and preparation time were assessed, highlighting the key role of inner strengths such as grit in helping them cope with the stress of CSE preparation. However, the study has certain limitations that can be addressed in further research. Being a cross-sectional survey design with a small sample limited to Bengaluru and Mysuru, the findings may not be widely generalizable. The study does not account for differences in preparation methods or examine key factors such as socioeconomic status, family support, educational background, specific coping styles, personality traits, and other factors, which can influence PWB. To address these limitations, future research should consider longitudinal, mixed-methods designs to understand the changes in grit and PWB scores over repeated attempts at various preparation stages. Including a pan-India sample can improve the applicability of the findings and provide opportunities to examine other influencing factors that could affect the aspirant’s PWB. Such broader studies can contribute to more targeted interventions and support systems in promoting mental health in students involved in CSE preparation.

CONCLUSION

Becoming a civil servant is not all about clearing the exam and getting a position in the Indian Administrative Service. It is also about the transformative experience that tests every aspect of the candidate's character and resolve. Even as the civil service profession inspires youngsters with the promise of job security, very few are prepared for the emotional and psychological experiences that come with years of consistent preparation and repeated failures. The findings of this study emphasize that qualities like PWB and grit

are not optional extras but essential tools for surviving and thriving during the CSE journey. Aspirants need to approach civil service preparation with a realistic mindset, understanding that resilience, adaptability, and mental stamina are as important as subject knowledge. Candidates must engage in cultivating healthy habits, seek support when needed, and proactively manage stress, rather than experiencing exhaustion in the process of success. At the same time, coaching centers and institutions must also recognize that their responsibilities stretch beyond academic instruction to guiding students for better coping and balanced living. Addressing the psychological needs of aspirants should be a collective effort where institutions, educators, and policymakers work together to create supportive environments to equip aspirants to handle failures, learn from setbacks, and persist in the face of adversity. Only through such a holistic approach can we ensure that those who aspire to serve the nation are not only academically competent but also mentally sound, emotionally resilient, and prepared for the demands of public service.

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Phubbing behavior in the Digital Age: A study among young adults

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2. ***The authors take full responsibility for the authenticity of the content.***
3. ***The authors declare that there is no conflict of interest related to this publication.***

ABSTRACT

The internet and smartphones are one of the most important tools in the present scenario. They were initially designed to enhance social connectivity and for entertainment for everyone. However, in today's digital life, especially among young adults, these platforms have ironically increased social isolation and mental health issues. Excessive use of smartphones could create a problem of phubbing behavior, which means ignoring someone and focusing on our phones. The main objective of this study was to understand the relationship between phubbing behavior, overthinking, and FOMO among young adults. Secondly, to find out if there were any gender differences among these variables. Data were collected from Assam by using a purposive sampling technique and were assessed using the standardized questionnaires, namely the Phubbing Scale (PS; Karadağ et al., 2015), the Fear of Missing out Scale developed by Przybylski (2013), and the Perseverative Thinking Questionnaire (PTQ) by Thomas Ehring and Ulrike Zetsche (2011). A cross-sectional design was implemented for the study. The Pearson correlation analysis indicated a significant positive correlation between FOMO, Overthinking, and phubbing. Regression analysis indicated that both fear of missing out (FOMO) and overthinking significantly predicted phubbing, with FOMO emerging as the stronger predictor. A t-test was conducted to compare males and females on the variables fear of missing out (FOMO), overthinking, and phubbing behavior. The results found that there were no differences between males and females in terms of phubbing, FOMO, and Overthinking. It was observed that phubbing behavior among young adults was closely linked to psychological factors such as Fear of missing out and Overthinking.

Key words: Phubbing, Fear of Missing Out (FOMO), Overthinking

Introduction with Review of Literature

Phubbing

The term "phubbing" was coined to describe the behavior pattern of excessive looking at one's phone or screen while ignoring the people around them (Khare & Qasim, 2019). The term was a combination of the two words 'phone' and 'snubbing' that emerged

in Australia (Robert & David, 2016). Phubbing was defined as an act of ignoring someone in a social situation, when people ignored someone and paid attention to their smartphone (Chotpitayasunondh & Douglas, 2018). Phubbing (in other words, socio-theism) was coined as an individual's habit of paying attention to a smartphone while talking with another individual. Phubbers were interested in smartphones over face-to-face relationships. Phubbing was considered a social behavior disorder. It was associated with smartphone addiction and/ or internet addiction. (Aygar et al., 2021).

People engaged in phubbing to avoid distressing situations. Studies have found that phubbing was closely linked to social exclusion, disturbing thoughts, and was used as a distraction. (Knausenberger et al., 2022). Elhai et al. (2018) found that individuals who experienced high levels of rumination were more likely to engage with smartphones and ignore others while communicating.

Fear of Missing Out (FOMO)

Fear of Missing Out (FOMO), in simple terms, means having anxiety when we think others are having more precious moments than us (Abel et al., 2016). When someone was unable to participate in a joyful social setting, it caused them fear. This significant worry was known as the fear of missing out. Due to FOMO, individuals constantly check their cell phones to gain knowledge about new information, to minimize the risk of loneliness, and leftovers. FoMO has become a growing trend among young people (Azad & Singh, 2024).

Overthinking

The word overthinking refers to the overanalysis of certain situations, thinking about the same excessively, and evaluating them for a long period (Merriam-Webster's online dictionary, 2020). Such repetitive thoughts mainly focused on negative possibilities and distress. In psychological research, overthinking was commonly used as rumination (Nolen-Hoeksema, 1991). Ruminations were referred to as anxiety, which increased the likelihood of maladaptive coping behavior (Watkins, 2008).

Phubbing and Young Adulthood

The developmental age of young adults was 18 to 25 years old. This was the phase when the individual transitioned from adolescence to adulthood. During this phase, they were more inclined to explore themselves and develop their identity, alongside gaining freedom and self-determination (Higley, 2019). In the current situation, one of the new social health problems is phubbing, which has been widely affected by adolescents and young people (Robert & David, 2016). In developing countries like India, youths were now more engaged in using mobile phones addiction other than just for interactions. Since, as observed, in this developmental stage of adolescents, they were more vulnerable towards fashion trends, style, and were becoming more tech-dependent (Davey & Davey, 2014; Sivagurunathan et al., 2015; WHO, 2017; National Youth Policy, 2014). They were addicted to various behavioral disorders, such as nomophobia (i.e., fear without a cell phone). It was found that 40% of young adults were experiencing Nomophobia. Digital dependency among young adults was found to be around 40%–45% (Davey, Davey, & Singh, 2016; Francisca, 2007; Indian Express, 2017). Such behaviors

showed negative consequences such as quarrels with family connections, suicides, or murders (Nazir & Pişkin, 2016).

Phubbing behavior and gender

Females were found to be more prone to indulge in phubbing than males in reference to higher Engagement in social communication via texting, social media, and messaging apps (Karadağ et al., 2015; Chotpitayasunondh & Douglas, 2016). Motivational differences were found to be the driving force behind the gender differences. Women were found to be generally influenced by emotional connection and social interaction, whereas men used phones more for task-based or entertainment purposes (Hawi & Samaha, 2016). Research suggested that women were more emotionally affected when they were phubbed. They reported feeling more excluded or neglected in social and romantic interactions compared to men (McDaniel & Coyne, 2016). Women were more prone to phubbing due to loneliness (Yaseen, 2021).

Phubbing behavior and Fear of Missing Out (FOMO)

Phubbing affected interpersonal relationships and led to an increase in social isolation (Permata et al., 2023). There was a positive relationship between phubbing, social isolation, and Fear of missing out (FOMO) (Yaseen, 2021), and low self-control was also found to be significantly associated with phubbing behavior (Permata et al., 2023). FOMO was found to influence phubbing more strongly than loneliness (Yaseen, 2021). FOMO was also found to be a predictor of phubbing behavior, which was linked with higher workplace burnout, reduced creativity, and greater workplace interpersonal conflict. This research highlighted the dark side of digital addiction in workplace settings (Tandon et al., 2021).

Phubbing behavior and Overthinking

In psychological research, overthinking was commonly used as rumination (Nolen-Hoeksema, 1991). Those who are struggling with Anxiety and ruminations had a higher chance of getting engaged more in phone-checking (Elhai et al., 2017). Phubbing was closely related to short attention and reduced cognitive engagement. Smartphones played a role as a distraction tool, which increased mental load instead of reducing it (Dwyer et al., 2018). A study by Zhang et al. (2022) found that repetitive thoughts were more likely related a smartphone addiction (Surobhi et al., 2024; Sultan et al., 2023). Individuals who were more involved in repetitive thoughts were more likely to use mobile phones during face-to-face conversation and engaged more in phubbing behavior to avoid intrusive thoughts (Surobhi et al., 2024).

The Present Study

Objectives

The main objective of the present study was to understand the relationship between phubbing behavior, overthinking, and FoMO among young adults. Secondly, to find out if there were any gender differences among these variables.

It must be noted that this study is a part of the Ph.D. thesis work.

Hypothesis

H_1: There is a positive correlation between phubbing behavior, fear of missing out (FOMO), and overthinking among young adults.

H_2: Females will exhibit significantly higher levels of phubbing behavior than males.

Methodology

Research Design

This study used quantitative research techniques, and for data collection, a cross-sectional design was implemented.

Sample

The data was collected from the 80 young adults, comprising 40 males and 40 females. Smartphone users between the age group of 18 to 25 years old were taken from Assam by using a purposive sampling technique.

Inclusion criteria:

i. Participants who were between the ages of 18 to 25 years.
ii. Using the internet for more than one year.
iii. Participants who are residing in Assam.

Exclusion criteria:

i. Participants who were already diagnosed with psychiatric disorders.
ii. Participants who do not have a Smartphone.
iii. Siblings or relatives of the participant, falling under the age range of young adults, were not considered for the study.

Procedure

The data were collected from college students of Assam, either on a one-to-one basis or via an online Google form. Informed consent was taken from the participants, assuring the confidentiality of their responses.

Measures

Data was collected using the following standardized tools. It was to be noted that permission was sought from the respective authors to use the tools for academic purposes.

i. ***Phubbing Scale (PS; Karadağ et al., 2015)***: This scale measured phubbing behavior on a 5-point Likert scale, which comprised 10 items, which are rated from 1 (never) to 5 (always) on a 5-point Likert scale. The scale achieved high reliability, with has Cronbach's alpha (α) > 0.80, indicating strong internal consistency.
ii. ***Fear of missing out Scale (FOMOS; Przybylski et al., 2013***): This was a 10-item scale with responses rated on a 5-point Likert scale. It measured the degree to which one fears missing out on social situations, in particular, young adult tend to stay connected on social media with their friends, and often. The Cronbach's alpha of 0.87 indicated high internal consistency reliability.
iii. ***The Perseverative Thinking Questionnaire (PTQ; Ehring &Zetsche, 2011):*** This questionnaire consisted of 15 items. It was an independent self-report scale designed to assess repetitive negative thinking (RNT) related to various disorders, focusing on repetitiveness, intrusiveness, and difficulty disengaging. The PTQ scale is rated from "0" (never) to "4" (almost always). This scale showed great internal applying across different samples; the PTQ scale has Cronbach's alpha values typically ranging from 0.91 to 0.96.

Results

Table 1: *Means and standard deviations for the variables, namely Fear of Missing Out (FOMO), Preservative Thinking Questionnaire (PTQ), and Phubbing (N=80).*

Gender	N		FOMO	PTQ	Phubbing
Male	40	Mean	23.68	34.1	27.9750
		Standard Deviation	6.13	9.62	6.37
Females	40	Mean	23.9	33.38	26.68
		Standard Deviation	7.62	13.63	7.26
Total	80	Mean	23.79	33.74	27.33
		Standard Deviation	6.87	11.73	6.82

Table 2: *Correlations among Fear of Missing Out (FOMO), Preservative Thinking Questionnaire (PTQ), and Phubbing (N=80)*

Variables	Fear Of Missing Out (FOMO)	The Perseverative Thinking (PTQ)	Phubbing
Fear Of Missing Out (FOMO)	1		
The Perseverative Thinking (PTQ)	.440**	1	
Phubbing	.552**	.503**	1

*Note: ** indicates correlation is significant at the 0.01 level (2-tailed).*

Table 3: *Predictor variables of Phubbing (N=80)*

Model	IV	R	R^2	Adjusted R^2	F	Sig. F change	B	SE B	Beta
1		.624	.389	.373	24.492	.000			
	Fear of Missing Out (FOMO)						.410	.099	.410**
	Preservative Thinking (PTQ)						.187	.058	.322**

Table 4*: t-test to measure the gender differences for Phubbing (N=80).*

Scales	Gender	N	t	df	p
Phubbing	Male	40	.852	78	.397
	Female	40			

Discussion

The term "phubbing" was coined to describe the behavior pattern of excessive looking at one's phone or screen while ignoring the people around them (Khare & Qasim, 2019). The main objective of the present study was to understand the relationship between phubbing behavior, overthinking, and FoMO among young adults. Secondly, to find out if there were any gender differences among these variables.

Regarding Table 1, the table presented the descriptives of the variables, namely Fear of Missing Out (FOMO), Preservative Thinking Questionnaire (PTQ), and Phubbing, with a total sample of 80, and also gender wise, where each group comprised 40 participants.

Regarding Hypothesis 1 and Table 2, the obtained results showed that all the variables, namely phubbing behavior, fear of missing out (FOMO), and overthinking, were positively correlated with each other and were significant at the 0.001 level. On further analysis, concerning Table 3, it was observed that with phubbing as the dependent variable, fear of missing out (FOMO) and overthinking explained 38.9% variance (R^2=.389), and the variables contributed significantly to the model (F= 24.492, p<.001). For every one-unit increase in phubbing, fear of missing out (FOMO) increased by .410 units, and overthinking increased by .187 units. The beta values indicated that both fear of missing out (FOMO) and overthinking significantly predicted phubbing (p<0.001), with FOMO with a beta value of .410 emerging as the stronger predictor. Hence, the hypothesis stating that "*there is a positive correlation between phubbing behavior, fear of missing out (FOMO), and overthinking among young adults*" was accepted and was supported by empirical studies where it was found that there was a positive relationship between phubbing, social isolation, and Fear of missing out (FOMO) (Yaseen, 2021). Individuals who were more involved in repetitive thoughts were more likely to use mobile phones during face-to-face conversation and engaged more in phubbing behavior to avoid intrusive thoughts (Surobhi et al., 2024).

Regarding Hypothesis 2 and Table 4, the obtained results showed that there were no gender differences for phubbing behavior [*t*

(78)=0.852, p=0.397]. Hence, the hypothesis stating that "*females will exhibit significantly higher levels of phubbing behavior than males*" was rejected. Existing literature has shown mixed outcomes related to gender differences in phubbing behaviour. Some researchers (e.g., Karadağ et al., 2015; Chotpitayasunondh & Douglas, 2016) revealed that females tend to phub more than males, perhaps due to high social media involvement. Meanwhile, the present study suggested no notable gender differences in phubbing. It was observed in today's digital era, phubbing behaviour may be equally prevalent among males and females, revealing a shift toward more universal smartphone addiction, despite gender.

Conclusion

The research has shown that phubbing was one of the most common mental health issues among young adults. The findings all lead to the conclusion that there is a significant positive relationship between fear of missing out, overthinking, and phubbing among young adults. The results highlight that there was no difference between fear of missing out, overthinking, and phubbing in terms of gender.

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An Exploration of Lifestyle Modification Factors among Depressed and Non-Depressed Hypertensive Individuals in Uttarakhand

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ABSTRACT:

In the landscape of global health challenges, hypertension emerges as a significant public health concern impacting communities worldwide. Hypertensive individuals often experience physical symptoms, a decline in quality of life, and difficulty fulfilling daily roles, all of which may contribute to an increased risk of depression. (Almas et al., 2014; Kretchy et al., 2014). This study's aim is to explore and compare associated lifestyle modification factors among depressed and non-depressed hypertensives. A total sample of 220 hypertensive individuals (110 depressed and 110 non-depressed) age ranging from 40 to 70 years were purposively selected from Nainital and Almora District of Uttarakhand. Lifestyle modification factors assessed by personal data schedule developed by researcher and Beck's depression inventory II by Beck (1996) were used in the present study. Results revealed that age ($\chi^2 = 9.62$, $p = 0.002$), marital status ($\chi^2 = 7.18$, $p = 0.028$), duration of antihypertensive medication use ($\chi^2 = 34.16$, $p < 0.001$), and fast-food consumption ($\chi^2 = 17.24$, $p < 0.001$) were significantly associated with depression among hypertensive participants. Depression was reported by more frequent in geriatric individuals, widowed participants and those on antihypertensive medication for ≥3 years.

Keywords: Hypertension, Depression, geriatric and antihypertensive medication.

Introduction

In the landscape of global health challenges, hypertension emerges as a significant public health concern impacting communities worldwide. It's a silent force as it operates without noticeable symptoms, while exerting significant and potentially life-threatening effects on health. This condition, if left untreated or poorly managed, can lead to serious health complications such as heart disease, stroke, and kidney failure (WHO, 2008). It is also becoming an increasingly prevalent global health issue that has seen alarming growth, with its global prevalence doubling from 650 million in 1990 to 1.3 billion by 2019 (NCD Risk Factor Collaboration, 2021). In India, the ICMR-INDIAB study reported a similarly alarming prevalence rate of 35.5% (Anjana et al., 2023). Furthermore, a comprehensive study

of 87 risk factors revealed that elevated systolic blood pressure (≥110–115 mmHg) is the primary cause of premature death globally. It leads to approximately 10.8 million preventable deaths annually and contributes to a burden of 235 million disability-adjusted life years (DALYs) each year (GBD 2019 Risk Factors Collaborators, 2020).

Many individuals diagnosed with hypertension often experience challenges such as somatic symptoms, reduced quality of life, and impaired ability to fulfill their roles (Almas et al., 2014). Furthermore, these factors may heighten susceptibility to psychological distress, particularly depression, among individuals with hypertension (Kretchy, 2014). Depressive disorders affect around 46 million people in India, which contributes to disability-adjusted life years or DALYs significantly (Sagar & Selvakumar, 2021). The global prevalence of depression among individuals with hypertension is 26.8% (Li et al., 2015), while in India, the prevalence is reported to be higher at 39.8% (Dutta et al., 2024). Additionally, studies revealed that when both comorbidities exist (depression and hypertension), there is an increased risk of reduced quality of life, stroke or myocardial infarction and reduced therapeutic compliance (Wang et al., 2002; Saboya et al., 2010).

Lifestyle plays a critical role in the prevention and management of hypertension, particularly among individuals with depression. Unhealthy habits such as poor diet, physical exercise, smoking, and many more are common in depressed individuals and can exacerbate hypertension. Depression may further hinder adherence to healthy lifestyle practices, making it essential to understand and address these behavioural patterns (Mega, 2024). Promoting a balanced diet, regular physical activity, smoking cessation, and stress management is vital for improving both blood pressure control and overall well-being in this population (Ernawati, 2022). Despite the known link between hypertension and depression, limited studies have been explored in the context of lifestyle behaviours among people in hilly areas like Uttarakhand. Understanding these behavioural patterns is essential for developing tailored and patient-centric strategies that address not only the physical but also the psychological needs of this population. By identifying specific barriers and facilitators, this study will provide valuable insights that can inform the design of targeted interventions, ultimately leading to better patient outcomes and enhanced quality of life.

Considering these perspectives and facts, the current study was undertaken with the objective: To explore and compare associated lifestyle modification factors among depressed and non-depressed hypertensive individuals.

Material and Methods:

The present cross-sectional study conducted on a total sample of 200 hypertensive patients were purposively selected. This includes 110 depressed and 110 non-depressed hypertensive individuals age ranging from 40 to 70 years. The sample was drawn from outpatient clinics and through door-to-door surveys in two randomly selected districts namely Nainital and Pithoragarh in the Kumaon region of Uttarakhand. Before the data collection,

purpose of the study was explained, as well as verbal and written informed consent was obtained from each participant. For measuring the blood pressure (Systolic blood pressure and diastolic blood pressure) of the hypertensive participants automatic blood pressure monitor was used. BP was measured twice with a 2-minute gap was maintained between readings, and the average was recorded. For analysing the data mean, SD and chi square test was used.

Inclusion criteria

- In the proposed study, a hypertensive patient is considered as an individual with a systolic blood pressure reading of ≥140 mmHg and a diastolic blood pressure reading of ≥90 mmHg, diagnosed with hypertension by a physician and currently undergoing medication.
- Who had been taking medicine from past one year during the study period were included in the final group.
- All male and female hypertensive individuals aged from 40-70 years were selected in the present study.

Exclusion criteria

- Participants who did not take antihypertensive medication for treatment of disease.
- Subject who does not consent to take part in the study.
- Any subject with other mental and physical health condition has been excluded from the study.

Tools: Data was collected after the administration of followings tools;

1. **Personal Data Schedule (PDS):** PDS was created by the researcher to take the preliminary information, socio-demographic details, life style modification factors and consent of the subject.
2. **Beck's Depression Inventory II:** It was developed by Beck (1996) which consists of 21 item self-reporting inventory for measuring the severity of depression in adults and adolescents aged of 13 years and older. Individuals scoring 17 and above in BDI-II are going to be considered as vulnerable to depression for the proposed study. The inventory demonstrates a reliability of 0.74 and a construct validity of 0.93.

Result:

The current study included 220 hypertensive individuals (110 depressed and 110 non-depressed) aged between 40-70 years from Almora and Nainital districts of Uttarakhand. The sample consisted of 102 (46.4%) male and 118 (53.6%) female participants. The mean age of the participants was 59.03 ± 11.39 years. The mean systolic and diastolic blood pressures were 145.99 ± 16.89 mmHg and 90.70 ± 10.72 mmHg, respectively. Additionally, the average duration of antihypertensive drug use among the participants was 5.85 ± 4.78 years.

Table-1, Socio-demographic and Life Style Modification Factors of Participants

Factors	Category	Depressed Hypertensives	Non-Depressed Hypertensives	Total	Chi-Square (x_2)	p-value
Gender	Male	53 (48.2%)	49 (44.5%)	102 (46.4%)	.29	.589
	Female	57 (51.8%)	61 (55.5%)	118 (53.6%)		
Age	Middle Age	45 (40.9)	68 (61.8)	113 (51.4%)		

	(40-60)				9.62	.002* (SIG)
	Geriatrics (60+ year)	65 (59.1%)	42 (38.2%)	107 (48.6%)		
Living Area	Rural	37 (33.6%)	49 (44.5%)	86 (39.1%)	2.74	.0978
	Urban	73 (66.4%)	61 (55.5%)	134 (60.9%)		
Marital Status	Married	75 (68.2%)	92 (83.6%)	167 (75.9%)	7.18	.028* (SIG)
	Unmarried	4 (3.6%)	2 (1.8%)	6 (2.7%)		
	Widow	31 (28.2%)	16 (21.4%)	47 (21.4%)		
Anti-hypertensive Medicine Intake Year	1-2 Year	3 (2.7%)	36 (17.7%)	39 (17.7%)	34.16	.000* (SIG)
	3-5 Year	66 (60%)	43 (39.1%)	109 (49.5%)		
	6≥ Year	41 (37.3%)	31 (28.2%)	72 (32.7%)		
Smoking	Yes	17 (15.5%)	14 (12.7%)	31 (14.1%)	.33	.561
	No	93 (84.5%)	96 (87.3%)	189 (85.9%)		
Alcohol	Yes	30 (27.3%)	35 (31.8%)	65 (29.5%)	.54	.460
	No	80 (72.7%)	75 (68.2%)	115 (70.5%)		
Exercise	Yoga	32 (29.1%)	34 (30.9%)	66 (30%)	.34	.843
	Walk	18 (16.4%)	15 (13.6%)	33 (15%)		
	No exercise	60 (54.5%)	61 (55.5%)	121 (55%)		
Food	Vegetarian	42 (38.2%)	54 (49.1%)	96 (43.6%)	2.61	.103
	Mixed	68 (61.8%)	56 (50.9%)	124 (56.4%)		
Salt Intake	Low	49 (44.5%)	40 (36.4%)	89 (40.5%)	1.56	.456
	Medium	58 (52.7%)	66 (60%)	124 (56.4%)		
	High	3 (2.7%)	4 (3.6%)	7 (3.2%)		
Fast Food	Yes	22 (20%)	51 (46.4%)	73 (33.2%)	17.24	.000* (SIG)
	No	88 (80%)	59 (66.8%)	147(66.8%)		

Note: * indicates the p value significant at .05 level of significance.

Table 1 indicates that age was significantly associated with depression status ($\chi^2 = 9.62$, $p = 0.002$). Depression was more reported by geriatric individuals (59.1%) compared to middle-aged participants (40.9%). Marital status also showed a significant association ($\chi^2 = 7.18$, $p = 0.028$) with depression status. Additionally, years of anti-hypertensive medicine intake demonstrated a strong association with depression ($\chi^2 = 34.16$, $p < 0.001$). Depression was seen most frequent among those who had been on medication for 3–5 years (60%) and ≥6 years (37.3%), compared to 2.7% in the less than 2 years. Furthermore, significant association was found between fast food consumption and depressed status among hypertensives, ($\chi^2 = 17.24$, $p< 0.001$), with depressed participants less likely to consume fast food (20%) than non-depressed participants (46.4%). Whereas, table 1 also shows that other sociodemographic and life style factors such as gender, living area, smoking, alcohol consumption, physical exercise, food, and salt intake were found to be not statistically significant ($p>0.05$) for depressed and non-depressed hypertensive individuals.

Discussion:

In the present study age was significantly associated with depression, where, old age

hypertensive individuals were reported more depression than middle aged hypertensive individuals. Geriatric individuals may be more vulnerable to depression due to a combination of biological, psychological, and social factors (Remes et al., 2021). Aging is often accompanied by increased physical health problems, including chronic conditions like hypertension, which can lead to a sense of dependency, reduced mobility, and overall decline in quality of life. Additionally, older adults may experience social isolation, loss of spouse or peers, and limited social support, all of which are strong psychological risk factors for depression (Maresova et al., 2019). This finding aligns with previous research suggesting depression was observed to be nearly twice as common in older hypertensive individuals compared to younger patients (Boima et al., 2020). Furthermore, analysis also indicated that marital status showed a significant association with the reported frequency of depression. This finding directly contradicts with result reported by Kandasamy et al. (2025) that unmarried/widow non-significantly association with anxiety and depression in patients with hypertension.

Additionally, the current findings revealed that the duration of taking anti-hypertensive medication was significantly associated with the reporting of depression. The higher reporting of depression was seen among individuals taking antihypertensive medication for longer durations may be linked to the psychological burden of managing a long-term illness (Shaw et al., 2021). As the duration of treatment increases, patients may begin to feel fatigued or discouraged by the ongoing need for daily medication and lifestyle restrictions. Long-term medication use may also act as a constant reminder of their chronic condition, contributing to emotional distress over time (Hamrahian et al., 2022). Furthermore, the analysis revealed that pattern of eating fast food had significant associated with reporting of depression status. Individuals with depression reported less likely to consume fast food as compare to their non-depressed counterparts. The possible reasons for this could be that depression often leads to a loss of appetite or an overall reduction in the enjoyment of pleasurable activities, including eating (Priory Group, 2021). This condition, known as anhedonia, can result in individuals eating less frequently or showing disinterest in foods, they might otherwise find appealing, such as fast food. An indirect finding by Crawford et al. (2011) contradicts the current study's results, as their research showed that midlife women with depressive symptoms were more likely to consume fast food.

In previous studies gender has been shown to be a risk factor for depression in hypertensives, whereas in the current study researcher found that gender was not significantly associated with depression among patient with hypertension. In contrast to this finding, Neupane et al. (2015) and Prathibha et al. (2017) found that female gender was significantly associated with an increased risk of developing depression among hypertensives.

Additionally, the findings also show that living area, smoking, alcohol consumption, physical exercise, food, and salt intake were found to be not statistically significant ($p>0.05$) for depressed and non-depressed hypertensive individuals.

Conclusion:

The presents study's aim was to explore the life style factors among depressed and non-depressed hypertensive individuals. Findings revealed that age, marital status, duration of antihypertensive medication use, and fast-food consumption were significantly associated with the depression among hypertensive participants. Whereas, no significant association were found gender, living area, smoking, alcohol consumption, physical exercise, food, and salt intake for depressed and non-depressed hypertensive individuals.

Future Implications, Limitations and Suggestions:

The current findings could imply that healthcare providers should incorporate regular mental health screenings and lifestyle assessments into hypertension care. Tailoring interventions to consider patients' demographic backgrounds, such as providing additional social support to older or unmarried patients, may enhance the effectiveness of treatment. Integrating multidisciplinary teams including dietitians, mental health professionals, and social workers could facilitate comprehensive care that addresses both physical and psychological needs, ultimately improving patient adherence and quality of life.

Despite its valuable contributions, the study is subject to several limitations. The cross-sectional design restricts the ability to infer causal relationships; it remains unclear whether depression leads to changes in lifestyle behaviors or vice versa. Additionally, the sample characteristics including size, geographic location and socioeconomic background may limit the generalizability of the results to broader hypertensive populations.

To build upon these findings, future research should employ longitudinal or prospective study designs that can better elucidate the directionality and causality between depression and lifestyle factors in hypertensive patients. Larger, more diverse samples from multiple regions and cultural backgrounds would improve the external validity of the findings. Researchers should also aim to include more comprehensive assessments of diet quality, physical activity levels, stress, social support, and comorbidities to gain a fuller understanding of the factors influencing depression in this group.

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IMPACT OF PATERNAL ALCOHOL USE ON THE EMOTIONAL MATURITY OF YOUNG ADULTS

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ABSTRACT

Introduction

Studies indicate that male offspring of alcoholic fathers exhibit behavioural problems and impaired intellectual skills as well as hormonal and nervous system anomalies. However, the possibility that paternal alcohol usage also may affect an offspring's emotional maturity has received relatively little attention. The study aims to assess the effects of paternal alcohol use on the emotional maturity of the young adults using a mixed method approach.

Method

Quantitative analysis done using the Alcohol Screening Questionnaire (AUDIT) and Emotional Maturity Scale (EMS) on the individuals to determine the severity levels of alcohol consumption (no use, low, moderate, severe) and its varied impact on the offspring's emotional maturity. These young adults between the ages of 18 to 22 years interviewed in order to understand their current emotional maturity as well as the established relationship between the father and the child.

Result

The different evaluation methods highlight the complex nature of psychological emotional maturity since several elements besides alcohol use determine its development. The study proves paternal alcohol consumption interacts with emotional immaturity in young adults even though it does not function as an independent clause. Research must expand by assessing parenting practices together with emotional care and mental well-being treatment methods to better comprehend emotional development in adults whose fathers drink alcohol.

Conclusion

The importance of this research lies in the study of intervention, prevention, and providing insights into the emotional challenges faced by young adults in families affected by alcohol use, with a focus on paternal alcohol use.

Keywords: alcoholic fathers, paternal alcohol use, emotional maturity, young adults, severity

Introduction

Alcoholism is defined as the excessive and repetitive use of alcohol that disrupts various aspects of life. Research has shown that paternal alcohol use leads to lower parental sensitivity and warmth, increases in conflict and negative emotional expressions, and long-term developmental consequences for children.

While the negative effects of maternal alcohol consumption during pregnancy are widely acknowledged, the potential

consequences of paternal alcohol use have received less attention. Nevertheless, studies have revealed links between paternal alcoholism and children's behavioural problems, cognitive impairments, and hormonal and nervous system disruptions. As children grow, they continue to rely on their parents for emotional support, and paternal alcoholism can undermine these essential support systems.

Emotional maturity is defined as the ability to manage emotions, adapt to change, and respond to stress with stability. Emotionally mature individuals exhibit self-regulation, calmness, and a realistic outlook. Children with alcohol-abusing fathers often experience reduced nurturing and emotional availability, which hampers their emotional growth.

The severity of paternal alcohol consumption, measured by frequency, intensity, and consequences plays a key role in the extent of emotional and psychological outcomes for children. The more severe the alcohol use, the greater the likelihood of negative consequences. Although research often focuses on the general impact of parental alcoholism, fewer studies examine the impact of its severity.

The theoretical framework integrates multiple perspectives to understand these dynamics. Family systems theory emphasizes that paternal alcoholism can destabilize family roles and relationships, with children often taking on maladaptive roles like caregiver or scapegoat. Social learning theory suggests that children growing up in a household where alcohol use is normalized may lead to similar behaviours in adulthood.

Attachment theory explains how early relationships with caregivers shape future emotional patterns. Inconsistent or neglectful parenting due to alcohol abuse can lead to insecure attachments, increasing emotional instability.

Overall, paternal alcohol use profoundly affects emotional maturity through its influence on parenting, attachment, family dynamics, and learned behaviours.

Literature related to RQ1

1. The study *"Behind Closed Doors"* (Joseph & Babu, 2024) sheds light on the hidden emotional struggles faced by Indian children of alcohol-dependent fathers. Children aged 10–13 living with such fathers, particularly those receiving de-addiction treatment, demonstrated severe emotional distress in response to unpredictable paternal behaviour.
2. *Pandey and Tripathi (2024)* conducted a meta-review of 150 articles (80 meeting inclusion criteria), analysing how parenting styles affect children's emotional maturity. The results revealed that most parents are unaware of effective parenting strategies, and this ignorance can significantly hinder children's character and emotional development.
3. *Muttaqien (2023)* emphasized the central role of fathers in children's emotional development, especially during key transitions like school changes. The study concluded that poor paternal involvement during these critical periods can negatively affect a child's ability to adapt, form healthy identities, and establish positive attitudes toward learning.

4. In a systematic review and meta-analysis (November, 2021), research confirmed the adverse impact of paternal alcoholism on various psycho-behavioural outcomes. This analysis focused on paternal-specific studies and found consistent evidence linking father's alcohol use to diminished psychological well-being in their children.
5. The *prospective cohort study* by *Luan, Zhang, and Fang* explored how pre-conceptional paternal alcohol use could affect child neurodevelopment through sperm. The study found that alcohol-consuming fathers were associated with higher anxiety, aggression, and somatic complaints in children, especially gender-specific outcomes like anxious/depressed scores in girls.
6. *Lingeswaran (2015)* studied 62 alcohol-dependent fathers, their spouses, and 110 children, highlighting how children of alcoholic parents were more prone to substance use, learning disabilities, and conduct disorders.
7. *Naik and Saimons (2014)* studied 640 adolescents and identified a significant correlation between parenting and emotional maturity. The study found that adolescents' relationships with parents during emotional and social transitions directly affected their ability to develop self-worth, make responsible decisions, and build emotional resilience.

Literature related to RQ2

1. A multilevel meta-analysis (March, 2019) of 56 studies (220 effect sizes) revealed a positive correlation between the level of parental substance abuse and lower child well-being.
2. *Raitasalo et al. (2018)* analysed health and welfare data from Finnish children born in 1997 and assessed how mild vs. severe paternal alcohol use impacted mental and behavioural disorders. The study found higher diagnoses of psychological developmental issues among children of severely alcohol-using fathers. Limitations included difficulty in tracking the exact onset and duration of alcohol use.
3. *Baykova & Merinov (2018)* addressed suicidality and personality traits in adult children of alcoholics. Their findings suggested that even by the age of 18–36 months, children of alcoholic parents exhibited emotional suppression and internalized conflict, showing how the degree of paternal addiction deeply influences emotional patterns and mental health.
4. *Sirera & Mwenje (2014)* examined how alcohol misuse affected parental guidance, particularly in rural families. Findings showed that families with an alcoholic father displayed more dysfunction during problem-solving and caregiving tasks.
5. *Miskell (2014)* investigated parental problem drinking and emotional security in children, noting associations between fathers' social drinking and children's emotional reactivity, anger, and communication struggles. Self-reporting limitations were acknowledged.

Research Gap

While numerous studies confirm the detrimental effects of paternal alcohol use on children's emotional and behavioural development, there is a lack of deep exploration into emotional maturity.

Furthermore, while the presence of alcohol use is commonly studied, the severity (no use, low, moderate, severe) is rarely analysed in depth. Thus, a research gap exists in examining how varying levels of alcohol consumption uniquely affect young adults' emotional outcomes, beyond overt behaviours or substance use.

Rationale

The rationale emphasizes the unique mental health challenges of young adults, a demographic underrepresented in current alcohol-related mental health studies. Emotional maturity during this period is critical for navigating transitions like education, career, and independence. Mental disorders like anxiety and depression often emerge at this life stage, making it crucial for research to understand the links between emotional maturity and paternal influences. Also, moving beyond binary categories to assess alcohol use on a severity spectrum allows for more accurate, individualized intervention models.

Significance of the Study

Young adulthood is a transformative phase with profound changes in emotional, cognitive, and social domains. Emotional maturity, crucial for mental health, may be compromised by paternal alcohol use, particularly when severe. This study's focus on severity rather than mere presence or absence adds to the limited literature on graduated impacts of alcohol consumption. Findings can help break the generational cycle of emotional instability and substance use, identify at-risk individuals early, and inform targeted mental health interventions. Ultimately, the study contributes to broader societal well-being by promoting healthier family dynamics and emotional development.

Method

Aim

To assess the impact of paternal alcohol use on the emotional maturity of young adults.

Research questions

1. Is there a correlation between paternal alcohol use and emotional maturity among young adults?
2. Does the severity of alcohol use by fathers (no use, low, moderate, severe) influence the emotional maturity among young adults?

Research Design

The study used the mixed method research design which is basically a mix of components of quantitative and qualitative research procedures for the goals of depth and corroboration.

Research Approach

The study highlighted the pragmatic approach in mixed method research. Firstly, the quantitative part involved correlation between paternal alcohol use and emotional maturity among adolescents. Secondly, the qualitative aspect was emphasized for a deeper understanding of the experiences and impact of varied levels of severity in paternal alcohol use on the emotional maturity of adolescents.

Sample and Sampling technique

The sample size for this mixed method approach was 115 participants for the quantitative analysis and around 20 interviews for qualitative analysis depending on data saturation. It included adolescents between the ages of 18 to 22 years. The respondents were asked to respond irrespective of their gender, race, or ethnicity.

Assessment Tools

Alcohol Screening Questionnaire (AUDIT): A 10-item questionnaire approved by WHO to screen for hazardous and harmful alcohol consumption, with scores ranging from 0 to 4, identifying zones of low risk, risky, harmful, and severe use. Emotional Maturity Scale (EMS): Constructed by Yashvir Singh and Mahesh Bhargava. It includes five broad factors: emotional stability, emotional progression, social adjustment, personality integration, and independence. Reliability: 0.75 (test-retest), 0.42–0.86 (internal consistency).

Procedure

Quantitative Phase:

Data gathered using a survey method and convenient sampling through Google Forms. Participants responded voluntarily, with the ability to withdraw at any time. The survey included questions determining severity of paternal alcohol use and emotional maturity. Consent taken and the questionnaire was in English to ensure accessibility for a wider young adult population.

Qualitative Phase:

In-depth, semi-structured interviews used to capture detailed individual experience. The semi-structured format offers flexibility, allowing for non-leading probes and follow-ups. Google Forms included a recruitment question. After confirming eligibility and willingness, interviews were scheduled in person or online based on participant comfort. Participants were audio recorded, with data collection concluding once data saturation was reached.

Analysis of Data

Quantitative Phase:

To assess the correlation between paternal alcohol use and emotional stability, Pearson Correlation Coefficient was used. To compare emotional stability across different levels of paternal alcohol use (no use, low, moderate, severe), ANOVA was applied to determine statistically significant differences in emotional maturity across the groups.

Qualitative Phase:

Thematic Analysis was used to analyse interview data. An inductive thematic approach allowed organic theme development. The Braun and Clarke approach includes:

1. Transcribing audio recordings
2. Coding to find patterns and themes
3. Categorising to reveal patterns
4. Reviewing themes, emphasizing researcher interpretation
5. Validation through external feedback
6. Final verification by rechecking transcripts and codes

Trustworthiness and Credibility:

Psychology professors reviewed the interview schedule. Feedback from validation forms was integrated.

Data Validation Strategies Included:

- Peer Review by experts
- Iterative Questioning with probing during interviews
- Member Checking by involving participants in validating interpretation
- Rich, Thick Descriptions providing detailed context and participant quotations

Ethical Considerations

Informed Consent:

Participants provided verbal informed consent after receiving full explanation of the study's purpose, procedures, risks, and benefits.

Voluntary Participation and Right to Withdraw:

Participation was voluntary, with full right to withdraw at any point without consequences.

Confidentiality and Anonymity:

All participant information remained confidential, with identifying details removed.

Non-Maleficence:

The study avoided causing stress or discomfort and did not ask potentially distressing questions.

No Deception:

Participants were fully informed of the research's objectives and procedures before agreeing to participate.

Results

Phase 1: Quantitative Analysis:

An attempt to find and interpret the results with respect to the RQ1 which stated: Is there a correlation between paternal alcohol use and emotional maturity among young adults?

Table 1: Pearson Correlation Coefficient

Variables	Pearson Correlation	Sig. (2 tailed)	N
How often does he indulge in alcohol consumption?	1	-	80
Overall Score	0.254	0.023	80

The use of Pearson Correlation shows a correlation between frequency of paternal alcohol use and overall emotional maturity score. The key variables for analysis are "How often does he indulge in alcohol consumption?" (1 = Not at all, 2 = Occasionally/Socially, 3 = Fortnightly, 4 = Weekly) and "Overall Score" (Emotional Maturity: 1 = Extremely mature → 4 = Extremely immature). The Pearson Correlation Coefficient is 0.254 which shows a weak positive relationship between frequency of alcohol consumption and emotional maturity scores. The Significance Level (p-value) is 0.023. Since $p < 0.05$, the correlation is statistically significant. The Sample Size ($N = 80$). There is a statistically significant but weak relationship between paternal alcohol consumption and emotional immaturity. Although those fathers who drink more frequently might have a bit more negative impact on their young adult's emotional maturity, the correlation is not strong enough to imply causation. Other variables (e.g., personality, stress, environment) probably affect emotional maturity.

An attempt to find and interpret the results with respect to the RQ2 which stated: Does the severity of alcohol use by fathers (no use, low, moderate, severe) influence emotional maturity among young adults?

Table 2: Analysis of Variance

Overall Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.199	3	1.400	2.279	.083
Within Groups	68.792	112	.614		
Total	72.991	115			

This table sought to determine whether a father's alcohol use influences the emotional maturity of young adults. The scores for emotional maturity were compared between

various levels of alcohol consumption: 1 = Not at all, 2 = Occasionally/Socially, 3 = Fortnightly, 4 = Weekly. The scale for emotional maturity was from: 1 = Extremely Emotionally Mature and 4 = Extremely Emotionally Immature. The key findings include F-Value = 2.279 and p-Value = 0.083, which is NOT statistically significant ($p > 0.05$). Weak Positive Correlation (0.254) Between Alcohol Consumption & Emotional Immaturity involves individuals whose fathers drank more often being slightly more emotionally immature. Although statistically significant ($p = 0.023$), the correlation is weak and not strong enough to imply causation. ANOVA reveals no significant differences across groups ($p = 0.083$), suggesting emotional maturity does not vary greatly based on alcohol consumption levels. This implies that other factors like personality, child-rearing, stress, or mental health also significantly influence emotional maturity.

Phase 2: Qualitative Analysis

No Use of Alcohol:

Participants shared that abstinence from alcohol by their fathers led to stable and positive family relationships. Paternal abstinence created safe, emotionally nurturing relationships where children felt supported and developed healthy values. Participants expressed intentions to emulate their fathers' emotional balance and to foster responsible drinking in future family members.

Excerpts:

- *"Because my father did not drink alcohol and because other people in my family also do not consume alcohol, our family relations are very stable, and everyone is on good terms."*
- *"My father is my biggest role model. He' s someone I've always looked up to, someone I consciously try to imitate in terms of his behaviour, his thought process, and his actions."*
- *"I feel very safe and comfortable around him. We talk about pretty much everything in my life. He is emotionally always there for me, supporting whatever I do."*

Occasional Use of Alcohol:

Most participants reported that their father's occasional alcohol consumption led to either minimal or temporary changes, such as increased relaxation or expressiveness, without aggression or emotional instability. Occasional alcohol use by fathers was not viewed as harmful but shaped participants' understanding of moderation, emotional maturity, and responsible behaviour.

Excerpts:

- *"My dad is generally a very strict and rigid person, but after he consumes alcohol, he becomes a little more relaxed."*
- *"At a family gathering, my dad had a drinking competition with a relative, which was part of the cultural setting."*
- *"My parents have high tolerance, but sometimes after drinking, they argue over what they said to relatives when they were drunk."*
- *"Whenever he is drinking, he is talking to everyone else, so my relationship with him feels more distant in those moments."*
- *"Seeing my dad drink taught me how to carry myself in social drinking situations."*
- *"Because I was educated about alcohol's consequences, I choose not to drink."*

Moderate Use of Alcohol:

Most participants described both positive and negative emotional and behavioural changes in fathers who consumed alcohol moderately. Exposure to alcohol shaped their personal attitudes, participants developed self-awareness, set boundaries, and committed to moderation or responsible drinking. Overall, the experience contributed to emotional adaptation, coping mechanisms, and informed personal choices regarding alcohol use.

Excerpts:

- *"Initially, after he consumes alcohol, he starts stuttering, and the next day he is more aggressive towards everyone in the family."*
- *"During hangovers, he is a bit aggressive, but that' s the maximum extent it reaches."*
- *"I don't know if he was hungover or not, but his eyes were red, and he looked tired."*
- *"During a family gathering, my dad got too drunk and wanted to give a speech, which was embarrassing for me."*
- *"There are occasional conflicts between my father and mother because she worries about his health."*
- *"His drinking never really affected me, but I later realized it impacted my mother and sister."*

Severe Use of Alcohol:

Severe paternal alcohol use led to significant emotional instability and behavioural issues, including slurred speech, confusion, agitation, and aggression. Participants reported verbal and occasional physical abuse, emotional projection of unresolved trauma, and escape through alcohol. Relationships with fathers were shallow, marked by fear and avoidance. Coping strategies included physical escape, denial, and reliance on friends or solitary activities.

Excerpts:

- *"The next day, he wakes up with a severe headache and starts yelling at us for small things. He feels very agitated, restless, and angry."*
- *"Sometimes, he would get really angry and slap me if my mom complained about my studies."*
- *"It has gotten worse to the point where my mom actually considered divorce. It wasn't just verbal abuse, it was physical too."*
- *"We only talk about cricket and my studies, but nothing on an emotional level. He expects things from me, and I do them out of duty, but there' s no connection."*
- *"I have difficulty expressing myself because I feel people will judge me."*
- *"I don't want to get married because I don't want to repeat the same experience."*
- *"I have become more resilient and career-oriented."*

There is a significant relationship between paternal alcohol use and emotional maturity. Increased paternal alcohol use is associated with decreased emotional maturity. Alcohol use severity level is a key element in determining emotional consequences.

An attempt to find and interpret the results with respect to the RQ2 which stated: Does the severity of alcohol use by fathers (no use, low, moderate, severe) influence emotional maturity among young adults?

Severity of Paternal Alcohol Use	Impact on Emotional Maturity among young adults	Key observations
No Use	High Emotional Maturity	Stable family environment, strong emotional regulation, positive coping mechanisms.
Occasional/Social Use	Neutral or Slightly Positive Emotional Maturity	Minimal emotional impact, ability to regulate emotions.
Moderate Use	Mixed Emotional Maturity	Some struggle with emotional distress, while others develop resilience.
Severe Use	Low Emotional Maturity	Emotional avoidance, difficulty regulating emotions, heightened stress response, commitment issues.

No Use & Low Use: Young adults tended to show greater emotional maturity, with resilience, emotional regulation, and self-awareness.

Moderate Use: Some young adults responded well, whereas others experienced difficulty with emotional detachment or some distress.

Severe Use: Members who were exposed to severe drinking experienced great emotional challenges, such as fear of conflict, emotional distress, and trouble maintaining stable relationships.

Supporting Excerpts:

- *"My father is my biggest role model. I try to imitate his behaviour and thought process."* (No Use – High Emotional Maturity)
- *"I plan to drink after I turn 21, but only within limits."* (Low Use – Moderate Emotional Maturity)
- *"I avoid my father when he is drunk to prevent any fights. I just stay in my room."* (Moderate Use – Mixed Emotional Maturity)
- *"I have trouble expressing emotions and have commitment issues because of my father's drinking."* (Severe Use – Low Emotional Maturity)

Discussion

Aspect	Quantitative	Qualitative
RQ1: Is there a correlation between paternal alcohol use and emotional maturity among young adults?	A low but statistically significant correlation ($r = 0.254$, $p = 0.023$), i.e., paternal alcohol consumption weekly correlates with emotional immaturity of young adults.	Some young adults report intense emotional difficulties as a result of paternal alcoholism, while others report no effect, based on frequency of paternal alcoholism.
RQ2: Does the severity of alcohol use by fathers (no use, low, moderate, severe) influence emotional maturity among young adults?	No statistically significant difference ($p = 0.083$); paternal alcohol severity does not have a strong effect on emotional maturity of young adults.	Some young adults experience trauma, neglect, or instability, which is not necessarily captured in statistical means.
Overall Perspective	Results indicate that paternal alcohol consumption has some influence but is not a strong predictor of emotional maturity among young adults.	Individual experiences are highly variable, some people report strong negative effects, while others do not, so qualitative data is more complex.

Conclusion

This research study indicates some relationship exists between fathers' alcohol intake and emotional development of their adult children although the connection remains weak and unclear. The statistical data reveals young adults who experience frequent drinking from their fathers show a somewhat slight positive relationship with emotional immaturity. Research through ANOVA methods confirmed that paternal alcohol consumption level does not significantly affect emotional maturity development. Even though statistics indicated one pattern many young adults demonstrated that paternal alcohol consumption left significant emotional scars which affected their lives personally. The study basically proves paternal alcohol consumption interacts with emotional immaturity in young adults even though it does not function as an independent clause.

Limitations

1. The research is based on self-reporting, which can be affected by social desirability bias or recall bias.

2. Young adults can downplay or overestimate their emotional distress, and thus make incorrect judgments of paternal alcohol consumption's impact.
3. Emotional maturity is a subjective term, and variations in perceptions about and reporting on their levels of maturity among participants can result in disparities in information.
4. Talking about paternal alcohol consumption can cause emotional distress among some participants, particularly in households where alcohol dependence is high.
5. Participants might withhold information or give incomplete responses because of discomfort, which can restrict the level of analysis and impact data completeness.

Implications

The influence of paternal alcohol use on emotional maturity permeates through several domains, such as psychological well-being, family life, schooling, and societal institutions at large. Adolescents who grow up in alcoholic fathers' homes tend to experience challenges with managing their emotions, and this tends to result in chronic problems such as anxiety, depression, poor self-esteem, and an inability to establish secure relationships. The consequences of paternal alcohol consumption also affect educational and career achievement, as emotional distress can compromise concentration, decision-making, and goal setting. Father-child relationships are key in emotional development. Tense and distant relationships as a result of alcohol consumption tend to lead to unresolved emotional conflicts. Alcohol use by fathers can perpetuate a cycle of alcohol dependence from one generation to the next. Policy interventions are needed to respond to the impact of fathers' alcohol use on emotional maturity. Greater awareness of the psychological effects can inform social policies and promote family-oriented interventions.

Recommendations for Future Research

1. Incorporate counselling, therapy, and peer mentorship interventions to enable affected young adults to develop resilience, self-esteem, and emotional regulation.
2. Establish parenting education and responsible fatherhood initiatives. Promote family counselling and support groups to enhance communication and emotional stability in families.
3. Schools need to incorporate emotional well-being programs to help students from difficult family circumstances.
4. Strengthen alcohol legislation policies and increase awareness of the psychological impact of paternal alcohol drinking. Enlarging community-based rehabilitation programs to help alcoholic fathers and their families beat alcohol dependence.
5. Establish education and training programs aimed at healthy coping mechanisms for children of alcohol-dependent parents. Conduct long-term studies to investigate the psychological effect of paternal drinking and inform targeted intervention strategies.

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BEHAVIORAL SCIENCE FOR EQUITABLE JUSTICE: ADDRESSING THE MENTAL HEALTH IMPACTS OF ATROCITIES AGAINST MARGINALIZED COMMUNITIES

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ABSTRACT

Legal systems often focus on retributive measures, where in Behavioural science offers transformative insights into impacts on trauma, identity, bias, and resilience intersecting within the criminal justice process. Injustice often leads into deep invisible psychological scars experienced systematically by the marginalized sections of the society. This paper explores how Behavioural science can be harnessed to tackle the mental health consequences of atrocities including racial violence, gender-based crimes, caste oppression, police brutalities and other forms of systemic abuse and victimization experienced by historically marginalized De-notified Tribal Communities. These communities are Vagrants, those who migrate from one place to another without settling in one place all the time, being the most vulnerable and marginalized group in the society. Through incorporating interdisciplinary research from criminology, psychology and public health this paper critically examines how exposure to discrimination, historical trauma, labelling and enduring structural violence leads to trauma chronic stress, anxiety and wide psychological harm. It critiques how current justice system neglect these effects and advocate for trauma informed equity focused reformatory approach. As an exploratory study, it gathers data from primary sources, interviews, focused group discussions and by reviewing secondary data on the subject matter. By reimagining justice through the lens of Behavioural science, this study advocates for systems that not only respond to harm but actively work to heal it ensuring that justice is not only fair, but inclusive and restorative.

Keywords: De-Notified Tribes (DNT's), Vagrants, Victimization, Atrocities, Criminology.

INTRODUCTION

The DE notified tribes and the nomadic communities are the most extremely marginalized sections in Indian society. DNTs were once labelled as "criminals" by the colonial British rulers under the Criminal Tribes Act (CTA) of 1871. This act was later decriminalized by enacting the Habitual Offenders Act (HOA) in 1952. They are culturally diverse and often remain outside the traditional caste hierarchy adding to their social exclusion. (NCDNT, 2017) although these communities are tribes, they are a caste in the society. A total of 1262 communities were identified as DE notifies, Nomadic and Semi- Nomadic tribes across the country according to the report. Based on the recommendation of the Idate commission, the government of India constituted the Development and Welfare Board for DNTs, SNTs and NTs, (DWBDNCs) in 2019. Many of the DNT communities do not fit into the Scheduled Tribes (ST), Scheduled Class (SC), and Other Backward Communities

(OBC) as implied in the NCDNTs, leaving them without access to affirmative action policies. Despite the constitution guarantees equality and justice these communities remain one of the most disadvantaged groups trapped in a cycle of poverty and prejudice. Many DNTs face compounded psychological harm due to wrongful arrests, police brutality, and economic dispossession, all of which eventually manifest in anxiety, PTSD, and other mental health burdens that remain largely unacknowledged by mainstream systems. This research aims to explore the various forms of violence's, and victimization committed against the DE notified Tribal communities. Along with that it analyses contemporary challenges and mental health consequences such as stress, anxiety, trauma etc. faced by the DNT communities in India. It often highlights the need for upliftment of these communities into the mainstream by drawing upon interdisciplinary insights from psychology, criminology, and social policy. It explores how cognitive bias, implicit prejudice, and historical labeling perpetuate cycles of exclusion, while also proposing trauma informed, rights-based frameworks to empower these communities. By advocating for equitable justice through behavioral science, this research highlights the urgent need to dismantle systemic barriers, challenge deep-rooted stereotypes, and promote psychosocial healing for India's DE notified and Nomadic tribes. It also underscores the need of empowering DNTs through providing them with fundamental human rights and policies to govern their rights.

REVIEW OF LITERATURE

This chapter reviews literature on patterns of atrocities, mental health impacts and legal aid mechanisms in exploring their contribution on marginalization and perpetuation of violence against DNTs. The review combines research from various sources to understand the underlying factors that perpetuate violence, stigmatization, exclusion, and socio-economic marginalization of these communities. The Behavioral science can guide the redesign of policies and systems to ensure that DNTs receive recognition, restitution, and trauma-informed care from the justice system. The studies reviewed address various police brutality and struggles of DNTs with the criminal justice system. (Jadhav V., 2020) discussed and analyzed the colonial legacy and its impact on DNTs. This study gives insights into the struggles of DNT communities within the criminal justice system. The study involved interviews on ex- convicts, which led to the result that the involvement of DNT communities in crime is to resist the violence's against them. (Borkar & Jambhulkar, 2022) study emphasized on the police behavior towards NT-DNTs women in the state of Maharashtra. (Simhadri & Yedla, 2023) explores how the historical base of criminalization of DNT communities paved way to the social stigma, discrimination and often violences by the legal enforcement. The literature comprehensively explores the impact of social exclusion contributing an enduring effect on the social identity and social treatment of the NT-DNTs. (Bhadalkar, 2021), studies how the identities of the marginalized groups have been spoiled due to the historical categorization as the criminal tribes under the Criminal Tribes Act of 1871. The DNTs have been socially burdened with their social exclusion

and prejudistic approaches by the authorities who were responsible for them. According to (Madane, 2018) the social exclusion of DNTs has severe consequences as it denies the access to services and programmes focusing on their wellbeing. It restricts their chances of social as well as economic progress. (Sharma, 2016) highlights the socio-economic hardships faced by the DNT communities, which emphasize their restricted access to healthcare and education. This form of systematic social exclusion exacerbates their poverty and social life (Radhakrishnan, 2009) the study emphasized that the schemes related to the welfare of the DNTs often fail to reach them due to the social exclusion and bureaucratic hurdles and the lack of social identity. DNT women were often viewed as moral and social "deviants," subjected to increased surveillance, harsh treatment, and significant legal and social disadvantages. (Patel, 2018) underscores the dynamics of state policies and welfare programmes targeting the DNTs, NTs and SNTs in providing insights into the persistent gaps in their accommodation and social inclusion. Hankerson, Moise et al. (2022) highlight significant disparities in depression among racially minoritized individuals in U.S. Matheson et al. (2019) explore how traumatic experiences and perceived discrimination lead to psychological distress among marginalized groups.

METHODOLOGY

This chapter presents the methodological framework used to identify the atrocities committed against DE notified Tribes (DNTs) and the behavioural and psychosocial risk factors impacting these marginalized communities. Its objective is to reveal the behavioural and psychological challenges encountered by these societal minorities. The purpose of this study is to explore how behavioural science can be utilized to comprehend and mitigate the mental health effects of systemic violence, discrimination, and historical injustices experienced by marginalized groups, with a particular emphasis on the repercussions of atrocities against DE notified Tribes (DNTs). Furthermore, it aims to critically assess and suggest trauma-informed, rights-based frameworks to foster equitable justice.

Research Objectives

- The primary objective is to examine the nature, extent, and patterns of atrocities like police brutalities, social exclusion, exploitation, and denial of fundamental rights, faced by DNTs.
- To analyse the systemic factors such as caste, class and gender that contribute to perpetuation of violence's against DNTs.
- To study the mental health impacts of atrocities faced by DNT's, and to advocate trauma informed, right based framework for interdisciplinary policy recommendations.

Research Approach

A qualitative research approach was used for this study. It was appropriate for this study as it allows an in-depth exploration of the individual experiences of DE notified tribe communities. An exploratory study design was employed to gain insights into the atrocities against the DNTs and their mental health impacts on the violences against them. The technique used for sampling is achieved through the selection of samples by using purposive sampling method which is a non-probability sampling technique most often used in social science researches. It involved the individuals who are most likely

to provide critical and relevant information about the research study. Twenty participants from the Charra community, which is a part of DNT communities belonging to the western part of India, were selected and an in-depth interview was conducted in order to gain insights into the nature, impacts and aftermath of the violences committed against them. This sample size was chosen to ensure diverse perspectives while maintaining manageability for in depth discussions. In this study each interview was conducted in the respective residence of the participants in the western part of India, within their comfort zones making the interview process more tranquil. Observational field visits were also conducted in respective areas especially to record their behavioral patterns, living conditions and accessibility of mental health and social services.

Analysis:

The data gathered from interviews underwent analysis through Thematic Analysis, which was performed in several stages to guarantee thoroughness and depth. This analysis aimed to pinpoint psychosocial risk factors and their effects on the atrocities experienced by De notified Tribes (DNTs), leading to the emergence of several significant themes and sub-themes. The theme of Trauma encompassed intergenerational trauma, illustrating the ongoing cycle of psychological damage inflicted by criminal labelling. Systemic Bias included issues such as bureaucratic corruption, police brutality, harassment, and raids. Social Isolation addressed aspects of ignorance, discrimination, and feelings of being overlooked. Mental Health Impacts concentrated on anxiety and depression as consequences of systemic injustices. Social Stigma dealt with labelling and stereotyping. The analysis concludes with pertinent policy recommendations. Initial codes were created manually from the data, including terms like “isolation,” “discrimination,” “perception,” and “stereotypes” for Social Stigma; “bureaucratic corruption,” “police brutality,” “anxiety,” and “depression” for Mental Health Impacts; “intergenerational trauma” for Trauma; and “identity crisis,” “helplessness,” and “lack of self-esteem” across various themes. These codes were organized into broader themes and refined through two levels of review first at the coded data level, and then across the entire dataset to ensure they accurately reflected the narratives of the participants. Each theme was distinctly defined and named to capture its essential meaning for example, “perception” underscored a lack of understanding, while quotes such as “people perceive us as criminals” and “we are treated differently by the government” illustrated perceived injustice and institutional discrimination. This systematic methodology facilitated a thorough understanding of the atrocities and their mental health repercussions within the DNT communities.

Ethical consideration:

The research focused on marginalized and historically stigmatized communities; therefore, ethical protocols were rigorously adhered to the matter. Participants were made aware of the study's objectives, their right to withdraw at any moment, and were guaranteed confidentiality and anonymity. Informed consent was also obtained in their native language to promote understanding. Interviews were carried out with respect, with written consent, in secure and comfortable environments. Cultural

sensitivity was upheld throughout the process, with assistance from local facilitators.

RESULTS

This study draws on behavioral sciences to explore and examine how systemic injustices results in an enduring psychological harm among DE notified Tribal Communities. Through the thematic analysis, participants narratives reveal the deep rooted and ingrained aspect of trauma, exclusion, discrimination and enduring mental health problems and inaccessibility to justice.

Theme: Social Stigma

Sub Theme- Perception

Participants have described the persistent criminalized perception of their community. This theme represents the public perception of DE notified Tribes as criminals. There are still misconceptions about this community even though they were denotified by the government long back.

Monica (53) painfully expresses this issue:

"The society perceives our community as criminals; they don't say any good words about us, often say that we lie and we are bad and always call us thieves." We are actually tired of hearing these stigmatized comments on the community. Another participant adds:*"Mainstream society always used to call us thieves." People say that you are from Charra Nagar, you people brew liquor and you are thieves. (Participant, 3). "If we go for a job interview, if the officials recognize that we are Charra then they stop the interview and tell us there is no vacancy left for you," (Anish, 40).*

Despite their attempts to change societal perception by doing good jobs, they also face challenges. Society perceives these communities to be criminal ones despite their efforts by creating a good moral in the society.

Sub Theme- Stereotypes

Stereotyping is an important aspect which manifests the participants' daily lives. Frequent confrontations on stereotypical remarks made by the society impact the social lives of the DNT communities.

Harry (33) vividly describes his experience on stereotyping: *"During the last election, MLA remarked that, Charra's are amounted to be garbage and nuisance, they should not be given any priorities and should be isolated from the mainstream society,"* These kinds of harsh stereotypical remarks have been made by the society quite often:

"When I went for a marriage shopping the employee in the shop did not show us any good materials and made a remark that you people are here to loot, they literally said that you are Charra and that is visible from your face." (Participant 2).

Santosh (26), describes his experience as devastating; "*I was taking my nephew to the hospital for the treatment as he was having respiratory issues since his birth, the hospital authorities made discriminatory and stereotypical remarks on our community and they asked to get his treatment done from other hospital as they don't take Charra's here."*

Sub Theme- Social Exclusion

Social exclusion is one of the major problems confronted by DE notified Tribes in their daily lives. In fact, most of the members of these communities have been socially excluded from varied settings within the society. Ruchika poignantly narrates her experience on social exclusion:

"I was taking my grandson to hospital, he is a heart patient, the hospital denied treatment and they made negative comment like you are Charra, you people don't get treatment here, go to some government hospitals. They further told that you people are not capable of affording much money because you are Charra's."

She expresses that we also require good treatment. Everyone has the right to fair medical services. How does it make a difference that we are charras so the hospital can't provide any treatment. Because of this she took her grandson to another state for his immediate surgery. Social exclusion has been another persisting issue among the denotified tribes as they are always being isolated from the social settings, they have been always the targeted ones on the mainstream society.

Theme: Systemic Bias

Sub Theme- Bureaucratic Corruption

Systemic biases are an ongoing reality among DNT's. The organizations and institutions bound to protect them are perpetuating wrongful acts. Bureaucratic corruption is one of the harsh realities which are faced by the DNT's.

Kedki (37) expresses her experience with the bureaucrats; *"I went to the government office to obtain my ID card. The authorities asked for a bribe, they told you have to pay money here then only you can avail the ID Card." which is supposed to be provided at free of cost, she added.* Participants even feel helplessness in approaching a government institute and have frequently encountered with corrupted authorities: The one who are responsible in granting the benefits of the government are the main ones who take those away from these communities to a point they cannot reach to it nor access it.

Sub Theme- Police Atrocities, Harassments and Raids

The historical criminal labelling of DNTs still influences law enforcement. Despite being denotified long ago. The police continue to treat them as inherently suspicious and criminals. They are often tortured and harassed in many ways. Police encounters and atrocities with the DNT's have been very much normalized in the mainstream community.

Sudarshan (26) poignantly explains an encounter with the police:

"On 26th July, 2018. A battalion of police came to Charra Nagar, they dragged the charras from their houses and beat them up with lathis very badly, this has continued straight up to 2 to 3 hours. Even children, elderly, pregnant ladies were impacted by the incident. Without any reason they whole force came to our place and brutally beaten everyone who was present at the place. That was a black day for us."

"My grandfather is a retired thief. The police used to come to our house and beat him up for the theft which he had not committed, only because of the reason that he was a thief earlier.

Nana drinks his own urine in order to relieve from the pain caused by police beating." Police raids are normal in their community, they are not accountable for what others have done, but still police continue to cause trouble to the Charra people.

"Police station is like a park to us." (Participant, 3). Police refrain from registering complaint even on the most heinous cases like sexual abuse and domestic violence. There were many

incidents that took place in our community. The brutality of the police never ends with Charra's; the fact that DNT's are not criminals does not exist in the mind of police. The perceived injustice towards Charra's remains constant, even from the hands of people who are supposed to protect the people and their rights.

Theme: Mental Health Impact: Sub Theme- Anxiety

Many participants report on the persistent feeling of anxiety which is being rooted in daily experiences of discrimination and social stigma. Which was stemming from repeated exposure to marginalization and atrocities.

Women participants described heightened anxiety related to safety and social rejection. One shared: *"I'm scared to even go to the hospital alone because people stare and ask where I'm from."*

Sudarshan (26) expressed: *"Even when we've done nothing wrong, we feel scared of the police. Every time they pass by, our heart races."*

It highlights how internalized fear reinforces a state of psychological impact and emotional insecurities.

Sub Theme- Depression

Participants often expressed the feeling of hopelessness, sadness and emotional exhaustion which clearly alliance with the symptoms of depression. For instance, one participant shared their experience as follows, *"Even when I smile, I feel hollow inside. People see me as nothing."* another noted: *"I wake up every day with fear and sadness. I don't know when police are going to come to our door. I feel like getting away from my place."*

It highlights how trauma and structural exclusion, contributes in the depressive states mainly in the absence of mental health resources. This was often mistreated due to their state of poverty, stigma and lack of access. Lack of effectiveness in legal aid is entangled with the systemic discrimination on the DNT communities leading to perceived injustices and negligence.

Policy Recommendation- Community Recommendation

This theme highlights the direct messages and expectations of the DNTs for their welfare and empowerment. It is very crucial to address the demands of the communities for their betterment.

"We should get justice from discrimination, and poor treatment by society and the government. This should be stopped. They should focus on implementing certain services and mental health services for our community so that we can live a life like others." (Participant, 1). "Education is of utmost importance, good schools should be made for our children, better job opportunities should be provided. It will help in the development of our community. My children have studied till 12th and are sitting at home. We don't have money to teach them further. This should be acknowledged; we need financial support." (Participant, 2).

The community seeks for better services and support from the state which will improve their lives. They demand for their justice from exploitation by the state through making certain services accessible and necessary by the government for the development and upliftment of their community, and for the psychological support for their loved ones to reform

themselves. They seek for rehabilitative measures for the community members who are particularly in need of help.

DISCUSSION

This research examined the various atrocities endured by De notified Tribal Communities (DNTs) and the psychosocial risks stemming from systemic marginalization and perceived injustices. Participant's narratives reveal ongoing patterns of bureaucratic indifference, social exclusion, stereotypical labelling, and insufficient legal assistance. The study gives insights into how DNTs continue to be perceived through a criminalized perspective, despite having attained De notified status long ago. The results highlight how societal perceptions and entrenched stereotypes perpetuate their social marginalization. Intergenerational trauma, passed down through social isolation and stigma, emerged as a significant theme. Repeated exclusion from social environments, denial of services, and discriminatory treatment, particularly in hospitals and public spaces, illustrate the intersection of stigma and structural violence. Systemic bias and institutional discrimination are not isolated incidents but rather ongoing realities. Bureaucratic corruption, police abuses, and denial of justice have become normalized experiences within the community. The very institutions designed to protect DNTs have instead contributed to their suffering. The ineffectiveness of legal aid and a significant lack of rights awareness have resulted in continued alienation. Without access and empowerment, legal frameworks remain out of reach for DNTs, exacerbating their invisibility in mainstream society. Mental health effects, particularly anxiety and depression, were notably reported. Behavioural science aids in linking these emotional challenges to the lack of supportive care and exposure to structural violence. To tackle this issue, trauma-informed and community-based mental health strategies must be integrated into state responses. Legal inclusion and representation are crucial for psychosocial recovery and structural justice. The lack of acknowledgement is the primary driving factor on their alienation. And trauma informed measures should be inculcated by the system in order to address the psychological harm faced by the DNT communities.

Community based mental health measures should be developed by the system in tackling the issues of denotified tribes. These kinds of measures can reframe the systemic responses to DNT's to foster equitable justice and in psychological recovery. Structural inclusion in terms of their identity and representation in the society also plays a critical role in the upliftment of this community, which should be achieved through providing access to legal services. From the study it has been found that anxiety and depression are also a major resulting factor of the systemic discrimination towards the DNT's. Through the lens of behavioral science mental health distress are linked to lack of access to supportive care and environments and structural violence also contributes it in a greater level. The strategies should be implemented in a way that the psychosocial distress caused by the injustices and atrocities should be acknowledged by the societal parties and criminal justice system by imparting proper order and frameworks

for the upliftment of the marginalized communities.

Policy Implications:

This study's findings highlight several implications for enhancing policy and practice effectiveness. Firstly, there is a need for systemic refinement in policies and practices to ensure inclusion, protection, and access to justice. Secondly, efforts must focus on reducing perceived injustice through public awareness campaigns that challenge stereotypes. Additionally, it is crucial to incorporate trauma informed measures in both policy and practice to support DNT communities. The study emphasizes the necessity of training law enforcement officials, mental health professionals, and social workers to implement measures that reduce discrimination and promote empowerment within mainstream society. Community-based interventions should be established to facilitate access to psychological care and mental health support systems. Furthermore, legal aid frameworks need strengthening to improve access to these services for societal betterment. Finally, adequate opportunities and financial support for education and employment are essential to break the cycle of criminalization and stigma associated with it.

CONCLUSION

This study embarks on the intricate experiences of legal disempowerment, atrocities and its consequences faced by DE notified Tribes. The study gives a detailed information and introduction on the DE notified tribes of India which is helpful in understanding the concept of NT-DNT's, and the psychosocial risk factors. The detailed methodological framework used to explore the issues faced by the DNT's in the mainstream society is being included in the study. Result and Discussions involves the outcomes of the study by analyzing the data's obtained from the participants to create themes based on the responses given with respect to the research topic. Empowering and uplifting the DNT communities should be applicable by making systemic reforms, public awareness, eradicating public perceptions, and providing equal treatment and adequate opportunities for their development. By addressing and understanding the challenges we can work towards achieving justice to DNT's and for an inclusive and equitable society. Moreover, the study emphasizes the critical need in addressing the deeply entrenched psychological impacts on atrocities faced by the DNT's in India. By integrating insights from interdisciplinary areas of behavioral science this study advocates for trauma informed and right based measures that acknowledge and prioritize the need to equity and justice. A fundamental shift in the societal perceptions and attitudes are essential in bringing equitable justice for the marginalized communities like DNT's.

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DIGITAL COMPANIONS AND MENTAL HEALTH: A NARRATIVE REVIEW ON ARTIFICIAL INTELLIGENCE TOOLS & HUMAN BEHAVIOUR

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ABSTRACT

Artificial Intelligence is a rapidly advancing field that supports human needs across various sectors. One significant area where AI is making an impact is mental health. There are tools that are powered by AI such as Chatbots, AI therapy assistants and Emotionally Intelligent AI whose impact on mental well-being is significant and evolving. These AI tools provide psychological support to address anxiety, stress, depression, and general emotional well-being.

Such tools offer 24/7 accessibility, anonymity, and self-help resources making them easier for the people to approach where the stigma around Mental health and inadequate mental health professionals in the country make it difficult to access traditional mental health care. This study explores how AI tools influence human behaviour and psychological well-being. A narrative review approach was used here to analyze existing literature on AI tools that support mental health, focusing on behavioural impacts.

The review finds both benefits - like increased accessibility, less stigma, and improved emotional engagement and challenges - like lack of human empathy, ethical issues and risks of overdependence. AI tools are not replacements for human care, but they can be better supplements especially in under-resourced setting and for individuals who are hesitant to seek traditional mental health support.

As AI evolves it is important for the mental health professionals, technologists and policy makers to work collaboratively to ensure that these tools are developed and deployed responsibly. With a human-centered approach AI can become powerful in promoting psychological well-being in ways that are ethical, inclusive and impactful.

Keywords: Artificial intelligence, digital companions, mental health, psychological well-being, AI tools, behavioural impact

INTRODUCTION

Mental Health, once a neglected component of public health, has now gained importance both globally and nationally due to the rise of psychological distress, anxiety, depression across diverse populations. As traditional mental health care does not meet the demands of growing needs, technology particularly Artificial Intelligence (AI) has emerged as a vital tool to bridge the gap (Benton & Ungar, 2021). One such advancement is the rise of digital companions which are AI-powered interfaces designed to simulate human conversation, offer emotional support and therapeutic interventions if needed. These companions include chatbots, virtual assistants and emotionally intelligent systems that respond with empathy to users, mimicking companionship and making them

feel heard and understood (Fiske et al., 2019). These applications are interactive, adaptive, and 24/7 available, making them attractive to the technology-driven generation (Kumari & Dey, 2020).

Globally, one in every eight people, or about 970 million people were living with a mental disorder as of 2019, with depression as the leading cause of disability and anxiety disorders being the most common mental health condition (WHO, 2023). Despite the growing awareness of mental well-being, there is a massive treatment gap especially in the low- and middle-income countries where there is a shortage in trained professionals, stigma, financial barriers, and geographic inaccessibility (WHO, 2023; Patel et al., 2018). In this context, AI tools and digital health interventions are welcomed as they are scalable, cost-effective and user-friendly alternatives.

India, with its vast population and complex socio-economic disparities, faces a daunting mental health crisis. According to National Mental Health Survey conducted by NIMHANS, nearly 14% of the Indian population suffers from some form of mental illness (National Institute of Mental Health and Neurosciences [NIMHANS], 2016). The treatment gap is estimated to be over 70%, driven by limited infrastructure, insufficient mental health professionals (with only about 0.75 psychiatrists per 100,000 people), widespread stigma, and poor mental health literacy (Kumari & Dey, 2020; ThePrint, 2024). Given these systemic barriers, digital mental health solutions gaining ground in India, especially among urban youth, college students and working professionals who are both tech-savvy and open to self-guided care.

Despite the promise these tools offer, critical questions arise about their psychological, ethical and cultural implications. While these AI tools AKA Digital Companions can mimic empathy and provide consistent support, their ability to truly understand human emotions or offer personalized therapy remains debatable. Researchers have raised concerns around user data privacy, emotional dependency, lack of cultural sensitivity, and the potential erosion of human relationships (Eling, 2025; Rahsepar Meadi et al., 2025; Wu, 2024). Furthermore, many AI tools that are developed in western contexts, raise questions about their relevance in diverse cultural settings like India, where expressions of mental distress and help-seeking behaviours differ significantly (Sehgal et al., 2025; Halder, 2025).

This study emerges from the need to explore how human behaviours and emotional well-being are influenced by digital companions, particularly within the mental health context. The growing integration of AI into therapeutic settings requires deeper understanding of both its capabilities and limitations. This study explores the psychological and behavioural responses of users, the therapeutic potential of these tools, and the ethical dilemmas they raise. It also reflects on the Indian scenario, where digital tools are gaining popularity but remain under-researched in terms of cultural compatibility, user perceptions, and long-term impact. As AI continues to influence human life at higher level, it becomes critical to ensure that its integration into mental health care is responsible, empathetic and attuned to human needs.

OBJECTIVES

- To explore how the use of AI-based digital companions influences psychological well-being, emotional states, and behavioural responses among users seeking mental health support.
- To review existing research on the role, effectiveness, and limitations of digital companions in mental health interventions.
- To examine the ethical concerns and cultural appropriateness associated with the integration of artificial intelligence tools in mental health care, particularly within the Indian socio-cultural context

METHOD

This study adopts a narrative review design to explore the evolving role of artificial intelligence (AI)-based digital companions in mental health and human behaviour. The narrative review is complemented by a qualitative exploratory approach involving semi-structured interviews with 5 selected participants. Informed consent was obtained from all participants prior to the interviews. The objective is to gain both a comprehensive understanding from existing literature and real-world perspectives from individuals engaging with AI-based digital companions in the mental health space. This study includes research that explore AI and mental healthcare, articles that discussed the psychological, emotional or behavioural outcomes of using digital companions and studies that analysed ethical, cultural concerns surrounding AI tools in mental healthcare. This study excludes articles focusing purely on technical development without mental health relevance and studies that only evaluated physical health interventions using AI. The sampling method used was purposive sampling. The inclusion criteria for participating in this semi-structured interview is individuals who use AI tools for mental health support and excludes individuals that use AI tools for reasons other than mental health support.

ARTIFICIAL INTELLIGENCE TOOLS & HUMAN BEHAVIOUR

Gaffney et al. (2023) - AI Chatbots for Mental Well-being: A Meta-Analysis

This meta-analysis reviewed over 35 randomized controlled trials to assess the efficacy of AI-based conversational agents like Woebot and Wysa. It found that these tools significantly reduced symptoms of depression, anxiety, and distress. It has also found they were effective when structured around cognitive behavioural therapy (CBT) principles. The relevance of this literature to our study is that it demonstrates that AI companions can positively influence emotional states and psychological functioning.

Bunge et al. (2020) - Descriptive Study on the Use of AI Chatbot Tess

This study analysed real-world user engagement with “Tess” an AI chatbot for depression. Findings showed high variability in usage time and message frequency. Some users interacted frequently, while others dropped off quickly, suggesting differences in digital emotional engagement. This study reveals the behavioural patterns of users and also tells the emotional dependency and digital fatigue in Ai supported mental health care.

Kim et al. (2022) - Emotional Disclosure in Chatbot Counseling

This study explored how chatbots that mimic emotional disclosure such as expressing empathy or vulnerability impact

user satisfaction. Results showed that users felt a stronger connection and had higher intention to reuse the service. This highlights that emotional cues from non-human agents that mirror human interactions shape user behaviour, trust and therapeutic engagement.

Chen et al. (2024) - Affection Expectations in Mental Health Chatbots

This study investigated how people react when AI chatbots fail to meet their emotional expectations. This found that emotional inconsistencies reduced trust and user engagement. When AI expressed emotion effectively, it increased behavioural intention to use it. This also explores the psychological impact of "affective dissonance" in digital therapy and the importance of emotional intelligence in chatbots.

Song et al. (2025) - AI Collaboration to Reduce Mental Health Stigma

This is a two-week experimental study that explores how working with emotionally aware AI can reduce stigma against people with mental illness. The findings suggested that AI collaboration increases empathy and prosocial behaviour. This study demonstrated that AI has the potential to shape behaviour and mental health attitudes, but also warns about lack of cultural nuance in the AI's responses.

Chavan et al. (2025) - Emotional AI: Ethical and Cultural Dilemmas

This interdisciplinary paper explored the risks of emotional manipulation by AI, ethical issues in consent and emotional labour, and cultural insensitivity in AI designs. This highlights the potential of affective AI to support mental well-being, enhance learning, and reduce loneliness, as well as the risks of emotional manipulation, over-reliance, misrepresentation, and cultural bias. Also shows that digital companions not just as helpers, but as technologies with cultural and ethical consequences.

Naik et al. (2025) - Artificial Empathy in Mental Health Bots

This study tested large language model (LLM)-based chatbots in psychological support settings. This research found that these tools fail to provide emotionally responsive responses that are mostly hard for users to feel understood. While users appreciated anonymity and instant response, they also reported inconsistent tone, privacy concerns, and fears of emotional dependency. This study emphasizes the emotional and psychological risks of over-reliance on AI in vulnerable users - especially when safeguards are absent.

Joaquim et al. (2024) - Scoping Review of AI Chatbots for Mental Health

The study reviewed 53 studies to evaluate the feasibility and effectiveness of AI chatbots for mental health. This found moderate evidence for reduction of depressive symptoms, substance use, and anxiety. It also highlighted the importance of continuous evaluation and personalization. This study provided a wide lens on how AI tools are used and accepted globally-setting the stage for culturally contextualized evaluations, like in India.

CASE VIGNETTES

Case study 1

Ms. A is a 23-year-old postgraduate student in Bangalore. She spends nearly 5 hours daily chatting with an AI chatbot. She started using the chatbot after facing friendship issues. Over time, she began

confiding more in the chatbot than in real people. “It always replies, no matter what time. My friends sometimes don’t understand… but the bot is always there and understands me.” While she found comfort and non-judgemental space in the AI, she admits: “I feel weird now trying to share with people... It’s easier to just type into the bot.” She reported a decline in face-to-face conversations, emotional suppression, and confusion about trusting real people. Though emotionally supported, she lacks human empathy validation.

Case study 2

Mr. B is a 24-year-old working professional in Chennai, used a therapy chatbot (based on CBT) during a breakup. He initially found it helpful but felt it lacked depth. “It says the right things but after a while, it feels like I’m just typing something.” He grew emotionally tired and discontinued usage. He reported feeling “numb” and dissatisfied. He shared, “I miss real voices. I didn’t feel understood in the end.” He also reported emotional fatigue and a sense of emptiness when responses became repetitive and felt robotic. AI can provide immediate support in crisis but lacked depth in prolonged distress.

Case study 3

Ms C is a 34-year-old homemaker residing in Chennai. She was introduced to an AI chatbot through her friend. She has limited digital literacy but expressed curiosity about using mental health apps as a form of self-care. During her interactions with the app, Ms. C appreciated the emotional prompts and structured exercises. Her dissatisfaction started when its responses lacked cultural resonance. She stated, “I liked that it listened. But when I talked about family issues, it replied with ‘Consider setting boundaries.’ That’s not how our families work.” She felt emotionally validated and able to articulate her feelings she had never discussed before. It is found that AI’s responses were not culturally appropriate, especially in the context of joint family dynamics and traditional gender roles.

Case study 4

Mr. D is a 30-year-old male IT professional working in Chennai. He began using the AI mental health chatbot “Woebot” to cope with increasing workplace stress and anxiety due to project deadlines. He found the chatbot’s questioning style is helpful in reframing his negative thinking patterns. He shared, “It helped me put things in perspective. One time it said, ‘Is it really the workload or how you’re thinking about it?’ That stuck with me.” He reported improved self- awareness and cognitive restructuring based on CBT techniques integrated in chatbot. He appreciated the AI's availability and immediacy during stressful work hours.

Case study 5

Ms. E aged 20 is a hostel student in Chennai. She is introverted by nature. She started talking to a virtual friend app that used emotionally intelligent AI. She shared, “It asked about my day. I liked that. I felt someone cared.” Although it reduced her loneliness initially, she started avoiding peer interaction. “I often felt that real people judge. I prefer the bot. It doesn’t judge.” She also admitted that the bot sometimes involved in romantic conversations and sometimes the chatbot was not in sync with the conversation. Though she felt heard and comforted, it led to social withdrawal and reduced resilience in real-life conflicts.

DISCUSSION

One of the most significant findings from both literature and case narratives is the high accessibility and non-judgmental nature of AI-based digital companions. Tools like Woebot, Wysa, and Tess provide 24/7 availability making them attractive especially for youth, professionals, and homemakers who seek confidential and stigma-free engagement (Gaffney et al., 2023; Joaquim et al., 2024). Participants like Ms. A and Mr. D illustrate how these tools offer immediate relief, especially when traditional mental health services are either inaccessible or unapproachable due to stigma, time constraints, or personal discomfort. AI tools are particularly appreciated for their structured approaches (as seen in Mr. D's experience with CBT-based prompts) which help users in self-reflection and cognitive restructuring. The integration of psychological frameworks such as CBT increases user trust and therapeutic potential. In a country like India where there is a shortage in mental health professionals such tools act as an effective intervention for distress management.

AI's ability to simulate empathy and provide affective responses greatly influences users' emotional states. Studies show that emotional disclosure and simulated empathy increase user satisfaction and the intention to reuse the tool (Kim et al., 2022; Song et al., 2025). Case participants such as Ms. E and Ms. C shared that they felt cared for and understood, this demonstrates AI's potential to reduce feelings of loneliness and social isolation. However, the artificial empathy has limitations. Users like Mr. B and Ms. A reported emotional fatigue, robotic repetition, and a sense of "not being truly understood." This aligns with the findings from Naik et al. (2025) and Chen et al. (2024), which argue that user can experience affective dissonance where the expected emotion and actual emotion experienced by using AI chatbot are mismatched. Overtime, this can lead to emotional detachment, especially in prolonged usage.

The influence of AI tools on behaviour and social interaction is a recurring theme. Several case studies show a shift in communication patterns, reduced real-life interactions and dependency on AIs. Ms. A and Ms. E's cases highlight how reliance on AI for emotional support led to avoidance of human conversations and interpersonal discomfort. These experiences reflect broader concerns about social withdrawal and diminished real-life resilience which are consistent with the literature on emotional overdependence (Chavan et al., 2025). While digital companions can offer a non-threatening and non-judgemental outlet for emotional expression, over reliance can affect individual's emotional resilience, interpersonal skills and the ability to navigate real-world emotional complexities.

One of the most significant gaps revealed in this study is the lack of cultural contextuality in AI generated responses. The case of Ms. C, a homemaker navigating traditional family dynamics, exposed how standard AI recommendations such as "setting boundaries" clash with Indian familial norms. This mismatch reflects concerns raised by Halder (2025) and Sehgal et al. (2025) about Western-designed AI tools being culturally insensitive when applied in non-Western contexts. Ethical concerns were also prominent here.

Emotional manipulation, privacy risks and the emotional labour placed on users to "train" the AI were identified in multiple studies (Chavan et al., 2025; Eling, 2025). The unease felt by the participants with inconsistencies or romanticized responses (as in Ms. E's case) further raise the need for careful regulation, data privacy and stronger emotional safeguards.

The evidence affirms that AI tools are supplements not substitutes for human mental health support. While they provide comfort and aid emotional expression (especially in crisis or early distress), they fall short in handling trauma, complex emotions, and long-term therapy (Poltoratski et al., 2025). Mr. B's emotional disengagement and unmet need for human presence reinforces this limitation. Users should be encouraged to transition from AI based engagement to human led therapy when needed. Professionals must see AI as a bridge especially useful in under-resourced or high stigma environments but not as a replacement. It is highly effective to use AI tools under the supervision of a mental health professional.

LIMITATIONS

- This study is limited by its small number of case vignettes which may not fully study the diversity of user experiences across different age, groups, regions, or socio-economic backgrounds. The findings cannot be generalized to all populations using AI mental health tools in India or globally.
- As a narrative review, this study synthesizes findings from existing literature without a systematic or meta-analytic approach. This may introduce selection bias, as only selected articles that aligned with the theme were included, omitting relevant research.
- This study attempts to focus on the Indian context, much of the existing research available is based on Western populations and technologies developed in non-Indian settings. This makes it challenging to draw culturally specific conclusions about user behaviour and emotional responses.
- While ethical concerns are discussed, this study does not conduct a technical assessment of the AI tools' algorithms, data security protocols, or user safety measures. These are critical factors in evaluating the reliability and accountability of such tools in mental health care.

CONCLUSION

In conclusion, AI based digital companions play a significant role in shaping human behaviour. By combining insights from existing literature and real-world case narratives, it is evident that AI tools such as chatbots and emotionally intelligent virtual assistants offer considerable benefits such as enhancing access to psychological support, reducing stigma, and encouraging emotional expression among users. These tools serve as practical, scalable, and user-friendly interventions in settings where traditional mental health services are limited, especially among digitally driven populations such as urban youth, students, and professionals in India. The findings also underline critical limitations. The users often feel heard and supported but the absence of genuine empathy, emotional nuance, and cultural sensitivity in AI responses can lead to dissatisfaction, social withdrawal and emotional fatigue. The study reinforces the

notion that AI companions are best suited as supplementary tools, not replacements for human-led therapy. In Indian socio-cultural context, where familial structures, communication styles and mental health perceptions are unique, the development and deployment of AI tools must be culturally sensitive and aware of the context. Future efforts must focus on creating ethical, inclusive and human-centered AI that complement professional care and empower individuals without undermining interpersonal relationships or mental health norms. As AI evolves it is essential for mental health professionals, technologists, policymakers to collaborate in shaping its responsible use. AI has the potential to become a powerful ally in promoting psychological well-being when integrated thoughtfully within mental health care frameworks.

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Diagnostic Labelling in Psychiatry: Awareness, Harm, and Emerging Brain Circuit Perspectives

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ABSTRACT

Background:

While psychiatric diagnostic labelling was originally intended to facilitate diagnosis and treatment, it often oversimplifies the complex neurobiological underpinnings of mental health conditions. By prioritizing categorical classifications over functional understanding, it inadvertently fosters stigma, internalized identity labels, and a lack of insight into brain-based mechanisms. This can lead to psychological distress and reinforce maladaptive self-identification with diagnoses. Recent advances in neuroscience increasingly point to the value of brain circuit models and functional processing frameworks in offering more accurate, compassionate, and individualized perspectives on mental health.

Objectives:

This conceptual review critically examined the clinical limitations of contemporary psychiatric nosology and its role in perpetuating stigma and emotional distress. The review explored how models grounded in brain circuitry can offer more nuanced, personalized, and less stigmatizing understandings of mental health conditions. Special attention was given to how such models may reduce harmful self-labelling while promoting functional awareness.

Method:

Conceptual review with targeted literature searches (2010 -2025) resources from Scopus, pubmed and other journals. The Psychosocial effects of psychiatric labelling, the internalisation of diagnostic identities, and the potential of brain circuit-based models as less stigmatising substitutes for categorical diagnosis are the three areas in which studies were synthesised.

Findings :

The Review, grounded in conceptual study, demonstrated that current psychiatric classification systems, by reducing complex neural processes into rigid diagnostic categories, often exacerbate stigma and psychological harm. In contrast, brain circuit-based models—supported by neuroimaging and functional connectivity studies may improve stratification and treatment selection, clinical adoption remains limited.

Conclusion:

The findings highlighted the need for a shift in psychiatric practice—from rigid, symptom-focused labels toward more dynamic, neuroscience-informed diagnostic models. Such a transformation could help reduce stigma, improve personalization in care, and align mental health interventions with contemporary knowledge of brain function and variability.

Keywords: Psychiatric labelling, Brain circuits, Functional processing, Self-diagnosis, Stigma.

Diagnostic Labelling in Psychiatry: Awareness, Harm, and Emerging Brain Circuit Perspectives

The classification and diagnosis of mental disorders have long stood at the core of psychiatric practice, yet their evolution has been both complex and contested. From its early roots in supernatural attributions and exorcism to the era of humanitarian reform and psychotropic medications, psychiatry has continually adapted its frameworks. The 20th century brought forth major theoretical shifts, including psychoanalysis, which emphasized unconscious processes, and behaviorism, which focused on observable symptoms. However, both contributed to diagnostic practices that emphasized categorical labelling over mechanistic understanding.

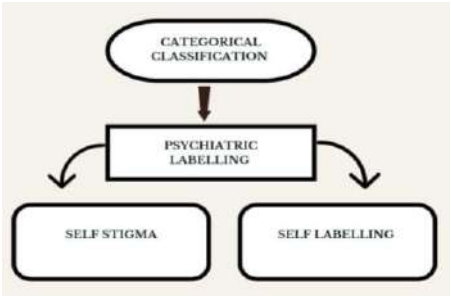
In contemporary clinical settings, diagnosis is defined as the process of identifying the nature and cause of a disorder by distinguishing it from other conditions. The two dominant systems for psychiatric diagnosis—the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR; American Psychiatric Association, 2022) and the International Classification of Diseases, 11th Revision (ICD-11; World Health Organization, 2019)—are widely used for diagnostic consistency, insurance claims, and clinical communication. Specifically, ICD-11 mental, behavioural, and neurodevelopmental disorders (MBND) Chapter 6 emphasizes clinical utility and global applicability and Clinical descriptions and diagnostic requirements for ICD-11 mental, behavioural and neurodevelopmental disorders (CDDR) uses a categorical structure. Like the DSM, it classifies disorders based on symptom clusters without necessarily exploring causal mechanisms or functional disruptions within the brain. While ICD-11 offers biologically grounded classification for physical diseases, its psychiatric classifications remain symptomatic and descriptive, not explanatory or functional. This reflects a core limitation in traditional psychiatric nosology.

This reliance on surface-level categorization poses several problems. Mental disorders do not always fall neatly into diagnostic boxes, and the biological heterogeneity within and across categories leads to questionable diagnostic validity (Kapur, Phillips, & Insel, 2012). Moreover, these systems often reflect cultural norms and statistical thresholds, making their applicability across global populations debatable. The consequences of this system go beyond clinical misclassification. Psychiatric labelling, the act of attaching diagnostic terms to individuals based on observable symptoms, can reinforce self-stigma, internalized identities, and even self-diagnosis in non-clinical settings. Individuals may begin to perceive themselves through the lens of a diagnosis rather than through an understanding of their lived experiences or functional disruptions. This identity-shaping impact of labels can limit recovery, promote chronicity, and distort self-perception.

Figure 1

Pathway From Diagnostic Labelling to Self-Stigma and Self-Labelling

DSM = Diagnostic and Statistical Manual of Mental Disorders; ICD = International Classification of Diseases.



DSM and ICD provide what disorders look like, but not why they occur. This absence of causality is a major reason researchers are shifting toward functional, brain-based classification models like RDoC and biotypes. In response, brain circuit-informed models and biotype frameworks have emerged as promising alternatives. Initiatives like the Research Domain Criteria (RDoC), developed by the U.S. National Institute of Mental Health (NIMH), aim to move beyond categories toward dimensional, circuit-based understandings of mental health. Rather than focusing solely on symptom presentation, these models prioritize cognitive domains, neural networks, and physiological patterns to map disorders based on how the brain actually functions. Such approaches aim to close the gap between psychiatric symptoms and their biological underpinnings, offering a more nuanced, less stigmatizing, and empirically grounded nosology. This conceptual study aims to critically explore the question: Is labelling creating awareness, or is it causing harm? It will do so by examining three core dimensions: (1) the psychosocial effects of psychiatric labelling, (2) the internalization of diagnostic identities, and (3) the potential of brain circuit-based models to serve as scientifically valid alternatives to categorical diagnoses

Review of Literature

The classification and labeling of mental disorders through traditional diagnostic systems such as the DSM and ICD have long been subjects of controversy, particularly regarding their psychosocial impact, internalization of diagnostic identities, and lack of neurobiological grounding. This review synthesizes relevant empirical literature (2010–2025) to argue that categorical psychiatric labeling may inadvertently cause harm, while emerging brain circuit–based models offer more accurate, individualized, and less stigmatizing alternatives.

1. Psychosocial Effects of Psychiatric Labelling

Corcoran et al. (2013), in a study of 172 adolescents at high risk of psychosis, found that perceived stigma and shame strongly predicted stigma-related stress, independent of symptom severity. Their results indicated that diagnostic labeling itself can reduce mental well-being and treatment engagement.

Rüsch, Angermeyer, and Corrigan (2020) examined whether implicit stigma impacts self-identification as mentally ill using the Brief Implicit Association Test (BIAT). Conducted with adult participants, the study found that greater implicit stigma—viewing mental illness as "different"—was paradoxically associated with increased self-labeling. This suggests that internalized stigma may reinforce psychiatric identity formation, complicating assumptions that stigma always prevents self-labelling, and supporting the idea that stigma can entrench diagnostic self-concepts.

Yu et al. (2021) conducted a meta-analytic structural equation modeling study across 108 datasets from 22 cultures, finding that self-stigma significantly mediated the impact of experienced and perceived stigma on well-being and recovery. Notably, collectivist cultures showed stronger links between external stigma and self-stigma, underscoring the role of cultural context in internalization and the need for culturally tailored stigma-reduction efforts.

2. Internalisation of diagnostic identities (Self labelling)

Giles and Newbold (2011) conducted a qualitative study of user-led online mental health forums and observed that individuals often engaged in narrative-based self-diagnosis. Rather than relying on professional symptom checklists, users drew upon personal experiences to define their mental health conditions. The study emphasized that emotional validation and social connection were prioritized over clinical precision.

Haslam (2016) introduced the concept of "concept creep" through theoretical analysis, highlighting how the meanings of psychological terms—such as trauma, abuse, and disorder—have expanded over time. This semantic inflation allows a broader population to identify with psychological harm, which can obscure diagnostic boundaries and reconfigure cultural perceptions of mental illness.

Moreno, Ton, Selkie, and Evans (2018) analyzed adolescent behavior on social media and found that clinical terms such as "depressed" and "anxious" were frequently used as expressions of group belonging rather than diagnostic accuracy. Their observational study revealed that these terms served more as social markers than indicators of clinical pathology, illustrating a shift in how youth understand and communicate emotional distress.

Yung, Nelson, Thompson, and Wood (2019) explored how stigma acts as a barrier to help-seeking in youth identified as at-risk for psychosis through the Youth Mental Health First Aid trial. Using a mixed-method design within a clinical trial framework, the study focused on adolescents prior to formal diagnosis. Results indicated that self-labeling triggered heightened feelings of shame and stress associated with stigma, which in turn reduced willingness to seek professional help. The authors concluded that early exposure to mental health labels without appropriate contextualization can create internalized identity threats, thus delaying or deterring intervention.

3. Brain Circuit–Based Models vs. Categorical Diagnosis

Tozzi et al. (2024) proposed a biologically grounded approach for identifying clinically distinct biotypes in individuals with depression and anxiety by analyzing functional brain circuits. Using fMRI data from 801 treatment-free individuals and 250 post-treatment patients, the study categorized participants into six biotypes based on neural circuit dysfunctions across the default mode, salience, and attention networks. These biotypes showed significant variation in symptom profiles and treatment responsiveness. This research highlights the biological heterogeneity of mental disorders and demonstrates how moving beyond categorical labels can support precision psychiatry, aligning with the current study's focus on reducing stigma through neurobiological classification.

Coccaro et al. (2025) examined neurocognitive biotypes in adolescents at risk for mood disorders using fMRI and behavioral assessments. In a sample of 146 adolescents tracked over two years, they identified biotypes based on executive functioning and reward sensitivity. Adolescents with stronger cognitive control showed greater resilience to mood symptoms, while those with neural vulnerabilities displayed greater symptom variability. This study supports early

intervention through neurobiological profiling and offers evidence that identifying at-risk youth by brain function can prevent the identity distortions caused by premature psychiatric labelling.

Dinga et al. (2023) offered a critical methodological perspective on biotyping in psychiatry, emphasizing the need for multimodal integration and statistical rigor. They reviewed prior imaging studies and noted inconsistencies in how biotypes are derived and validated. The authors called for more transparent, reproducible frameworks before biotyping can replace traditional classification systems. Their critique is valuable to this study as it underscores the importance of building scientifically robust alternatives to current labelling systems while avoiding premature adoption that could introduce new biases.

This paradigm shift toward brain circuit models aligns with the NIMH RDoC framework (Insel et al., 2010), which promotes dimensional, neuroscience-based classification by integrating genetics, brain circuitry, and behavior to elucidate transdiagnostic mechanisms and improve intervention development.

Finally, Kendler (2021) revisited the epistemological limitations of psychiatric nosology, arguing that categorical models rooted in symptom checklists fail to capture the complexity of mental disorders. He emphasized the importance of moving toward dimensional and circuit-based models that reflect biological and behavioral continua.

Methodology

This study employs a conceptual research design, aiming to critically synthesize theoretical and empirical literature to examine whether psychiatric labelling fosters awareness or causes harm. Rather than generating primary data, the study interprets existing research across clinical psychology, psychiatry, and neuroscience.

A conceptual review search was conducted using databases such as PubMed, Scopus, ScienceDirect, and Google Scholar, focusing on publications from 2010 to 2025.

Inclusion Criteria:

- Peer-reviewed journal articles (2010–2025)
- English language
- Relevant to diagnosis, labelling, identity, stigma, or neurobiological classification

Exclusion Criteria:

- Non-peer-reviewed sources
- Grey literature (e.g., blogs, dissertations)
- Articles not aligned with core study themes

Selected studies were thematically categorized into three domains:

1. Psychosocial effects of psychiatric labelling
2. Internalisation of diagnostic identities (self-labelling)
3. Brain circuit–based models as less stigmatizing alternatives to categorical systems

This method enabled a structured, multidisciplinary exploration of the limitations of DSM/ICD nosology and the emerging potential of neuroscience-informed frameworks like RDoC and biotypes.

Discussion

1. Psychosocial Effects of Psychiatric Labelling

Traditional psychiatric classification systems like the DSM-5 and ICD-11 aim to standardize diagnosis through symptom-based categories. However, these labels

often reduce complex, context-dependent experiences to fixed identities, leading to social stigma, stereotyping, and a loss of personhood. Unlike physical illnesses, which are described functionally (e.g., myocarditis as a heart condition), mental health diagnoses are often moralized and personalized—phrased as "I am depressed" or "I have anxiety"—intensifying self-stigma and diagnostic overshadowing (Kaushik et al., 2016; Hinshaw, 2007; Rose et al., 2019).

Diagnostic labels in systems like the DSM-5 and ICD-11, though essential for standardization, often lead to stigma by reinforcing stereotypes of dangerousness, unpredictability, and chronicity (Angermeyer & Dietrich, 2006). These labels are easily internalized, particularly in collectivist cultures where public perceptions closely shape identity, leading to self-stigma, reduced hope, and disengagement from treatment (Corrigan et al., 2009; Yu et al., 2021). Self-diagnosis in online spaces offers community support but may increase internalized stigma if individuals over-identify with pathologizing narratives (Giles & Newbold, 2011; Fox & Earnshaw, 2022). While neurobiological explanations reduce blame, they often promote neuroessentialism, heightening social distancing and pessimism about recovery (Loughman & Haslam, 2018; Kvaale et al., 2013).

To address these challenges, neuroscience-informed frameworks—such as brain circuit-based biotypes—offer a promising alternative by focusing on individualized patterns of dysfunction rather than rigid categories (Kapur et al., 2012; Schwarzbold et al., 2021). These models shift attention to brain–behavior mechanisms, potentially reducing stereotype activation and supporting recovery-oriented care (Almeida & Sousa, 2022). Cultural context remains vital; in some societies, moral attributions intensify stigma, while social roles like employment offer protection (Hu et al., 2024). Public health literacy and culturally grounded interventions (Kasturkar et al., 2021), along with self-help tools (Mills et al., 2019), are key to reducing the harms of diagnostic labeling and promoting more compassionate, stratified mental health care.

2. Internalization of Diagnostic Identities (Self-Labelling)

In the digital age, self-labelling has become increasingly common, particularly among adolescents and young adults. Platforms like TikTok, Reddit, and Instagram normalize psychiatric terms, encouraging individuals to adopt diagnostic identities without clinical evaluation. While this can foster community and emotional validation, it often leads to over-identification and trivialization of serious conditions—a trend described by Haslam (2016) as "concept creep." Research by Giles and Newbold (2011), and Lafrance and McKenzie-Mohr (2013), suggests that self-labelling can reinforce internalized stigma, distort self-concept, and deter appropriate help-seeking. The phenomenon of "identity fusion," where diagnoses become central to one's identity (Giles & Newbold, 2011), is amplified online, reinforcing fixed and essentialist views of mental illness (Naslund et al., 2016).

Empirical studies further highlight the psychological risks of self-labelling. Harari

et al. (2023) found that adolescents who identified as mentally ill showed declining self-esteem over time, while those who dropped the label improved—indicating that self-labelling may hinder recovery during key developmental stages. Meanwhile, Horsfield et al. (2019) showed that personal stigma, more than public stigma, predicted self-labelling and help-seeking behaviors. These findings underscore the complex dynamics between internalized beliefs and diagnostic identity, suggesting that while self-labelling may encourage action for some, it can also entrench stigma and psychological harm for others. This calls for more nuanced, developmentally and culturally sensitive frameworks in mental health discourse.

3. Brain Circuit–Based Models and Biotypes

Emerging neuroscience-based nosology is increasingly challenging the dominance of traditional systems like the DSM-5 and ICD-11, which rely on symptom-based categorical classifications. While these systems have historically served important clinical and administrative functions, they often impose fixed diagnostic labels that fail to reflect the neurobiological complexity and individual variation in mental disorders. Studies show that such static labelling can contribute to self-stigma, identity confusion, and reduced help-seeking. Schwarzbold et al. (2021), for instance, found that cognitive functioning and vocational engagement predicted lower self-stigma in individuals with psychotic disorders more reliably than diagnostic categories, highlighting the limitations of symptom-based labelling in capturing meaningful aspects of psychological distress.

Biotype and brain circuit–based frameworks offer a more personalized and biologically grounded alternative. Drysdale et al. (2017) identified distinct biotypes of depression using resting-state fMRI, each associated with different treatment responses, while Li et al. (2023) showed that structural and transcriptomic patterns could distinguish subtypes of major depressive disorder. Similarly, Feng et al. (2024) used neural network connectivity to identify ADHD biotypes with differential medication response. These findings support a shift from rigid nosological categories to circuit-informed profiling that prioritizes neural patterns over symptom lists, allowing for more targeted interventions and reducing the potential for diagnostic identity formation. The RDoC framework (Cuthbert & Insel, 2013) exemplifies this shift by emphasizing functional domains and neural systems rather than traditional diagnostic silos.

However, the potential of brain-based models to reduce stigma depends on how they are communicated. While these models frame mental suffering as disruptions in modifiable brain circuits—thus emphasizing neuroplasticity and recovery—there is a risk of slipping into neuroessentialism. Haslam and Kvaale (2015), in a meta-analytic review, warn that while biological explanations may reduce blame, they can inadvertently increase perceptions of dangerousness and social distancing. This dual effect reinforces the importance of careful public messaging and psychoeducation when adopting neuroscience-informed nosology. Ultimately, a shift toward dimensional, brain-based models should not only improve diagnostic precision and treatment efficacy

but also foster a more humane and stigma-reducing understanding of mental health.

Figure 1. Illustrates how categorical nosology (DSM/ICD) contributes to psychiatric labelling, which leads to self-stigma and self-labelling.

In clinical application, the use of biotypes has demonstrated potential to reduce stigma and promote sustained engagement with mental health care. In one family case, psychoeducation delivered through a brain circuit-based lens helped one individual understand their condition as a pattern of neural functioning rather than a fixed label. This shifted perception encouraged them to pursue therapy, and subsequently, they brought two other family members to seek care. This chain reaction reflected how well-pitched psychoeducation can normalize help-seeking and create a safe, nonjudgmental space for continued treatment. By explaining mental health through the lens of neuroplasticity, epigenetics, and individualized brain patterns, the biotype model fostered self-awareness and personal growth—moving away from identity-based labelling and toward a more compassionate, recovery-oriented approach.

Conclusion :

This conceptual study highlights how established psychiatric nosologies like DSM-5 and ICD-11, though essential for clinical communication and service provision, may unintentionally foster internalised stigma and self-labelling. In contrast, emerging brain circuit-based models and biotypes offer a more compassionate and biologically grounded framework, emphasizing individual variability and recovery. Integrating dimensional and neuroscience-informed approaches into future classification systems may mitigate stigma, while current practice should prioritize mindful use of diagnostic labels and promote recovery-oriented psychoeducation.

Limitations

The scope of this review is limited to English-language publications from 2010 to 2025, which may exclude culturally diverse or non-English insights relevant to the topic. As a conceptual study, it does not include original empirical data but instead synthesizes evolving models such as brain circuit-based nosology and biotypes as alternatives to conventional psychiatric classification. While these approaches offer promising theoretical advantages, their clinical application remains limited by factors including high costs, infrastructural demands, and the need for specialized expertise. Additionally, potential biases—such as selection and publication biasmay influence the findings presented. Replication challenges and variability in neuroimaging methodologies further complicate the reliability of these brain-based models. Lastly, although biological framings may reduce personal blame, they risk reinforcing pessimism and stigma if not conveyed with sufficient care.

Future Implications

Brain circuit models and biotypes offer a more individualized way of understanding mental health, moving beyond the constraints of conventional categorical nosologies. By emphasizing underlying neural mechanisms over labels, these frameworks can help reduce stigma, support identity beyond diagnosis, and guide more tailored interventions. Incorporating such

neuroscience-informed approaches into public and clinical settings may foster greater empathy and improve care. Future directions should include module-based groundwork and evidence-based research to support their practical integration into everyday clinical use.

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Navigating Parenthood Beyond the Binary: A Systematic Review of Social Identity, Empathy, and Parental Competence among Transgender and Cisgender Parents

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ABSTRACT

This systematic literature review explores the parenting experiences of transgender and cisgender individuals, focusing on three key constructs: social identity, empathy, and parental competence. Synthesizing findings from empirical studies published between 2000 and 2024, the review addresses five research objectives, including how empathy and social identity influence parental competence and what similarities and differences exist between the parenting practices of transgender and cisgender individuals.

The results reveal that while both transgender and cisgender parents demonstrate high levels of emotional investment and caregiving competence, transgender parents must often navigate unique structural and social barriers. Empathy emerged as both a central parenting trait and a mediating mechanism through which transgender parents affirm their identity and perform competent parenting, often under conditions of institutional scrutiny. Social identity was found to be a dynamic and contextually negotiated construct that influenced both the internal experience and external recognition of parenting roles.

These findings challenge deficit-based models of transgender parenting and call for inclusive, intersectional frameworks that recognize diverse forms of parental competence. The review concludes with implications for research, policy, and practice, emphasizing the need to reframe how parenting is defined, measured, and supported in an increasingly diverse society.

Keywords: parental competence, gender diversity, Social Identity, ,Empathy

Introduction

Parenthood is a foundational institution that shapes individual lives and the broader fabric of society. While the parenting experiences of cisgender individuals have been extensively examined in psychological, sociological, and developmental research, the parenting realities of transgender individuals remain underrepresented and often misunderstood. As traditional definitions of family evolve, the imperative to study parenting through an inclusive lens—acknowledging diverse gender identities—has become both timely and necessary.

Transgender individuals, whose gender identity diverges from the sex assigned at birth, often encounter significant societal, legal, and institutional barriers in their journey toward parenthood. Yet, like their cisgender counterparts, transgender individuals express a strong desire to nurture, guide, and build meaningful relationships with children. Despite their shared emotional motivations and caregiving potential, transgender parents are frequently subjected to prejudiced assumptions about their parental competence and emotional availability. These assumptions are not supported by empirical evidence but are instead rooted in

societal stigma and cisnormative family ideals.

Three key psychological constructs—**social identity**, **empathy**, and **parental competence**—are central to understanding parenting experiences across gender identities. Social identity, derived from one's affiliation with valued social groups, plays a critical role in shaping self-concept and social belonging. For transgender parents, social identity is often shaped not only by gender but also by their status as a marginalized group, affecting how they are perceived and how they perceive themselves in parenting roles. Empathy, the capacity to understand and share another's emotional state, is a core skill in effective parenting. It fosters secure attachment, emotional regulation in children, and intergenerational resilience. Parental competence, defined by the ability to provide responsive, nurturing, and structured care, is crucial for child development but is often judged through biased lenses rather than observed behaviors.

This study seeks to explore how transgender and cisgender parents experience and express these constructs within their parenting practices. While isolated studies have examined transgender identity development or general parenting outcomes, there is a scarcity of comparative, integrative research that considers how empathy and social identity mediate or inform parental competence. Furthermore, most existing literature lacks intersectional nuance and fails to capture the contextual and dynamic realities of transgender parenting.

By systematically reviewing and synthesizing the available research, this study aims to bridge this knowledge gap. It investigates how transgender and cisgender parents navigate their social identities, how empathy functions within their parenting practices, and how both factors contribute to or challenge their perceived and actual parental competence. In doing so, the research contributes to a more inclusive and evidence-based understanding of parenting in contemporary, diverse family systems.

Methodology

This systematic literature review (SLR) employs a structured and transparent approach to identify, evaluate, and synthesize existing research on the parenting experiences of transgender and cisgender individuals, with specific focus on social identity, empathy, and parental competence.

2.1 Research Design

This study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The SLR design enables a rigorous comparative analysis of diverse empirical studies, both qualitative and quantitative, exploring the constructs of interest.

2.2 Research Objectives

The methodology was guided by the following research objectives:

1. To compare expressions of parental competence between transgender and cisgender parents.
2. To analyze how empathy operates within parenting across gender identities.
3. To explore how social identity influences parenting practices and perceptions.
4. To identify the role of empathy as a potential mediator between social identity and parental competence.

2.3 Search Strategy

A comprehensive search was conducted across multiple electronic databases including PsycINFO, PubMed, Scopus, Web of Science, and Google Scholar. The search terms included: ("transgender parents" OR "trans parents" OR "cisgender parents") AND ("parental competence" OR "parenting skills") AND ("empathy") AND ("social identity")

The initial search yielded over 3,000 results. After removing duplicates and applying eligibility filters, 37 studies were shortlisted for full-text review.

2.4 Inclusion and Exclusion Criteria

2.4.1 Inclusion Criteria:

- Peer-reviewed articles published between 2000 and 2024.
- Empirical studies focused on transgender and/or cisgender parents.
- Articles exploring one or more of the constructs: empathy, social identity, parental competence.
- Studies published in English.

2.4.2 Exclusion Criteria:

- Commentary articles, opinion pieces, and editorials.
- Studies lacking methodological transparency.
- Articles not involving direct empirical data on parenting.

2.5 Study Selection Process

The selection process followed the PRISMA four-phase flow:

1. Identification through database searches.
2. Screening by titles and abstracts.
3. Eligibility check via full-text assessment.
4. Inclusion based on methodological and thematic relevance.

A data extraction matrix was used to systematically collect information on authorship, year, sample demographics, methodology, findings, limitations, and practical implications.

2.6 Data Analysis and Synthesis

Thematic synthesis was employed for qualitative studies, while narrative synthesis was used to interpret findings from quantitative and mixed-method studies. Key themes were drawn from repeated patterns across studies, including:

1. The impact of social affirmation or stigma on parental identity.
2. Comparative expressions of empathy and emotional availability.
3. Institutional and societal evaluations of parental competence.

Where possible, inter-study comparisons were made to distinguish patterns between transgender and cisgender populations.

Results and Discussions

3.1 Parental Competence Across Gender Identities

This section addresses the first research objective: *To compare expressions of parental competence between transgender and cisgender parents.* The findings drawn from the thematic analysis reveal critical insights into how competence is constructed, evaluated, and experienced differently across gender identities, with implications for both academic understanding and policy reform.

3.1.1 Constructing Competence Beyond Normativity

Parental competence—commonly defined as the perceived and actual ability to care for and nurture a child effectively—is a central marker of parenting efficacy. In

cisnormative contexts, parental competence is often taken for granted or assumed, especially within heteronormative family structures. Conversely, transgender parents must frequently *prove* or *justify* their competence in both personal and institutional settings (Kranz, 2022; Petit et al., 2017). This asymmetry in recognition reveals how societal gatekeeping around gender norms directly influences the attribution of parenting skill.

Kranz's (2022) study employed a vignette-based approach to measure public perception of parenting competence in gay, lesbian, and heterosexual couples. Interestingly, parental warmth and responsiveness were highly valued across all groups, but heterosexual couples were consistently rated as more competent by participants, despite comparable parenting behaviors. Although this study focused on sexual orientation, its implications extend to gender-diverse parenting: visible deviations from normative gender roles often invite biased evaluations of competence, irrespective of actual parenting quality.

3.1.2 Negotiating Roles and Recognition

The negotiation of parental roles within transgender families adds another layer to understanding competence. Petit et al. (2017) found that transgender parents, particularly those in co-parenting arrangements, engage in a continuous process of role definition. Through semi-structured interviews with 24 parents, they revealed how labels such as "mom," "dad," or gender-neutral alternatives like "Maddy" were not just linguistic choices but vehicles for asserting competence within and outside the family system. This intentional role construction reflects a higher level of self-reflexivity and emotional labor, which could itself be seen as an advanced form of parenting skill.

These findings challenge the conventional metrics of competence, which often prioritize static, gendered roles over relational adaptability. By contrast, transgender parents often model flexible caregiving, a hallmark of secure attachment and developmental responsiveness in children (Gross & Bettencourt, 2019). Yet, such adaptive parenting strategies are rarely accounted for in mainstream evaluations of parenting capacity.

3.1.3 Stigma and the Performance of Competence

Farr and Vázquez (2020) explored the experiences of adoptive parents—many of whom were LGBTQ+—and how stigma mediates perceptions of their parenting. In their sample of 106 adoptive families, both internalized and externally imposed stigma were found to correlate with lower perceived competence, even when objective measures (e.g., child adjustment, family functioning) remained stable. While the study did not isolate transgender participants, it highlights how marginalized parents are often required to "over perform" competence to counteract societal doubt.

In transgender parenting, this dynamic is even more pronounced. Trans parents frequently describe having to be hypervigilant in public settings—such as schools, hospitals, and courtrooms—to assert their legitimacy and credibility as caregivers (Powell et al., 2024). This pressure to perform may lead to psychological stress, but it also cultivates heightened awareness of a child's needs and social navigation, potentially enriching the

parent–child relationship (Dierckx et al., 2017).

3.1.4 Implications for Evaluating Competence

The thematic synthesis suggests that transgender parents demonstrate competencies that are not only equivalent to but in many cases exceed those of their cisgender counterparts—particularly in the domains of reflective caregiving, intentionality, and emotional sensitivity. However, these strengths are often invisible in traditional assessments, which rely on standardized checklists or clinician judgment rather than qualitative engagement with the parenting context.

The deconstruction of normative competence standards is crucial for inclusive family research and practice. As Brill and Pepper (2008) assert, affirming parental identities and recognizing diverse family structures improves both adult well-being and child developmental outcomes. Therefore, assessments of parenting competence must move beyond binary frameworks and incorporate relational, cultural, and identity-based dimensions.

3.1.5 Competence as Constructed, Contextual, and Conditional

In responding to the core research question—*How do social identity and empathy influence parental competence among transgender and cisgender parents, and what are the similarities and differences in their parenting experiences?*—the evidence reviewed here affirms that parental competence is a deeply social and contextual construct. Transgender parents navigate more complex terrains to assert and perform their competence, not due to deficiencies but because of persistent social scrutiny and institutional exclusion. These findings accentuate the need for reorienting parenting research to value diverse manifestations of competence rather than pathologizing difference.

3.2 Empathy in Parenting Across Gender Identities

This section addresses the second research objective: *To analyze how empathy operates within parenting across gender identities.* The analysis reveals that empathy—conceptualized as the capacity to understand, connect with, and respond to the emotional needs of another—is central to parenting regardless of gender identity. However, transgender parents often engage with empathy in particularly dynamic and deliberate ways, shaped by their social positioning and lived experiences of marginalization.

3.2.1 Empathy as an Emergent Parenting Skill

Across several studies, empathy was not treated as a static trait but as an emergent capacity that evolves through parenting challenges and interpersonal dynamics. Powell et al. (2024) found that transgender parents often develop heightened emotional awareness due to their own histories of stigma and misrecognition. In their photovoice study, parents described how their experiences of being misunderstood deepened their desire to be emotionally attuned to their children—especially in terms of identity affirmation, affect regulation, and validating their child's lived experience.

Wagner and Armstrong (2020) reinforced this theme in their exploration of parents of transgender and gender-diverse children. Participants emphasized how empathy was

central not only to accepting their child's identity but also to transforming their own self-understanding. This reciprocal model of empathy—where the parent grows emotionally alongside the child—emerged as a recurring feature of both transgender and cisgender parenting, though it was often more explicitly articulated in transgender parenting narratives.

3.2.2 Neuropsychological and Social Foundations of Empathy

Empathy is not only a social virtue, but a neuropsychological process tied to parental bonding and responsiveness (Spies et al., 2016). While most studies in this review used self-report or narrative data, the emerging body of research on transgender neuropsychology suggests that transition processes—including hormonal therapy—can influence emotional processing. Although underexplored, this opens a potentially important line of inquiry regarding whether the neurobiological correlates of empathy are modulated by gender-affirming medical treatment, which may further nuance our understanding of transgender parenting.

Charlton (2022) argued that societal invalidation of transgender identity fosters an increased sensitivity to emotional dynamics within the family. In her interpretative phenomenological analysis of same-sex co-parenting, participants described "emotional labor" not just as a burden but as a relational skill—an ability to anticipate and manage both their partner's and child's emotional landscapes. While cisgender parents also engage in this labor, the study suggests that queer and trans families often make these processes visible and intentional.

3.2.3 Comparative Observations Across Gender Identities

Notably, there were no consistent findings that cisgender parents were more or less empathetic than transgender parents. Instead, the difference lay in how empathy was framed and practiced. Transgender parents often described empathy as an *active strategy*—a tool for navigating identity-based stigma and parenting simultaneously (Haines et al., 2014). In contrast, cisgender parents, operating within more socially validated roles, tended to reference empathy as part of a broader emotional toolkit rather than a central adaptive resource.

In Condat et al.'s (2020) study comparing transgender and cisgender fathers via assisted reproduction, both groups reported strong emotional bonding with their children. However, transgender fathers frequently emphasized the importance of emotional validation and open communication—components of empathy less frequently highlighted by cisgender fathers. These differences suggest that while empathy is universally valued in parenting, its visibility, intentionality, and narrative centrality vary across gender identities.

3.2.4 Empathy as a Mechanism of Resilience and Connection

Empathy functions not only as a parenting skill but also as a protective mechanism. For transgender parents facing marginalization, empathy helps buffer the psychological impacts of social exclusion by reinforcing intimate family bonds. Powell et al. (2024) reported that transgender parents often channelled their empathy into creating emotionally safe and affirming environments for their children, serving as a

counter-narrative to the societal rejection they themselves experienced.

Similarly, Wagner and Armstrong (2020) observed that empathic parenting fostered resilience in families navigating transition. The capacity to emotionally attune to one's child—and vice versa—was found to mediate family cohesion, improve mental health outcomes, and reduce conflict during periods of identity exploration or transition.

3.2.5 Empathy as a Contextual and Political Practice

In addressing the core research question—*How do social identity and empathy influence parental competence among transgender and cisgender parents, and what are the similarities and differences in their parenting experiences?*—the evidence suggests that empathy is not just a psychological trait but a contextual and political practice. Transgender parents, in particular, employ empathy as a means of navigating stigma, affirming identity, and protecting their children from external harm. While both cisgender and transgender parents demonstrate empathetic parenting, the emotional landscape in which they do so—and the intentions behind that empathy—are often shaped by broader social forces.

3.3 Social Identity and Parenting

This section addresses the third research objective: *To explore how social identity influences parenting practices and perceptions among transgender and cisgender individuals*. The findings suggest that social identity is not merely a background variable but an active, evolving framework that profoundly shapes parental self-perception, external recognition, and the quality of relational dynamics within families.

3.3.1 Social Identity as a Source of Both Challenge and Strength

Social identity—defined as an individual's self-concept derived from perceived membership in social groups (Tajfel & Turner, 1986)—is deeply implicated in how parents see themselves and are seen by others. For transgender parents, this identity is often forged in resistance to normative gender expectations, creating both opportunities for empowerment and conditions of vulnerability. In Powell et al.'s (2024) qualitative photovoice study, transgender and gender-diverse parents described their identities as constantly negotiated in response to external pressures such as institutional discrimination, legal invalidation, and social invisibility. These ongoing negotiations affected how participants engaged in parenting roles, often compelling them to become more conscious and deliberate in their practices.

Conversely, cisgender parents typically inhabit socially sanctioned gender roles, which afford them a kind of "invisible legitimacy" (Kranz, 2022). Their identities as mothers or fathers are rarely questioned or scrutinized, enabling them to parent without the added emotional labor of self-justification. This unmarked status highlights a critical asymmetry in how identity interacts with parenting: cisgender parents benefit from normative alignment, while transgender parents must continually assert their validity in familial and public contexts.

3.3.2 The Role of Recognition and Misrecognition

Recognition—the act of having one's identity affirmed by others—emerges as a pivotal theme in the social identity of

transgender parents. Charlton (2022) observed that participants often encountered forms of misrecognition in institutional settings, such as schools or healthcare systems, where they were either misgendered or excluded from "mother/father" frameworks. These experiences of misrecognition had psychological consequences, contributing to identity threat and undermining confidence in their parenting roles.

Petit et al. (2017) further elaborate on this dynamic, showing how transgender parents actively construct new parental designations (e.g., "Maddy," "Dom") to reflect their gender identities while establishing a nurturing relationship with their children. These designations were not simply semantic innovations but embodied efforts to affirm identity and maintain emotional closeness. This suggests that social identity, far from being peripheral, is central to the affective and structural dimensions of parenting.

3.3.3 Social Identity, Belonging, and Competence

The intersection of social identity and perceived parental competence is also notable. Farr and Vázquez (2020) found that marginalized parents—including LGBTQ+ adoptive parents—often report lower perceived parenting competence despite no objective differences in child outcomes. Their findings suggest that competence is partially socially constructed through the mirror of public recognition. For transgender parents, who frequently lack societal affirmation, this can lead to internalized doubt even when their caregiving behaviors are robust and nurturing.

However, social identity can also be a wellspring of strength. Wagner and Armstrong (2020) found that transgender parents who embraced their identities and received support from affirming communities developed strong parenting self-efficacy. This aligns with identity process theory, which emphasizes that self-esteem and belonging—two key identity principles—are crucial for psychological adaptation and resilience (Breakwell, 1986). In parenting, these principles translate into greater confidence, patience, and openness in navigating parent–child relationships.

3.3.4 Comparative Insights and Intersectional Gaps

While transgender parents must often engage in complex identity negotiations, cisgender parents tend to operate within cultural scripts that reinforce their roles. This distinction does not imply that cisgender parenting is without identity labor—particularly for those navigating intersecting identities such as race, class, or sexuality—but it does highlight how gender identity functions differently across these groups. The research reviewed here also signals a gap in intersectional approaches: few studies systematically explore how race, ethnicity, or socioeconomic status intersect with gender identity to shape social identity experiences in parenting.

Nonetheless, the comparative literature affirms that social identity is more than a categorical descriptor; it is a dynamic force that shapes how individuals parent, how they are perceived, and how they perceive themselves in the parenting role.

3.3.5 Social Identity as an Active Parenting Variable

In answering the central research question—*How do social identity and empathy*

influence parental competence among transgender and cisgender parents, and what are the similarities and differences in their parenting experiences?—this section illustrates that social identity is both a constraint and a catalyst. For transgender parents, identity is not just lived—it is defended, negotiated, and often reconstructed within parenting practices. These processes demand a unique form of psychological and emotional labor, which, when affirmed, contributes to profound expressions of parental competence and empathy. For cisgender parents, identity alignment with societal norms often removes these burdens, affording them smoother access to recognition and legitimacy.

3.4 Empathy as a Mediator Between Social Identity and Parental Competence

This section addresses the fourth research objective: *To explore the extent to which empathy mediates the relationship between social identity and parental competence among transgender and cisgender individuals.* The findings indicate that empathy not only facilitates effective parenting practices across gender identities but also serves as a psychological bridge between the internalized sense of identity and the external enactment of parenting skills.

3.4.1 Theoretical Framing: Empathy as a Mediator

Mediation implies that one variable explains or conditions the relationship between two others. In this case, empathy is proposed as the mechanism that allows social identity—particularly when contested or marginalized—to be expressed in competent, affirming parenting. This hypothesis is supported both conceptually and empirically in several of the studies reviewed.

Wagner and Armstrong (2020) present compelling evidence that empathy arises as a protective response in parents of transgender children. These parents, many of whom undergo identity expansion or reconfiguration in the wake of their child's coming out, describe empathy as central to their capacity to parent effectively during and after this transition. In transgender parents, this process is reciprocal: they must also contend with their own social identity challenges, and empathy becomes the scaffold through which they maintain emotional coherence and parenting consistency.

3.4.2 Identity Insecurity and Empathic Overcompensation

For transgender parents, threats to identity—whether due to societal stigma, institutional barriers, or personal doubt—can result in a heightened effort to demonstrate competence. Charlton (2022) noted that such parents often engaged in what could be called *empathic overcompensation*: anticipating their child's emotional and social needs far in advance as a way of "pre-empting" potential criticism or perceived parenting failure. This heightened emotional vigilance, while taxing, often contributed to a rich and emotionally responsive parenting style.

Petit et al. (2017) provide further insight into how empathy bridges the dissonance between social identity and parental roles. Their participants, transgender individuals in co-parenting relationships, described creating hybrid or non-binary designations such as "Maddy" or "Pama" to affirm both

their gender identity and parental role. The emotional labor involved in these negotiations reflected not only a desire to be seen authentically but also a profound sensitivity to the child's relational and linguistic needs. In this case, empathy mediated not just competence but the very capacity to integrate identity with relational practice.

3.4.3 Empathy as Emotional Infrastructure

The thematic synthesis reveals that empathy often functions as an "emotional infrastructure" that supports identity-informed parenting practices. In Farr and Vázquez's (2020) study, LGBTQ+ adoptive parents—many of whom grappled with societal invalidation—demonstrated that empathy was a key variable in sustaining perceptions of competence, even in the face of stigma. The participants who reported higher empathy also reported more secure attachment styles, effective emotion coaching, and reduced family conflict. This indicates that empathy may serve not just as a buffer against external judgments, but as a core internal capacity for building relational strength.

Condat et al. (2020) offer a direct comparative lens, showing that both transgender and cisgender fathers reported strong emotional bonds with their children. However, transgender fathers emphasized open communication and affective validation—both markers of empathic engagement—more consistently. While the study did not measure empathy as a formal mediating variable, the descriptive data strongly support the interpretation of empathy as a link between gender identity affirmation and perceived parental adequacy.

3.4.4 Empathy, Competence, and Narrative Reframing

Importantly, empathy also allows parents to reframe their parenting narrative. Powell et al. (2024) found that transgender parents often use empathy not only as a parenting tool but as a narrative strategy to counteract social delegitimization. By centring the emotional well-being of their children and highlighting their own capacity for attunement, these parents challenge normative expectations and assert new models of what competent parenting looks like.

This narrative reframing is essential for transgender parents whose social identity often conflicts with dominant parenting scripts. Through empathy, they can simultaneously affirm their gender identity and fulfill parental expectations—often at a higher level of intentionality and emotional sophistication than their cisgender peers, who are less often required to navigate these tensions.

3.4.5 Empathy as a Liminal Practice

In addressing the core research question—*How do social identity and empathy influence parental competence among transgender and cisgender parents, and what are the similarities and differences in their parenting experiences?*—this section affirms that empathy is not only an essential parenting trait but also a liminal practice. It occupies the space between personal identity and social performance, enabling parents—especially those from marginalized gender identities—to transform identity-based vulnerability into emotionally responsive and developmentally competent caregiving.

Empathy thus emerges as a crucial mediator that explains how transgender parents,

despite societal invalidation, frequently demonstrate high levels of parental competence. For cisgender parents, empathy remains important but operates with less pressure to counteract stigma, allowing it to function more seamlessly within existing family frameworks.

3.5 Comparing Parenting Experiences Across Gender Identities

This section addresses the fifth and final research objective: *To identify the similarities and differences in parenting practices and challenges faced by transgender and cisgender individuals*. The review reveals that while many core elements of parenting—such as emotional investment, care, and child-centered decision-making—are shared across gender identities, the contexts, constraints, and societal responses surrounding transgender and cisgender parenting differ markedly.

3.5.1 Shared Foundations of Parenting

Across the reviewed studies, a consistent theme emerged: transgender and cisgender parents alike expressed strong emotional bonds with their children, a commitment to their well-being, and a desire to foster healthy development (Condat et al., 2020; Powell et al., 2024). Parenting motivations and priorities—such as providing love, structure, and protection—transcended gender identity. For example, in Condat et al.'s (2020) comparative study of transgender and cisgender fathers using assisted reproduction, no significant differences were found in reported attachment, involvement, or developmental outcomes of children.

Likewise, Charlton (2022) and Wagner and Armstrong (2020) highlight that emotional labor, boundary-setting, and nurturing were core components in both transgender and cisgender parenting narratives. These findings challenge stereotypes suggesting that transgender individuals are less capable or inherently different in parenting ability.

3.5.2 Structural and Social Disparities in Parenting Experience

However, substantial differences arise in the social conditions under which parenting takes place. Transgender parents often face institutional, legal, and social barriers that cisgender parents do not. Powell et al. (2024) document instances of misgendering in healthcare settings, exclusion from school communication systems that only recognize binary parental roles, and legal inconsistencies in parental recognition—especially for non-biological or transitioning parents. Such experiences not only undermine parental authority but also affect children's social integration and emotional security.

Charlton (2022) similarly illustrates how transgender and nonbinary parents often must engage in emotional and logistical labor to counteract public doubt or erasure. This includes developing alternative parenting titles (e.g., "Zaza," "Maddy"), educating school staff and paediatricians, and managing microaggressions during everyday interactions. These forms of labor are largely absent from the cisgender parenting experience, reflecting the privileged status of gender-normative parenting scripts.

3.5.3 The Impact of Social Scrutiny and Identity Invalidation

While cisgender parents generally experience affirmation of their parental roles, transgender parents frequently navigate environments where their

legitimacy is questioned. Farr and Vázquez (2020) found that adoptive parents from marginalized groups reported higher levels of identity-based stress, which correlated with lower perceived parental competence—despite no deficits in child outcomes. The implication is that perception, not performance, drives much of the inequity in how parenting is judged across identities.

Transgender parents often develop highly reflective parenting strategies in response to these pressures. Wagner and Armstrong (2020) note that such parents frequently build deliberate emotional scaffolding in their families, using empathy, communication, and self-awareness as tools to shield their children from stigma. This is both a strength and a burden: it can lead to deep connection, but also emotional exhaustion and vulnerability to burnout, especially in unsupported environments.

3.5.4 Parenting Narratives and Adaptive Capacity

The parenting narratives of transgender individuals often reflect a high degree of adaptive capacity. Petit et al. (2017) show how transgender parents reshape their family roles through language, relational negotiation, and intentionality, creating structures that better reflect their identities and those of their children. This dynamic reframing of parental identity contrasts with cisgender parenting narratives, which tend to emphasize continuity, tradition, and role inheritance.

Additionally, transgender parenting often involves political awareness, particularly in affirming children's autonomy and agency. These insights align with queer theory perspectives that argue for deconstructing rigid parental norms in favour of relational ethics and mutual growth (Ryan-Flood, 2009). In this sense, transgender parenting offers a model for inclusive, flexible, and emotionally responsive caregiving that can inform broader parenting frameworks.

3.5.5 Shared Foundations, Divergent Realities

In response to the overarching research question—*What are the similarities and differences in parenting experiences between transgender and cisgender individuals, and how do social identity and empathy inform their parental competence?*—this review concludes that parenting experiences are shaped more by social context than by inherent differences in capability or intent. Both transgender and cisgender parents demonstrate high levels of commitment, empathy, and competence. However, transgender parents operate within systems that require additional labor, identity negotiation, and resilience. These challenges, while often unjust, have cultivated sophisticated emotional and reflective practices that contribute meaningfully to their parenting. Recognizing and supporting these diverse experiences is essential for developing inclusive, equitable parenting policies, research, and support structures.

Implications

The results of this review highlight the necessity for structural, educational, and clinical reform in how parenting—particularly transgender parenting—is understood, supported, and evaluated. The following implications are discussed across three key domains: research, policy, and practice.

4.1 Implications for Research

This review reveals significant gaps in empirical attention to the nuanced

experiences of transgender parents, especially when compared to their cisgender counterparts. The findings suggest a need for:

- Intersectional approaches that account for how race, class, religion, and disability intersect with gender identity in shaping parenting roles and perceptions.
- Longitudinal studies that can capture how parental competence, empathy, and identity evolve over time, particularly during and after gender transition or in response to child developmental stages.
- Operationalization of empathy as a mediating or moderating variable in quantitative models. Current studies often refer to empathy in abstract terms; integrating it with psychometrically sound instruments could better quantify its role in parenting success and identity affirmation.
- Comparative research frameworks that move beyond deficit models and adopt equity-centered paradigms, assessing both strengths and barriers in diverse parenting structures.

Future studies must also be participatory and community-engaged, involving transgender and gender-diverse parents in all stages of the research process—from design to dissemination—to ensure authenticity and cultural relevance.

4.2 Implications for Policy

At a policy level, findings from this review call for:

- Inclusive family recognition in legal and institutional frameworks. Many transgender parents are excluded from legal parenthood based on outdated definitions tied to birth sex or heteronormative family structures.
- Reform of bureaucratic systems (e.g., school forms, healthcare registration) to allow for non-binary and affirming parental identifiers. Language such as "mother" or "father" must be flexible enough to accommodate diverse family realities without compromising access or legitimacy.
- Anti-discrimination protections that explicitly include gender identity in family courts, adoption processes, and child custody evaluations.
- Targeted funding and support for LGBTQIA+ parenting advocacy organizations that promote visibility, community-building, and access to culturally competent services.

Such policy changes are not only ethical imperatives but also supported by evidence demonstrating that children raised in gender-diverse households do just as well—if not better—on key developmental and emotional indicators.

4.3 Implications for Practice

Practitioners in education, healthcare, and social services must develop competencies in affirming and supporting gender-diverse parenting. This review highlights the following practice-level priorities:

- Trauma-informed, affirming care models should be adopted by family counselors, pediatricians, and parenting support workers. Empathy and social identity awareness must be embedded in service delivery, not treated as add-ons.
- Training modules and curricula in clinical psychology, social work, and early childhood education should include case studies and theory relating to transgender parenting, empathy, and identity negotiation.

- Parenting programs and interventions should be tailored to include non-normative experiences, such as gender transition during parenthood, co-parenting in queer families, or managing stigma as a family unit.
- Empathic support groups and peer mentorship networks can be instrumental in reducing isolation, enhancing self-efficacy, and validating emotional labor often overlooked in transgender parenting.

This review affirms that transgender parents are not parenting "in spite of" their identity but often "because of" it—with greater intentionality, deeper emotional attunement, and more reflective engagement with their roles. However, the systemic challenges they face mean their efforts are frequently rendered invisible or undervalued. Thus, changes at every level—from empirical research design to everyday classroom and clinic interactions—are needed to build a parenting culture that values diversity not as exception, but as norm.

Conclusion

This systematic literature review set out to examine the parenting experiences of transgender and cisgender individuals through the intersecting lenses of social identity, empathy, and parental competence. Across five carefully constructed research objectives, the review synthesized empirical evidence from multiple disciplines and methodologies to uncover shared values, divergent challenges, and context-specific expressions of parenting across gender identities.

The review affirms that parenting, at its core, is a relational, emotional, and intentional practice. Transgender and cisgender parents both demonstrate high levels of emotional investment, caregiving competence, and attachment to their children. However, transgender parents operate within a markedly different social context—one shaped by legal ambiguity, institutional discrimination, and societal scrutiny. These conditions create a distinct parenting landscape where legitimacy must often be performed, roles must be negotiated, and identity must be constantly affirmed.

Empathy emerged as a central theme—not merely as a parenting virtue but as a mechanism that connects internal identity with external caregiving behavior. Transgender parents frequently deploy empathy in highly deliberate ways, using it to counteract misrecognition, build trust with their children, and sustain resilience amid social adversity. This finding supports the hypothesis that empathy mediates the relationship between social identity and perceived parental competence, offering a conceptual bridge between who parents are and how they are understood as caregivers.

Social identity also proved to be a dynamic, contextual force. While cisgender parents typically operate within culturally affirmed roles, transgender parents must often rewrite or reframe those roles, resulting in unique expressions of parental competence that are often overlooked in standardized evaluations. These findings advocate for a redefinition of parenting metrics—ones that are more inclusive, relational, and reflexive.

Importantly, this review also highlights systemic inequities that hinder the full flourishing of transgender parenting. From medical and legal exclusion to microaggressions in daily parenting

interactions, transgender individuals often face a double burden: to parent effectively while also educating and navigating a world that questions their right to do so. Yet, despite these obstacles, the evidence overwhelmingly demonstrates that transgender parents raise emotionally secure, well-adjusted, and socially capable children.

In closing, the central research question—*How do social identity and empathy influence parental competence among transgender and cisgender parents, and what are the similarities and differences in their parenting experiences?*—is best answered not through dichotomy but through complexity. Parenting competence is not the exclusive property of any gender identity. Rather, it is a fluid, relational construct shaped by empathy, self-understanding, and the capacity to respond to a child's needs with authenticity and care. As family structures continue to diversify, our frameworks for understanding parenting must evolve accordingly—moving from deficit models to paradigms that recognize and celebrate diversity as a core feature of human development.

Limitations and Future Directions

6.1 Limitations

Despite the rigor of this systematic literature review and its adherence to PRISMA protocols, several limitations must be acknowledged:

1. Limited Sample Diversity in Existing Studies: Many of the reviewed studies draw from predominantly Western, urban, and white populations. The parenting experiences of transgender individuals from racialized, Indigenous, migrant, or economically marginalized backgrounds remain severely underrepresented. This restricts the generalizability of findings across different cultural and socio-political contexts.
2. Disciplinary Fragmentation and Conceptual Inconsistency: The constructs of *empathy*, *social identity*, and *parental competence* are often inconsistently defined or measured across studies. Some rely on qualitative interviews while others use self-report scales, creating challenges in synthesizing results across methodological frameworks. Moreover, very few studies explicitly test mediation models or causal relationships between these constructs.
3. Under-theorized Intersectionality: While gender identity is central to this review, few studies examine how intersecting identities—such as disability, religion, or sexual orientation—shape parenting experiences. Most research treats identity categories in isolation, thereby obscuring the compounding effects of multiple marginalizations on parental competence and empathy.
4. Scarcity of Longitudinal Data: Most of the available literature is cross-sectional, capturing parenting at a single time point. Longitudinal research is essential to understand how transgender and cisgender parenting evolves over time—particularly across life events such as transition, adoption, or children's adolescence.
5. Potential Publication and Language Bias: The review included only peer-reviewed studies published in English, which may have excluded relevant grey literature, community-based research, or studies published in other languages. As a result,

grassroots knowledge and non-Western parenting perspectives may be underrepresented.

Future Research Directions

To build a more inclusive and robust understanding of parenting across gender identities, future research should:

1. Develop Intersectional Frameworks: Future studies must account for the complex, overlapping identities that shape parenting experiences. Employing intersectionality as both a theoretical lens and methodological tool can surface hidden forms of discrimination and resilience in diverse parenting contexts.
2. Design Longitudinal and Mixed-Method Studies: Longitudinal studies would allow for the observation of parenting practices and identity evolution over time. Mixed-method approaches could also enhance validity by capturing both depth (qualitative) and generalizability (quantitative).
3. Formalize Empathy as a Measurable Construct: Future research should aim to operationalize empathy more precisely, using validated scales and experimental designs to test its mediating or moderating role in parenting outcomes. This would offer stronger empirical evidence for theoretical claims identified in this review.
4. Explore Institutional Interactions and Policy Impact: There is a need for research that explicitly explores how transgender and cisgender parents navigate interactions with schools, healthcare systems, and legal frameworks. Such research could inform policy design and service delivery in meaningful ways.
5. Include Non-Western and Non-Binary Parenting Narratives: Expanding the geographic, linguistic, and cultural scope of research is vital. Scholars must collaborate with communities in the Global South, Indigenous nations, and underrepresented populations to co-produce knowledge that reflects the diversity of global parenting experiences.
6. Engage in Participatory and Community-Based Research: Transgender and gender-diverse individuals should be involved not merely as participants, but as collaborators and co-researchers. Participatory designs can ensure research questions are relevant, findings are grounded, and outcomes are usable for advocacy and community development.

By addressing these limitations and advancing these future directions, researchers, practitioners, and policymakers can help construct more inclusive, equitable, and empirically grounded understandings of parenting. Doing so is not just an academic imperative—it is a social responsibility.

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The Uncertain Scroll: A Systematic Review on Intolerance of Uncertainty and Social Media Addiction

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ABSTRACT

Social Media is a platform that brings information from multiple sources and entertainment for a various interesting areas. Social Media Addiction (SMA) is hence a growing concern amongst individuals, especially among adolescents and young adults (Amirthalingam & Khera, 2024). Intolerance of Uncertainty (IU) refers to the distress and discomfort that comes from ambiguity especially in relation to the near future. There lies a tendency to bring in certainty about the near future and hence relying on social media stands as the easiest resort (Sun et al., 2022). The present study aims to understand and analyse the synthesis of Social Media and Intolerance of Uncertainty by evaluating the existing literature on the association of the same. A systematic review from databases of PubMed, Scopus and Web of Science was conducted and studies published between 2010 to 2025 were selected. The sample for the studies were either adolescents or young adults. PRISMA guidelines were adhered to during the review process. Findings support a link between Social Media Addiction and Intolerance of Uncertainty further suggesting a need to address intolerance of uncertainty through interventions especially for problematic social media usage. The scope of future research lies in an empirical study employing cross-sectional, longitudinal or experimental designs to establish better underlying mechanisms.

Keywords: Social Media Addiction, Intolerance of Uncertainty, Systematic Review, Young Adulthood, Adolescents.

Introduction

Social media is one of the most important platform for sharing and receiving information in the 21st century **(**Osatayi, 2013). It has been found to play a crucial role in how people express themselves and perceive the incidents of others lives. Globally about 63.9% of the world population use social media on a daily basis in 2025. Social media helps as a platform to express ones emotions, build network with new people, maintain a healthy communication with loved ones who stay apart, and a lots of learning (Hamid etal., 2015). However, social media may also lead to excessive usage of the same leading to social networking addiction. Along with all the benefits that social media has, it also leads to a compulsion of usage of such sites that may lead to a problematic social media usage. Hence, the increasing utilisation of these platforms may be the root-cause behind many psychological concerns including emotion regulation, compulsive behaviours and intolerance towards uncertainty (Brady et al., 2010). Social media addiction (SMA) refers to a compulsive usage of social media platforms

irrespective of the knowledge of the potential risks it has (Balakrishnan and Griffiths, 2017). It may lead to symptoms like preoccupation on the sites, having a compulsion to check the site despite of no particular need for the same, there remains a sense of loss of control, conflict which may easily cause relapse. Features like likes, comments are a source of instant gratification. Where people do not get validation on face-to-face communication, they may end up getting validation on social media platforms (Onifade, 2022). As individuals long for these instant gratifications, they have a tendency to resort to social media as a basic impulse of reinforcement. Social comparison being in dominance in the current era, social media platforms have become a platform to compete with each other, especially for present young adults, emerging adults, and adolescents (Griffiths & Kuss, 2017). Social media addiction have been found to correlate with various other issues such as anxiety, depression, fear of missing out (FoMo), and intolerance to uncertainty.

According to Carleton 2016, intolerance of uncertainty is a feeling of severe distress due to the fear of uncertainty. World is unpredictable, be it on land, water or sky, life has become extremely unpredictable and the same is felt at a higher intensity post the pandemic. This unpredictability is what leads to uncertainty and that may cause a distress towards uncertainty (Carleton , Nortan, & Asmundson, 2007). Individuals with high intolerance of uncertainty seek certainty in all possible way. Social media is one such platform that provides constant updates for all the areas of life globally. The constant feedback reduces uncertainty to some extent among individuals. Intolerance of Uncertainty has a very common association with anxiety and worry (Gu, 2020). It may lead to maladaptive coping behaviours if not controlled at the right time. For young adults and adolescents, intolerance of uncertainty may lead to emotional instability and a stronger need to seek external validation (Shihata, McEvoy, Mullan, & Carleton, 2016).

There are various theoretical model that helps in bringing a conceptual connect between social media addiction and intolerance of uncertainty. For instance, the compensatory internet use model (Winther, 2014) suggests that individuals use social media to cope with emotions and especially the negative ones. Similarly the uncertainty reduction theory (Knobloch, 2008) that people tend to communicate more with each other in order to reduce uncertainties. Social media provides reassurance on multitude of things. It also brings in predictability be it genuine or fake. Social validation coming through social media is also a way of meeting the need for certainty. Individuals high on intolerance on uncertainty may find it a compulsion to constantly check for messages, updates and feedbacks that brings in some sort of assurance. Recent studies have also shown a significant association between Intolerance of Uncertainty and Socilal Media Addiction (Sun et al., 2022). There is a cyclic pattern that can be observed where more intolerance of uncertainty leads to social media addiction and the higher dependency on social media brings in more distress due to intolerance.

Despite all the studies mentioned above, the findings seem to be fragmented along multiple disciplines. There is a lack of consistent synthesis to identify patterns and variables that are influenced by Intolerance if Uncertainty and Social Media Addiction. Adolescents and young adults are a vulnerable population in this area as they are most exposed to the adverse effects of social media. Social evaluation and uncertainty are associated together amongst this population, bringing in a need to focus on the studies done in the area on this population. A systematic review helps in synthesizing the consistent patterns, empirical evidence, and can help in finding future interventions to deal with the issue. For methodological rigor, the PRISMA Guideline is followed for the present systematic review paper.

Objectives

- To analyse empirical studies from 2010 to 2025 that assesses the relationship between intolerance of uncertainty and social media addiction
- To evaluate the mediating, moderating role of intolerance of uncertainty in social media addiction related studies.
- To suggest future empirical work in the area and highlight the research gaps.

Methods

This review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020.

Search Strategy

Database search was done for PubMed, Scopus and Google Scholar Boolean Search was used using the keywords : Intolerance of uncertainty AND Social Media Addiction OR Problematic Social Media Use OR Social Networking Addiction. The PRISMA Guidelines 2020 was followed for the systematic Review. Rayyan was used for the smooth screening process.

Table 1

Search terms used in the search string for the databases

Variable	Search terms
Intolerance of Uncertainty	Intolerance of uncertainty or Uncertainty intolerance
Social Media Addiction	Social Media Addiction OR Problematic Social Media Use OR Social Networking Addiction

Study Selection

The studies selected were imported into Rayyan, which is an exclusive platform for systematic review. The articles were screened and reviewed. Duplicate studies were eliminated and only studies that fit the following inclusion and exclusion criteria was selected. A total of three hundred and twelve studies were first taken from various data source of Scopus, Pubmed, Google Scholar. Twenty four duplicate studies were removed. In the initial screen 288 studies were reviewed and 167 studies were excluded as it did not fit into the inclusion criteria. Post this only 121 studies were assessed for further eligibility and only 7 were shortlisted for the review.

Inclusion Criteria

Studies conducted between 2010-2025.

Studies conducted on adolescents or adults.

Studies have a variable of problematic social networking use or social media addiction

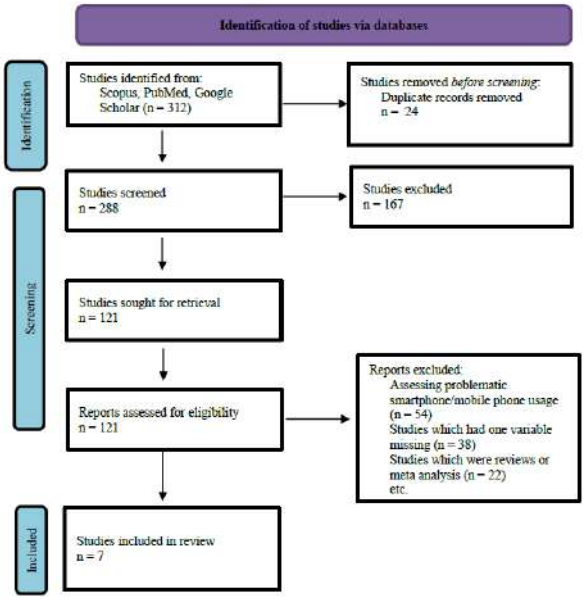
Exclusion Criteria

Studies on problematic smartphone use or smartphone addiction in general

Systematic reviews on the topic

Figure 1

Prisma 2020 Flow Diagram for Selection of Studies



Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.

Data Extraction

The finalized articles were taken, and the data was extracted utilizing a structured template on Google Sheets. To get a clear visibility, the data was extracted based on the first author's name, year of publication, study location, study design, sample size, participant characteristics (age and gender), and the major findings. The doubts and disagreements on studies were clarified by both authors through a thorough discussion on the matter.

Characteristics of Included Studies

The studies included were studies conducted on adults and adolescents between the year of 2010 to 2025. There were a total of seven studies that fit the criteria for the systematic review.

Table 2

Showing the characteristics of the Included Studies

Sl. No	*Authors (follow intext citation format of APA)*	*Year published in*	*Country (where the study was conducted)*	*Title*	*Aim*	*Study design*	*Sample Size (n)*	**Key Findings**
1	*Sun et al.,*	*2022*	*China*	*The Relationship between Intolerance of Uncertainty and Problematic Social Media Use during the COVID-19 Pandemic: A Serial Mediation Model*	*to explore how intolerance of uncertainty, maladaptive coping strategies, and fear of missing out affect social media use in a Chinese community sample*	*Cross sectional*	*311*	Moderate relationship between IOU and SMA.
2	*Dong et al.,*	*2024*	*China*	*Covid-19 psychological pressures, depression and FOMO: the mediating role of online social support and emotional regulation*	*To examine the mediating role of emotional regulation and online social support in the relationships between COVID-19 psychological pressures, depression, and the fear of missing out (FoMO) among young adult uni-versity students*	*Cross Sectional*	*521*	Mediating role of online social support had significant indirect effect on depression and fear of missing out.
3	*Chen Y*	*2025*	*China*	*Navigating the digital mirror: The role of information-seeking orientation and uncertainty tolerance in social media-driven body image anxiety*	*To study the The role of information-seeking orientation and uncertainty tolerance in social media-driven body image anxiety*	*Cross Sectional*	*374*	Low negative significant correlation among tolerance and social media engagement
4	*Chen et al.,*	*2025*	*China*	*Does Serendipity Affect Democratic Consequences? Examining the Role of Algorithmic Awareness, Intolerance of*	*moderating effect of intolerance of uncertainty on the relationship between incidental news exposure and online*	*Cross sectional*	*321*	Intolerance of uncertainty positively moderates the link between incidental news

				Uncertainty in Incidental News Exposure and Online Political Participation	*political participation among Chinese social media users.*			exposure and online political participation
5	*Yao et al.,*	*2023*	*China*	*Depression and social anxiety in relation to problematic TikTok use severity: The mediating role of boredom proneness and distress intolerance*	*Assess the relationship between tiktok usage and social anxiety and depreesion and the mediating role of boredom proneness and distress intolerance.*	*Quasi Experimental*	*822*	Depression and social anxiety increased ptu severity through enhanced distress intolerance.
6	*Gori et al.,*	*2023*	*Italy*	*The associations between attachment, self-esteem, fear of missing out, daily time expenditure, and problematic social media use: A path analysis model*	*by exploring the association between adult attachment patterns and problematic social media use and analyzing the sequential mediation of self-esteem, fear of missing out (FoMO),*	*Cross sectional*	*470*	FOMO mediated the relationship between problematic social media use and fearful attachment style.
7	*Steinberger & Kim*	*2023*	*Austria*	*Social comparison of ability and fear of missing out mediate the relationship between subjective well-being and social network site addiction*	*how subjective well-being (SWB) relates to SNS addiction by investigating two possible mediators: social comparison and the fear of missing out (FOMO*	*Cross sectional*	*296*	Significant relationship between FOMO and sns addiction, correlation is low

Quality Assessment And Data Synthesis

The JBI Critical Appraisal tool by Joanna Briggs Institute in 2023 was utilised. Each item with yes received a score of one and "no" or "unclear" were scored as zero. Scores below 5 were considered as low, five to seven is considered as moderate and seven and above was considered as high. Out of the 7 shortlisted studies, only one was quasi-experimental and rest all the 6 were cross-sectional studies. There were 4 studies that were high in the quality and 3 were medium based on the above scoring criteria.

Ethical Considerations and Funding

The study ensured adherence to all ethical considerations, and there was no funding received for the same.

Results

The seven papers that were reviewed were on a total of 3115 samples. While one study was a quasi-experimental study, the rest all the studies are cross-sectional in nature. Five out of seven studies were conducted on a Chinese sample, while one was in Italy and the other in Austria. The oldest study out of the seven studies was done in 2022 and the recent one was in 2025. On assessing the percentage of females in this study, it was seen that for most of the studies, the sample had more than 50% of females, with one study having 81% females. In one of the reviewed studies, intolerance of uncertainty itself was a mediating variable. The studies were all done between 2010 and 2025. Sun et al., 2022 has found a significant moderate correlation ($r = 0.5$, $p < 0.01$) between Intolerance of Uncertainty and Social Media Addiction. There are the following areas that have been explored in this review.

Fear of Missing Out

Dong et al., (2024), and Steinberg and Kim (2023) has studied the association of fear of missing out (FOMO) with social media addiction and intolerance of uncertainty is considered as a crucial characteristics for FOMO. The studies have found out that fear of missing out is one of the major reasons

why an individual resorts to usage of social media and eventually leading to social media addiction. The results have shown a significant correlation ($r = -0.9$, $p < 0.01$; $r= 0.3$, $p < 0.01$), indicating that as fear of missing out increases, social media addiction also increases. While in one study the correlation is low the other study shows a very high correlation. It has also been found by Gori et al., (2023) that FOMO mediates the relationship between problematic social media usage and fearful attachment style.

Online Social Support and Incidental News Exposure

Dong et al., (2024) and Chen at al., (2025) conducted studies to assess how inline social support and online political participation is influenced by intolerance of uncertainty and social media addiction. The results showed that intolerance of uncertainty positively moderates the link between incidental news exposure and online political participation. Online social support was found to play a mediating role in fear of missing out

Depression

Yao et al., (2025) has explored intolerance of uncertainty and social media addiction on depression. Intolerance of uncertainty was found to play a mediating role on depression, social anxiety and social media addiction. It was found that depression and social anxiety enhanced increased distress intolerance.

Discussion

There is a tendency to seek certainty through various means, and social media, being the platform where all news can be fetched, holds crucial importance. Intolerance of uncertainty has been found to influence fear of missing out as missing out on information only brings in more uncertainties (Alfasi 2021). The present study analysed the existing studies on the relationship between Intolerance of Uncertainty and Social Media Use. From an initial search with 312 studies, seven studies were reviewed, adhering to the PRISMA model of systematic review. Rayyan was used in order to filter and select the studies for the review.

Fear of Missing Out has been found to play a significant role in both intolerance of uncertainty and social media addiction (Dong et al., 2024; Steinberger & Kim, 2023). Intolerance of uncertainty is a characteristic that seeks certainty and missing out of information may only increase the uncertainties causing more distress. Social media is a platform that brings in all the information and to seek certainty individuals have a tendency to remain active on social media, further leading to addiction or problematic social media usage.

Online social support was found to play a crucial role in mediating the role of intolerance of uncertainty and social media addiction (Dong et al., 2024). There are various platforms on social media that provides social support and having such social support may lead to reduction of uncertainty where as social media usage may increase because of the same (Usman et al., 2023). Incidental News Exposure is exposure to news while scrolling through social media. It is a possibility that people who seek certainty scroll through social media to receive all the information, eventually leading to incidental news exposure and the news in turn increases intolerance of uncertainty. (Chen et al., 2024).

Depression has been found as another variable that is impacted by both intolerance of uncertainty and social media addiction. . Intolerance of uncertainty was found to play a mediating role on depression, social anxiety and social media addiction. It was found that depression and social anxiety enhanced increased distress intolerance (Yao et al., 2025).

The review paper being specific on the two variables have found that while fear of missing out, online social support, incidental news exposure and depression influences and plays a significant role in intolerance of uncertainty as well as social media addiction. Studies have shown a significant association between Social Media Addiction and Intolerance of Uncertainty (Sun et al., 2022).

Scope, Implication and Limitations

From a pool of 312 studies, only 7 could be eligible for the systematic review based on the inclusion and exclusion criteria. This opens a scope for further studies in the area of intolerance of uncertainty and social media addiction or problematic mobile phone usage. The studies reviewed were all in China, and one was in Italy and one in Austria. This further opens a scope to study the two variables in other countries, including India. All the studies reviewed are either cross-sectional or quasi experimental, opening a scope to look into longitudinal studies. The study can have its implications on clinical settings to deal with depression and anxiety in the context of Intolerance of Uncertainty. It can also be useful in counseling and educational settings to help individuals with social media addiction and intolerance of uncertainty.

The limitations of the study is that all the studies reviewed were empirical and self-Report technique is involved which may lead to self-report bias. The studies were taken from Scopus, pub med and google scholar, so there was a lack of multiple databases such as web of science. The systematic review did not involve any meta-analysis.

Conclusion

The present study focusses on reviewing existing literature on intolerance of uncertainty and social media addiction. From a pool of 312 studies, 7 studies were chosen for the systematic review and PRISMA model was adhered to for the same. The systematic review was done by filtering the studies in Rayyan where both the reviewers have resolved the conflicts on the selection of the studies. The study revealed that intolerance of uncertainty and social media addiction has a significant relationship. Majority of the studies were done in China while a couple of studies were from Italy and Austria respectively. It has been found that both the areas of intolerance of uncertainty and social media addiction has a role to play on an individual's Fear of Missing Out (FOMO), online social support, incidental news exposure and depression. The systematic review opens a scope for further empirical studies in the area especially in India. The study has its implication in clinical, counselling as well as educational settings.

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Psychological Impacts of Eviction on India's Fisherfolk Communities: A Narrative Review

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ABSTRACT

The forced eviction of traditional fisherfolk communities in India as a result of coastal development, tourism, urbanization, and environmental regulation has caused major disruptions to their cultural, economic, and psychosocial contexts. Despite the potential for significant socioeconomic impacts of this state-sanctioned displacement, psychological aspects remain under-researched. This narrative review aims to synthesize the existing evidence about the psychological well-being, identity challenges, adaptive capacities, and trauma processes of displaced fishers in India. A systematic search was undertaken of peer-reviewed literature, grey literature, government reports, and NGO reports taking the academic databases PubMed, PsycINFO, JSTOR, and Google Scholar as sources of information. All studies published between 2010 to 2024 were eligible for inclusion in the review. Data were then extracted, extracted data were thematically analyzed, and a narrative synthesis was constructed from the findings according to ecological systems theory and trauma-informed frameworks. Key findings show increased anxiety, depression, intergenerational trauma, loss of identity, and loss of community post-eviction. Psychological distress often relates to difficulties around securing a livelihood, estrangement from ancestral land and ocean, and the loss of their ability to cope together through cultural practice and family collaboration. The present research showed some signs of adaptive resilience observed in the community, such as activism, cultural conservation, and spiritual practice. Longitudinal studies and culturally informed, localized mental health interventions are both absent for displaced fishing communities. Future research should incorporate participatory and indigenous methodologies would centre fisherfolk voices, and policy would need to incorporate mental health support into displacement and relocation.

Keywords: Fisherfolk, eviction, displacement, psychological impact, India, community trauma, identity, resilience, narrative review.

Introduction

India's coast is an incredible 7,500 kilometres long and holds many plurals, inter-generational traditions of marine-dependent communities. About 3.5 million traditional fisherfolk in states like Kerala, Tamil Nadu, Andhra Pradesh, Odisha, Maharashtra, Gujarat, and West Bengal have been closely connected to the sea and marine life for centuries (Ministry of Fisheries, Animal Husbandry & Dairying, 2020). They are not merely economic actors participating as fishers but rather represent cultural stewards whose lives have been

shaped by ecology, spirituality, and the rhythms of coastal geographies (Kurien, 2000; Salagrama 2006).

Indian fishing communities tend to occupy caste-based settlements that are closely related. These settlements usually are found just past the high tide line. The fishing community's social and spiritual calendar is based on lunar phases and fish migrations based on seasonal cycles. Traditional knowledge, usually passed orally from one generation to another, is based on the intersection of the practical and metaphysical (Johnson & Ramesh, 2007; Bavinck,2001). The sea is often perceived and anthropomorphized as some divine power. Practices in Kerala reflect this reverence for marine life and coastal spaces, as seen in rituals such as Kadalamma Pooja in Kerala and Samudra Aarti in Maharashtra.

Initially, the CRZ (Coastal Regulation Zone) notifications were meant to protect ecologically fragile zones, as well as the rights of traditional dwellers. However, with repeated amendments, often heavily influenced by corporate lobbying, the protections have been eroded (Menon & Kohli, 2018; Chandran & Nair, 2020). Fisherfolk were being displaced from their ancestral lands under the guise of conservation or public purpose without real involvement or adequate continued resettlement support. Displacement is not a single act for fisherfolk, but it is an existential rupture. It cuts through the individual's place, cultural memory, intergenerational connectivity, and spiritual geography. The loss is not limited to physical housing or livelihood, which shreds the foundation of identity. People felt serious psychological issues when they were asked to be resettled 10 km inland, where they cannot hear or see the sea.

Previous literature of the National Fish workers Forum (NFF) has documented the economic impacts of this type of displacement; however, the psychological impacts of displacement remain understudied and rarely considered in policy and academia. The cost to mental health represented in terms of anxiety, trauma, uncertainty about identity, depression and grief at the population level is ignored and/or overlooked (Cernea, 2000; Menon, 2019; Das et al., 2018). India's national mental health policy framework, particularly the National Mental Health Programme (NMHP) and the Mental Healthcare Act (2017), makes no mention of the mental health/psychosocial impacts of displacement without consideration of culturally embedded trauma for indigenous or traditional communities. This represents a missed opportunity for care, response, and justice.

In this narrative review, the present research synthesizes interdisciplinary research, theory, and expertise to better understand the psychological consequences of fisherfolk eviction in India. The emphasis is on displacement-related trauma, loss of individual and collective identity, disruption of culture, distress that is passed from generation to generation, and the contributions of resilience. Ultimately, the study will highlight a trauma-informed, culturally meaningful, and community-based approach to be taken to promote the consideration of subsequent displacement policies and mental health planning.

Review of Literature

Displacement of traditional fisherfolk in India has often been framed through economic, legal, or ecological lenses with very little consideration for the psychological and cultural facets of eviction. This review synthesizes interdisciplinary research on the mental health consequences of development-induced displacement, using literature focused on traditional coastal communities. The section below is organized according to five interconnected themes from the past literature, as follows: (1) Psychological Distress and Trauma, (2) Loss of Place-Embedded Identity, (3) Disintegration of Social Groups and Isolation, (4) Economic Disruption and Role Loss, and (5) Resilience through Cultural Resistance.

Mental Health Consequences of Displacement

Displacement (dislocation from land, housing, and resources) from whatever cause, whether dams, mining, urban demolition, or coastal development, is directly correlated with increased rates of mental health issues, including but not limited to depression, anxiety, somatization, substance use disorders, and PTSD (Utete, 2023). Cernea (2000) studied that development-induced displacement usually leads to "trauma and psychological destabilization" globally, and it is never accounted for in rehabilitation policies. Past research in the Indian context shows that forced eviction leads to long-term psychological distress. Sinha (2011) found that displaced tribal peoples from mines in Jharkhand experienced prolonged feelings of sadness, helplessness, and suicidality. Similarly, Banerjee and Basu (2015) studied displaced people in Odisha and noted increased levels of alcohol dependency, bodily complaints, and emotional disengagement (especially for men). In an urban context, Das et al. (2018) studied slum dwellers forcibly relocated from Odisha, reporting high levels of anxiety, sleep disorders, and family dysfunction.

Fisherfolk communities experience these psychological consequences in compounded forms, given the non-material aspects of their loss. For example, Rajan and Sinha (2009) examined fisherfolk who were displaced and resettled after the tsunami in Tamil Nadu, documenting that teenagers and adolescent males displaced from their coastal villages as experiencing PTSD symptoms, social withdrawal, and disengagement from school. Similarly, Rohit (2017) found that fisherfolk in Gujarat displaced by port expansion reported more panic attacks, insomnia, and a capacity for substance dependency. This suggests that displacement involves not only physical relocation, but rather represents a psychosocial dismemberment with impacts on mental health that get passed down through generations if left unchecked.

Loss of Place-Based Identity

Fisherfolk's identity is closely tied to the sound of waves, the scent of salt, the ebb and flow of tides, and the stories of ancestors who were lost at sea. Evicting coastal communities is more than an economic loss; it is an ontological rupture as well as a severing of identity, history, and cosmological order. Displaced fisherfolk often feel a profound identity crisis, as their occupational, spiritual and cultural existence is intertwined in their proximity to the sea. Kamat (2014) demonstrated how the

eviction of Goan fisherfolk for luxury tourism had repercussions on occupational pride, ritualization, and intergenerational storytelling. Arunachal et al. (2019), in Tamil Nadu, spoke to women from coastal villages at the time of displacement who told them they felt "cut off from their gods" and no longer able to perform shrines, group ceremonies of the sea, and death ceremonies in their inland resettlement colonies.

These experiences resemble Edward Relph's idea of placelessness, such that when you are removed from a place that holds meaning, you experience dislocation and detachment (Relph, 1976). Traditional fisherfolk, whose senses of place are so inundated with ecological memory and sacred geography, see evictions as a real threat to some of the most primary aspects of their sense of self. Salagrama (2006) also adds his findings about the psychological heaviness of this displacement, showing that older fisherfolk often refer to the sea as a "mother" or "ancestor." When they are relocated inland, many report purposelessness, emotional numbness, and even a loss of will to live. The loss of identity is not metaphorical, and it is felt viscerally, spiritually, and intergenerationally.

Community Disintegration and Social Isolation

Traditional fisherfolk communities are not just occupational units but social ecosystems. They operate according to principles of kinship and cooperation, supported by caste delineations, gendered labour expectations, and intergenerational interdependence and solidarity. When evicted, these ecosystems are broken apart. Certain families, once living together for decades, are dispersed across resettlement sites far apart from their once interdependent networks, leading to social disarticulation, isolation, and uncertainty about roles or responsibilities.

Johnson and Ramesh (2007) found that fisherfolk villages function as a consensus-driven extended family unit, with roles that contribute to social and emotional stability: e.g., an elder teaches younger fishermen, women coordinate sales of fish, and they collectively coordinate festival patronage to sustain morale. After displacement, these roles may break down, and what formerly provided continuity in people's lives will be shattered. It becomes a source of alienation, mistrust, and sometimes intra-family conflict.

Das et al. (2018) study showed that slum-based residents in Delhi, following evictions from their settlements, lost their mutual aid systems. It particularly includes childcare, women's safety, and conflict resolution. These findings also provide evidence in fisherfolk contexts. Rao (2016) emphasized that the displacement is not only the dislocation of people but the dislocation of the emotional infrastructure of community life.

Fisherfolk in Kerala evicted from demolished homes due to coastal erosion and CRZ restrictions were responding to the feeling of being 'orphaned', due not only to land loss, but to losses of kin networks and lack of rituals (Menon, 2019). Social cohesion is lost, and the community that provided a buffer against hardship has been replaced by (often newly formed) patterns of mistrust, uncertainty, and emotional isolation.

Economic Insecurity and Psychological Stress

The dislocation of fishery communities from coastlines prevents fishermen from transferring their traditional fisheries skills (Satapathy, 2023). Fishermen are displaced to a resettlement area either inland and far from their original coastal area, which denies fishermen any access to the ocean, or they cannot afford new boats, and many women fisherfolk will lose their economic role, moving from selling fish to drying fish along the shore. Dislocation will create financial insecurity, tension from shame, and anxiety within the family structure. Bavinck et al. (2017) explored fishermen and fisherwomen's relationships with their work, duplicating various benefits for the fishing community: wages, such as social status; and a sense of self-esteem and worth. When displaced, many fisherfolk felt a complete loss of masculinity because they could no longer provide for their families. Further, Banerjee and Basu (2015) found that the loss of "role" amongst males is relevant to contextual triggers of depression, anger, and willingness to engage in risky behaviours.

Meanwhile, women are often saddled with additional emotional challenges around food insecurity, their children's education or health, and family health or wellness, and in the case of women fisherfolk, maintaining family social connections in a new unconnected neighbourhood (Utete, 2023). Parikh and Puri (2020) identified that women displaced from their fishing community after playing a pivotal community role experienced role overload, emotional fatigue, and heightened risk of domestic violence.

Children are also being affected, and research in Andhra Pradesh by Sreeja and Paul (2018) found that children from those displaced coastal families experienced increased behavioral problems, irritability, and school dropout rates. They were no longer connected to the ancestral and seasonal festivals and games, to the communal learning of the school system; such ties to their ecosystem have been disrupted, and their lives no longer represent certainty. Consequently, economic instability in fisherfolk communities is not considered simply in terms of loss of income. Economic instability is seen as a complex series of emotional crises, especially when it occurs in conjunction with institutional neglect and poor rehabilitation efforts.

Resilience and Resistance Movements

In spite of severe trauma, the fisherfolk communities have shown extraordinary resilience and political awareness. Displaced communities across India have begun to form legal actions, protests, and movements of spiritual renewal oriented to revitalizing their identities, voice and rights. The National Fishworkers Forum (NFF) has played a vital role in organizing protests against coastal displacement in particularly in Kerala, Tamil Nadu, and Goa. They have mounted a political campaign to establish that fisherfolk have customary rights to the coastal lands, and if there is any claim on the land, it is a claim on land by “prior users” (Menon & Kohli, 2018). These protest movements stall or reverse evictions and create psychosocial space for healing, where collective grief is transformed into solidarity and action. Moreover, spiritual practices have been revived as a form of

resistance. In certain displaced communities, rituals have adapted and been recreated elsewhere. By conducting these rituals in new locations, the displaced fisherfolk communities have expressed continuity of tradition and a link to their previous home. For example, the shrines that were erected post-displacement have been created inland, but they brought a symbolic ratio of sand from the beach as a mechanism of spiritual bridging between past and present (Kurien, 2000).

Additionally, community media, oral storytelling, and festivals have been utilized to reshape identity and to pass knowledge on to future generations. This is supported by trauma studies, which identify narrative reconstruction and cultural affirmation as key sites of healing (Denborough, 2008). Therefore, resilience is not just about surviving but as an active, relational process of protest, spirituality, memory, and adaptation.

Methodology

This study employs a narrative review method to synthesize studies examining the psychological effects of displacement on fisherfolk communities in India. This narrative review adheres to the framework proposed by Green et al. (2006) for conducting structured narrative literature reviews. The purpose of the review is not simply to collect information, but to create a narrative that illustrates ways that displacement impacts the mental health, identity, and social-ness of coastal populations, particularly for coastal populations embedded in traditional forms of livelihoods.

Search Strategy

The review involved a structured search of scholarly databases including PubMed, Scopus, JSTOR, and Google Scholar, using combinations of keywords such as *"fisherfolk displacement India," "psychological effects of eviction," "development-induced displacement," "mental health and resettlement," "coastal eviction,"* and *"traditional livelihoods and identity loss."*

Inclusion Criteria

Studies were included if they met the following criteria:

- Focused on Indian coastal or fisherfolk communities
- Addressed psychological, emotional, or social outcomes of eviction or resettlement
- Included qualitative, ethnographic, or mixed-method research
- Published between 2000 and 2024
- Peer-reviewed articles, governmental reports, and NGO documentation

Data Extraction and Thematic Synthesis

The studies selected were analyzed for repetitive psychological, social, and cultural patterns. In analyzing the studies, a thematic analysis framework was used to categorize results into themes or domains, such as mental health symptoms, identity disruption, social fragmentation, economic burden, and community resilience. This review aligns with what Green et al. (2005) where narrative reviews address complex, context-specific issues where human phenomena and system processes intersect.

Thematic Analysis

This thematic analysis is based on a collection of interdisciplinary documents,

reports, and qualitative narratives relating to the forced displacement of traditional fisherfolk in India. The analysis revealed five interrelated themes: (1) Psychological Distress and Trauma, (2) Loss of Place-Embedded Identity, (3) Disintegration of Social Groups and Isolation, (4) Economic Disruption and Role Loss, and (5) Resilience through Cultural Resistance. Overall, each theme provided nuanced understandings of how eviction takes apart a community not only at the physical level, but their emotional, spiritual, and social worlds.

Psychological Distress and Trauma

Across studies, one of the most salient and immediate consequences of displacement was a pronounced increase in mental health symptoms, including anxiety, depression, sleep disturbances, somatic complaints, substance use, and in some cases, suicidal ideation. In practice, eviction was not experienced as a single event but rather as a protracted psychological rupture(Utete, 2023). In a study by Rajan and Sinha (2009) and Rohit (2017) found mental health consequences of relocation were found among adult and adolescent subjects who evidenced post-traumatic stress and emotional withdrawal. For many displaced fisherfolk, particularly older and male subjects, the experience was compounded by a sense of helplessness and spiritual dissociation, resulting in emotional numbness and loss of human meaning (Aathithiya et al., 2024). The lack of culturally situated mental health services, coupled with the disconnection of clinical psychiatry from indigenous ways of coping and the invisibility of psychological pain in policy discourses, reinforces systemic neglect of psychosocial rehabilitation.

Loss of Place-Based Identity

Fisherfolk communities have an ecological understanding and a spiritual connection to coastal geographies forged through centuries of lived experience, oral sharing, and ritual practice. Displacement can sever this relational existence. The sea is more than a means of livelihood; the sea is kin and memory, and divinity. Kamat (2014) and Arunachal et al. (2019) demonstrated how relocation to inland colonies led to the disruption of spiritual habits, loss of coastal shrines, and an inability to enact traditional festivals and death rituals. The disruption of cultural enactment led to identity loss, particularly for older adults and women, who serve as the keepers of historical knowledge. The loss of place can result in what could be described as ontological insecurity, or disarticulation of the self and the community. In this sense, eviction is not just about the loss of homes or land, but eradicating cultural existence.

Social Disintegration and Isolation

Traditional fisherfolk settlements have frameworks based on kinship, caste-aided mutual aid, and intergenerational support networks. Displacement of fisherfolk disrupts these frameworks and often results in family and community fragmentation with in some cases all families being completely displaced and located in urban and peri-urban locations that are completely foreign and remove the emotional scaffolding that had once provided support (Satapathy, 2023).

Johnson & Ramesh (2007) and Das et al. (2018) describe the terms "mutual aid disruption", "social isolation", and "trust erosion" in their studies on community; mutual aid networks, which once drew

individuals together socially and emotionally, were no longer available in traditional fisherfolk settings. Individuals who thrived within group settings began to withdraw socially and exhibited confusion about social roles, while informal systems of support for caregiving, inter-family conflict resolution, and mourning were no longer effective.

Women face unique challenges under these circumstances of the tension given not only the immediately fractured communities but also the adjustment to living and moving in a space that was not easily identifiable, without the usual peer networks that can be used for mutual aid, support, and camaraderie. The breaking of communal ties was experienced as emotional exile rather than simply a logistical problem with regaining their place within the community in older settings (Satapathy, 2023).

Economic Disruption and Role Erosion

Economic impacts of displacement are strongly tied to gendered identities and social value. Fishing is more than just an occupation that generates income. It is something that carries with it dignity, masculinity, and a community role. Moving the community inland usually means that traditional skills are made irrelevant, leading to non-economic unemployment, experiences of loss, financial stress, and tension in the household. A study by Bavinck et al. (2017) and Banerjee and Basu (2015) highlights how fishermen losing the ability to fish after being displaced are linked to their experience of depression, irritability, and shame. Losing traditional roles within the household destabilizes the family structure, which translates into substance use and domestic violence. At the same time, women are often forced into informal labor or unpaid caregivers as a result of displacement, leaving them suffering from emotional exhaustion, losing their status in society, and feeling vulnerable. Children of displaced communities miss out on educational opportunities, lose exposure to Traditional ecological knowledge, and show increased behavioral problems (Sreeja & Paul,2018). In this way, economic displacement is more than financial. It is deeply psychological, whereby self-worth, domestic cohesion, and intergenerational stability are undermined.

Resilience through Cultural Resistance

Despite considerable trauma, fisherfolk communities have been able to show remarkable resilience, dignity, and agency. By protesting collectively, seeking legal recourse, adapting to culture, and reclaiming spirituality, they are able to defy extinction and resist erasure while demanding justice. The National Fishworkers Forum (NFF) has organized many grassroots movements in opposition to being evicted from coastlines, often anchoring customary ownership of fisherfolk to climate-threatened coastal commons. While many of these acts of resistance are political, they are also healing activities. As discussions on trauma have identified, activism is one way of healing from trauma, reclaiming a sense of control, and reconstructing a narrative or wrapping one’s head around the event (Denborough, 2008). Spiritual continuity is also maintained through adaptive rituals such as creating shrines in resettlement areas using sand from the original beaches or reimagining sea rituals inland. They help people get back emotionally and continue their cultural memory (Parentela, 2023).

Oral stories, traditional songs and community celebrations are still performed each year as a way to pass on customs and act as a method of emotional resilience. Even in precarity, these acts declare a collective "we still exist".

Summary of Thematic Insights

Theme	Core Insight
Psychological Distress	Displacement leads to anxiety, PTSD, depression, and somatic stress, often left unaddressed.
Place-Based Identity	Loss of coastal space erodes spiritual, cultural, and occupational identity.
Social Isolation	Eviction fragments kinship systems, increasing emotional alienation.
Economic Stress	Non-transferable skills, job loss, and changing roles fuel psychological strain.
Cultural Resilience	Communities heal and resist through activism, ritual, and memory-making.

Discussion

This review highlights the multi-layered psychological impacts of displacement on traditional fisherfolk populations in India. While displacement tends to be framed in terms of loss of land, loss of income or livelihoods, this paper illustrates that displacement entails existential loss: loss of identity, loss of meaning, loss of community, and loss of future orientation. One of the study's primary findings is that eviction causes invisible trauma, observed as anxiety, depression, PTSD, and emotional exhaustion. However, this trauma rarely receives diagnosis or treatment, in part because the fisherfolk's suffering cannot be categorized medically but remains embedded socially, culturally, and spiritually.

The loss of place-based identity is equally important. The sea is more than a place of work for fisherfolk. For them it is an ancestor, a god, a history, a regulatory rhythm. Displaced fisherfolk do not merely relocate from one place to another, but become disanchored from their place of living. The loss of a spiritual geography generates ontological insecurity that cannot be replaced with financial compensation. One of the significant themes identified is loss of social structure and social obliteration. Traditional fishing communities are structured according to kinship and caste-based roles. Loss of their home community disrupts these roles causing psychosocial alienation, domestic conflict, and weakening their caregiving networks. When traditional fisherfolk women are displaced from their communities, they not only lose their place-based identity, but they are socially displaced as well. It could be stripping one of their identities away from them is a particularly tragic experience.

The review also emphasizes the gendered psychological repercussions of economic insecurity. Fisherfolk lose rights to dignity, and their prestige and inability to provide for their families results in shame and emotional collapse. In contrast, women take on additional unpaid labour in the form of emotional caretaking and economic insecurity. Children find themselves not only losing educational continuity but also facing behaviour problems, culture shock, and disorientation. In the midst of all of this,

there is also resilience. Cultural resistance can take place in the form of protests, spiritual reinvention and narrative re-imagining. Therefore, it is equally a political exercise and because it restores dignity, coherence and intergenerational continuity to the individual and social collectiveness will also function as a form of therapy.

The current research acknowledges that any rehabilitation policy will need to consider being trauma informed, culturally competent and participatory. Within this context, psychological well-being should be a part of but not secondary to the discourse on displaced people and their transformation from displacement.

Conclusion

Eviction is more than just a logistical or physical infrastructural act. It is a psychosocial rupture. For the traditional fisherfolk communities in India, displacement creates complex trauma: it displaces bodies, history, identity, and spiritual worlds. This narrative review makes clear that the psychological effects of eviction unfold as true and pressing, even against the material effects. The study supports the need for interventions that must go beyond restoring land and livelihood. It must include mental health services, which are community-informed, culturally grounded, and socially sensitive to the loss of identity and grief. Living with dignity encompasses the rights to remember, belong, and heal.

Limitations

This narrative review has limitations. One major limitation is the limited psychological studies focused on fisherfolk, with the majority of literature drawing from studies on displaced populations in general, such as refugees, slum populations, and tribes. This limits a rich understanding of the individual's own psychosocial experience since the literature is generalised. Furthermore, many of the studies reviewed were published in English, so this introduced a linguistic and geographic bias that likely excluded some findings that may have been relevant from vernacular literature or community-based literature produced locally. The cross-sectional nature of the studies reviewed also limits the quality of data gathered and reviewed, as the measure only captures a moment in time in analyzing the psychosocial support and recovery process of fisherfolk. Finally, the potential insights derived from grey literature are also limited in scope as many pieces' emphasis qualitative data not typically available through a systematic search of the literature, and are really only accessible through poorly documented reports and unpublished case studies, which in most cases are difficult to find.

Future Directions

To enhance research and advocacy about fisherfolk displacement, future research should use a longitudinal design to capture longer-term mental health impacts and recovery over time. Research must also adopt an intersectional approach to examine and understand psychological impacts based on different experiences between gender, caste, and age. Engaging fisherfolk as active participants using participatory approaches is also important in ensuring their voices are included in both research and advocacy. Interventions involving mental health that are culturally based and aligned with local cultural practices are necessary. Such interventions are evaluations of the psychosocial impact of state-level policy for

rehabilitation in each of the impacts across regions.

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Coping Through Clicks: Exploring the Mediating Role of Stress Coping Styles Between Self-Esteem and Social Networking Use Among College Students

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ABSTRACT

Background: Social networking platforms (SNPs) are deeply embedded in college students' lives, serving both academic and emotional purposes. While self-esteem and stress coping styles have been individually linked to social media behavior, limited research has examined how coping styles mediate the relationship between self-esteem and specific patterns of social media use—especially within the Indian student population.

Objective: To examine whether approach- and avoidant-oriented stress coping styles mediate the relationship between self-esteem and four patterns of social networking use: academic, socialisation, entertainment, and informativeness.

Method: A cross-sectional study was conducted with 500 college students in Delhi-NCR, India. Participants completed the Rosenberg Self-Esteem Scale (RSES), Brief COPE, and the Social Networking Usage Questionnaire (SNUQ). Mediation analyses were performed using Hayes' PROCESS macro (Model 4) with bootstrapped confidence intervals to test parallel mediation between the variables.

Results: Self-esteem significantly predicted several coping styles. In turn, certain coping styles mediated the effect of self-esteem on specific types of social networking use. Approach-oriented coping (e.g., planning, acceptance) mediated informativeness and academic usage. Among the avoidant styles, self- distraction emerged as a significant mediator of the relationship between low self-esteem and entertainment-oriented social media use. Other avoidant coping styles (e.g., substance use, disengagement, self-blame) did not show significant mediation effects. The direct effect of self-esteem on overall social networking use was non-significant, underscoring the mediating role of coping strategies. Conclusions: Coping styles serve as crucial psychological pathways through which self-esteem shapes students' social media behavior. Purpose-specific analysis of social networking usage offers deeper insight into youth digital engagement, with implications for designing supportive interventions.

Keywords: self-esteem, coping styles, college students, mediation analysis, social media use

Background

The Digital Ecology of College Students

Social networking platforms like Facebook, WhatsApp, Instagram, and YouTube are widely used by college students for academics, socializing, and entertainment (Diep et al., 2021; Lim et al., 2014). However, excessive use can lead to negative effects like stress, poor sleep, and reduced attention (Tamba & Iancu, 2023; Servidio et al., 2018). The present study seeks to

explore how these various purposes for using social networks may be linked to certain psychological processes like self-esteem and stress coping styles of the college students' population.

Self-Esteem and Online Behavior

The positive or negative attitude that an individual holds toward themselves is defined as the concept of self-esteem (Coopersmith, 1967). Rosenberg (1979) defined the global self-esteem of an individual as being based not only on the evaluation of their constituent qualities but also on an assessment of the qualities that matter. The level of one's self-esteem is significantly related to how one engages with their environment, whether it is the real world or the different social media platforms as well. Self-esteem significantly influences behavioral patterns, emotional resilience, and online activity (Chupradit et al., 2021).

Stress and Coping in the College Context

The transactional model of stress views it as a mismatch between demands and coping resources (Lazarus and Folkman, 1984). Coping strategies include adaptive approach coping (e.g., planning, support-seeking) and maladaptive avoidant coping (e.g., denial, distraction). College students are encouraged to use approach strategies to manage stress effectively and avoid long-term negative outcomes.

These stress coping styles can be extrapolated into the digital behavior of students and can indicate which stress coping strategy may lead to what purpose for which they might make use of social media platforms, be it, Academic, Socialisation, Informativeness or even Entertainment purposes. Avoidant coping, particularly, has been linked to increased use of social media as a temporary emotional refuge (Servidio et al., 2018; Tamba & Iancu, 2023).

Theoretical Rationale for Mediation

Past research (Yu, 2009; Lee & Kim, 2005) has shown that self-esteem is linked to various dominant stress coping strategies and how certain coping styles are linked to social media use (Servidio, 2018), none have simultaneously studied both stress coping styles (approach and avoidant) as mediators for what purposes college students may use various social media platforms. This particular phenomenon has clearly been understudied in different mediation models. Thus, a combined mediation model will answer how and why self-esteem translates into different forms of digital behaviors of college students.

Research Hypotheses

H1: Self-esteem will significantly predict overall social networking usage among college students.

H2: Approach-oriented coping styles will mediate the relationship between self-esteem and social networking usage.

H3: Avoidant coping styles will mediate the relationship between self-esteem and social networking usage.

Method

Participants

The present study recruited 500 undergraduate and postgraduate college students in the age range of 17-25 years (Mean = 19.96, SD = 1.389) from various educational institutions across the Delhi-NCR region of India. The participants were sampled through the cluster sampling method to cover maximum region of this geographically dispersed area. To ensure

that the sample meets the inclusion criteria for the study, it was ensured that the respondents were enrolled in a full-time program at the institute and they are active users of at least one social media platform. Participants who returned incomplete responses or who had reported certain psychological diagnoses and those who are not users of any social media platforms were excluded from the study.

Study Design

The present study employs a cross-sectional, non-experimental, correlational design to evaluate the mediating role of both types of stress coping styles (approach and avoidant style) in the relationship between self-esteem and social networking usage among college students. Self-esteem is the predictor variable, the mediating variables are approach stress coping styles (active coping, emotional support, informational support, positive relations with others, planning, acceptance) and avoidant stress coping styles (self-distraction, denial, substance use, behavioral disengagement, venting, self-blame), and overall social networking usage among college students is the outcome variable.

Measures

Self-Esteem. Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a 10-item instrument used to evaluate the global self-worth of the respondent on a 4-point Likert scale (1 = strongly disagree; 4 = strongly agree). The high scores obtained on this scale indicate high levels of self-esteem among the respondents. The scale has a test-retest reliability of over 2 weeks of .85 and .88, suggesting suitable stability (Rosenberg, 1965), and concurrent, predictive, and construct validity among known sample groups.

Stress Coping Styles. The Brief-COPE (Carver, 1997) has 28 items that measure both effective and ineffective ways to cope with a stress-inducing life event. In healthcare settings, this scale examines how inpatients deal with various health diagnoses (Venkateswaran & Thirumalai, 2024; Sangeetha et al., 2024). It has been used in this study to evaluate how college students cope with the stressors associated with various patterns of social networking usage, and whether they exhibit an approach or avoidant stress coping style in response to these stressors.

The major subscales utilized in this study are Self-distraction, Active coping, Denial, Substance use, Use of Emotional Support, Use of Informational Support, Behavioral Disengagement, Venting, Positive Reframing, Planning, Acceptance, and Self-blame. The responses are Likert-type ranging from 1, i.e., "I haven't been doing this at all" to 4, i.e., "I've been doing this a lot". This scale has been validated on the Indian college student sample in recent research (Das, 2023; Veeraboina et. al., 2022; Cherkil, Gardens and Soman, 2013).

Social Networking Usage. The Social Networking Usage Questionnaire (SNUQ) (Gupta and Bashir, 2018) has been standardised for about 300 university students situated in the northern part of India, particularly Kashmir.

Procedure

The data was collected from the respondents using a manual method of paper-pencil surveys, which were administered in their classrooms. Before the data collection, due permission was obtained from the heads of respective colleges after a short briefing

about the purpose of the study. An informed consent form was signed by the participants which detailed all the relevant information pertaining to the study, like assurance of their confidentiality and the voluntary nature of their taking part in the study. None of the personal identifying information of the sample was recorded as they were assigned Form IDs to ensure safekeeping of their data.

Data Analysis

The collected data was analysed using IBM SPSS Statistics Version 27. Descriptive statistics like Means and Standard Deviations were calculated for all the study variables. Thereafter, two parallel mediation models were tested using the Hayes' PROCESS Macro (Model 4) with 5000 bootstrap resamples and 95% confidence interval. One of the mediation models included various approach coping strategies as the mediator variables, and the second mediation model used avoidant coping strategies, with both models having self-esteem as the predictor and the social networking usage patterns as outcome variables.

Results

The sample consisted of 500 college students studying at various educational institutions around the Delhi-NCR area. The mean age of the sample is 19.96 years, and the SD = 1.389. The descriptive statistics (see Table 1) revealed that among the four types of social media usage, academic purposes had the highest mean score (M = 23.57, SD = 6.28), followed by socialization (M = 16.06), entertainment (M = 14.73), and informativeness (M = 10.14). The mean self-esteem score was 21.78 (SD = 4.68), suggesting a moderate level of self-esteem across the sample. Among the various stress coping strategies, acceptance, active coping, and planning had the highest means among approach-oriented strategies, while self-distraction had the highest mean among avoidant coping strategies.

Table 1. Showing descriptive statistics of the study variables.

Variables	Mean	Standard Deviation
Academic Usage Pattern	23.57	6.28
Socialization Usage Pattern	16.06	4.36
Entertainment Usage Pattern	14.73	3.71
Informativeness Usage Pattern	10.14	2.77
Self-esteem	21.78	4.68
Active Coping	5.68	1.60
Emotional Support	4.96	1.861
Use of Informational Support	4.96	1.860
Positive Reframing	5.42	1.672
Planning	5.41	1.71
Acceptance	5.79	1.72
Self-destruction	5.12	1.74
Denial	3.79	1.75
Substance Use	3.09	1.749
Behavioral Disengagement	3.93	1.62
Venting	4.39	1.58
Self-blame	4.29	1.86

In the first mediation model, approach coping styles were tested as mediators between self- esteem and overall social networking usage patterns. As shown in Table 2 and illustrated in Figure 1, self-esteem significantly predicted several approach strategies: active coping (b = -0.0893, $p < .001$), positive relations with others (b = -0.0661, $p < .001$), planning (b = - 0.0557, p = .001), and acceptance (b = -0.0646, $p < .001$). Although emotional and informational support showed weaker associations, informational support was the only strategy that significantly predicted social networking usage (b = 0.9562, p = .0114). The total indirect effect of self-

esteem on social networking usage through these coping strategies was significant (b = -0.1168, 95% CI [-0.2283, -0.0206]), while the direct effect was non-significant (b = -0.0157, p = .9099). This indicates that the effect of self-esteem on social media usage is fully mediated through approach coping styles, with informational support acting as a key pathway.

Table 2. Mediation Analysis Results: Approach Stress Coping Styles as Mediators Between Self-Esteem and Social Networking Usage Patterns (N = 500).

Effect	b	SE	p	95% CI LL	95% CI UL	Significant?
SE → Active Coping	-0.0893	0.0166	< .001	-.1209	-.0577	Yes
SE → Emotional Support	-0.0234	0.0187	.2085	-.0598	.0131	No
SE → Informational Support	-0.0326	0.0183	.0752	-.0686	.0033	Marginal
SE → Positive Relations with Others	-0.0661	0.0176	< .001	-.0990	-.0333	Yes
SE → Planning	-0.0557	0.0167	.0010	-.0888	-.0227	Yes
SE → Acceptance	-0.0646	0.0171	< .001	-.0990	-.0302	Yes
Active Coping → SNUQ	0.5293	0.4291	.2237	-.3243	1.3828	No
Emotional Support → SNUQ	0.2341	0.3591	.5203	-.4809	.9491	No
Informational Support → SNUQ	0.9562	0.3762	.0114	.2165	1.6960	Yes
Positive Relations with Others → SNUQ	-0.2072	0.4250	.6147	-1.0153	.6010	No
Planning → SNUQ	0.6106	0.4162	.1413	-.2037	1.4250	No
Acceptance → SNUQ	0.1934	0.3754	.6075	-.5458	.9326	No
SE → SNUQ (Direct Effect)	-0.0157	0.1477	.9099	-0.2879	0.2565	No
SE → SNUQ (Total Indirect Effect)	-0.1168	0.0526	—	-0.2283	-0.0206	Yes

In the second mediation model, avoidant coping styles were tested as mediators (see Table 3 and Figure 2). Self-esteem significantly predicted all avoidant coping styles, including self-distraction (b = -0.0430, p = .0135), denial, substance use, behavioral disengagement, and self-blame, indicating that lower self-esteem was associated with higher use of these maladaptive strategies. Among them, only self-distraction significantly predicted social networking use (b = 1.2450, p = .0005), and the specific indirect effect through self-distraction was also significant (b = -0.0536, 95% CI [-0.1175, -0.0054]). The total indirect effect for all avoidant strategies, however, was not significant (b = -0.0169, 95% CI [-0.1406, 0.1086]), suggesting that while the full set of avoidant coping styles did not collectively mediate the relationship, self-distraction played a distinct and important mediating role.

Table 3. Mediation Analysis Results: Avoidant Stress Coping Styles as Mediators Between Self-Esteem and Social Networking Usage Patterns (N = 500).

Effect	b	SE	p	95% CI LL	Significant?
SE → Self-distraction	-0.0430	0.0174 .0135	-0.0771	-0.0089	Yes
SE → Denial	0.0604	0.0178 .0008	0.0254	0.0955	Yes
SE → Substance Use	0.0663	0.0177 .0002	0.0316	0.1010	Yes
SE → Behavioral Disengagement	0.0702	0.0161 .0000	0.0385	0.1019	Yes
SE → Venting	0.0285	0.0163 .0797	-0.0034	0.0605	Marginal
SE → Self-blame	0.1148	0.0176 .0000	0.0801	0.1494	Yes
Self-distraction → SNUQ	1.2450	0.3525 .0005	0.5523	1.9377	Yes
Denial → SNUQ	0.5021	0.3803 .1873	-0.2450	1.2493	No
Substance Use → SNUQ	0.2060	0.3488 .5551	-0.4793	0.8913	No
Behavioral Disengagement → SNUQ	0.0216	0.4115 .9582	-0.7870	0.8302	No
Venting → SNUQ	-0.0894	0.3976 .8221	-0.8706	0.6917	No
Self-blame → SNUQ	-0.0547	0.3662 .8813	-0.7742	0.6648	No
SE → SNUQ (Direct effect)	-0.1155	0.1440 .4227	-0.3984	0.1673	No
Total Indirect Effect	-0.0169	0.0632 —	-0.1406	0.1086	No
Specific Indirect Effect via Self-distraction	-0.0536	0.0288 —	-0.1175	-0.0054	Yes

Figure 1. Mediation Model for Approach Stress Coping Styles with Path Coefficients

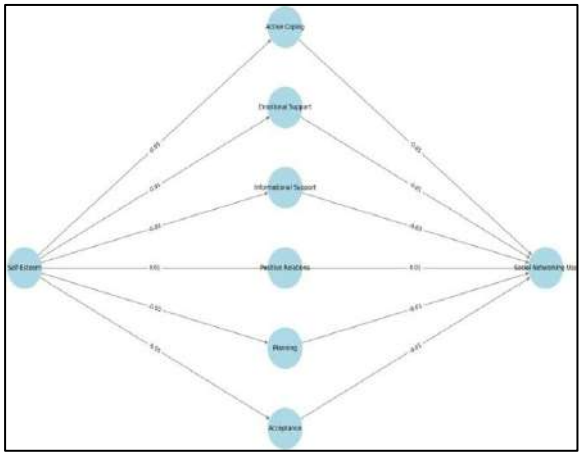
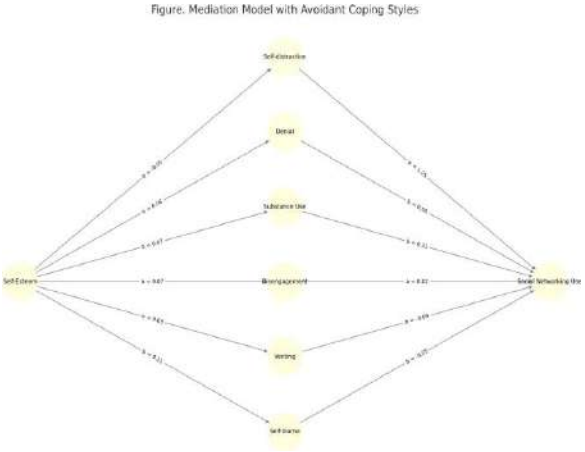


Figure 2. Mediation Model for Avoidant Stress Coping Styles with Path Coefficients



Together, these results suggest that self-esteem alone does not directly predict social networking use, but instead operates through different coping styles depending on the purpose of use. Students with higher self-esteem are more likely to engage in informational coping, which leads to more purposeful, knowledge-oriented social media use. In contrast, students with lower self-esteem are more likely to rely on self-distraction, leading to increased use of social media for entertainment and emotional escape. These findings provide strong support for the hypothesized mediation model and reinforce the importance of examining purpose-specific pathways in digital behavior among youth.

Discussion

The present study highlights the role of various stress coping styles as a mediating variable in the relationship between self-esteem and overall social networking usage among college students. Grounded in the Uses and Gratifications Theory (Katz,

Blumler & Gurevitch, 1973) and Lazarus and Folkman's (1984) transactional model of stress and coping, the current research provides insights about individual psychological constructs such as self-esteem and stress coping styles and how they influence the digital behavior of the college students.

Hypothesis 1 (H1) states that self-esteem will significantly predict overall social networking usage among college students. From both the mediation models, the direct effect of self-esteem on social networking usage among college students is statistically not significant. Wang et al. (2015) observed a similar trend in that personality traits and emotional states impact social media behavior indirectly through various mediating mechanisms such as motives, coping patterns, or emotional regulation strategies. On a similar note, Servidio et al. (2018) found that while self-esteem correlates with the usage of the Internet, its predictive power becomes more evident when mediated through various stress coping strategies. The absence of a direct link in the present study reinforces the need to explore indirect psychological processes, rather than assuming that self-esteem alone determines online engagement patterns.

Hypothesis 2 (H2) states that approach-oriented coping styles will mediate the relationship between self-esteem and social networking usage. From the obtained results, it can be seen that this hypothesis has partial support. The variable, self-esteem was significantly associated with several adaptive coping mechanisms, such as planning, acceptance, and active coping, consistent with previous findings that individuals with higher self-esteem are more likely to engage in problem-focused and emotion-focused coping (Yu. 2009).

Among the tested mediating variables, the approach stress coping strategy of informational support was the only strategy that was significantly linked to overall social networking usage. This is supported by Alhabash and Ma (2017), who reported that students' main motive behind using social media is for sharing information, particularly among those with high self-assuredness. The total indirect effect was significant, suggesting that students with higher self-esteem might use social networking sites in a more purposeful and adaptive way, particularly in relation to academic or socialisation purposes (Nández & Borrego, 2013; Hashemi et al., 2022).

It is pertinent to note from all the results that not all approach coping strategies significantly predict social networking usage among college students, such as planning and emotional support types of stress coping strategies. This relates to previous studies which indicates that only a select few coping strategies translate to online behavior (Shiraly et al., 2024). Therefore, H2 was partially supported with the approach stress coping strategy of informational support that emerged as the key mediator variable between self-esteem and overall social networking usage among college students.

Hypothesis 3 (H3) states that avoidant coping styles will mediate the relationship between self-esteem and social networking usage also found partial support from the obtained results. It was found that self-esteem was significantly associated with a wide range of avoidant stress coping strategies, such as self-distraction, denial, substance use and self- blame. Earlier work (Andreassen, 2017; Merchant, Tejani, &

Adhiya-Shah, 2018) noted that lower self-esteem is linked to avoidance, withdrawal, and escapism forms of stress coping strategies. Among these, the self-distraction type of stress coping strategy emerged as a significant mediator, which suggests that individuals with low self-esteem may use social networking platforms for escape or avoid their stressful situations (Zhang et al., 2025). This is supported by findings from Bae (2023), who showed that social media serves as a common emotional refuge for students experiencing high stress and low psychological resilience.

Of particular interest, one might note that avoidant stress coping styles such as denial or behavioral disengagement, which are associated with self-esteem, did not significantly predict overall social networking usage patterns among the college students. This can be because not all maladaptive stress coping strategies are manifested in online behaviors as some may be seen in real-life stressful situations, such as withdrawal or substance use. It needs to be noted that the avoidant stress coping strategy of self-distraction has a significant indirect effect between self-esteem and overall social networking usage, which aligns with prior work indicating that entertainment - and escapism-driven social media use is common among individuals using avoidance to regulate their mood (Tompoulidis, 2015; Servidio et al., 2018).

Conclusion

The findings show that self-esteem influences social networking usage patterns among college students, mediated by stress coping styles (approach and avoidant styles), but these effects are specific to what sort of strategy is utilised by the respondents. While informational support (approach) and self-distraction (avoidant) act as meaningful mediators, other coping mechanisms do not show significant effects. This reinforces the idea that digital behavior is not monolithic and that the purpose of social media use varies depending on the individual's internal stress coping strategies.

Implications

The findings from the present study point towards important implications for college mental health support services as well as various digital literacy programs that are being arranged for the students. Since students with both high as well as low levels of self-esteem make use of various social networking platforms, it is essential to understand for what purposes they are making use of these avenues. For those with a low sense of self-esteem, the interventions could strategically target their avoidant stress coping styles by making them aware of its long-term ill effects. Workshops that foster skills like effective stress management, mindful media consumption, and balanced social networking habits may help students use these platforms constructively.

Limitations and Suggestions for Future Research

In spite of the significant contributions of the study, there are various limitations of the study that must be kept in mind. The cross-sectional nature of the study design neglects any causal relationships that may exist between the variables. Further research can delve into longitudinal research that can establish temporal relationships among the variables like self- esteem, stress coping styles and digital behavior patterns. The reliance on self-report measures might

introduce a bias due to social desirability and limited introspective accuracy among the respondents. The sample recruited for the study, though a sizeable amount, is geographically concentrated in the Delhi-NCR area, which restricts the applicability of the study findings and would not apply to various rural and culturally diverse populations in India.

1. Statements and Declarations

Conflict of Interest Statement

The authors declare no conflicts of interest pertaining to the present study.

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The AI tool, ChatGPT 4.o was utilised for language formatting, grammar corrections and to improve the clarity as well as overall structure of the paper.

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Exploring Resilience and Coping mechanism among Addicted and Non-Addicted Individuals in Uttrakhand

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ABSTRACT

Substance addiction significantly impairs how individuals cope with stress and respond to life's challenges, often disrupting natural coping strategies and weakening psychological resilience. Research has shown that coping style plays a key role in substance use behavior. For instance, Veenstra et al. (2007) found that individuals with high emotion-focused coping tend to consume more alcohol following negative life events. Similarly, Ghorpade et al. (2020) observed that alcohol-dependent individuals with low self-esteem are more likely to rely on avoidant coping strategies. These findings underscore the need to examine how different coping mechanisms and levels of resilience function in addicted versus non-addicted populations. The present comparative study aims to explore variations in coping strategies and resilience between addicted and non-addicted individuals, with additional focus on age differences. The total sample of 120 participants were selected from Nainital and Almora districts of Uttarakhand, comprising 60 drug-addicted individuals (30 young adults and 30 middle-aged) from rehabilitation centers, and 60 non-addicted individuals. The Coping Strategies Scale by Srivastava (2001) and the Resilience Scale by Lakshmi and Narain (2017) were administered. Pearson's correlation and Anova were employed to examine group differences and relationships among variables for statistical analysis. The findings highlight meaningful psychological patterns: perseverance shows a negative correlation with cognitive avoidance coping, self-reliance showed a significant positive correlation with behavioral approach, while total resilience was positively linked to both cognitive approach and cognitive avoidance at the 0.05 significance level. Notably, individuals differed significantly in all dimensions of resilience on the type of addiction, and self-reliance varied significantly across age groups. However, resilience levels across other dimensions remained unaffected by age, and no interaction effect between type of addiction and age was observed.

Keywords: Coping strategies, Resilience, Addicted individuals.

Introduction;

Substance use and addiction are growing global health concerns, requiring urgent policy action and psychological insight. The UNODC World Drug Report 2024 estimates that 292 million people used drugs in 2022—a 20% rise over the past decade—yet only one in eleven with drug use disorders receives treatment. In India, the pattern is similar. The National Family Health Survey (2019–21) found that 25.8% of individuals aged 15 and above consume alcohol, while the Ministry of Social Justice and Empowerment (2019) reported that 14.6% of people aged 10–75 are current alcohol users. These figures highlight the widespread nature of substance use and the need to understand factors like stress,

trauma, and emotional coping in addiction and recovery. Government initiatives such as *Nasha Mukt Bharat Abhiyaan* and the *National Action Plan for Drug Demand Reduction* now emphasize prevention, treatment, and social reintegration, reflecting a more holistic and compassionate public health approach.

While policy and institutional efforts are essential, understanding the individual and social factors behind addiction is equally critical. Addiction, a chronic neuropsychiatric disorder marked by compulsive substance use despite harmful consequences (Goldstein, 2003), significantly affects emotional regulation and decision-making. The DSM-IV classifies substance-related disorders into abuse and dependence, covering substances like alcohol, opioids, cannabis, stimulants, and sedatives. Some individuals manage their use, while others develop Alcohol Use Disorder (AUD), as defined in the DSM-5, characterized by impaired control, continued use despite harm, and physical dependence (DSM-5, 2013). However, not everyone exposed to high-risk environments becomes dependent (Wagner & Anthony, 2002), pointing to the crucial role of resilience—the ability to adapt, recover, and thrive in the face of adversity. Exploring this dynamic helps explain why some individuals develop addiction, while others overcome challenges and rebuild meaningful lives.

Resilience, plays a pivotal role in both the onset and recovery from substance use disorders. Rutter (1990) defines resilience as positive adaptation in the context of significant stress or trauma. Contemporary research emphasizes that resilience is not a fixed trait but an evolving capacity influenced by genetic (Morgan et al., 2002; Caspi et al., 2003), biological (Charney, 2004; Campbell-Sills & Stein, 2007), psychological (Tugade & Fredrickson, 2004; Campbell-Sills, Cohan & Stein, 2006), and environmental factors (King et al., 1998; Haskett et al., 2006). This multidimensional nature makes resilience particularly relevant in addiction studies, where individuals often face chronic psychological and social challenges.

A key component of resilience lies in how individuals respond to stress, particularly through their coping strategies. While adaptive coping supports emotional regulation and problem-solving, maladaptive or avoidant coping—such as denial, behavioral disengagement, mental withdrawal, and substance use—can worsen psychological distress. As noted by Litman (2006), these avoidant strategies are closely linked to increased alcohol use and related problems, highlighting how the absence of resilient coping mechanisms may contribute to the development and persistence of addiction Resilience can buffer the psychological toll of addiction, influence coping strategies, and shape recovery trajectories. Charlet, et al. (2018). This study, seeks to investigate the differences in resilience between individuals with and without substance use, with particular emphasis on the coping strategies they employ. By examining patterns in resilience, the research aims to deepen our understanding of the psychological mechanisms that contribute to both vulnerability and recovery. Based on literature review our objectives were; to assess all level of resilience in the addicted and non-addicted individuals .to compare the relationship between resilience and

coping stratigies in addicted individuals, to compare the level of resilience on the basis of types of addiction and age. Furthermore, to find out interaction effect between type of addiction and age for resilience level .

Hypotheses;

1. There would be significant relationship between resilience and coping strategies of addicted individuals.
2. There would be significant difference between addicted and non addicted individuals on level of perservance, composure, faith, self reliance and total resilience.
3. There would be significant difference between young adults and middle aged adults on level of perservance, composure, faith, self reliance and total resilience.
4. There would be significant interaction effect between types of addiction and age for the level of resilience.

Materials & Methods

A random sampling technique was employed to select participants from various rehabilitation centers in Haldwani, located in the Nainital district of the Kumaun region in Uttarakhand. The final sample comprised 120 individuals, including 60 participants undergoing rehabilitation for substance addiction and 60 non-addicted individuals. Each group was further divided into two age cohorts: 30 young adults (aged 18–40 years) and 30 middle-aged adults (aged 41–60 years).Data were collected using a Personal Data Schedule, the Resilience Scale, and the Coping Strategies Scale. To confirm the non-addicted status of participants, the Alcohol Use Disorders Identification Test (AUDIT) was administered. For statistical analysis, and Pearson's correlation and Analysis of Variance (ANOVA) were employed to examine relationships and group differences among variables

Tools ;

Personal Data Schedule (PDS): It was a self-developed tool for gathering preliminary information about the subjects including name, age, gender, etc.

The Resilience scale: This scale was developed by Lakshmi and Narain (2017) used for measuring resilience on the age group of 14 and above. It consists of 30 questions, which were provided with 26 positive items and 4 negative items. It is 5 point Likert scale. The test re-test reliability was calculated and was found to be 0.87 and the split-half reliability was found to be 0.84. All reliability coefficients were significant at .01 level. The concurrent validity of the Resilience Scale was significant which was found to be 0.86 .

The Coping Strategies Scale: The Coping Strategies Scale developed by Srivastava (2001). [21] It contains of 50 items with 5 dimensions including Behavioural-Approach, Cognitive-Approach, Cognitive-Behavioural, Behavioural Avoidance and Cognitive-Avoidance Approach. The coefficient of reliability was determined by split half method with 0.78 of approach coping strategies and with 0.69 of avoidance coping strategies, while the test retest reliability with 0.92.

Results; The results of the present study are outlined below:

Table 1: Correlation Matrix of Resilience with Coping Strategies among Addicted Individuals

	P	C	SR	F	TR	BAv	CB	CAv	CA	BA
P	1	.336	.214*	.054	.686*	-.087	.154	-.180*	.173	.069
C		1	.274	.065	.714*	.099	.054	.121	.161	.090
SR			1	.088	.591*	.016	.345	.286	.168	.183*
F				1	.463*	.114	.101	-.015	.050	-.035
TR					1	.055	.248	.225*	.226*	.120
BAv						1	.168	.466	.366**	.519
CB							1	.378	.522**	.456
CAv								1	.143	.592
CA									1	.477
BA										1

*indicate the Sig level at 0.05 with r – value of l .174 (P= Perseverance, C= Composure, SR=Selfreliance, F= Faith, TR= Total Resilience, Bav=Behavior Avoidance, CB= Cognitive Behvior, Cav=Cognitive Avoidance, CA=Cognitive Approach, BA=Behavior Appraoch)

descriptive Table 1; Mean,Sd Of Addicted And Non Addicted Across Different Age Groups

		ADDICTED		NON ADDICTED	
DIMENSIONS	**Type of Age**	**MEAN**	**SD**	**MEAN**	**SD**
Perseverance	Middle Adults	22.50	5.138	29.07	5.252
	Young Adults	23.67	5.653	29.10	4.003
Composure	Middle Adults	28.60	6.579	32.03	4.263
	Young Adults	26.83	6.869	31.10	4.245
Self-reliance	Middle Adults	25.83	5.160	25.33	3.977
	Young Adults	23.37	4.445	26.20	3.900
Faith	Middle Adults	24.07	3.542	26.77	4.703
	Young Adults	25.03	4.760	25.73	6.496
TR	Middle Adults	101.00	11.951	114.93	10.511
	Young Adults	98.90	12.124	111.27	11.353

Table 2. Analysis Variance of Perseverance

Source	Sum of Squares	df	Mean Square	F	Sig. at 0.05 level
Type of Addiction	1080.000	1	1080.000	42.37	Sig
age	10.800	1	10.800	.42	NS
Type of Addiction * Age	9.633	1	9.633	.37	NS
Error	2956.733	116	25.489		

Table 3. Analysis Variance of composure

Source	Sum of Squares	df	Mean Square	F	Sig. at 0.05 level
Type of Addiction	444.675	1	444.675	14.044	SIG
age	54.675	1	54.675	1.727	NS
Type of Addiction * Age	5.208	1	5.208	.164	.NS
Error	3673.033	116	31.664		

Table 4. Analysis Variance of Self-Reliance

Source	Sum of Squares	df	Mean Square	F	Sig. at 0.05 level
Type of Addiction	76.800	1	76.800	4.054	SIG
Age	132.300	1	132.300	6.983	SIG
Type of Addiction * Age	4.033	1	4.033	.213	NS
Error	2197.667	116	18.945		

Table 5. Analysis Variance of faith

Source	Sum of Squares	df	Mean Square	F	Sig. at 0.05 level
Type of Addiction	86.700	1	86.700	3.485	SIG
age	.033	1	.033	.001	NS
Type of Addiction * Age	30.000	1	30.000	1.206	NS
Error	2886.067	116	24.880		

Table 6. Analysis Variance of Total Resilience

Source	Sum of Squares	df	Mean Square	F	Sig. at 0.05 level
Type of Addiction	5187.675	1	5187.675	39.212	SIG
age	249.408	1	249.408	1.885	NS
Type of Addiction * Age	18.408	1	18.408	.139	NS
Error	15346.433	116	132.297		

From Table 1, it can be observed that perseverance shows a negative correlation with cognitive avoidance coping. Similarly, the self-reliance level has a positive correlation with behavior approach at 0.05 level and total resilience has positive correlation with cognitive approach and cognitive avoidance at 0.05 level. Based on that our hypothesis 1 got partially accepted

The perseverance level among Non - Addicted and Addicted has a f-ratio of 42.37, f-value for composure level in both groups was 14.04. Additionally, the f-ratio for the self-reliance level on Non -Addicted and Addicted was 4.05 . The f-ratio for faith

level in both groups was determined to be 3.48 . The f-ratio for total resilience level was 39.21 in both groups which is greater than the significance level of 0.05. Therefore, significant differences were found between Non - Addicted and Addicted individuals on all level of resilience. Consequently, our hypothesis 2 got accepted.

Upon evaluating Table 2, the analysis revealed that the perseverance among young adults and middle adults has a has a f-ratio of 0.42. The f-ratio for composure in both groups was 1.72. Additionally, the f-ratio for the self-reliance in young adults and middle adults 6.98. The f-ratio for faith in both groups was determined to be .001. The f-ratio for total resilience was 1.88 in both groups which is greater than the significance level of 0.05. Therefore, no significant differences were found between young adults and middle adults on all level of resilience. Consequently, our hypothesis 3 got partially accepted.

Additionally, the interaction effect for types of addiction and age was not significant on overall level of resilience. As a result related hypothesis was rejected.

Discussion;

Addicted individuals tend to exhibit significantly lower resilience compared to their non-addicted counterparts, especially in areas such as perseverance, where substance dependence undermines motivation and the ability to pursue long-term goals. A key factor in this diminished resilience is low self-esteem; those who doubt their self-worth are less likely to persist through adversity or believe in the possibility of meaningful change. As Alavi (2011) observes, diminished self-esteem often leads to misconduct and addiction. This concept aligns with Kaplan's Self-Derogation Theory, which posits that negative self-concept develops when individuals engage in behaviors that are devalued or fail to meet the expectations of their social group, resulting in emotional distress and increased vulnerability to maladaptive coping mechanisms like substance abuse (Kaplan, 1975). Thus, addiction not only affects behavior but also profoundly impacts an individual's internal sense of value and hope.

A strong sense of familial connectedness, by contrast, fosters belongingness that supports emotional regulation and stress tolerance, which are crucial for preventing relapse (Chambers & Gracia, 2021). Addicted individuals, however, often struggle with emotional composure due to neurobiological disruptions caused by substance use. According to Goldstein (2003), addiction impairs the prefrontal cortex, leading to poor impulse control and emotional instability. Furthermore, Wurmser (1974) highlights that addicted individuals face difficulties managing persistent internal stress and unclear emotions, which further compromise their self-regulation. This combination of neurological impairment and emotional dysregulation explains why addicts tend to have significantly lower composure compared to non-addicted individuals. Additionally, faith—understood as optimism and belief in one's ability to overcome challenges—is often eroded in those struggling with addiction, especially when repeated relapses or social stigma contribute to feelings of hopelessness and self-doubt.

Self-reliance, defined as the confidence and autonomy to cope independently, is frequently weakened in addicted individuals by the cycle of dependency and the external

control substances exert over emotional states. Low self-esteem further diminishes self-reliance by reducing belief in one's coping abilities, often leading to emotional dependence and increased substance use as a maladaptive coping strategy. Early studies by Jones (1959) indicated that addicted individuals often display a dependent nature, while Keegan (1987) linked low self-esteem to anxiety and substance abuse. Skager (1988) reinforced the central role of self-esteem in addiction, emphasizing its connection to weakened self-reliance. Correspondingly, research shows that self-reliance is positively correlated with behavioral approach tendencies, meaning that individuals with greater self-reliance are more likely to engage in proactive, goal-directed behaviors. Taken together, these findings reveal that addicted individuals have markedly lower overall resilience—the integrated ability to adapt, recover, and thrive despite adversity—due to the direct effects of addiction on psychological functioning as well as the cumulative impact of disrupted social, emotional, and cognitive development. This underscores the critical need for resilience-focused interventions in addiction treatment and recovery

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Personality Traits and Attitude towards AI across Gender: Study on Workplace Employees

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ABSTRACT

The rapid growth of Artificial Intelligence (AI) has bought a tremendous effect on society, economy, finances, education, employment, relationships, and other areas of human life. The present study is aimed to investigate the role of personality traits on attitude towards AI, and to understand if there are any gender differences present. The study is conducted on the workplace employees. This quantitative research study utilizes a correlational design to explore the relationship between the personality traits and attitude towards AI. For this purpose, the Attitude towards AI scale developed by Yilmax and Saran; BIG 5 Inventory 20 scale developed by Topolewska-Siedzik et al will be used for data collection. The data collected will be subjected to Correlation and t test for analysis. The results from this study will contribute to the existing knowledge of human & AI interaction and help in understanding how personality can influence in developing attitudes towards AI.

Keywords: Attitudes, AI, Big 5 Personality Traits

Introduction

Artificial Intelligence(AI) has been one of the most growing fields in today's world. From education to the workplace, work and activities have been made easier and faster with the aid of AI. AI is contributing in various ways as it's constantly transforming the entire system of monitoring, hiring, processing, and decision-making. (Ronald Ashri, 2020). However, it has also been found that there are individuals who are quite apprehensive about understanding how and why AI has to play this intensive role in bringing this transformation (Stein et al., 2024). While some may willingly wish to utilise and enhance their skills using AI, some may be extremely apprehensive of the same, bringing in the possibility of personality traits influencing the attitude towards AI. AI brings in a lot of changes in the dynamics of the workplace, and it primarily lies in how employees are accepting the role of AI (Ronald Ashri, 2020). Hence, despite the integration of AI at work, employees' attitude towards AI remains critical in a successful integration (Mohammad Hossein Jarrahi, 2018)

The BIG 5 Personality traits, namely: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, have been studied in the context of behaviours, cognition, and attitudes; however, it has not been explored in the context of technology and especially AI. (Devaraj et al., 2008). It can be seen that personality contributes to the individual differences and uniqueness, which may play a significant role in one's attitude towards

AI. Openness to experience and conscientiousness are the two traits of the BIG 5 traits that may be positive, considering that people high on them are willing to experience new possibilities and abide by correct usage of AI. On the other hand, the trait of Neuroticism may be considered as negative as it would restrict individuals from taking up activities related to AI in a positive way (McElroy et al., 2007). AI, being a new and evolving technology, elicits various cognitive and emotional responses that are heavily influenced by these five traits.

Gender differences are prevalent in various fields, especially in psychological and organizational settings. While women show high level of agreeableness, conscientiousness and neuroticism, men show a higher level of openness to experience and extraversion (Paul T Jr Costa et al., 2001) These differences in gender not only influences the interpersonal relations and work efficiency but also plays an important role in technology usage. In the current AI lead world, there is a high possibility of gender norms interacting with personality traits leading to a different approach towards AI at workplace (Schmitt et al., 2008). For an instance, women having high neuroticism may refrain from using AI too much at work considering the risks involved in the same. On the other hand, men may end up taking higher risks in the context of using AI at workplace considering that they have a high openness to experience.

Attitude towards AI is often formed by an individual's sociocultural factors, economic factors, emotional, as well as cognitive factors. Studies have shown that women are lesser inclined towards AI as compare to men. While males like to explore and consider technology as a tool for growth, females tend to look at it more sceptically (Zhang & Dafoe, 2019). There can be various reasons behind the same, one of it being the varying trust that males and females have on AI pertaining to the risk taking behaviours of individuals. It could also be because of the cultural differences and unfamiliarity in usage of AI between the males and the females. Another reason could also be the under-representation of females in tech or AI related workplaces in general (Gursoy et al., 2019) Stereotypically, women are believed to be bad with machines and vehicles, leading to another reason why culturally women lose confidence and are hence apprehensive towards the usage of AI. The intention of learning something usually makes learning more easier. Considering the already accepted stereotype of women not being able to manage machines well, has lead to a lack of interest among women (Venkatesh et al., 2003).

Personality traits and gender differences are studied widely. However, the personality and AI relationship and the difference in the relationship keeping gender as the factor is yet to be studied. With AI being increasingly used in multiple workplaces(Brougham & Haar, 2018), it is necessary to understand how the education sector is being impacted because of the advent of AI and how the attitudes towards AI of Males and Females differ in the context of the personality traits they possess. The present study aims to explore the differences in gender based on the relationship of Attitude towards AI and Personality among educators in Karnataka. Organisations and Institutes may make use of the findings of the current study in order

to develop training, communication, and intervention to improve the quality of work.

Review of Literature

As Artificial Intelligence is a growing field, there is a plethora of research being conducted in this area. The present study aims to highlight the relationship between attitude towards AI and Personality and the gender differences in the correlation. There are multiple relevant studies that help us understand the need of the current study and bridge the gap.

AI Attitudes and Workplace

A study conducted in 2025 by Garcek and Ozveren explored the relationship between creative self-efficacy, proactive career and learning agility with the mediation effect of positive attitude towards AI. The study was conducted on 300 young adults who were university students. Positive AI Attitudes have an indirect effect on proactive career behaviours and creative self-efficacy. A study conducted by Li et al., in the year 2025 employed the structural equation model to explore the mediating and moderating role of AI literacy and AI attitude on Career. The study was conducted on 455 Chinese Students. The result supports that higher AI literacy and a positive attitude towards AI enhances career self-efficacy and reduces job anxiety.

Personality and AI

Kaya et al., conducted a study in the year 2022 which explored the impact of personality traits on AI attitude. With a sample size of 350, the study found that there was a significant negative correlation between attitude towards AI and agreeableness. This further emphasised the need to understand the role personality traits play towards attitude towards AI. Similarly, in the year 2022, a study conducted by Park & Woo explored the personality predictors for the attitudes towards AI. Attitudes were assessed based on the based on the affective components and Cognitive components along with the BIG 5 personality traits. The study was conducted of 1530 residents of South Korea. The results suggested that agreeableness, conscientiousness and openness had a positive correlation with the functionality. Further suggesting that personality traits may play an important role in determining the attitude towards AI.

Gender, personality and AI

In the year 2024 Renz et al., conducted a study in order to explore how the emotions, gender and personality play a role in determining the willingness to use AI for self-growth. Two studies were done find the same and the sample size was 1446 for one study and 1090 for the other study. The results have revealed that both gender and emotions have a strong significance in the willingness of using AI. The study further revealed that there is a strong difference between the willingness of using AI between males and females where males have reported a higher willingness than females. The gender difference could be lesser where neuroticism gets higher. An exploratory study was conducted by Milella et al., in the year 2023, with the aim of exploring how gender and personality play a role in AI-Human teaming. The study consisted of 8 groups with a total of 29 participants. The results revealed that user satisfaction is higher when AI is used smoothly especially in females considering the combination of personality traits they have.

The above review of literature further suggests that though there are difference in personality and gender, the difference in the

relationship it plays with artificial intelligence. The present study also bridges the population gap by conducting the study on Indian residents as most of these studies have been done in USA or Korea.

Methodology

Research Question

- Is there a relationship between educators' personality traits and attitude towards Artificial Intelligence (AI) in males and females?
- Does the strength of the correlation between personality traits and attitudes toward AI differ between male and female educators?
- Does gender moderate the relationship between personality traits and attitudes toward AI?

Objectives

- To analyse the relationship between educators' personality traits and attitude towards Artificial Intelligence (AI).
- To analyse the strength of the correlation between personality traits and attitude towards AI differ between male and female educators?
- To investigate if gender moderates the relationship between personality traits and attitudes toward AI?

Hypothesis

- There is no statistically significant relationship between educators' attitudes toward AI and their personality traits.
- The strength of the correlation between personality traits and attitudes toward AI does not significantly differ between make and female educators.
- Gender does not significantly moderate the relationship between personality traits and attitudes toward AI?

Operational Definition

- **Attitude towards AI.** The opinion held by educators regarding the day-to-day advancements in technology which compels the machines to mirror human communication, thinking patters, reasoning, or other cognitive tasks.
- **Personality Traits.** The characteristic features of a person that determines how they communicate, behave, develop attitudes, and together form a personality type.
- **Openness to Experience.** A personality trait characterized by looking for new ways of doing tasks, seeking new experiences, working on spur of moment.
- **Conscientiousness.** A personality trait characterized by being extremely organized, meticulous, goal directed and maintaining order and discipline.
- **Extraversion.** A personality trait characterized by a tendency to socialize, interact lively with others, able to absorb and release social energy leading to satisfaction.
- **Agreeableness.** A personality trait characterized by being adaptive, accommodative, helpful, and dependable.
- **Neuroticism.** A personality trait characterized by stressful, pessimistic, worried and easily anxious.

Sample

- A purposive sampling technique was employed
- The total sample size N= 253; Male: 129; Female: 124

Inclusion Criteria

- Individuals belonging to the age range of 20 to 60 years

- Individuals who are presently working as educators.
- Individuals currently residing in Karnataka, India

Exclusion Criteria

- Individuals who have been clinically diagnosed with any mental health disorders (within the last 6 months)
- Individuals who are online/part time educators

Procedure

Data was collected using both online and offline methods. The objectives of the study was informed to the participants and Informed consent was taken. The data was collected from 253 educators from Karnataka, India from the genders of Male and Female. To measure personality traits, the International Personality Item Pool (IPIP)-BFM-20 and to measure Attitude towards AI, the Attitude towards AI scale (AIAS-4) was used. The Attitude towards AI scale, developed by Yilmax and Saran (2019, has a reliability of 0.84. The BIG 5 Inventory-20 scale was developed by Topolewska-Siedzik et al., (2014). The scale has a reliability of 0.7, making it moderately highly reliable. The data was then scored and analysed in SPSS 25 by splitting it into the two gender groups. The Fisher's z test was analysed using psychometrica.de.

Ethical Consideration

The present study ensured that no animals or humans were harmed in the study. This study was voluntary and participants had complete freedom to withdraw from the study whenever they wanted to, ensuring that there is no forcing. This study ensures that the ethical considerations as per APA was maintained throughout the research study.

Table 1

Shows the descriptive statistics of Gender 1: Male educators

	Extraversion	Openness	Neuroticism	Conscientiousness	Agreeableness	Attitude towards AI
N	129	129	129	129	129	129
Mean	12.67	12.53	11.82	12.78	12.57	14.91
Median	12.00	13.00	12.00	13.00	13.00	13.00
Mode	12	15	13	12	14	13
Std. Deviation	3.387	3.158	2.708	3.118	3.127	7.156
Skewness	-.153	-.328	-.101	-.193	-.155	1.419
Kurtosis	.804	1.190	.143	1.426	-.334	1.842

Table 1 shows the descriptive statistics of Gender 1: Male across the five personality traits and Attitude towards AI. According to table 1, the sample size of Male educators is 129. The obtained Mean score for the variable Extraversion is 12.67, Median is 12.00 and Mode is 12 indicating a small skewness in the data and the Std. Deviation is 3.387. But the Skewness is -.153, and Kurtosis is 0.804 which suggest that the data is symmetrical in nature.

The obtained Mean score for the variable Openness is 12.53, Median is 13.00 and Mode is 15 indicating a small skewness in the data and the Std. Deviation is 3.158. But the Skewness is -.328, and Kurtosis is 1.190 which suggests that the data is symmetrical in nature.

The obtained Mean score for the variable Neuroticism is 11.82, Median is 12.00 and Mode is 13 indicating a small skewness in the data and the Std. Deviation is 2.708. But the Skewness is -.101, and Kurtosis is 0.143 which suggest that the data is symmetrical in nature.

The obtained Mean score for the variable Conscientiousness is 12.78, Median is 13.00 and Mode is 12 indicating a small skewness in the data and the Std. Deviation is 3.118. But the Skewness is -.193, and Kurtosis is

1.426 which suggest that the data is close to symmetrical in nature.

The obtained Mean score for the variable Agreeableness is 12.57, Median is 13.00 and Mode is 14 indicating a small skewness in the data and the Std. Deviation is 3.127. But the Skewness is -.155, and Kurtosis is 0.334 which suggest that the data is symmetrical in nature.

The obtained Mean score for the variable Attitude towards AI is 14.91, Median is 13.00 and Mode is 13 indicating a small skewness in the data and the Std. Deviation is 7.156. But the Skewness is 1.419, and Kurtosis is 1.842 which suggest that the data is in the borderline of normality.

Table 2

Shows the descriptive statistics of **Gender 1: FEMALE educators**

	Extraversion	Openness	Neuroticism	Conscientiousness	Agreeableness	Attitude towards AI
N	124	124	124	124	124	124
Mean	12.34	13.12	11.73	12.89	12.79	14.40
Median	12.00	13.00	12.00	13.00	12.50	13.00
Mode	11[b]	14	10[b]	9[b]	12	12
Std. Deviation	3.084	2.992	2.880	3.465	2.983	6.421
Skewness	.355	.050	-.194	.118	.184	1.881
Kurtosis	-.500	-.339	-.106	-.445	-.587	3.682

Table 1 shows the descriptive statistics of Gender 2: Female across the five personality traits and Attitude towards AI. According to table 2, the sample size of female educators is 124. The obtained Mean score for the variable Extraversion is 12.34, Median is 12.00 and Mode is 11 indicating a small skewness in the data and the Std. Deviation is 3.084. But the Skewness is .355, and Kurtosis is -.500 which suggest that the data is symmetrical in nature. The obtained Mean score for the variable Openness is 13.12, Median is 13.00 and Mode is 14 indicating a small skewness in the data and the Std. Deviation is 2.992. But the Skewness is .050, and Kurtosis is -.339 which suggest that the data is symmetrical in nature.

The obtained Mean score for the variable Neuroticism 11.73, Median is 12.00 and Mode is 10 indicating a skewness in the data and the Std. Deviation is 2.880. But the Skewness is -.194, and Kurtosis is -.106 which suggest that the data is symmetrical in nature. The obtained Mean score for the variable Conscientiousness is 12.89, Median is 13.00 and Mode is 9 indicating a small skewness in the data and the Std. Deviation is 3.465. But the Skewness is .118, and Kurtosis is -.455 which suggest that the data is symmetrical in nature The obtained Mean score for the variable Agreeableness is 12.79, Median is 12.50 and Mode is 12 indicating a small skewness in the data and the Std. Deviation is 2.983. But the Skewness is .184, and Kurtosis is -.587 which suggest that the data is symmetrical in nature. The obtained Mean score for the variable Attitude towards AI is 14.40, Median is 13.00 and Mode is 12 indicating a small skewness in the data and the Std. Deviation is 6.421. But the Skewness is 1.881, and Kurtosis is 3.682 which suggest that the data is non symmetrical in nature

Table 3

Shows the Normality of the data using Shapiro-Wilk test value for Gender 1: Male

	Statistic	df	Sig.
Extraversion	.976	129	.024
Openness	.977	129	.024
Neuroticism	.983	129	.108
Conscientiousness	.966	129	.002
Agreeableness	.983	129	.100
Attitude towards AI	.855	129	.000

Table 3 reveals the Shapiro wilk test value for *Male educators. T*he Shapiro wilk value

for the variable Extraversion is 0.976 (p=0.024; p<0.05), Openness is 0.977(p= .024; p<0.05), Neuroticism is .983 (p=.108; p>0.05), Conscientiousness is .966 (p=0.002; p<0.01) Agreeableness is .983 (p=0.100; p>0.05) and Attitude towards AI is .855 (p=0.00; p<0.01). Since, the data of the variables Extraversion, Openness, Conscientiousness and Attitude towards AI are significant, indicating the principles of normality are violated. Thus, the non-parametric tests of correlation, Spearman's rank order test is used for further analysis.

Table 4

Shows the Normality of the data using Shapiro-Wilk test for Female educators

	Statistic	df	Sig.
Extraversion	.971	124	.009
Openness	.981	124	.081
Neuroticism	.982	124	.098
Conscientiousness	.981	124	.074
Agreeableness	.978	124	.037
Attitude towards AI	.788	124	.000

Table 4 reveals the Shapiro wilk test value for the Female educators. The Shapiro Wilk value for the variable Extraversion is 0.971 (p=0.009; p<0.01), Openness is 0.981(p= .081; p>0.05), Neuroticism is .982 (p=.98; p>0.05), Conscientiousness is .981 (p=0.074; p>0.05) Agreeableness is .978 (p=0.37; p<0.05) and Attitude towards AI is .788 (p=0.00; p<0.01). Since, the data of the Agreeableness and Attitude towards AI are significant, indicating the principles of normality are violated. Thus, the non-parametric tests of correlation, Spearman's rank order test is used for further analysis.

Table 5

Showing the Spearman's correlation between BIG 5 traits and Attitude towards AI among the Male educators

Correlations			Extraversion	Openness	Neuroticism	Conscientiousness	Agreeableness
Spearman's rho	Attitude towards AI	Correlation Coefficient	.366**	.242**	-.107	.244**	.347**
		Sig. (2-tailed)	.000	.006	.229	.005	.000
		N	129	129	129	129	129

Table 5 presents the Spearman's correlation between personality traits and Attitude towards AI for the male educators. As per the results obtained, Attitude towards AI has a significant low positive correlation with the personality traits Extraversion (rho=.366; p= 0.00; p<0.01), Openness (rho=0.248; p=0.006; p<0.01); Conscientiousness (rho=.244; p=0.005; p<0.01); and Agreeableness (rho=.332; p=0.00; p<0.01) which is significant at 0.01 level. The trait Neuroticism presents a non-significant corelation (p>0.05) with Attitude towards AI. This indicates that individuals who are more outgoing, organized, and relationship managers are likely to develop a more favourable attitude towards AI. Hence, the hypothesis "There is no statistically significant relationship between attitudes toward AI and their personality traits among male educators" is partially rejected as the trait neuroticism presents a non-significant correlation with Attitude towards AI.

Table 6

Showing the Spearman's correlation between BIG 5 traits and Attitude towards AI among the Female educators

Correlations			Extraversion	Openess	Neuroticism	Conscientiousness	Aggreableness
Spearman's rho	Attitude towards AI	Correlation Coefficient	.133	.278**	-.285**	.405**	.293**
		Sig. (2-tailed)	.142	.002	.001	.000	.001
		N	124	124	124	124	124

Table 6 presents the Spearman's correlation between personality traits and Attitude towards AI among the female educators. As per the results obtained, Attitude towards AI has a significant low positive correlation with the personality traits Openness (rho=.278; p= 0.00; p<0.01) and Agreeableness (rho=0.293; p=0.001; p<0.01) which is significant at 0.01 level. It has a significant moderate positive correlation with Conscientiousness (rho=.405; p=0.000; p<0.01) and a low significant negative correlation with Neuroticism (rho=-.278; p=0.00; p<0.01) which is significant at 0.01 level. The trait Extraversion presents a non-significant corelation (p>0.05) with Attitude towards AI. This indicates that individuals who are more open to new experiences, organized, and relationship managers are likely to develop a more favourable attitude towards AI. Educators who are anxious, irritable are likely to have an unfavourable attitude towards AI. Hence, the hypothesis "There is no statistically significant relationship between attitudes toward AI and their personality traits among female educators" is partially rejected as the trait extraversion presents a non-significant correlation with Attitude towards AI.

Table 7

Fisher's Z-Test for Gender Differences in Correlations between Attitude Toward AI and Big Five Traits among male and female educators

Personality Trait	Z-value	p-value
Extraversion	1.96	0.02
Openness	-0.30	0.30
Neuroticism	1.15	0.07
Conscientiousness	-1.41	0.07
Agreeableness	0.47	0.31

Table 7 reveals the Fisher's Z-Test results for gender differences in correlations among educators between Attitude Toward AI and Big Five Traits. Fisher's Z-test was conducted to investigate if the correlations between Attitude toward AI and the Big Five personality traits dimensions significantly differed between males and females. A significant gender difference was found among educators between the trait Extraversion and Attitude towards AI (Z = 1.96, p = .02, p<0.05), indicating that the relationship between Attitude toward AI and Extraversion significantly differed between males and females. For the traits Openness (Z = -0.30, p = .30, p>0.05), Neuroticism (Z = 1.15, p = .07, p>0.05), Conscientiousness (Z = -1.41, p = .07, p>0.05), and Agreeableness (Z = 0.47, p = .31, p>0.05), there is no significant gender differences(p>0.05) found among the educators. Gender has a major role to play in the relationship between extraversion and attitude towards AI, with a strength of Z=1.96, where men are displaying a stronger a correlation(rho-0.366) than the females. Thereby, the hypothesis, "The strength of the correlation between personality traits and attitudes toward AI does not significantly differ between male and female educators," is partially accepted.

Table 8

Showing the moderation effect gender between the big 5 personality traits and attitude towards AI.

Interaction		Extraversion x Gender	Openness x Gender	Neuroticism x Gender	Conscientiousness x Gender	Agreeableness x Gender
Attitude towards AI	Unstandardised Coefficient	-.086	.903	-.812	1.022	.128
	Sig. (2-tailed)	.723	.000	.007	.000	.616
	N	253	253	253	253	253

With reference to Table 8 it can be seen that the interaction between Openness and Gender (B = 0.903, p < 0.01), Neuroticism and Gender (B = -0.812, p < 0.01),

Conscientiousness and Gender (B = 1.022, p < 0.01) is significant at 0.01 level which indicates that gender moderates the role between Attitide towards AI and Openness to Experience, Attitude towards AI and Neuroticism and Attitude towards AI and Conscientiousness. While the interaction is positive for openness to experience and conscientiousness, it is negative for neuroticism. This indicates that the positive effect of openness to experience, conscientiousness is stronger in females and the negative effects of neuroticism is stronger in females. However Extraversion and Gender (B = -.086, p > 0.05) and Agreeableness and Gender (B = 0.128, p > 0.05) indicates that there is no significant moderation effect of gender on the relationship between Attitude towards AI and the big 5 personality traits.

Discussion

The present study aimed to understand the relationship and strength of the correlation between personality traits and attitude towards Artificial Intelligence (AI) among male and female educators. For this purpose, a sample of 253 educators were selected, among them 129 were male educators and 124 were female educators. To understand this relationship, a correlation and Fishers Z test was conducted. The results of this study indicated that among educators of both genders, the personality traits of Openness, Conscientiousness and Agreeableness showed a significant positive correlation with Attitude towards AI. These findings support the existing which suggests that individuals high in openness are more open and acceptive towards new technologies, which could be due to their traits of curiosity understand innovation (Park & Woo, 2022; Stein et al., 2024). Among female educators, the trait neuroticism had a negative correlation with Attitude towards AI, but with male educator it revealed a non-significant relationship. People high in neuroticism tend to experience anxiety, stress, worry, excessive challenge towards new digital usage (Salem et al., 2024) and also they may undergo over sensitivity for threats on emerging tech (Park & Woo, 2022). Educators high in conscientiousness are likely to view technology or AI as a tool to enhance productivity and add greater value to work which is consistent with the present study's findings, though it reveals a low relation.

Along with this, through Fisher's analysis, it was found that a significant gender difference was found in the personality trait and attitude towards AI. This reveals that the trait of Extraversion plays a prominent role in forming a specific attitude towards AI among the male and females. Specific results on the corelation between extraversion and Attitude towards AI among male educators revealed that there existed a positive correlation, while with female educators there existed a non-significant relationship. This could indicate that male educators are comparatively more inclined to adapt AI as a tool enhance work quality or improve their performance; while female could view it based on ethics or values. However, there are no consistent existing research that predicts extraversion trait as an important aspect in developing certain attitude towards AI or technology based on genders (Kaya et al., 2022).

The moderation role of gender revealed that gender plays a significant moderating role in the relationship between Attitude towards AI and Openness to experience, Neuroticism, and Conscientiousness, whereas it does not

have any moderating role in the relationship between attitude towards AI and Extraversion and Agreeableness. The findings suggests that the relationship of Openness to Experience and Conscientiousness with Attitude towards AI is stronger in females than in males, and the relationship of Neuroticism and Attitude towards AI is weaker in females than in males. Females have been found to be higher in neuroticism than males (Jorm A. F., 1987). Such differences in personality exhibit higher difference in the relationship between Personality and Attitude towards AI and further reflecting that gender could possibly play a moderating effect in such relationships.

Overall, the above findings reveal that certain personality traits can contribute in forming certain attitudes towards AI, specifically openness and conscientiousness. While there are certain factors like gender which can influence the relative strength of attitude that can be developed among people. As certain traits led to develop contrasting attitudes towards digital era based on gender. For instance, female educators displayed a stronger relation across traits with attitude towards AI, signifying how personality factors, emotional factors, readiness/willingness to learn, and others shape the perception towards tech (Park & Woo, 2022).

Limitations

The sample size of this is a major limitation for the study. Adding to this the non-norma distribution of data can limit the generalizability of the results.

The data was limited to one region which can narrow the perceptions of educators, and probably involving educators across the country and considering the experience and age of educators can yield better results.

Conclusion

The present study emphasizes the roles of personality traits is developing certain attitudes towards AI among the male and female educators. This is a quantitative study and majorly aims to understand the strength of the correlation between personality traits and attitudes toward AI differ between male and female educator. The study revealed that among educators of both genders, the personality traits of Openness, Conscientiousness and Agreeableness showed a significant positive correlation with Attitude towards AI. The Fisher's analysis, found a significant gender difference in the personality trait of extraversion and attitude towards AI among the male and female. This indicates thar extraversion trait can influence in predicting the openness a person possesses towards digital change or acceptance. The moderation analysis further reveals a moderating role of gender on the relationship between personality traits such as openness to experience, neuroticism and conscientiousness on Attitude towards AI. A thorough knowledge of these connections can contribute to developing more inclusive AI strategies for wider acceptance of AI in the workplace.

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Development and Preliminary Validation of a Dual-Mode Adapted Rapid Response Task (RRT and RRT-Youth) for Assessing Intuitive and Analytical Decision-Making in School-Age Adolescents

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ABSTRACT

The concept of Intuition is vague and not easily understood by the common man. People always think about involvement of an extra sense, while hearing the word 'Intuition' According to the dualistic theory of brain functioning suggested by Daniel Kanheman, our brain works in two streams one is the automatic pilot mode or the non-conscious mind and the manual pilot mode-or the conscious mind. He calls it as System 1 and system 2 respectively

While several psychometric tools such as the Rational Experiential Inventory (REI) and the Accumulated Clues Task (ACT) exist to evaluate intuition, cultural and linguistic relevance remains a challenge in non-English-speaking populations, particularly among adolescents.

This study aimed to develop and validate **the Rapid Response Task (RRT)** for adolescents and its Youth version, **RRT-Y** in late adolescents, a culturally adapted, time-bound psychometric tool in Malayalam to assess intuitive decision-making among school-going adolescents. An initial pool of 74 situational questions was created in Malayalam based on real-life adolescent scenarios. After expert review and pilot testing with 52 students aged 12–15, 53 items were retained based on response rates and psychometric criteria. These items were organized into three balanced sets (Set A, B, and C) to ensure ease of administration. From the same set of 74 questions, 54 questions were randomly selected to validate in 87 students of 16-18 years of age, and made a single set of question tool.

Statistical analysis demonstrated acceptable internal consistency, Cronbach's Alpha: 0.743–0.837; KR-20: 0.756–0.84 for RRT and 0.997 for RRT-Y. Descriptive statistics showed clustering toward the higher response range, indicating good content familiarity. Both RRT and RRT-Y thus offers a linguistically and culturally appropriate tool to measure intuitive processing in adolescents.

Keywords: Intuition, Adolescents, Psychometric Tool, Rapid Response Task (RRT), Youth, Intuitive Decision-Making, Non-Conscious Mind, Cognitive Psychology, Malayalam Tool Validation,

Introduction

Human Mind is a conceptual idea that represent the physiological process of the neurological functioning of the Human body. The process of the mind cannot be intrinsically quantified, even though we do it in other means. Even then, a keen structural outline to sophisticatedly quantify the mental process is unknown. Researchers are curious to analyse the cognition especially in this new era of Artificial Intelligence, Cognitive neuroscience is becoming Researcher's favourite.

Intuition can be defined as the innate ability of the human brain to arrive at decisions or insights instantly, without deliberate reasoning, drawing impressions from the past experiences supported by the subconscious processing. Intuition may be connected with the spiritual practices, which is considered as an innate ability or the ability as a result of intense spiritual rooting. However, as per the concern of Neuroscience, there is a dual mode of Thinking, explained by Daniel Kanheman, referred as System-1 mode which works with the automatic pilot mode and System 2 which is the Manual Pilot mode[1]. We use the Manual pilot mode only when we need to address something with deliberate thinking, whereas we are using the automatic pilot mode everything without acknowledgement. This is because the System -1. Automatic pilot mode is Non-conscious, fast and holistic and the Manual Pilot mode is conscious, slow and with reasoning. We are academically and socially trained to use the Manual Pilot mode, which is called as the Logical mind, and the non-conscious automatic pilot mode is called as fast Intuitive Mind. As intuitive development changes across adolescence, a need was identified to differentiate intuitive capacities in younger and older teens[2]. This led to the extension of RRT into RRT-Y. To address this gap, we developed the Rapid Response Task for Youth (RRT-Y), a structured, age-appropriate, computer-based tool to objectively capture intuitive versus analytical response tendencies in adolescents

The conscious mind is available for introspection, people often understand themselves through deliberate thinking, Whereas, the Intuitive mind is not available for introspection. It is emotionally bound, fast and automatic. The conscious mind can be moulded and shaped using interventions. However, we are unaware of the working of the non-conscious mind and hence, we cannot have any kind of interventions. It is thus, considered as a 'black box'.

The techniques to measure intuition is as vague as the concept. There is no equipment or imaging techniques that give you a quantified data, measuring intuitive mind. Hence, we still rely on the psychometric evaluation tools. There are many such scales available to measure intuition such as the Rational Experiential Inventory (REI)[3], the Accumulated Clues Task (ACT)[4], etc.

The automatic pilot mode works with the correct perception of the past actions and memories. Hence, in order to keenly analyse the Intuition in one's thought, the queries should be based on his life scenario or situations. Thus almost all the tools and scales are adapted according to their linguistic and cultural atmosphere. Hence, based on the Dual process theory of Daniel Kanheman, we developed a tool which is bound to our culture and language and

named it as Rapid Response Task (RRT) initially in early adolescents only.[6] However, Intuitive development varies across different stages of adolescence. Hence, we have validated the Rapid Response task (RRT) in Early adolescent children, aged 12- 15 years as well as in the Youth population as - Rapid Response task –Youth version or RRT-Y was adapted late adolescents (16-18 years). Same context-based base questions were utilised in developing both these tools. This differentiation is also to observe whether the intuitive tendencies are age-related and any particular type of question, e.g.-emotional / social/ decision-bound. Shows divergence. This differentiation was essential not only to match the cognitive maturity of older adolescents but also to explore how intuitive and logical responses evolve with age

Methodology

2.1 Tool Conceptualisation.

Measuring Intuition is a challenge in the field of Neuropsychology and Cognitive neuroscience. There are different scales to measure intuition indirectly like the Rational Experiential inventory that differentiate between the rational mind and experiential thinking of a person. However, a quantitative tool for a direct evaluation is yet to be in the measurement series. Even then, some behavioural measures like the Entropy controlled Movements (ECM), Video coding procedures and protocol analysis etc. are there, which are not the direct measurement tools.[5,6]

Nevertheless, we were in search for a tool that is in Malayalam to analyse intuitive decision-making in children, we tried to translate the Accumulated Clues Task (ACT)[4]. However, its cultural binding was a concern since the ACT is most in English and its latest validation is in German, which when directly translated into Malayalam may Confuse the Malayalam speaking Adolescents, which ended up in creating a totally new tool with a new scoring method, which we named **the Rapid Response Task (RRT).** The RRT is culturally bound and time-based, stressing immediate decision-making in solving the questions, forming a specific tool for Intuitive Decision-Making in Adolescents. Initially 74 single sentenced questions. Once the RRT was developed for early adolescents, we observed noticeable differences in the decision-making approach among older adolescents. This observation informed the development of RRT-Y, designed to capture the more nuanced intuitive responses seen in this group.[9]

2.2 Item Development and Cultural Relevance

To develop the youth version of the tool (RRT-Y), 54 questions were randomly selected from the original 74-item pool. This version was validated in a sample of 87 late adolescents aged 16 to 18 years, to explore age-related patterns in intuitive and logical reasoning.

All the questions in RRT are developed with a motto to identify the intuitive response through the nature of answering of the respondent. Hence they are not randomly selected but, thoughtfully developed with a clear intention to measure the intuitive capacity of the person.[7] However, the strength of RRT lies not only in testing intuition - the logical reasoning side of the person is also analysed through the design of the clues. Accordingly, the RRT-Y was constructed using 54 randomly chosen items from the original question pool and was validated in a group of 87 students aged 16–

18, allowing us to explore the intuitive tendencies in older adolescents using the same contextual stimuli. As the next stage in developing RRT, we randomly selected and validated 54 questions from the main pool of 74 questions. 87 school students the age of 16-18 years validated 54 questions, to interpret the experiential scale. Internal consistency of the tool was later determined using Cronbach's alpha.

Structure and Significance of RRT Questions

RRT (Rapid Response Task) is the primary tool developed to assess the intuitive thinking capacity in adolescents. Initially, a total of 74 questions were framed based on everyday South Indian cultural context and intuitive relevance. These were validated in a sample of 54 students aged between 12 to 15 years. Based on this validation, the 74 questions were then logically arranged and distributed into three distinct sets:

1. Pre-evaluation set (15 questions)
2. Post-evaluation set (15 questions)
3. Consolidated evaluation set (15 questions)

This division helps us to understand the intuitive development across intervention phases.

From these 74 questions, we randomly selected 54 questions again to revalidate among a broader group of nearly 87 adolescents aged between 16 to 18 years. The aim here is to confirm the applicability of the RRT model across a wider adolescent population.

Each RRT question is structured in a way that it initially triggers the intuitive mind. The question is framed as a single-word or short-phrase prompt, meant to evoke a direct, immediate response. The participant is given 5 seconds to answer this main question. If the participant responds correctly within this window, it is considered a purely intuitive response and awarded 10 full marks.

However, if the participant fails to answer or answers incorrectly, the test doesn't stop there. It moves to the logical clue sequence. Based on participant responses (N = 87), 16 questions met the inclusion criteria of ≥70% accuracy. To streamline the tool, 15 questions were finalized for the RRT-Y. These were selected to maximize discriminatory power and content validity.

For each primary question, there are four logical clues-each clue narrowing the possibility and making the answer more obvious. The correct answer to all four clues remains the same as the original question. For example, if the primary question is *"Karutha Pakshi*" (a culturally contextual intuitive term referring to a black coloured bird), the intuitive answer is "*Kaka"* (crow). If not answered in the intuitive slot, the clues are presented sequentially:

1. This bird is seen everywhere
2. This bird eats almost anything.
3. It makes a harsh *'kaa kaa'* sound
4. It is considered the bird that cleans the surroundings.

Each clue is marked with reverse scoring:

1st clue = 4 marks

2nd clue = 3 marks

3rd clue = 2 marks

4th clue = 1 mark

So even if the intuitive response fails, the logical mind gets activated, and we assess how the individual builds reasoning step by step.

This scoring method allows us to capture two cognitive dimensions:

1. Experiential/intuitive mind (fast, instinctive answers)
2. Rational/logical mind (deductive reasoning through clues)

Thus, RRT is not just a test of intuition, it offers a dual insight. By combining rapid-response and clue-based sections in each question, RRT becomes a robust tool that quantifies both intuitive and logical processing patterns. The same structure and scoring method was retained for RRT-Y, though the interpretation of responses differed due to the more complex reasoning strategies observed in older adolescents.

2.3 RRT and RRT-Y Differentiation

Even though the **Rapid Response Task (RRT)** was initially developed for early adolescents aged 12–15 years, there was a need for an extended version due the observed cognitive transformation in later adolescence. It was seen that the adolescents in the 16–18 age group exhibit a different style of decision-making. Since they are in the level between a child and an adult, and their reasoning abilities are more matured compare to the early adolescents. So, we couldn't simply use the same tool across both groups without adapting it. This led to the development of **RRT-Y (Rapid Response Task -Youth version)**.

Now, although both RRT and RRT-Y are based on the same conceptual framework-the dual process theory of System 1 and System 2 thinking-and even share the same pool of context-based questions, there is a subtle but important difference in their design and purpose. The original RRT was more exploratory. It was about seeing how younger adolescents respond to intuitive cues in familiar scenarios. It gave us an insight into their raw, untrained intuitive mind. But RRT-Y was not just a repetition of the same tool in an older age group. It is an extension of the primary tool with a change in outlook, validated in late adolescents

We retained the same questions, but the way the youth engaged with those questions was distinctly different. In the younger group, most of the intuitive responses came out of habit or emotional immediacy.[8] In the older group, we noticed that intuition often came with layers-sometimes a learned intuition, sometimes a practiced instinct based on social experiences. So, while the questions were the same, the **interpretation of the response patterns** became more nuanced. RRT-Y gave us the opportunity to see if certain question types-like emotionally loaded ones or those requiring moral reasoning-elicited different responses across age groups.

Another major reason for adapting RRT into RRT-Y was to explore the **age-related divergence in intuitive and logical reasoning patterns.** The major curiosity behind the creation of these two distinct tools is about the relation between the age-related maturity level of adolescent children in their mode of thinking. This conjunction also helped us to analyse the **developmental curve of intuition** in early to late teenage years.

So, RRT-Y is not just a youth version of RRT. It is an adapted, developmentally aware tool that respects the growing complexities in an adolescent's mind. It serves the same foundational purpose-to measure intuition-but from a lens that is

calibrated for older teens, respecting their evolved sense of identity, peer awareness, and cognitive ability.

2.2 Participants and Data Collection

The study was conducted among school-going adolescents in Kochi, Kerala, India. Two distinct age groups were included to validate both the RRT (ages 12–15) and RRT-Y (ages 16–18) versions of the tool.

School Types and Settings

Participants were recruited from both **government** and **private aided/unaided schools** that follow the Kerala State Education Board or Central Board of Secondary Education (CBSE) curriculum. Schools were selected to ensure participation from diverse socio-economic backgrounds and to capture a broad cognitive response profile.[10]

Recruitment Method

The selection of schools was made through purposive sampling based on their willingness to participate and logistical feasibility. Initial contact was made with school authorities through formal communication from the Department of Neurology, Amrita Hospital. Upon approval from the school principals, student participants were identified in collaboration with class teachers and school counsellors.

Two participant groups were created:

1. **Group A**: Early adolescents (n = 52), aged 12–15 years, to validate the RRT.
2. **Group B**: Late adolescents (n = 87), aged 16–18 years, to validate the RRT-Y.

Ethical Clearance

Prior to study initiation, the research protocol was submitted to and approved by the **Institutional Ethics Committee (IEC)** of Amrita Institute of Medical Sciences, Kochi **(Approval Number: [ECASM-AIMS-2024-605, dated-13/12/2024]).** The study was conducted in accordance with the ethical guidelines for research involving human participants, as outlined by the Indian Council of Medical Research (ICMR).

Informed Consent and Assent

Written **informed consent** was obtained from the **parents or legal guardians** of all participants below 18 years of age. Additionally, **written assent** was obtained from each adolescent participant after explaining the study procedures in age-appropriate language. Participation was entirely voluntary, and students were free to withdraw at any time without any academic or institutional consequences.

All data were anonymized, and confidentiality of participant responses was strictly maintained throughout the study.

The Rapid Response Task (RRT) is a proprietary research tool developed for this study. Access to the full version can be provided by the corresponding author upon reasonable request.

3. RESULTS

A total of 74 dual-mode decision-making questions were originally developed for the Rapid Response Task (RRT), intended to assess intuitive and analytical thinking among school-aged adolescents. These questions were created based on established psychometric principles and tailored to reflect both intuitive and logical reasoning processes. Each question included a primary query (targeting intuition) followed by a sequence of up to four clues (targeting logic), aligning with the framework of dual-process theories of cognition.

3.1 Reliability and Internal Consistency – RRT (Age group: 12–15 years, *n* = 52)

The original RRT underwent item analysis and validation in a sample of 52 adolescents aged 12–15 years. Based on correlation and factor analysis, the 74-item pool was reduced into three validated question sets comprising 20, 27, and 27 items respectively. Internal consistency was high across all sets, with Cronbach's alpha values reported as:

Version	No. of Items	Sample Size	Cronbach's α
RRT-Set 1	20	52	0.743
RRT-Set 2	27	52	0.806
RRT-Set 3	27	52	0.837

3.2 Reliability and Internal Consistency – RRT-Y (Age group: 16–18 years, *n* = 87)

To adapt the tool for older adolescents, 54 questions were randomly selected from the original 74-item pool and administered to a new sample of 87 students aged 16–18 years. Item-total correlation analysis was performed, and items with correlation coefficients ≥ 0.70 were retained. Based on this criterion, 15 questions met the threshold (70% of the total sample = 60.9, rounded to 61 participants).

The Cronbach's alpha for the 54-item set was 0.992, indicating excellent internal consistency. The final 15-item RRT-Y version also demonstrated high reliability with Cronbach's alpha = 0.935.

Version	No. of Items	Sample Size	Cronbach's α
RRT-Y Full	54	87	0.992
RRT-Y Final	15	87	0.935

3.3 Scoring Structure and Cognitive Dimensions

The RRT and RRT-Y are structured to separately quantify intuitive and logical thinking. Each question begins with a primary prompt (meant to elicit an intuitive response), followed by four progressively detailed clues, which are scored in reverse to reward faster, more direct analytical reasoning.

Criteria	Intuitive Mind	Logical Thinking
Question Type	Primary Question	Clues (4 levels)
Scoring Method	Direct Scoring	Reverse Scoring
Max Score (out of 10)	10	Clue 1 = 4, Clue 2 = 3, Clue 3 = 2, Clue 4 = 1

This scoring pattern ensures that both fast, intuitive decisions and slower, deliberative logic are assessed in a balanced manner.

Each question in RRT and RRT-Y is designed to assess both **intuitive** and **analytical** decision-making. The **intuitive mind** is measured by the participant's immediate response to a single prompt (within 5 seconds). If this is incorrect or unanswered, a series of **four logical clues** follow.

The **analytical (logical) score** is computed via reverse scoring as follows:

Clue Level	Marks Awarded
Clue 1	4
Clue 2	3
Clue 3	2
Clue 4	1

Total Analytical Score (if clue-based answer is correct on Clue 4): 4 + 3 + 2 + 1 = 10

This system ensures **equal weightage** (maximum 10 marks) for both intuitive and logical reasoning, enabling a balanced comparison of the two cognitive dimensions.

Scoring Summary Table

Cognitive Dimension	Item Type	Max Score	Scoring Method
Intuitive Thinking	Primary Question	10	Direct scoring (10 marks for correct answer within 5 seconds)
Analytical Thinking	Clues (4 levels)	10	Reverse scoring (Clue 1 = 4, Clue 2 = 3, Clue 3 = 2, Clue 4 = 1)

3.4 Summary of Psychometric Findings

- The RRT tool displayed robust internal consistency in its split forms, validating its structural integrity.
- The RRT-Y showed exceptionally high reliability, affirming the consistency of older adolescents' responses, possibly reflecting more structured cognitive patterns at this developmental stage.
- Together, these findings support the **psychometric soundness** of both RRT and RRT-Y as culturally and age-appropriate tools for assessing intuitive and analytical decision-making in adolescents.

3.5 Future Direction and Considerations

1. Expand validation with a larger and more diverse school population.
2. Explore longitudinal changes in decision-making across developmental stages.
3. Incorporate neurophysiological correlates (e.g., EEG, HRV) for triangulation.
4. Adapt the RRT for clinical populations or educational interventions.
5. Translate and validate the tool in regional languages for broader applicability.

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Navigating Family Enmeshment, Relationship Anxiety, and Self-Compassion among Indian Young Adults

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ABSTRACT

Family enmeshment, marked by blurred boundaries and excessive emotional involvement, has long been studied in Western psychology but remains underexplored in collectivist societies such as India. In cultural contexts where interdependence and familial duty are prioritized, enmeshment often appears normalized, yet evidence increasingly links it with psychological difficulties among young adults. This review synthesizes empirical studies published between2015 and 2025 on family enmeshment, romantic relationship anxiety, and self-compassion among Indian and South Asian youth. Findings indicate that enmeshed family environments are associated with emotional dysregulation, attachment insecurity, and heightened relationship anxiety. At the same time, enmeshment predicts diminished self-compassion, often due to cultural interpretations of self-care as selfishness. The review also highlights the mediating role of self-compassion, which buffers against the adverse effects of enmeshment and offers resilience in managing relationship anxieties. However, significant research gaps remain, including the lack of validated instruments in Indian contexts, limited longitudinal studies, and scarce exploration of technological and societal changes reshaping family dynamics. Additionally, the theoretical integration of indigenous frameworks, such as Saraswathi's Hindu Developmental Model and Tuli & Chaudhary's Elective Interdependence, with empirical findings is limited. This paper underscores the importance of culturally situated research to better understand how young Indian adults negotiate autonomy, intimacy, and familial obligations. By mapping these connections, the review provides a foundation for future work to advance both psychological theory and culturally sensitive practice in collectivist societies.

Keywords: family enmeshment, romantic relationship anxiety, self-compassion

India's cultural ethos, shaped by centuries of collectivistic philosophy, emphasizes the family as the central unit of social organization. The Sanskrit dictum "Vasudhaiva Kutumbakam", or "the world is one family," encapsulates this worldview. The family has traditionally served not only as a source of belonging and support but also as a moral and decision-making authority. In Indian culture, interdependence within families is highly valued, with parents often playing a significant role in

guiding their children's decisions related to careers, marriage, and lifestyle choices. This strong interconnectedness, while beneficial in many ways, can sometimes obscure healthy personal boundaries. The concept of family enmeshment, introduced by Minuchin (1974), describes such a pattern of emotional fusion and over-involvement that limits an individual's ability for self-differentiation. Although Western psychology commonly views enmeshment as a dysfunctional process, its interpretation within collectivist societies like India is more nuanced. Here, notions of loyalty, familial duty, and self-sacrifice can mask the presence of unhealthy dependencies.

India's rapidly evolving social landscape further complicates these family dynamics. Factors such as swift urbanization, heightened aspirations, and increased exposure to Western individualistic ideologies through globalization and social media have reshaped the expectations placed on young adults—those between 18 and 29 years old—whom Jeffrey Arnett (2000) identifies as experiencing the stage of "emerging adulthood." This period involves critical developmental tasks, including identity exploration, establishing autonomy, and forming intimate relationships. In the Indian context, however, these developmental milestones must be balanced with enduring familial expectations, potentially leading to psychological conflicts that often manifest as:

Romantic Relationship Anxiety— Attachment insecurity arises when internalized family dynamics shape expectations in intimate settings. Young adults raised in enmeshed family environments often face challenges such as fear of abandonment and excessive reliance on others for emotional security (Díez et al., 2019).

Reduced Self-Compassion—In many Indian cultural contexts, practicing self-compassion can be challenging for young adults from enmeshed families, as acts of self-kindness may be perceived as conflicting with deeply ingrained values of seva (selfless service) and familial duty. This often results in heightened feelings of guilt, increased self-criticism, and difficulties in adopting effective resilience strategies (Berryhill et al., 2018; Yorulmaz, 2023).

Recognizing and addressing the interconnected dynamics of family enmeshment, relationship anxiety, and self-compassion is essential within India's socio-cultural framework, where the family continues to play a central and formative role in individuals' psychological well-being and relational development.

This paper, therefore, synthesizes empirical findings (2015–2025) to clarify how enmeshment in Indian families influences relationship anxiety and self-compassion among youth. Importantly, we avoid duplicating Western conclusions, instead aiming to contextualize insights within Indian collectivism and highlight pressing research gaps.

Review of Literature

Family Enmeshment: Definitions and Dynamics

Family enmeshment was conceptualized by Minuchin (1974) as part of Structural Family Theory, where family systems with diffuse boundaries impair individual development. In contrast, healthy family

systems balance cohesion with autonomy, thereby allowing generational roles to remain distinct.

In Indian society, however, certain enmeshed practices align with cultural scripts. Concepts of dharma (duty) emphasize the sacrifice of individual needs for collective well-being. While protective in crises, empirical work suggests such dynamics can impair autonomy. Kivisto et al. (2015) linked adolescent enmeshment with emotional dysregulation, while Jimeno et al. (2022) highlighted deficits in self-control and coping among youth from enmeshed households. In India specifically, Tuli & Chaudhary (2010) noted that parental over-involvement is normalized as love and duty, not pathology. This complicates the direct application of Western definitions of enmeshment.

Enmeshment and Romantic Relationship Anxiety

Attachment theory (Bowlby, 1982) proposes that internal working models of relationships develop from early caregiver bonds. Enmeshment—when paired with controlling parental attitudes—has been repeatedly associated with anxious or avoidant attachment styles. Díez et al. (2019) demonstrated that parental control positively correlated with attachment anxiety and avoidance. Similarly, Vitulić et al. (2023) reported that families with unbalanced cohesion produced higher attachment-related insecurities.

In collectivist contexts, additional tensions emerge. Goldner et al. (2018) found that mother-adolescent enmeshment was positively correlated with intimacy anxiety. Lampis et al. (2020) observed that poor self-differentiation predicted generalized anxiety problems in emerging adults. For Indian youth, such findings map onto ongoing conflicts: seeking autonomy in romantic lives while maintaining parental proximity and approval.

Enmeshment and Self-Compassion

Research highlights that enmeshment diminishes intrapersonal resources. Berry hill et al. (2018, 2020) argue that chaotic-enmeshment undermines psychological flexibility and reduces self-kindness, reinforcing cycles of guilt and shame. Yorulmaz (2023) similarly found that self-compassion mediated the relationship between negative parenting and somatization.

Given Indian collectivism's emphasis on seva and role obligations, self-compassion may be reconstructed as selfishness. Studies (e.g., Suppes, 2021; Budzan & Van Vliet, 2021) indicate that self-compassion supports resilience in romantic partners, but equivalent Indian data remains rare.

Self-Compassion and Relationship Functioning

Parallel streams of literature show that self-compassion predicts better romantic relationship satisfaction, lower conflict, and enhanced attachment security (Bolt et al., 2019; Neff & Beretvas, 2012). Self-compassion buffers individuals against the anxieties inherited from their family of origin, but Western interventions are autonomy-centric. The transferability of these models to Indian youth remains untested.

Emerging Research Gaps

While current scholarship establishes the adverse effects of family enmeshment on

autonomy, self-compassion, and relationship anxiety, several emerging research gaps call for urgent attention. First, the rapid rise of digital connectivity and social media is reshaping family and romantic boundaries, yet little is known about how online surveillance, constant connectivity, or virtual emotional dependence may intensify enmeshment in collectivist families. Second, existing research seldom considers intersections of gender roles, caste, or socio-economic status, which uniquely mediate how enmeshment and autonomy are experienced in Indian households. Third, as migration and transnational families expand, the dynamics of cross-cultural enmeshment—where Indian youth negotiate collectivist family expectations alongside globalized, individualistic ideals—remain unexplored. Fourth, there is limited examination of how positive aspects of interdependence, such as family bonding, resilience, and collectivist coping styles, can buffer or even reframe enmeshment in non-pathological ways. Additionally, most studies neglect the role of new life domains—career decision-making, digital dating patterns, and mental health stigma—in amplifying the effects of enmeshment on young adults. Finally, there is a need for innovation in interventions, moving beyond Western models toward culturally embedded, multimodal approaches that incorporate indigenous philosophies, mindfulness, and community-based frameworks. Together, these underexplored directions highlight the necessity of broadening the evidence base beyond traditional family therapy models to capture the fast-changing realities of Indian youth negotiating identity, intimacy, and autonomy.

3. Methodology

Design

This paper employs a narrative review design to synthesize empirical studies, conceptual writings, and intervention-based research published between 2015 and 2025 on family enmeshment, relationship anxiety, and self-compassion among Indian and South Asian young adults. The narrative review method was chosen as it allows for flexibility in engaging with both empirical data and culturally situated theoretical models, offering a holistic lens on these constructs in collectivist contexts

Sampling and Search Methods

Electronic databases PsycINFO, PubMed, and Scopus were searched with terms including "family enmeshment," "relationship anxiety," "self-compassion," "India," and "collectivist culture." Approximately 165 articles were initially screened.

Inclusion Criteria

- Peer-reviewed empirical studies, 2015–2025, in English.
- Focus on young adults (18–29 years) from collectivist/Indian contexts.
- Studies measuring enmeshment, romantic relationship anxiety/attachment, or self-compassion.
- Reports including quantitative or qualitative findings.

Exclusion Criteria

- Review articles, theoretical essays, and editorials.

- Clinical case studies without systematic data.

Selection and Data Extraction

After removal of duplicates and screening, 15 articles were included. Data extracted included study aims, sample, methods, outcomes, and main findings. These represent a mixture of cross-sectional surveys, correlational studies, and limited experimental or longitudinal designs.

Results

The synthesis of the literature on family enmeshment, relationship anxiety, and self-compassion among Indian young adults revealed four interrelated themes:

Theme A: Psychological Risks of Enmeshment

Family enmeshment is associated with multiple psychological risks, including emotional dysregulation, diminished self-efficacy, and heightened stress. Berryhill and Smith (2020) demonstrated that chaotic and disengaged family functioning patterns predict increased anxiety and depression mediated by decreased self-compassion and psychological flexibility. In the Indian context, Sharma and Tiwari (2024) highlighted how familial over-involvement is often interpreted as protective, yet paradoxically limits the development of independent functioning and decision-making among young adults. This excessive emotional involvement and blurred boundaries restrict opportunities for autonomy, resulting in maladaptive emotional responses, decreased life satisfaction, and obstacles in achieving self-regulation (Kivisto et al., 2015; Thompson et al., 2024). Furthermore, family enmeshment in collectivist cultures aggravates emotional reactivity and dependence, making it harder for individuals to cope effectively with stressors and hindering their psychosocial development.

Theme B: Enmeshment and Romantic Relationship Anxiety

A consistent finding in the literature is that enmeshed family environments contribute to increased romantic relationship anxiety, characterized by fears of abandonment, rejection, and excessive dependence on romantic partners for validation. Díez et al. (2019) identified a significant positive association between parental behavioral and psychological control and increased attachment anxiety and avoidance in romantic relationships. Supporting this, Vitulić et al. (2023) found that young adults experiencing imbalanced family cohesion—characterized by insufficient emotional boundaries—exhibit higher levels of attachment avoidance and anxiety. This phenomenon is particularly evident among South Asian populations, including Indians, where cultural norms prioritize emotional closeness and collective family involvement, often discouraging relational distancing. The tension between these cultural expectations and the individual's desire for autonomy intensifies conflicts within romantic relationships, contributing to maladaptive attachment patterns and greater susceptibility to relational distress (Lampis et al., 2020; Mikulincer & Shaver, 2007).

Theme C: Enmeshment and Self-Compassion

Research indicates a strong negative relationship between family enmeshment and self-compassion. Berryhill et al. (2018)

found that chaotic family enmeshment is associated with reduced psychological flexibility and lower self-compassion, which together mediate increased anxiety. Yorulmaz (2023) further identified self-compassion as a crucial mediator in the link between negative parenting attitudes—such as over-control or emotional invalidation—and somatization and mental health difficulties. In the Indian cultural context, these dynamics are complicated by collectivistic values that emphasize duty (Dharma) and prioritize family obligations over individual self-care. This cultural framework often induces guilt when individuals engage in self-kindness or emotional self-care, perceiving these behaviors as selfish or threatening family harmony. As a result, Indian youth frequently face challenges in cultivating self-compassion—an essential element for fostering emotional resilience and overall well-being

Theme D: Self-Compassion as Mediator /Resilience Factor

Self-compassion serves as a crucial protective factor against the adverse psychological effects of family enmeshment. Meta-analytic evidence from Luo et al. (2023) confirms that self-compassion interventions effectively reduce symptoms of depression and anxiety. In the Indian cultural context, however, the concept of self-compassion must be culturally reframed—from "self-care" to "self-respect within the framework of family values"—to resonate with collectivist norms and reduce feelings of guilt related to perceived violations of familial duties (Tuli & Chaudhary, 2010; Saraswathi, 1999). Research also links higher self-compassion with secure attachment styles, enhanced relationship quality, and more constructive conflict resolution (Neff & Beretvas, 2013; Kaya et al., 2022). Integrating self-compassion practices that promote kindness, mindfulness, and emotional regulation facilitates negotiated autonomy, empowering young adults to balance personal well-being with family interdependence (Budzan & Van Vliet, 2021; Berry hill et al., 2021).

These interrelated themes reveal the intricate interplay among family enmeshment, relationship anxiety, and self-compassion within India's collectivist culture. They highlight a pressing need for culturally sensitive interventions that foster healthy boundaries, emotional regulation, and adaptive self-compassion, thereby supporting young adults' psychological health and relational stability.

Discussion

This review highlights the intricate interplay between family enmeshment, romantic relationship anxiety, and self-compassion within India's collectivist cultural framework that prioritizes family loyalty and negotiated autonomy.

According to Bowen's Family Systems Theory (1978), enmeshed family environments hamper self-differentiation, fostering insecure attachment patterns that contribute to increased romantic relationship anxiety (Díez et al., 2019; Vitulić et al., 2023). Indian cultural constructs such as dharma (duty) and seva (service) further complicate the individuation process, aligning with Saraswathi's (1999) and Tuli & Chaudhary's (2010) models that emphasize negotiated autonomy—balancing personal independence with familial obligations.

The negative association between enmeshment and self-compassion reflects deep internal conflict, exacerbated by cultural narratives that stigmatize self-care as selfishness (Berryhill et al., 2018; Yorulmaz, 2023). This cultural framing restricts the development and practice of self-compassion, which in turn heightens relationship anxiety and reduces emotional resilience in young adults navigating these enmeshed family dynamics.

The mediating role of self-compassion suggests it as a promising, culturally adaptable mechanism to buffer enmeshment's negative effects (Luo et al., 2023), though Indian-specific research remains scarce. Existing Western interventions emphasizing separation lack fit with Indian youth's preference for interdependence and relational harmony (Frontiers in Psychiatry, 2024; Burnt Roti, 2020).

Frameworks by Saraswathi and Tuli & Chaudhary emphasize autonomy as negotiated interdependence, which aligns well with reframing self-compassion as self-respect rather than selfishness (Mary & Gopal, 2025). This reframing is crucial for intervention acceptability and success.

The review underscores the urgent need for culturally nuanced assessment tools and interventions that respect Indian family and cultural values while enhancing psychological well-being.

Conclusion

This integrative review shows that family enmeshment profoundly shapes relationship anxiety and self-compassion in Indian young adults. It constrains autonomy, elevates romantic insecurity, and diminishes self-kindness. Yet, evidence highlights the promise of self-compassion as a mediating resilience process.

However, this scholarship is embryonic in India. Major research gaps include culturally adapted instruments, longitudinal studies, deeper theorization within local frameworks, and attention to changing socio-technological realities. Bridging these gaps is critical not just for youth well-being but also for broader societal resilience, as familial systems remain central to Indian life.

Research Gaps

While existing evidence consistently associates family enmeshment with diminished autonomy, heightened relationship anxiety, and reduced self-compassion, the field shows a marked absence of culturally tailored interventions within the Indian context. Current scholarship is overly reliant on Western theoretical frameworks, which do not fully account for India's collectivist ethos, where autonomy develops through negotiated interdependence rather than detachment. Moreover, most available literature emphasizes the negative consequences of enmeshment, with limited focus on designing preventive or therapeutic frameworks that respect cultural values while fostering healthy boundaries. This lack of context-specific engagement not only restricts theoretical growth but also limits practical applications for counsellors and mental health practitioners in India. Addressing this gap through culturally grounded, empirically validated interventions holds the potential to advance both scholarship and practice, equipping Indian young adults to navigate family ties

while cultivating psychological resilience and emotional well-being.

Future Suggestions, Implications, and Limitations

Future Suggestions

Future research should systematically examine how digital technologies reshape enmeshment in modern Indian families, especially in contexts of surveillance, constant contact, or social media etiquette. Studies should also explore intersectional variations by gender, caste, and class to uncover how socio-cultural hierarchies mediate experiences of enmeshment. Greater focus is also required on longitudinal designs, which can reveal how enmeshment and autonomy evolve during emerging adulthood, marriage, or migration. Finally, testing culturally adapted interventions—such as self-compassion training reframed as "self-respect," or boundary-setting linked with dharmic duty—will ensure alignment with local values while reducing stigma.

Implications

This review has important theoretical and practical implications. Theoretically, it contributes to the growing literature on cultural models of autonomy, advancing Saraswathi's Hindu Developmental Model and Tuli & Chaudhary's Elective Interdependence Model by demonstrating how they illuminate enmeshment dynamics beyond Western frameworks. Practically, the findings emphasize the urgent need for culturally sensitive counselling, therapy, and psychoeducation in India, where traditional family closeness frequently blurs into enmeshment. Results suggest that interventions strengthening negotiated autonomy, self-compassion, and relational resilience could prevent mental health burdens such as anxiety, guilt, and dependency in young adults. Beyond individual well-being, these interventions also promise to improve family harmony and societal productivity, positioning them as crucial for both personal and national development.

Limitations

As with all narrative reviews, this study is limited by potential selection bias and the lack of formal meta-analytic quantification. While thematic synthesis offers depth, it cannot establish causal inferences. Cultural translation of concepts like "self-compassion" or "autonomy" is still evolving, and caution must be exercised in their interpretation. Finally, since the review did not generate new empirical evidence, its conclusions should be treated as a conceptual foundation for future empirical validation rather than definitive findings.

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IMPACT OF ARTIFICIAL INTELLIGENCE CHAT BOTS ON THE COGNITIVE HEALTH OF HUMAN BEING: AN AYURVEDIC PERSPECTIVE

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ABSTRACT

The sudden increase in the use of Artificial Intelligence chat bots into the daily life have significantly altered the dynamics of the cognitive world of human being, especially in how they think, analyze, remember and deduce at times. Artificial Intelligence chat bots improves the productivity and efficacy, but effects the overall thinking ability of human brain. According to Ayurveda the person gains the knowledge through the interaction between the conscious-self, sense organs, mind and their objects. But due to the usage of Artificial Intelligence chat bots this process is hampered and as a result there occurs the inappropriate use of the sensory objects used for the process of gaining knowledge.

The over reliance of Artificial Intelligence chat bots may lead to sensorium alterations and there by influence cognitive process and memory. Many recent researches suggest there is significant impact of over usage of electronic media especially mobile phones in younger kids and their role in autism spectrum disorders. This shows the potential dangers of exposure of new technological innovations into different strata of society especially to the vulnerable sections like children and young adults.

Thus, Artificial Intelligence chat bots can be used as a supporting tool, but we should take care that it should not override the cognitive ability of human beings, especially among the young developing brain as this may lead to the passive development of the human brain which may in turn affect the overall development of an individual.

***Keywords*:** Artificial Intelligence chat bots, Cognitive Health

Ayurvedic Process of knowledge

Artificial Intelligence chat bots has become a part of our life in this modern era, highly influencing the dynamics of the cognitive world of human being, especially in how they think, analyze, remember and deduce at times. The various AI bots have significantly benefited our life as in efficacy and productivity. The paper explores these concerns through the unique viewpoint of Ayurveda, India's ancient system of medicine, which provides important insights into conscious-self, cognition, and how we acquire knowledge. Ayurveda views human

cognition as a complex mix of different elements of conscious-self and sensory perception. Classical Ayurvedic texts describe gaining knowledge (*Jnana*) as a sophisticated interaction among conscious-self (*Chetana*), sense organs (*Indriyas*), mind (*Manas*), and their respective objects (*Indriyartha*) (Charaka Samhita, Sutra Sthana 11.20). This approach offers a valuable way to examine how modern technological tools, especially AI, might disrupt natural cognitive processes. The importance of this review becomes clear when looking at recent studies that connect excessive screen time and exposure to electronic media with developmental disorders in children (Anderson & Subrahmanyam, 2017). These findings highlight the urgent need to evaluate AI's effect on cognitive health from different angles, including traditional medical systems that provide proven insights into human conscious-self and mental well-being.

Objectives

- To understand the impact of Artificial Intelligence chat bots on mind, sense organs and their objects.
- To understand the effect of Artificial Intelligence chat bots on the cognitive ability of human being and its impacts in the growth and development of an individual through the perspective of Ayurveda

Ayurvedic Understanding of Cognition

Ayurveda views cognition not just as a neurological function, but as a complex interaction among conscious-self, mind, senses, and their objects. As stated in the Charaka Samhita, true cognition comes from the union of four elements: *Atma* (soul), *Manas* (mind), *Indriyas* (sense organs), and *Indriyartha* (sense objects) (Charaka Samhita, Sutra Sthana 11.20). Each element is crucial:

1. *Atma* (Conscious-self) – The eternal observer and foundation of cognition.
2. *Man*as (Mind) – A subtle organ that brings together sensory inputs and processes them.
3. *Indriyas* (Sense Organs) – The five *Jnanendriyas* that collect external stimuli.
4. *Indriyartha* (Sense Objects) – The external materials that trigger perception.

This model highlights the need for sensory harmony. Disruption among these elements leads to *Asatmyendriyartha Samyoga*. This can be seen as *Atiyoga* (excessive use), *Ayoga* (underuse), and *Mithyayoga* (misuse), all of which result in cognitive dysfunction (Murthy, 2016).

Furthermore, Ayurveda identifies three mental faculties—*Dhi* (intellect), *Dhriti* (retention), and S*mriti* (memory)—as essential for cognitive integrity. Impairment in any of these can lead to *Prajnaparadha*, or intellectual blasphemy. This is viewed as the root cause of both mental and physical problems (Charaka Samhita, Sutra Sthana).

Literature Review

Ayurvedic Concepts of Cognition

Indriyas (Sense Organs)

Ayurveda divides senses into *Jnanendriyas* and *Karmendriyas*. The interaction of these with the mind enables perception. Overreliance on AI tools like GPS and voice

assistants causes *Indriya Vikriti*. This results in decreased sensory sharpness and engagement (Charaka Samhita, Sutra Sthana).

Manas (Mind)

Manas integrates sensory and emotional data. Healthy functioning of *Manas* ensures *Dharana* (concentration), *Dhriti* (willpower), and *Smriti* (memory) (Ashtanga Hridaya, Sutra Sthana). Using AI for cognitive tasks offloads mental processing, thereby weakening THE natural ability of *Manas*.

***Buddhi* (Intellect)**

Buddhi, influenced by *pitta Dosha*, plays a role in decision-making and discrimination. Heavy reliance on AI for judgments and predictions can result in *Buddhi Vikriti*, where the ability to synthesize information diminishes (Sushruta Samhita, Sutra Sthana).

Modern Research on AI and Cognition

AI's Impact on Memory

Sparrow et al. (2011) introduced the "Google Effect". Users tend to remember where they found information rather than the information itself. Kumar et al. (2022) found that subjects heavily reliant on smartphones for memory tasks showed inactivity in the hippocampus. This resembles the Ayurvedic concept of *Smriti-Hrasa.*

AI and Attention Span

Digital devices create "continuous partial attention" (Stone, 2009). Ophir et al. (2019) identified reduced filtering ability and working memory among media multitaskers. This aligns with Ayurvedic concerns about instability in *Manas* and disruption of *Ekagrata* (one-pointed focus).

Sensorial Changes

Jones and Lee (2020) reported that habitual GPS users exhibited poor spatial memory and way finding skills. This can be seen as an imbalance in *Vata* and improper use of *Indriyas*, leading to issues in orientation and perception.

Developmental Implications

Hutton et al. (2020) found reduced white matter integrity in kids with high screen exposure. Zhou et al. (2018) linked internet overuse to gray matter loss in areas connected to decision-making and impulse control. These findings support Ayurvedic insight into *Atiyoga* of *Indriyas* causing mental issues.

AI-Specific Effects

AI's predictive abilities can bypass conscious thought. Lupinek (2021) found that frequent AI use decreased students' problem-solving skills. This "cognitive outsourcing" serves as a modern example of *Prajnaparadha*, leading to underuse of *Buddhi* and *Smriti*.

Methods

Research Design

This study uses a mixed-method approach that combines classical textual analysis with modern research synthesis. It aims to explore the cognitive impact of Artificial Intelligence chat bots (AI) from an Ayurvedic viewpoint. The methodology consists of two main parts: a classical literature review and a modern research analysis. There is a third phase focused on synthesis and model development.

Classical Literature Review

We conducted a thorough examination of primary Ayurvedic texts, including Charaka Samhita, Sushruta Samhita, and Ashtanga

Hridaya. The goal was to extract concepts related to cognition, mental faculties, and the connection between mind and health. The review included:

- Close reading of Sanskrit verses and relevant commentaries.
- Thematic analysis to discover recurring cognitive principles, especially regarding *Jñāna* (knowledge), *Manas* (mind), *Buddhi* (intellect), *Indriyas* (sensory faculties), and *Atma* (conscious self).
- Understanding mental functioning, learning, memory, and cognitive impairments.

Contemporary Research Review

This phase involved a narrative and content analysis of peer-reviewed literature. The focus was on:

- The impact of AI on cognitive abilities such as attention span, memory retention, decision-making, and neurodevelopment.
- Changes in cognitive behavior due to long-term AI use and reliance on technology.
- Ethical and developmental effects of AI on natural cognitive processes.

Data Integration and Model Development

We analyzed the findings from classical texts and modern studies through a qualitative synthesis using these methods:

- Close textual reading for ancient texts.
- Thematic and narrative analysis to combine classical and contemporary data.
- Content analysis to code concepts and create a unified framework.

Based on these integrated insights, we develop a conceptual model to explain the potential effects of AI on human cognition within an Ayurvedic framework. This model aims to provide a cross-disciplinary perspective for future research, education, and clinical application.

RESULT

Ayurvedic Model of Cognitive Processing

According to Ayurveda, cognition occurs through the following steps:

1. *Indriya-Sannikarsha* (sensory contact with objects)
2. *Mano-Nigraha* (attention modulation by the mind)
3. *Atma Samyoga* (integration with conscious-self)
4. *Buddhi Utpatti/jnana utpatti* (formation of intellect or knowledge)
5. *Smriti* and *Medha* (memory consolidation and intelligence)

Any disruption in this chain, such as improper sensory contact or weakened mental focus, leads to *Prajnaparadha* (intellectual blasphemy), which is a root cause of many psychological disorders.

Impact of AI on the Ayurvedic Chain

Ayurvedic Component AI-related Disruption

Indriya Overstimulation through constant media exposure

Manas Fragmented attention, multitasking overload

Buddhi Reduced reasoning ability due to AI decision-making

Smriti Memory dependence on digital tools

Medha Decline in analytical thinking and creativity

Table 1: synthesis: Ayurvedic and modern integration explains the various process involved in the process of obtaining and gaining the knowledge. The each level in the process is compared in the modern terms and is the impact of excessive use of AI in them is interpreted. That is in *Manas*, the attention and emotional regulation there occurs distraction and emotional flattening due to the excessive use of AI, similarly *Smriti*, the memory and recalling ability there occurs digital dementia, *Dhi*, the intellect there occurs difficulty in analyzing, *Asatmendriya Samyoga* ,the over stimulation of senses there occurs sensory dysfunctions due to the overuse of screen, *Prajnaparadha* the non-execution of functions impairs the moral ability and the *Sadvritta* , the behavioral rules and actions are usually neglected because of the sedentary life style.

Discussion

Disruption of Natural Knowledge Acquisition

The analysis shows that AI significantly changes the traditional knowledge acquisition process outlined in Ayurveda. This change occurs on many levels and appears in various ways that undermine cognitive integrity.

1. Compromised *Pratyaksha Pramana* (Direct Perception)

In Ayurvedic knowledge, *Pratyaksha Pramana* (direct perception) is seen as the most basic way to gain knowledge. It involves direct contact of our senses with objects, processed by the mind and recognized by conscious-self. AI introduces several layers in this process: as from the process of perceiving the things with the conscious-self and mind to the understanding of it with the senses and their objects.

Algorithmic Filtering: AI algorithms decide what information reaches us, creating "curated reality." Social media feeds, search results, and recommendation systems filter content based on our past browsing and web searches. This can create an environment where individuals only see beliefs or opinions that match their own. As a result, their existing views are reinforced, and they do not consider alternative ideas. This limits exposure to different viewpoints.

Sensory Substitution: Virtual and augmented reality technologies replace real sensory experiences with artificial ones, as now we more depend on the AI bots for creating any new images or videos just by giving them the prompts. But mostly the outputs generated are not usually the exact real information. While they can serve as educational tools, overreliance on them may diminish our ability to process natural sensory input.

Attention Hijacking: AI-driven notifications and engagement features are designed to grab and keep our attention. This disrupts the natural cycle of sensory engagement and rest, which on Ayurvedic view are most essential for the cognitive skill development of a human being and also for maintaining their health.

2. Weakened *Anumana* (Inference and Reasoning)

Anumana, the ability to draw logical conclusions and reason, is an important cognitive skill in Ayurvedic psychology. AI's effect on this skill is particularly troubling:

Instant Answers: Search engines and AI

assistants provide quick answers to questions, often skipping the reasoning process. Users might accept information without engaging in the critical thinking, which is actually needed to assess its accuracy or relevance.

Predictive Technology: Autocomplete features, predictive text, and recommendation algorithms anticipate what users need before they even think about it. This may weaken our natural ability to predict, plan, and even to react at times. This in turn also effect the memory capacity and its reproduction whenever needed.

Problem-Solving Delegation: AI tools that handle complex problems, from math to creative tasks, may reduce chances for developing problem-solving skills. As these effect the

learning through trial and error method which can actually enhance the confidence of a human being. (Schacter et al., 2011)

Conclusion

The continuous use of Artificial Intelligence chat bots in our daily life have significantly impacted the mental and cognitive ability of human being. Use of Artificial Intelligence chat bots can definitely increase the productivity of things but we should always take care that it should not override the ability of human beings, especially the developing young brains.

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Tables

Table 1

Synthesis: Ayurvedic-Modern Integration

Ayurvedic Concept	Modern correlation	Effect of AI
Manas	Attention and emotional regulation	Distraction, emotional flattening
Smriti Dhi Asatmendriya samyoga	Memory, recalling ability Intellect Over stimulation of senses	Digital dementia Difficulty in analysing Sensory dysfunctions due to the overuse of screen
Prajnaparadha Sadvritta	Non execution of functions Behavioral rules and actions	Impaired moral reasoning Neglected because of sedentary life style

Note: Data interpreted based on literature review

Metacognitive Regulation and Digital Resilience in Mobility-Impaired Youth: The "Aatma-Darpan" AI Wellness Journal Intervention.

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ABSTRACT

Digital socialization is consider as the process of collaborative interaction and relationship development through digital platforms. It makes unique challenges for mobility-impaired youth who depend profoundly on digital spaces for social association. Metacognition is referred as the knowledge and understanding of one's own cognitive process. Resilience is the ability to adapt and recover from adversity. These three variables have the capacity to create psychological wellbeing especially in the case of the youth who have mobility impairment. This paper deals with the metacognitive processes of mobility-impaired youth in digital socialization. Based on the understanding of the metacognitive process the paper proposes an AI-powered tool to enhance digital resilience. The paper consist two parts. The first segments explore how mobility-impaired youth utilize the metacognitive approaches to build resilience in digital socialization contexts. For that, the first part adopted constructivist qualitative case study approach with semi-structured interviews. The population of the study is the youth with mobility impairment in the age category of 20-35 who lived in Kerala, India. Zimmerman's Self-Regulated Learning model is also use for analysis. The second segment develop an AI-powered intervention based on qualitative insights. Here develop a self-regulation mirror called "Aatma-Darpan, an AI-powered wellness journal that supports metacognitive regulation through emotional expression, cognitive behavioural therapy based contemplation prompts, and a positive reflection journal. This study resulted in developing digital resilience and metacognitive regulation in mobility-impaired youth. Also, proposing possible advantages for their psychological wellness and flexible coping strategies in digital socialization circumstances. The findings of this study have important implications for social work practice, which suggest new frameworks, and tools for practitioners supporting the digital well-being and adaptive coping of differently abled youth.

Keywords: Digital Socialization, Metacognition, Digital Resilience, Mobility Impairment, Youth, Artificial Intelligence, Aatma-Darpan**.**

1. Introduction

In contemporary era, youths increasingly shape their identities and social lives through online interactions. This process, known as digital socialization. Digital platforms provide vital opportunities for learning and connection but also bring challenges like screen fatigue, privacy concerns, and mental health issues. Differently abled youth experience physical, social, and environmental challenges when

engaging in typical social interactions (Jones & Brown, 2019). In contrast, digital socialization platforms, such as social media, online forums, game playing communities, and communication tools provide a vast platform for connection, expression, education, and community building. This online socializing environment affects brain development and mental health. (Smith et al., 2021). In India, researchers have linked intensive digital utilization among youth to anxiety and insomnia, calling for the necessity to protecting digital well-being.

This current research examines mobility-impaired youth in India, who face challenges of digital access, social stigma and heightened psychological stress due to online intimidation and exclusion. To address these challenges, this research explores two key psychological constructs. Metacognitive regulation refers to awareness and control over thinking, whereas digital resilience refers to the ability to cope positively with online adversity. The paper also present "Aatma-Darpan," an AI enabled wellness journal that builds these skills by providing a secure, individual digital space for reflection and development. By addressing this gap, this research seeks to not only increase understanding but also influence meaningful interventions that empower marginalized young people to navigate and flourish within the digital spaces of the digital age.

2. Review of Literature

2.1 Digital Socialization and Mobility-Impaired Youth

Youth with mobility impairments face several barriers that prevent them from fully engaging in the digital space. Shpigelman and Gill (2023) identified three main barriers. They are technical inaccessibility, such as non-adaptive interfaces, and a lack of compatibility with screen readers, such as social exclusion, which includes cyberbullying and harassment of disabilities and participation inequities due to limited access to high-speed Internet, particularly in rural regions. According to Chadwick and Wesson (2022), the inscrutable designs of many platforms contribute to feelings of isolation; 67% of differently abled young people report difficulty in using platforms that do not include assistive technologies. Raghavendra et al. (2021) emphasized how such barriers in digital life mirror and exacerbate offline disparities, with mobility-limited youth engaging 30% less in multiplayer online games as a key source of social interaction and being constrained by a control interface.

Despite these significant barriers, digital platforms provide transformative benefits for mobility-impaired youth. Shpigelman and Gill (2023) emphasize that online communities create spaces where youth explore their identities and find peer support, with 78% of participants reporting reduced loneliness. Raghavendra et al. (2021) document how platforms like Discord and virtual worlds promote "social mobility," allowing youth to interact without physical restrictions. Chadwick and Wesson (2022) further observe that digital anonymity reduces stigma, empowering youth to disclose disabilities and form affinity groups. However, they caution that these advantages depend heavily on the application of universal design principles to ensure accessibility and inclusion.

2.2 Metacognition in Digital Contexts

Metacognition is a thinking about one's own thinking forms the foundation for effective digital engagement. Tarricone (2022) defines metacognitive processes as planning (setting goals for online tasks), monitoring (tracking comprehension during activities), and evaluating (assessing outcomes). Dignath and Büttner (2021) find that these processes become even more crucial in digital environments, where distractions require heightened self-regulation. Their meta- analysis of 42 studies shows that metacognitive training improves online learning outcomes by 28%. Azevedo and Gašević (2023) add that digital tools, such as learning analytics dashboards, support metacognition by providing real-time feedback.

(SRL) remains highly relevant for digital learners. Azevedo and Gašević (2023) updated the model to incorporate AI-enhanced environments, where algorithms offer personalized feedback during the performance phase. Dignath and Büttner (2021) confirmed that SRL strategies predict academic success in online courses, with self- reflection proving the strongest predictor. Nevertheless, Tarricone (2022) notes that digital natives often struggle with forethought tasks, such as time management, highlighting the need for explicit instruction in these skills.

2.3 Digital Resilience

Researchers define digital resilience as the capacity to adapt, recover, or thrive amid online adversities (Jackson et al., 2023). This concept differs from general resilience by focusing on skills specific to digital contexts, such as critically evaluating misinformation and setting healthy social media boundaries (Third et al., 2022). Viner et al. (2021) conceptualize digital resilience through three pillars: skills (digital literacy) support as trusted networks, and agency like control over digital experiences.

Various factors influence digital resilience development in youth. Jackson et al. (2023) highlight protective elements like parental mediation, which reduces the impact of cyberbullying by 40%, school-based digital literacy programs, and exposure to positive online role models. However, socioeconomic disparities limit low-income youth's access to resilience-building resources (Third et al., 2022). Viner et al. (2021) further emphasize that cognitive diverse children with mobility disabilities are particularly vulnerable and evidence additional risk factors but also substantial benefits from adapted interventions.

2.4 Intersection of Metacognition and Digital Resilience

Metacognition is an essential factor in the development of digital resilience through the provision of a cognitive buffer against online threats. Hutchins et al. (2023) demonstrated that metacognitive monitoring, such as identifying emotional cues when arguing online, is associated with a decreased risk of cyberbullying victimization by 35%. Papastergiou et al. (2022) observed that metacognitive appraisals enable children to differentiate between reliable information and harmful misinformation, and hence increase critical resilience. Mihăilă and Stanciu (2021) suggest a model in which the use of strategies of Self-Regulated Learning means setting goals and aiming to achieve them may lead directly to the enhancement of youth agency in digital spaces.

Moreover, metacognition makes it easier for youth to engage in coping strategies, such as cognitive reappraisal, which includes reframing negative online experiences), and problem- solving strategies, such as blocking unwanted contact. Papastergiou et al. (2022) report that metacognitive training boosts coping efficacy by 50%. Hutchins et al. (2023) also demonstrate that metacognitive reflection helps youth avoid rumination after online conflicts, a vital component for maintaining resilience.

2.5 AI-Powered Interventions for Psychological Well-being

Artificial intelligence increasingly utilized to bolster mental healthcare via applications such as chatbots (Woebot, Wysa, etc.) and predictive analytics. Firth et al. (2023) found that AI chatbots achieve a 22% reduction in anxiety symptoms in clinical trials. Torous et al. (2021) also point out the AI-based social media-driven sentiment analysis, which diagnoses early depression and provides clinical intervention in time. However, they also warn about privacy exposure and algorithmic bias in AI systems.

AI also offers the potential to aid metacognitive control. D'Alfonso et al. (2022) discuss apps such as Replika, which employs natural language processing to generate reflective questioning such as, "How did that interaction make you feel?" Firth et al. (2023) further note that AI, by learning from the users' responses, has the ability to provide personalised metacognitive training. Torous et al. (2021) underscore the importance of co-desiging AI tools with youth in order to guarantee cultural relevance and success.

2.6 Cognitive Behavioral Therapy (CBT) and Digital Interventions

Digital platforms applying Cognitive Behavioral Therapy (CBT) principles, such as Mood GYM and Sanvello, integrate techniques like cognitive restructuring and behavioral activation. Richards and Richardson (2022) find that gamified CBT components, including reward systems, enhance user engagement by 60%. Andrews et al. (2023) observe that apps simulate CBT skills through interactive scenarios, increasing accessibility for mobility-impaired users.

Meta-analyses affirm the effectiveness of CBT-based digital interventions. Andrews et al. (2023) report a 40% reduction in depression symptoms among youth using digital CBT tools. Hollis et al. (2021) find comparable anxiety treatment outcomes with effect sizes similar to in- person therapy. However, they caution that digital CBT functions best as a complement to traditional human support rather than a replacement.

2.7 Social Work Practice and Digital Well-being

Social work approaches to digital well-being emphasize ecological models that address multiple influence layers. Westwood et al. (2023) review frameworks like the "Digital Capabilities Framework," which assesses digital access, skills, and safety. Hutchinson et al. (2021) advocate trauma-informed digital practices tailored for marginalized youth. However, Sitter and Curnew (2022) reveal that only 30% of social work programs currently incorporate digital literacy training.

Emerging tools for practitioners include telehealth platforms like Doxy.me and virtual reality (VR) therapy such as Psious. Sitter and Curnew (2022) document VR's success in exposure therapy for anxiety. Hutchinson et al. (2021) highlight digital storytelling apps that empower mobility-impaired youth to share their experiences. Westwood et al. (2023) call for standardized training to help social workers effectively integrate these tools into practice.

2.8 Cultural Context: Digital Socialization in Kerala, India

Kerala provides a unique setting for digital socialization with its high literacy rate of 96.2% and government-led e-literacy initiatives (Raj & Devi, 2023). Thomas (2021) notes that Malayalam-language content and politically engaged social media groups foster a strong community bond. However, Raj and Devi (2023) expose significant gender disparities, with women experiencing 50% more online harassment than men.

Mobility-impaired youth in Kerala confront specific challenges and opportunities in this environment. Nair et al. (2022) report infrastructural gaps, noting that only 40% of rural areas offer disability-accessible internet centers. Nevertheless, government programs like "Digital Kerala" distribute free assistive devices to promote inclusion. Thomas (2021) finds that mobility-impaired youth often rely on WhatsApp for peer support but avoid public platforms due to stigma. Kerala's strong NGO networks present opportunities by actively advocating for inclusive digital policies and improved accessibility.

3. Objectives

1. To investigate the metacognitive strategies utilized by mobility-impaired youth in digital socialization settings.
2. To understand how metacognition contributes to building digital resilience among mobility- impaired youth.
3. To identify the psychological and emotional challenges faced by mobility-impaired youth in digital environments.
4. To develop a qualitative insights into the coping mechanisms employed by youth to manage digital adversities.
5. To recommend an AI-powered intervention ("Aatma-Darpan") that aids in metacognitive regulation and intensifies digital resilience.

4. Methodology

4.1 Research Design

To address its research question, the study utilized a constructivist qualitative case study design to investigate the experience lived by mobility-hindered youth when digitally socializing. Based on the constructivism paradigm, the study underscores the meaning co-constructed through interactions between the researcher and the participants (Creswell, 2014). The qualitative case study method which considered most suitable to achieve a deep, nuanced understanding of the metacognitive and coping strategies employed by the participants in their online settings. The main sources of data were semi-structured interviews, which allowed us to pursue flexible yet agreed-upon goals when investigating key phenomena.

4.2 Sampling and Participants

The research employed purposive sampling to select participants who could offer in-

depth and pertinent information in relation to the aims of this research. The study group included 15 Indian subjects with mobility disability aged 20-35 who were living in Kerala. Gender, education, and type of physical mobility impairment variation pursued to enhance the diversity and depth of viewpoints. A key inclusion criterion was the ongoing use of digital sites for social purposes so that participants could reflect on their experiences in digital realms.

4.3 Data Collection

The researcher collected the data through semi-structured in-depth interviews. Also, use an interview guide to prompt discussion on participants' experiences of digital socializing, employment of metacognitive strategies, and methods of coping with adversities in the digital world. English or Malayalam language according to the preference of the participants considered for interviews, with their permission, it recorded on an audiotape. Throughout the entire process, ethical issues such as informed consent, confidentiality, and voluntary participation respected.

4.4 Data Analysis

Data were analysed by thematic analysis using the method suggested by Braun and Clarke (2006) consisting of six primary stages: 'familiarizing the self with the data', 'generating initial codes', 'searching for themes', 'reviewing themes', 'defining and naming themes' and 'reporting'. Zimmerman's Self-Regulated Learning (SRL) Model that focuses on the cyclical phases of forethought, performance, and self-reflection guided the analysis. This framework helped recognize themes concerning metacognitive knowledge, metacognitive regulation, and digital resilience. Verbatim interpretations coded and compiled into theme categories, which facilitated a nuanced analysis of the participants' self-regulatory practices and coping in digital spaces.

5. Results

The results of the present study, which conducted using the constructivist qualitative case study approach, provide profound knowledge about the metacognitive challenges of mobility- challenged, rapidly socializing youth in the digital age. Drawing on the co-construction of meaning between researcher and participant, data collected through semi-structured interviews, thereby allowing participants to reflect on and express their internal cognitive and emotional processes in their own words.

Through the application of Zimmerman's SRL model as an analytic lens, participants' stories analysed in terms of the three cyclical phases of self-regulation, forethought, performance, and self-reflection. The themes that emerged provide phases and specific characteristics of digital self-regulation for these participants, thus structuring a comprehensible understanding of when, where, and how self-regulatory processes do not work in digital contexts

5.1 Theme 1: The Demands of Forethought (Pre-Thought)

Participants expressed concern that before engaging in any online communication, they must evolve through a comprehensive and anxious anticipation welter. This was no question of politeness or etiquette, but of the management of people's perceptions of their different status. Anxiety over tone appearance and potential misinterpretation resulted in mental fatigue and performance anxiety.

"When I open the app to post something, and then I just sit there for 30 minutes. Should I post this? What will people think? Why do I look so tired in that photo? I overthink everything, even emojis." **(Respondent A)**

"I don't want to come across as negative. But if I post about pain or mobility issues, people either ignore it or say 'stay strong' and move on. So I just don't post anything personal anymore." **(Respondent B)**

"Before texting someone, especially new people, I write drafts in my notes. I rewrite things over and over. I worry they'll judge me because I use voice typing or slow typing." **(Respondent C)**

These examples show how cognitive and emotional bandwidths are scorched before the interaction starts when the cost of online self-curation.

5.2 Theme 2: Emotional Spirals and In-the-Moment Monitoring (Performance Phase)

Regarding emotional spirals, participants reported that it was easy to panic, anxious, and worried about their performance, injury, failure, and other performers during the performance phase. Participants expressed experiencing intense emotions in the moment and having limited self-regulatory skills while engaging in digital interactions. They were blindsided by unanticipated triggers, from ableist remarks to left out of their peer activities.

"A classmate posted about their dance performance, and I felt happy for them but also really bitter. I used to dance. I had to stop. I didn't know what to do with that emotion it stayed with me all day." **(Respondent D)**

"I was in a WhatsApp group and someone said, 'don't be so slow, are you in a wheelchair?' I froze. I could not even respond. I left the group later." **(Respondent B)**

"Sometimes, I want to say something funny or clever, but I hesitate. What if I misread the tone or people think I am too aggressive? Then I just shut down and regret not speaking." **(Respondent E)**

These responds shows how the fragility of digital self-expression, especially when surveillance becomes stifling and making the choice between retreat or a disingenuous kind of capitulation.

5.3 Theme 3: The Agony of Post-Hoc Rumination (Self-Reflection Phase)

After the interaction, participants often felt into a pattern of non-deliberative reflection, replaying digital exchanges long after they occurred. This reflection was not often in a constructive sense rather it was emotionally draining and self-criticizing.

"I made a typo in a message and someone corrected me with a laughing emoji. It was not a big deal, but I kept thinking about it all night. I felt so stupid." **(Respondent C)**

"After a Zoom call, I keep thinking—was I talking too much? Did I seem needy? Was my mic too loud? I literally can't focus on anything else for hours." **(Respondent F)**

"Even when the conversation goes well, I rarely feel good after. I just remember the awkward pauses or when I didn't know what to say." **(Respondent G)**

This theme highlights a lack of **adaptive reflection**, in which **emotive recollection outweighs rational consideration**, sustaining pattern of shame and doubt.

5.4 Theme 4: Hyper-Awareness of (In) Visibility and Representation

Participants reported increased attention to how disability represented in online spaces beyond the SRL phases. The desire to seen as oneself came up against the fear of symbolic representation, pity, or invisibility.

"I hardly see anyone like me in influencer culture. And when I do, it's always like 'look how inspiring they are!' I don't want to be someone's feel-good story." **(Respondent H)**

"When I post about my achievements, I wonder, do people think I'm bragging just because I'm disabled? If I don't post, no one will know we're capable too." **(Respondent I)**

"Sometimes I think, if I don't talk about my disability, people assume I'm pretending to be 'normal.' If I do talk about it, I get flooded with sympathy. There's no middle ground."

(Respondent J)

This theme reflects the identity crisis of online visibility and balancing self-representation with fear of reduced to disappear or to stereotype.

5.5 Theme 5: The Need for Digital Safe Spaces

There was also a strongly expressed desire for online forums where they could share and be themselves without judgment. For many, mainstream digital environments feel emotionally unsafe, either excluding or ignoring design or moderation sensitivity.

"I wish there was a group just for people like me, where I don't have to explain why I cancel plans or why I use speech-to-text." **(Respondent K)**

"I want to talk about hard days too, not just pretend everything is okay. But people either ignore it or say, 'You're being too negative.' It's not safe to be real." **(Respondent L)**

"Most apps don't even think about disabled users. Accessibility is an afterthought. Emotional safety is never even considered." **(Respondent D)**

This theme leads to a larger sociotechnical gap which emphasizing the need for platforms that value not only accessibility but also emotional and social inclusivity**.**

6. Discussion

Taken together, these five themes provide a comprehensive mapping of metacognitive breakdowns and social-emotional difficulties that span every phase of Zimmerman's SRL model. This also extends the model to include sociocultural phenomena that are more extensive. The participants were met cognitively involved in the forethought, performance, and self-reflection domains. However, affective loads, cognitive burdens, and a lack of structured support frequently impaired the quality and success of their regulation.

The constructivist case study approach highlights the role of participants as agents and co- constructors. It was particularly important in uncovering the extent to which the participants were vulnerable and negotiating identity and emotional work engaged in digital socializing. The in-depth interviews came to understand that these young people are not passive consumers of the digital world. They are active navigators of complex, often exclusionary digital ecosystems.

In addition, the application of Zimmerman's SRL model as a coding framework provides

an organized and theoretical foundation. This extended the understanding of SRL theory in different ways and showed that youths with physical disabilities have cognitive and motivational awareness but lack of external support to direct awareness into adaptive emotional regulation and productive self-reflection. The themes four and five extend the critical perspective by prioritizing the social and cultural contexts of disability and digital participation. In this, the participants explained elevated attention to their own (in) visibility and incorrect online interpretation, which leads to stereotyped or belittled.

Overall, this study highlights a dual burden on mobility-impaired youth. That is learning to navigate the technical terrain of digital communication and the invisible work that comes from managing identity, emotion, and perception in spaces not designed with them in mind. It argues well for multifaceted interventions such as SRL-based digital coaching software programs, with an impact on students' learning gains and self-regulatory development, peer-supported metacognitive training programs and a kind of community in which multiple modes of participation are encouraged. Tools and spaces like this could help transform these maladaptive emotional spirals into opportunities for growth, connection, and resilience. Also making the promise of digital socialization not just available technically, but cognitively and emotionally.

Aatma-Darpan refers to the Self Reflection Mirror, a digital health journal that aids in mitigating the emotional load associated with digital communications and improves the metacognitive regulation process. The app relies on on-device AI to protect privacy, provide personalized content, and deliver validated psychological support. The artefact grounded in the Design Science Research (DSR) paradigm, which places real problems in various domains and addresses these problems by designing, implementing, and evaluating object designed for specific purposes.

6.1 Mapping problems to artefact features

Table: 1

Problem (Identified in Part 1)	Corresponding Solution in Aatma-Darpan
High cognitive load during planning (Forethought phase)	**The Sandbox**: A draft space to mentally rehearse and refine social posts/messages before sharing them publicly.
In-the-moment emotional spirals (Performance phase)	**The Decompression Zone + Metacognitive Coach**: Allows emotional offloading, followed by reflective, cognitive restructuring.
Destructive post-hoc rumination (Self-Reflection phase)	**Metacognitive Coach**: Converts rumination into structured self-evaluation through evidence-based prompts (e.g., CBT tools).
Negativity bias in interpreting social feedback	**The Positivity Log**: Encourages attention to positive interactions, reinforcing a more balanced social memory.
Lack of long-term pattern recognition	**The Pattern Dashboard**: Visual and textual summaries of user emotional trends and interaction triggers over time.

6.2 Core Features in Detail

6.2.1 The Decompression Zone

Function: A secure and expressive platform rapidly journal a voice or text-based entry following a social interaction.

Example: User writes after an uncomfortable zoom call:

"I just rambled and people seemed bored. I feel embarrassed." All information is stored offline to protect user privacy.

6.2.2 The Metacognitive Coach

Function: In device utilize the NLP to identify the emotional tone of the journal entry and prompts a series of reflective questions from Cognitive Behavioural Therapy (CBT) and Self- Compassion Frameworks.

Example Flow Following a Negative Response:

AI Response: "It sounds like you felt you were being ignored when that conversation took place."

Prompt 1: What specific moment made you feel that way?

Prompt 2: What other ways can you explain their behaviour?

Prompt 3: What is one thing that you have done well in that situation? Prompt 4: Try to write a positive self-motive message at this moment.

6.2.3 The Positivity Log

Purpose: A brief, daily cue to ask the users to recall any positive social interaction. Prompt: "What is the good thing that happened to you today?

Example entry: Had a fun 10-minute call with a friend where we laughed about old college days.

Aids in creating a mind repository of positive experiences to challenge the negativity bias.

6.2.4 The Pattern Dashboard

Function: It consist visualizes patterns in emotional triggers, positive interactions, and coping improvements. All analysis done on-device and shown via intuitive, user-friendly visuals.

6.3 Examples of Insights Displayed

Table: 2

Insight Type	Example Output
Interaction-Based Positivity	"You reported the most positive emotions after conversations with college friends (Anjali, Karan)."
Time-Based Reflection Quality	"Your reflections are more constructive when written within 30 minutes of the interaction."
Negativity Triggers	"Most emotional spirals are logged after evening interactions via social media."
Self-Regulation Growth	"Compared to last month, you're reframing negative thoughts 40% more often."

6.4 Visual Representation

7. Conclusion

Youths with mobility impairments have a strong dependence on digital socialization, yet are not yet sufficiently equipped to navigate the psychological implications of the same. This study sheds light on the metacognitive challenges they face, and translates these findings into the design of a concrete AI-enabled support tool. A vein of work like "Aatma-Darpan" represents a shift towards the development of assistive technologies that meet not only physical or sensory needs but also the complex internal needs of emotional and cognitive well-being.

Further investigation is required to build a functional prototype of the tool and test its usability and efficacy. A longitudinal study

could follow the influence of such a tool on digital resilience, social satisfaction, and mental health in general over time. By doing so, we can ensure that the digital world becomes not just accessible, but a place of true connection and psychological flourishing for all.

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Impact of Gamification on Consumer Buying Behaviour: Exploring the Mediating role of Consumer Trust

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ABSTRACT

Gamification has become a key strategy in e-commerce, using game-like features to boost customer engagement. This study looked at how gamificationin e-commerce platform affects consumer buying behavior, focusing on the mediating effect of trust. The stimulus is modelled by multidimensional construct of gamification in e-commerce platform, Organism as trust which is the internal psychological factor and response as consumer buying behaviour. Stimulus was studied under 11 items coming under construct viz., brand engagement, ethical consideration and personalized gamification. Analysing data from 301 young e-commerce shoppers in Kerala, using PLS-SEM. The study found that gamification in e-commerce platforms positive effect on trust and consumer buying behaviour, with trust acting as a partial mediator. These findings stress the importance of using gamification in an ethical and thoughtful way to build long-term customer loyalty. The tool used for the study is PLS-SEM.

Keywords: Gamification, consumer buying behaviour, consumer trust, PLS-SEM

Introduction

In this dinamic digital world of today, companies are always looking for creative ways to interact with customers to improve their shopping experiences. Gamification is one such new strategy that introduces game-like features, such leaderboards, challenges, and awards, into non-gaming contexts, especially e-commerce. Although gamification has been widely used to increase sales and customer engagement, its efficacy frequently depends on consumer trust. Consumer impressions are greatly influenced by trust, which also affects their propensity to engage with gamified systems and make purchases.

This study examines how gamification affects customer buying behaviour, with a particular emphasis on how consumer trust functions as a mediator. The study basically follows S-O-R model It seeks to determine whether trust improves or degrades the relationship between gamification and purchase behaviour. The study analyses data gathered from online shoppers using PLS-SEM (Partial Least Squares Structural Equation Modeling), offering important insights into the efficacy of gamified marketing tactics. Businesses may improve their gamification strategies to build trust, increase client engagement, and promote enduring customer loyalty by comprehending this dynamic.

An Overview of Study Construct: Review

of Literature Review

Gamification, the use of game design elements outside of gaming situations is to increase motivation and performance. Badges, leaderboards, and performance graphs enhanced competence and task meaningfulness, whereas teammates, meaningful stories, and avatars fostered social relatedness while perceived decision freedom remained unchanged (Saileret et al.,2017). Genuine gamification, is a design strategy based on game concepts that focuses on specific psychological features in order to promote engagement (Landers, 2019). In order to increase sustained user engagement on social networks, reward- based gamification might be customized to each user's particular interests. There are gender differences in gamification preferences, with men showing a 5% higher interest in personalized gamification and both sexes favouring the leaderboard feature (Hajarian, et al.,2019). Gamification has gained popularity as a strategy to promote sustainable behaviors, like exercising, by boosting user involvement with an emphasis on gender, age, and usage duration. Women perceive more social advantages, novelty effects, but usually perceived enjoyment and useful diminishes over time(Koivisto and Hamari,2014). The COVID-19 pandemic has exponentially improved growth of online shopping, and gamification has emerged as a key strategy to motivate customers and foster community engagement. The study on exploring the factors that influence young Vietnamese consumers' willingness to engage with gamification identified favorable circumstances, ease of use, social influence, and expected performance benefits are four crucial elements that significantly impact the intention to adopt gamification (Tien Minh et al., 2023). Stimulus-organism-response (S-O-R) framework was used to evaluate gamification aspects effect customers' impulsive purchases during Double Eleven retail events. It found that elements like badge upgrades and prizes improve social interaction and perceived happiness, two elements that significantly influence impulsive purchasing(Shao et al.,2019).

The applications of gamification is in a range of management areas, including finance, corporate governance, and human resource management. Gamification in management offers insights into the strategic potential of gamification for businesses and organizations (Wanick and Bui, 2019). To increase relevance and engagement, personalized gamification modifies game features according to each user's preferences, actions, and driving forces. One-size-fits- all tiredness is less likely thanks to this personalization, which also increases customer pleasure. Because personalized techniques better fit users' innate goals and behavioral patterns (Hajarian et al., 2019). Using gamification in marketing can enhance the overall experience, making it more enjoyable and valuable for customers. This, in turn, increases customer satisfaction and loyalty. When customers are satisfied, they develop a strong emotional connection with the brand, leading to positive behaviors like loyalty, good word- of-mouth, and even defending the brand. Online businesses can use these findings to predict customer behavior and boost engagement by using effective gamification strategies (Hsu and Chen, 2018).

Gamification has been shown to significantly reduce dropout intentions while increasing job satisfaction and productivity,

but high-performance work systems have no obvious effect. A tremendous impact is studied on gig platforms for redesigning with gamified elements to improve employee retention (Behl, et al.,2021). Travel businesses could engage with Millennials and Generation Z through the gamified, location-based activity of geocaching. Gamification and smart tourism ideas can be used by smaller, more enterprising businesses to attract and engage with younger, tech-savvy tourists. Gamified approaches might bridge the digital divide by offering richer experiences in non-urban and resource-constrained areas. Diverse tourism destinations can satisfy the preferences of modern, tech-savvy travellers (Skinner, et al.,2018).

The gamified apps available today fail to adequately interest users, underscoring the need for more meticulous design that adheres to game design principles. Marketers looking to enhance mobile marketing should focus on story, mechanics aesthetic and technology (Hofacker et al.,2015).

In the phase of encouraging sustainable shopping habits with the effect of gamification in consumer's motivation to return to a website (return motivation) and make a purchase (purchase motivation) was studied based on self-determination theory. The study found that gamification serves as an external motivator, and its potential to promote eco- friendly online shopping behavior is significant (Rauh et al.,2024).The motivational affordance like badgets, rewards, recognition improves engagement, trust and frequency of purchase. But this can depend on the context, type of platforms and the genr of individuals and design of game (Hamari, et al.,2014). Gamification can either enhance or deviates from fun phenomena. Elements of game design in non-gaming contexts, emphasizing its creative and enjoyable applications (Leclercq, et al.,2011). The immersive technology like AR/VR and metaverse interfaces with psychological factors like habit formation, engagement and affect consumer behavior (Kumari and Gujral (2023). Huotari & Hamari's (2016) gave an experiential definition of gamification where consumers are treated like co-producer in value creations. The study on digikala, iran's largest e-commerce platform found that gamification influences brand equity and customer engagement .It also affect customer behaviors like word-of-mouth and resistance to negative information(Ebrahimi, et al.,2024). The possibilities and limitations of using gamified strategies in e- commerce, suggest that while gamification may affect consumers' purchasing decisions, it may not lead to increased expenditure (Bratina et al.,2024).

The gamification in e-commerce have a positive impact on customer loyalty and repeat business. Gamification directly boosts user engagement, leading to increased value creation and a higher likelihood of continued purchases. Furthermore, the User Engagement Scale (UES) has proven to be a reliable tool for measuring engagement in Spanish online shopping. It highlighted that gamification create values and affects consumer behaviour. The study further identifies focused attention, usability, and challenge as critical experiential factors that mediate the impact of gamified design, and focus on personalized and ethically-grounded gamification(García-Jurado et al., 2021)

The dark side of gamification include addictive behaviour pattern, ethical concern, dark design pattern can seriously affect the consumer. These identified issues must be rectified and develop improved and more effective gamification design frameworks (Nystrom,m 2021). Gamified marketing sometimes entails unethical tactic. Professionals have a negative perception of gamification's ethical implications, despite the fact that it boosts customer engagement. Companies can address ethical challenges to build trust and strengthen long-term customer relationships (Sheetal et al.,2023). A systematic analysis of gamification and its design elements highlighted possibilities of concern for potential consumer welfare issues related to stealth marketing strategies ranging from manipulation to data misuse. The study thus suggested the development of informal codes of behavior to lower ethical hazards (Thorpe and Roper,2017).

The literature review shows the use of gamification as brand engagement strategies has widely been studied. But certain ethical issues and trust issues are yet to be resolved in usage of gamification in e-commerce platforms. And also the mediating role of trust as a psychological outcome and its impact on consumer behavior need to be analysed. Thus this study focus on the impact of gamification on consumer buying behavior and effect of trust as a mediating factor on the relation between gamification and consumer buying behavior.

Research Objectives and Methodology

Objectives of the study

1. To assess the impact of gamification on consumer buying behavior.
2. To assess the effect of consumer trust on the relationship between gamification and consumer buying behavior.

Methodology

This study used a descriptive research design, employing surveys to collect data. A questionnaire was developed and distributed among Gen Z individuals in Kerala. The collected data was analysed using PLS-SEM, and the findings were interpreted to draw meaningful conclusions and provide recommendations.

The primary data was collected from the people who are using online e-commerce services. The study's sample size was determined using a formula (Hair et al., 2010), which suggested a minimum of 95 responses (19 questions x 5). However, 301 responses were collected. The questionnaire, adapted from previous studies, used a 5-point Likert scale to measure variables. The survey was conducted from January to February 2025, capturing respondents' levels of agreement or disagreement.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS- SEM) with Smart PLS software (Version 4.1.0.9). PLS-SEM, a method used for analysing complex relationships between exogenous and endogenous variables, which are unobserved concepts measured by multiple indicators. This technique is flexible and requiring neither normal data distribution nor large sample sizes, unlike covariance-based SEM (CB-SEM).

Conceptual Framework

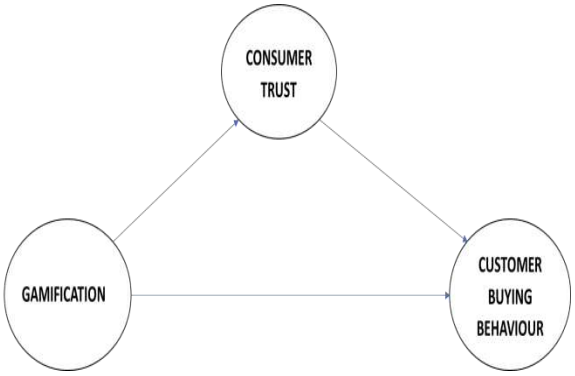


Fig 1: Conceptual Framework

To increase relevance and engagement, personalized gamification modifies game features according to each user's preferences, actions, and driving forces(Hajarian et al., 2019). The decision-making process people go through while choosing, acquiring, utilizing, and discarding goods or services is known as consumer buying behaviour .Thus the first hypothesis that

H01: There is no significant relationship between Gamification and customer buying behavior

Customers' propensity to interact and make purchases is influenced by their trust in a brand or platform, which is the conviction that it will behave dependably, morally, and in their best interests (Morgan & Hunt, 1994). In the context of gamification, consumer decision is the capacity of users to make decisions on their own without external pressure. Excessively controlling user behaviour through gamified experiences might lower intrinsic motivation and happiness. According to Sailer by honouring players' psychological requirements, autonomy- supportive game features like optional challenges or customisable avatars promote increased engagement and well-being. Ethical and successful gamification requires that consumers feel in control (Sailer et al., 2017).

H02: There is no significant relationship between Gamification and Consumer Trust.

Users' trust and motivation may suffer if they believe that a gamified system is unfair, as seen by skewed leaderboards or manipulated results. According to Leclercq user contributions and satisfaction in online communities are strongly influenced by views of justice in gamification. For long-term involvement, fair game design is essential (Leclercq et al., 2020). Users' perceptions of the gamification process's fairness, particularly with regard to the rules of play and reward distribution, has some relation with consumer buying behavior.Thus the third hypothesis that

H03: There is no significant relationship between Consumer Trust and customer buying behaviour in context of gamification.

Finally it is necessary to assess whether consumer trust has any type of mediating role in relation between gamification and consumer buying behaviour. This can give awareness on the importance of credibility of the gamification in online e-commerce plateforms. Thus the fourth hypothesis that

H04: Consumer trust has no significant mediating effect on the relationship between gamification platforms and consumer buying behavior.

Findings and Discussion

This section presents the study's findings

based on PLS-SEM analysis, using Smart PLS software. The software's user-friendly interface and flexibility make it ideal for researchers, even those without advanced statistical knowledge. Smart PLS is particularly useful for small sample sizes, which is why it's widely used in fields like management, marketing, and social sciences.

Reliability and Validity Analysis

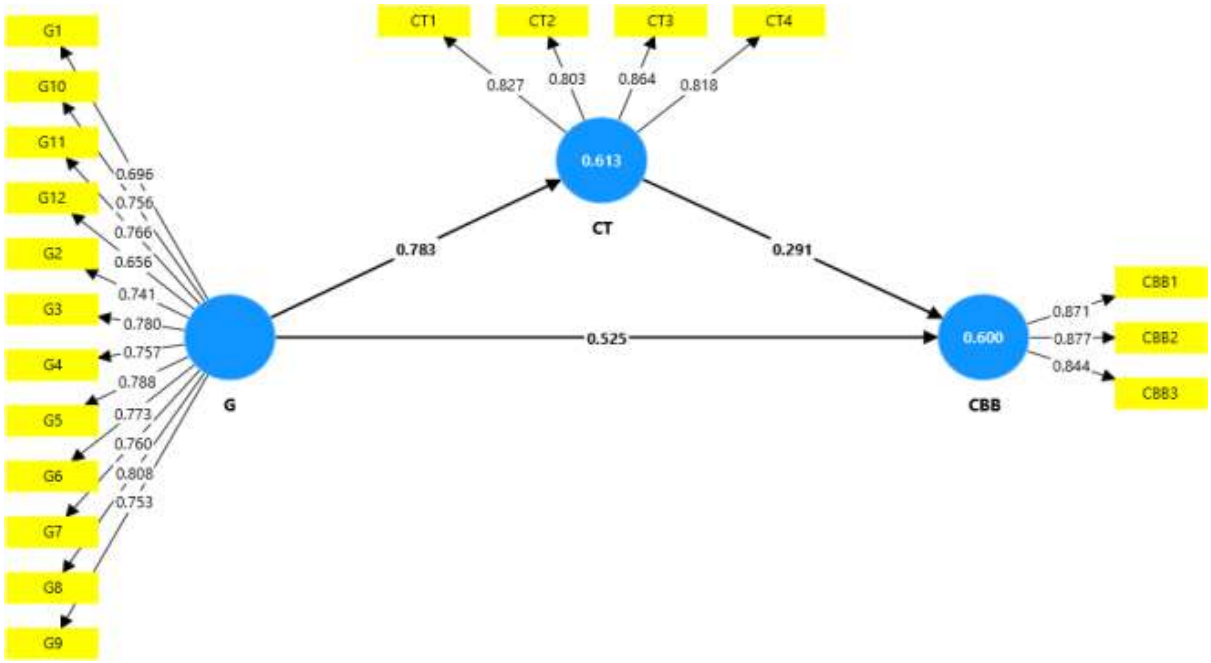


Fig 2: Measurement Model for impact on consumer buying behaviour

The Reliability of the questionnaire was established using Cronbach's Alpha (α). Composite Reliability (CR) was used to measure the internal consistency of the constructs. The accepted threshold for Cronbach's Alpha is 0.6 to 0.9 in social science and for Composite reliability is 0.8to 0.9 or CR ≥ 0.7(Hair et al., 2019).Table1 shows the Cronbach's Alpha and composite reliability.

Table 1: Reliability and validity analysis of theoretical framework

Factors	Factor loading	Composite reliability(rho_a)	AVE	Cronbach's alpha
GAMIFICATION		0.932	0.568	0.931
G1	0.696			
G2	0.741			
G3	0.780			
G4	0.757			
G5	0.788			
G6	0.773			
G7	0.760			
G8	0.808			
G9	0.753			
G10	0.756			
G11	0.766			
G12	0.656			
CONSUMER TRUST		0.850	0.686	0.848
CT1	0.827			
CT2	0.803			
CT3	0.864			
CT4	0.818			
CUSTOMER BUYING BEHAVIOR		0.830	0.747	0.855
CBB1	0.871			
CBB2	0.877			
CBB3	0.844			

The Cronbach's Alpha and Composite Reliability values depict that all constructs

has met the required threshold. Thus internal internal consistency of the constructs are ensured.

Convergent Validity

Further to test the construct validity, an assessment on Convergent validity is performed. The test is performed by using Average Variance Extracted (AVE). AVE value ≥ 0.5 is considered acceptable (Fornell & Larcker, 1981). Table 1 shows that all constructs met the AVE threshold, thus confirming the indicators within each construct are well-correlated. The Table 1 gives reliability and validity analysis conducted for the model. The value above 0.7 is considered favourable value for item reliability. If CR > .07 then the composite reliability is good (Bacon et al.,1995) and the AVE value needs to be > 0.5 then the validity is good However the measurement quality is acceptable if AVE >0.5 and CR >0.7.

Discriminant Validity

Discriminant validity further assures the construct validity by authenticating that the construct which are theoretically considered are distict from each other. This can be established the Fornell- Larcker Criterion (Fornell & Larcker, 1981). The diagonal values i.e the square root of the Average Varience extracted) in the correlation matrix must be greater than the off-diagonal values(correlation with other construct), confirming adequate discriminant validity.

Table 2: Fornell Larcker Criterion

	Consumer Buying Behaviour	**Consumer Trust**	**Gamification**
Consumer Buying Behaviour	0.864		
Consumer Trust	0.702	0.828	
Gamification	0.753	0.783	0.754

The table 2 represent the Fornell-larker Criterion and it access the discriminant validity. For discriminant validity to be established all the diagonal value should be greater than all the correlation in the respective row and column. Table 2 confirms the discriminent validity.

Table 3: R Square Value

	R-square	**R-square adjusted**
Consumer Buying Behaviour	0.600	0.597
Consumer trust	0.613	0.611

Coefficient of Determination indicates the amount of variance of endogenous variable that is explained by the exogenous variables. Here 59.7% of varience on consumer buying behaviour could be explained by consumer trust and gamification. And gamification can explain 61.1% of variance in consumer trust. Here the R2 square value can be considered moderate (Heir et al.,2013).

Structural Model

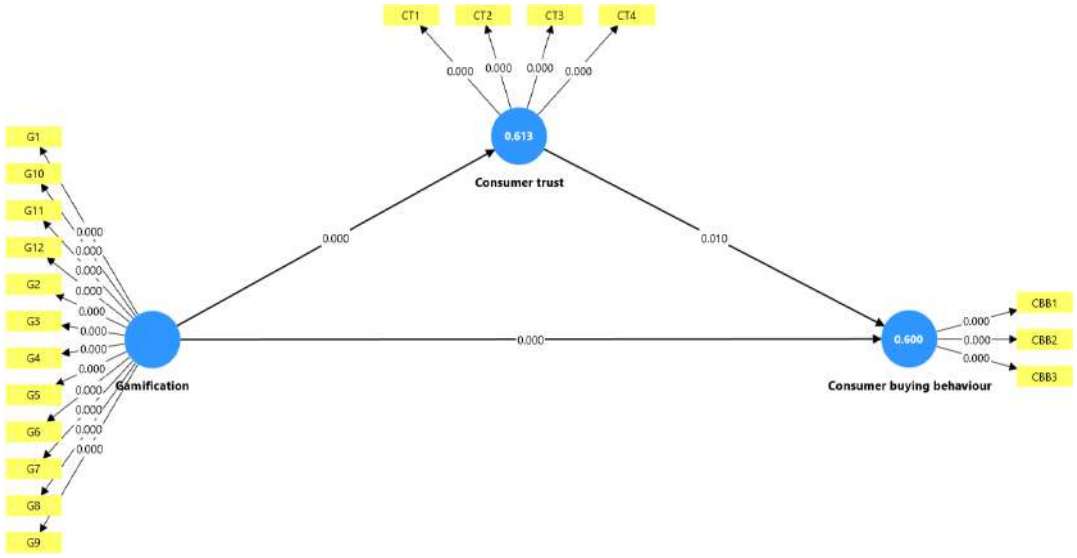


Fig 2: Structural Model

Hypothesis Testing

To validate the research hypotheses, path analysis was performed using PLS-SEM. The table 4 below summarizes the results, including the β coefficients, p-values, and significance levels.

Table 4: Path Analysis

	P Value	Path Coefficient (B)	
Consumer Trust---> Consumer Buying Behaviour	0.010	0.291	Null Hypothesis Rejected
Gamification--> Consumer Buying Behaviour	0.000	0.525	Null Hypothesis Rejected
Gamification--> Consumer Trust	0.000	0.783	Null Hypothesis Rejected

Thus, all the P-values are less than 0.05, and all the null hypotheses are rejected.

Therefore, all the alternative hypotheses are accepted. Thus

Mediation Analysis

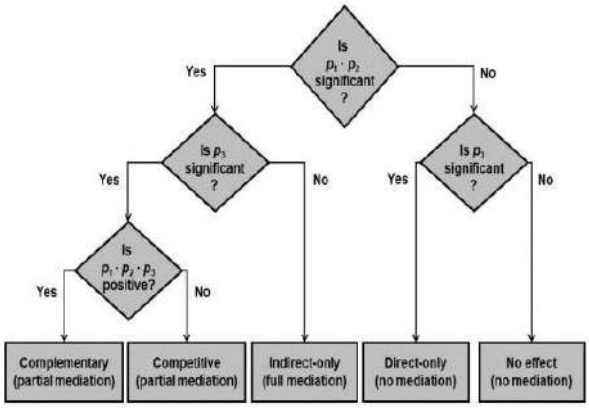
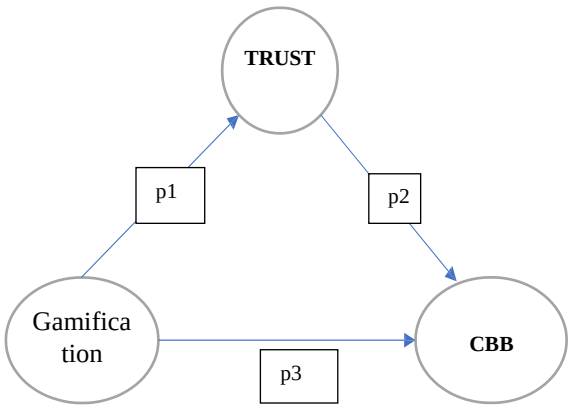


Fig 3: Mediation Analysis (Heir et al,2013)



p1: (Path from gamification to retail consumer trust)

p2: (Path from consumer trust to customer buying behaviour)

p3: (Path from gamification to customer buying behaviour)

Fig 4: Path of Mediation Analysis

The decision tree diagram outlines a step-by-step approach to determining mediation models by evaluating the significance and direction of path coefficients (p1, p2, p3). If p1_p2 is insignificant, the outcome depends on p3's significance, indicating either a direct effect or no effect. If p1_p2 is significant, further analysis of p3 determines the mediation type: indirect-only (full mediation) if p3 is insignificant, complementary partial mediation if p3 is significant and positive, or competitive partial mediation if p3 is significant but not positive. In this study, all path coefficients (p1, p2, p3) were significant and positive, indicating complementary partial mediation (Hair et al., 2017).

Indirect effects

Table 6: Indirect Effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Gamification -> Consumer buying behaviour	0.228	0.234	0.092	2.479	0.013

Conclusion

The study conclusively shows that gamification has a major impact on consumer buying behaviour, with customer trust acting as a key mediating factor. The null hypotheses were rejected since all four hypotheses were supported by data gathered from 301 Gen Z e-commerce customers in Kerala and analysed using PLS-SEM. Gamification and customer trust (p = 0.000,), gamification and purchasing behaviour (p = 0.000), and trust and purchasing behaviour (p = 0.010,) were found to be strongly positively correlated. A complementary partial mediation was validated by mediation analysis, suggesting that gamification's impact on buying behaviour is amplified by consumer trust. The model's predictive ability is further supported by the R2 values for customer trust (0.613) and consumer purchasing behaviour (0.600). These findings suggest that well-designed and ethically implemented gamification strategies build consumer trust, thereby positively impacting consumer purchase behaviour.

Future Suggestions

- Extend the study to other age groups and regions for broader applicability.
- Compare different e-commerce platforms to evaluate design impact.
- Explore the role of emerging tech (AI, AR, etc.) in enhancing gamification.

Implications

The findings of this study highlight the importance of using gamification in e-commerce platforms to positively influence consumer buying behaviour. The results suggest that gamified elements not only engage users but also build consumer trust, which plays a key role in driving purchase decisions.

For marketers and businesses, this means that implementing well-designed, ethical gamification strategies can improve customer experiences, build stronger relationships, and increase customer loyalty. Understanding the trust factor helps in creating more meaningful and effective marketing campaigns tailored especially for Gen Z consumers.

Limitations and Future Studies

The research is limited to Gen Z consumers within Kerala, which restricts the applicability of the findings to other generational cohorts or regions with varying cultural, technological, and behavioural

dynamics. The research was conducted at the time frame of January to February 2025, so the data have a time limit.

Future studies should include a broader range of age groups beyond Gen Z to assess whether the impact of gamification and consumer trust varies across generations, especially among Millennials, Gen X. A longer data collection period is recommended to capture changes in consumer behaviour over time and account for potential seasonal or situational influences, such as festivals, sales periods, or economic fluctuations.

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Exploring the Sociocultural Factors of Repeat Offending Among Children in Conflict with Law

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ABSTRACT

Children in conflict with the law are often entangled in cycles of repeat offending that challenge both legal systems and rehabilitation frameworks globally. Understanding the roots of repeated juvenile offending requires examining sociocultural, psychological, and systemic factors shaping these children's trajectories. This review aims to synthesize current research on the lived experiences of children who repeatedly come into conflict with the law, emphasizing the roles of adverse childhood experiences (ACEs), sociocultural disadvantage, resilience, and the complex interplay leading to recidivism. A comprehensive review approach was adopted. Key qualitative studies and empirical findings were identified. Findings suggest that repeat offending among juveniles is deeply rooted in cumulative adversity: traumatic family histories, lack of social support, systemic marginalization, and limited access to restorative rehabilitation. Sociocultural barriers and self-destructive coping mechanisms reinforce recidivism, while approaches centering resilience and narrative meaning-making display promise for effective intervention.

Keywords: Juvenile Recidivism, Sociocultural Factors, Children in Conflict with Law

Introduction

The term “Children in conflict with law” was first defined under Section 2 (l3) of the Juvenile Justice (Care and Protection of Children) Act, 2015 as a child who is under 18 years of age and is alleged or found to have committed an offense (Vikaspedia. *Children in conflict with law*. 2024). For several centuries, children who are apprehended for crime were treated in a highly punitive manner, as they were managed concurrently with adult offenders, with little consideration given to their cognitive, emotional, or developmental immaturity. The Indian juvenile justice system as well has historically been focused

more on punishment than rehabilitation. This approach was seen as a way to deter crime and protect society, but it often failed to address the underlying issues that contributed to juvenile delinquency. However, over time, there has been a shift in the way the juvenile justice system is approached in India. The Juvenile Justice (Care and Protection of Children) Act, 2015 emphasizes a more holistic and rehabilitative approach, focusing on the rehabilitation and social reintegration of juvenile offenders. It includes provisions for diversion programs, non-institutional care, and specialized juvenile justice boards and child welfare committees to handle cases involving minors (Murthy & Lokaraj, 2022). The law also recognizes the need for a more nuanced understanding of the factors that contribute to juvenile delinquency, such as socioeconomic conditions, family dynamics, and access to education and other resources (Smith, 2020). Furthermore, the focus has shifted from punishment to providing support and opportunities for juvenile offenders to learn from their mistakes and develop their skills. While the Act has taken a more rehabilitative approach, there are also some concerns about how the law is sometimes misused by juvenile offenders. While the focus is on rehabilitation, the implementation and resources for effective rehabilitation programs are sometimes lacking. This can result in juveniles being released without the necessary support and guidance, leading to repeat offending. Once a juvenile offender is released from the system, there is often insufficient monitoring and follow-up to ensure they are successfully reintegrated into society and do not commit further crimes. In fact, many police officers and lawyers are of the opinion that juveniles who re-offend have mastered the art of misusing the act for their own benefit (Singh, 2022). Understanding why certain children repeatedly engage in criminal behavior, even after initial intervention, is critical for reforming juvenile justice and strengthening rehabilitation.

Literature Review

Defining Children in Conflict with Law

The United Nations Convention on the Rights of the Child (UNCRC, 1989) and most national frameworks define children in conflict with the law (CICL) as those accused or recognized as having breached penal codes prior to the legal age of majority. Repeat offending, or recidivism, is the return to criminal activity after prior exposure to intervention mechanisms.

Theories of Juvenile Delinquency and Recidivism

Contemporary criminological theories, including strain theory (Merton, 1938; Agnew, 2001), social learning theory (Bandura, 1977), and ecological systems models (Bronfenbrenner, 1979), have informed our understanding of juvenile crime. These frameworks highlight how adverse environments, negative peer influence, poverty, and fractured families catalyze initial offending (Farrington, 2003; Loeber & Farrington, 1998).

Recidivism, however, is driven by deeper, often cumulative, dynamics:

Adverse Childhood Experiences (ACEs): A growing body of evidence points to ACEs (e.g., exposure to violence, family disintegration, substance abuse) as strongly predictive of both first and repeat offenses

(Felitti et al., 1998; Baglivio et al., 2014).

- **Resilience and Protective Factors:** While many children face adversity, not all recidivate. Protective mechanisms—positive adult relationships, educational access, coping skills—mitigate trajectories toward chronic offending (Rutter, 2012).
- **Self-Destructive Behavior and Systems Failure:** Repeat offending may reflect attempts at self-regulation through delinquency, with systems often failing to provide trauma-informed responses (Bazemore & Umbreit, 2001).
- **Global and National Contexts**

  Globally, trends reveal persistent recidivism among juvenile offenders (UNICEF, 2013). In India, NCRB data indicate significant rates of repeat offenses among minors tried under the Juvenile Justice Act (NCRB, 2022).
- **Sociocultural dimensions**—caste, class, gender, urban-rural divide—profoundly shape both risk and protective environments (Santhya & Singh, 2016). Marginalized groups are disproportionately represented in juvenile justice populations, and cultural scripts around childhood and crime often obstruct authentic rehabilitation (Baldridge, 2020).
- **Rehabilitation and Restorative Justice**

  Traditional punitive systems often fail to address root causes or prevent repeat offending. Restorative justice models, emphasizing dialogue, accountability, and community healing (Johnstone & Van Ness, 2013), offer promise. Qualitative research demonstrates that giving voice to offenders' subjective realities, through narrative therapy and guided group work, enhances empathy and personal agency (Maruna, 2001).
- **Gaps in the Literature**

  Most studies focus on quantitative correlates or system-level analyses. There is an urgent need for research centering children's lived experiences, exploring the intertwining of adversity, resilience, sociocultural context, and repeat offending using interpretative, qualitative methodologies (Smith et al., 2009). Such work can illuminate the meanings children assign to their actions, and suggest policy approaches grounded in humanity and context sensitivity.

Methods

Research Design

For this perspective paper, data between 2014-2024 were taken to map and synthesize the broad landscape of sociocultural factors influencing repeat offending among children in conflict with the law. Databases such as PubMed, Scopus, Psyc Info and Sci Spcae were searched. From the selected papers, themes were drawn for discussion, which are mentioned in the result section.

Sample and Sampling Methods

Studies included in this review were selected from peer-reviewed journals, government reports, and reputable non-governmental organization (NGO) sources from 2014–2024. The majority used purposive sampling to engage participants with direct experiences of repeat offending. A total of 20 research studies were shortlisted that met all the inclusion criteria.

Inclusion criteria-

Qualitative method used for data collection

Published between 2014-2024

Focused on Socio-cultural factors

Exclusion criteria-

- Studies conducted on adult offenders
- Studies that lacked methodological rigor
- Studies conducted on people who were involved in single offenses

Measures

Typical data collection instruments included:

- **Semi-structured Interview Schedules:** Covering childhood experiences, triggers for offending, perceptions of the law, and rehabilitation journeys.
- **Observation Checklists:** Documenting behavioral cues, institutional responses, and interpersonal dynamics.
- **Standardized Scales:** For trauma (Childhood Trauma Questionnaire), resilience (Connor-Davidson Resilience Scale), and well-being.

Procedure

The studies reviewed adhered to informed consent and ethical protocols, particularly given the vulnerable population. Data were recorded, transcribed, coded for emergent themes, and subject to interpretive analysis to identify cross-case patterns and variations. Focus was maintained on meaning-making processes—how children themselves understood and narrated their pathways into, through, and out of repeated conflict with law. The results from the selected studies was taken into consideration and author's perspective was also added in the discussion part then.

Themes

This section synthesizes the findings from the reviewed literature, focusing on the interplay of adversity, resilience, and sociocultural context in shaping repeat offending among children in conflict with the law.

1. Profile of Repeat Offenders

- Research consistently shows that the demographic profile of repeat juvenile offenders is shaped by intense social and economic vulnerability. The majority are male and hail from socio-economically marginalized backgrounds. In India, as in other parts of the world, this often means they belong to disadvantaged or minority communities. (NCRB, 2022).
- Family environments of these children tend to be extremely unstable. A striking number reports family breakdown, persistent exposure to domestic violence, and high rates of substance abuse. Such conditions do not simply correspond with offending—they lay the foundation for a fraught psychological landscape from early life. It's common to find that repeat offenders have experienced complex trauma, disruptions in healthy attachment (to caregivers or role models), and ongoing social isolation. These factors can result in deep emotional and behavioral scars, predisposing children to chronic patterns of risk-taking and re-offending. (Baglivio et al., 2014).

2. Adverse Childhood Experiences (ACEs)

- A dominant thread running through the literature is the centrality of adverse childhood experiences (ACEs) in shaping

pathways to chronic offending. More than 70% of repeat juvenile offenders in reviewed studies have endured severe ACEs—neglect, parental loss, physical or emotional abuse, and routine exposure to violence. These experiences are rarely isolated events but tend to be cumulative, compounding over time. (Felitti et al., 1998).

- Institutional shortcomings frequently exacerbate adversity. Many children drop out of school and lack meaningful mental health support. Instead of identifying and ameliorating risk factors, systemic discrimination within schools, communities, and institutional settings causes persistent marginalization. Early exposure to crime—commonly witnessed or directly experienced within the family or neighborhood—is another significant risk factor, normalizing criminal behavior and making desistance unlikely without intensive intervention.

3. Sociocultural Determinants

- Sociocultural determinants amplify the risk and frequency of re-offending. Chief among these is chronic poverty, which not only restricts opportunities but can also render criminal or rule-defying conduct a rational option for survival. In such environments, adhering to the law may feel less urgent or even unrealistic (Loeber & Farrington, 1998).
- Caste and ethnic marginalization play a particularly salient role in the Indian context. Groups such as Dalits, Adivasis, and other historically excluded communities are overrepresented among repeat juvenile offenders. The interplay of historical injustice and contemporary exclusion limits access to supportive networks and perpetuates structural barriers to legitimate advancement (Santhya & Singh, 2016).
- Complicating matters is community disintegration, seen in both rural and urban contexts.

The erosion of traditional community bonds, fragmentation due to migration, and a lack of social capital (like access to mentors, safe spaces, or supportive neighbors) leaves children especially vulnerable. These conditions frequently eliminate protective buffers against deviance.

4. Pathways to Repeat Offending

- The transition from initial offending to repeat offending is neither automatic nor inevitable; it is typically rooted in interaction with unsupportive or punitive state systems. A child's first offense often results from peer influence or acute stress. However, when the response is punitive—such as harsh discipline, stigmatisation, or institutionalisation—the child is at greater risk of internalizing a "criminal" identity.
- Rather than treating root causes, these interventions may reinforce cycles of exclusion and recidivism. As these children move through systems unprepared for trauma-informed care, they frequently encounter further stigmatization and institutionalization. The absence of meaningful, rehabilitative support not only fails to break the cycle but may actively reinforce it. Children return to criminogenic environments, still exposed to the original adversities, now compounded by internalized shame and ongoing social ostracism.

- Repeated offending, thus, emerges from the synergy of personal adversity, community-level breakdown, social inequalities, and systemic failures to address trauma and promote resilience (Bazemore & Umbreit, 2001).

Discussion

This review emphasizes that repeat offending among children in conflict with the law is best understood as the outcome of intersecting personal and structural factors, rather than simply individual moral failure or "bad character." Beneath the surface acts of lawbreaking lies deep-seated pain, socio-cultural exclusion, and systemic neglect.

1. Adverse Childhood Experiences

Across every study reviewed, there is overwhelming evidence that adverse childhood experiences (ACEs)—chronic poverty, family violence, neglect, bereavement, and community disintegration—shape the psychological and behavioral landscapes of repeat offenders. High rates of trauma are not merely a background factor; they represent the architecture of these children's developmental worlds.

As an author, I am repeatedly struck by the consistency with which unaddressed trauma begets further trauma. Children who lack access to trauma-informed care, safe adults, or healing communities are often left with only maladaptive forms of coping, including criminal behavior. This cycle is not inevitable but is sustained by failures at multiple institutional touchpoints: families, schools, communities, and care systems.

My perspective compels me to advocate for frameworks—research and policy—that treat trauma as central to assessment, intervention, and rehabilitation. Systems that ignore trauma histories risk not only ineffective justice but outright retraumatization, perpetuating the very cycles they aim to break.

2. Sociocultural Determinants

Children's legal infractions do not occur in social vacuums. The research powerfully illustrates that caste, ethnicity, gender, and rural-urban divides shape both risk and resilience profoundly. Marginalized groups—Dalits, Adivasis in India, or racial ethnic minorities globally—are vastly overrepresented in statistics of repeat offending. This is not coincidental, but the outcome of historical and ongoing exclusions that deny access to opportunity, safety nets, and public compassion. As a scholar situated in India, I observe that community disintegration—whether through urban migration or the weakening of extended kin networks—strips away protective factors that have historically shielded vulnerable children. Instead of communal caring, many children find stigma, suspicion, and neglect. The law too often amplifies this exclusion.

From my perspective, genuine reform must start with the social determinants of criminal behavior. Interventions must be culturally contextualized, sensitive to the lived realities of unequal India, and designed to restore, rather than erode, the social fabric that supports youth development.

3. Repeat Offending

The findings reinforce a crucial insight: repeat offending among children in conflict with the law is not simply a result of personal "badness" or moral weakness, but is deeply interwoven with systemic,

structural, and developmental adversity. This realization is of utmost importance for both academics and policymakers. Too often, public and legal discourse frames these children as "delinquents" or "dangerous", ignoring the profound layers of suffering, exclusion, and institutional neglect beneath their behaviors. From the author's perspective, it is essential to reject reductionist framings that criminalize children without recognizing the wounds they carry.

Direct engagement with the narratives and lived realities of these youth reveals that chronic lawbreaking is frequently a desperate attempt at self-preservation or self-expression in a world where other pathways to agency and survival are blocked.

4. Punitive and Rehabilitative Systems

Another theme that demands attention is how punitive responses and institutionalization can worsen, rather than alleviate, recidivism. Inadequate rehabilitation, a lack of trauma-informed case management, and persistent stigmatization by authorities can cement a "criminal" identity in young people. Rather than seeing themselves as capable of change, these children may internalize the identity imposed by the system. It is clear, both from the research and my field experience, that incarceration without restorative aims is often counterproductive. Children return to the same adversity, now burdened by fresh social stigma and diminished self-esteem. Few find space or tools to break the cycle.

A small but striking body of evidence reveals the transformative potential of narrative, empathy, and group dialogue within restorative frameworks. When children are invited to share their stories, to rebuild shattered self-worth, and to engage with mentors or positive adults in supportive community environments, recidivism falls. From my perspective, this is not "soft" intervention, but rather the most rigorous and ethical application of developmental science to justice. Rehabilitation must be built on empathy—for both their fault and their wounds—and must prioritize the empowerment of children as capable, worthy of second chances, and embedded within families and communities that must also heal.

Governments and practitioners should move decisively toward policies that are:

- Trauma-informed: Centering the lived realities of adversity and providing psychologically safe interventions.
- Context-sensitive: Recognizing the sociocultural landscape, including community breakdown, poverty, and systemic bias.
- Restorative: Focusing on healing, accountability, and reintegration rather than exile and stigma.
- Participatory: Involving children meaningfully in dialogue about their lives, needs, and rehabilitation.

Conclusion

Repeat offending among children in conflict with the law is a complex and multifactorial phenomenon, rooted in cumulative adversity and shaped by sociocultural forces and institutional responses. While punitive systems have often failed, evidence suggests that interventions centering lived

experience, resilience, and community restoration show promise. A paradigm shift—humanizing offenders, addressing social roots of crime, and strengthening restorative justice—is crucial for rehabilitation and social justice. A deep ethical imperative runs through this scholarship: to witness, rather than pathologize; to heal, rather than punish; to empower, rather than marginalize. Repeat offending in children in conflict with law must always be read against the contextual tapestry of their lives—a tapestry often marked by trauma, injustice, and lost opportunities. Reform, to be meaningful, must be as much about justice as about compassion. As a researcher, I call for not only reforms in law and policy but a transformation in our collective imagination—one that honors young people's potential for resilience and change, and invests in the social structures that make such change possible. Only by adopting such holistic and nuanced approaches can societies hope to break the cycles of juvenile recidivism and realize genuine justice for children.

Future Suggestions, Implications, and Limitations

Future Research

- **Longitudinal ethnographies** could trace pathways from initial offense through to adulthood, highlighting turning points for intervention.
- **Action research** involving children as co-researchers may yield deeper insights into lived experience and institutional barriers.
- Further exploration into gender, disability, and intersectional experiences among repeat offenders is warranted.

Policy and Practice Implications

- **Trauma-informed training** for police, judiciary, and social workers is urgently needed.
- **Community-based programs** integrating mentorship, education, and family support can break the cycle of recidivism.
- Proven restorative justice initiatives should be scaled, with customization for local sociocultural realities.

Limitations

- Existing research relies heavily on self-report and institutional records, which may be affected by reporting bias.
- Accessing highly marginalized or stigmatized populations remains challenging, risking underrepresentation of the most vulnerable.
- Lack of robust outcome monitoring means that the effectiveness of many interventions remains to be conclusively demonstrated.

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Rethinking Filial Piety in the Era of Gen Alpha and Modern Parenting: A Conceptual Framework

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ABSTRACT

The evolving social structures have significantly shaped the family dynamics of modern society, thereby influencing the intergenerational expectations. Once led by the virtues of 'respect and seva', filial piety had laid the foundation of families in many collectivist societies. This conceptual paper aims to examine how the rise of Gen Alpha has challenged the cultural expectations of parent-child relationships. Grounded in the Dual Filial Piety Model, Ecocultural Theory, and Intergenerational Ambivalence Theory, this paper explores the potential shifts in the core principles of filial piety that have been evolving within the psychosocial context of Gen-Alpha upbringing. A concentrated literature review reveals a significant population gap, as the majority of studies focused on other Eastern cultures, such as China, Korea, and Japan. Although older generational and caregiver wellbeing has received notable attention in the literature, the dynamic shifts in the value system are largely unexplored. By proposing an established conceptual framework, the paper aims to repropose filial piety as a dynamic family virtue that needs to be redefined, rather than being perceived as static, which ought to be adhered to. The paper also attempts to reconceptualise modern parenting and family systems to reshape the expectations of care, support and respect for healthier intergenerational relationships.

Keywords: Gen Alpha, Parenting Styles, Filial Piety, Family Dynamics

Understanding Gen Alpha

The idea of 'generations' was introduced by Karl Mannheim, a German sociologist, who further emphasised the requirement to deeply study each generation in the context of socio-cultural changes (Drugas, 2022). The term generation is used to describe all the people born between a specific time period (McCrindle, 2021). Interestingly, people born in the same generation tend to develop a collective identity due to exposure and influence by similar social determinants, including educational paradigms, geographical changes, and technological interventions, which they witnessed together (McCrindle, 2021). For example, the generation from 1925 – 1945 are called the 'builders', as they were the pioneering figures in the history, involved in the developing of current cities, or the Generation X is often described as the 'latch key kids', being the ones who have witnessed both parents working to both getting divorced, more as compared to the previous ones (McCrindle, 2021).

Similarly, in today's socio-cultural scenario, the rise of Generation Alpha (people born between 2010 and 2024) is a topic of

discussion and debate. They are the largest generation in history, comprising a population of two billion globally (McCrindle, 2021). This generation was named so by Mark McCrindle (2009), after the first Greek alphabet 'alpha'. To further explore the psychology and behaviour of Gen Alpha, it is important to peek into the social structure and global environment they were born into. Compared to their parents and elders, this generation is born into a pervasive technology and dynamic societal landscape, which largely shapes the way they look at the world and social relationships. While elders are still struggling to adapt to rapidly shifting technological advancements, Gen Alpha is born into these changes, making them adept at a very young age. Considering the discussions regarding Gen Alpha, the conclusions are diverse. Nagy and Kölcsey (2017) described the idea of these categorisation and labelling as a marketing technique and that it will take years to arrive at conclusions regarding the exact behavioural characteristics, as the majority of them are infants. However, in 2025, the elder Gen Alpha will be 14 years of age, who we consider to be an adolescent. According to Erikson's Psychosocial development theory, it is at this age that a sense of identity and personality starts to develop, where they start questioning who they are and what they want to achieve in life (Degges-White, 2017). Dealing with teenagers is always a task for parents, especially when the generation gap is wide. Hence, discussions regarding how to handle the growing generation are highly relevant and required for a healthier future.

The Significance of Good Parenting

A good proportion of mental health illnesses start in adolescence, and the role of parenting in this prevalence can't be taken lightly (Joseph & John, 2008). Parenting styles, which are described as the overall climate of the intergenerational interaction (Joseph & John, 2008), should be healthy to ensure the well-being of the upcoming generation. Much of the research on parenting styles has been influenced by Diana Baumrind's categorisation of parenting styles, namely, Authoritative, Authoritarian, Permissive, and Neglectful. Baumrind's definition of parenting style was the attitudes of parents concerning child rearing and the practices which they usually employ in this (Estlein, 2016). Researchers have commonly praised the authoritative parenting styles over others due to the positive behaviours and responses exhibited by children, including better academic performances (Estlein, 2016). On the other hand, children of authoritarian parents lie on the other side of the continuum, making them more vulnerable to stress and depression. In other words, parenting style influences children's well-being and often decides the quality of intergenerational relationships.

The Shift in Parenting Dynamics

Parenting doesn't have any rule of thumb to decide which technique to use, or what makes one an ideal mother or father. In fact, it is common that one's parenting style is largely influenced by witnessing the attitudes and behaviours of one's own parents. (Sondhi, 2017). However, blindly following the footsteps of parents without acknowledging the generation gaps can

further lead to psychological consequences, thereby impacting the quality of relationships. From a traditional point of view, families in India revolved around the ideas of dependence and cohesion, which worked on hierarchical kinship and obedience (Sondhi, 2017). Children were expected to listen to their parents without questioning their decisions, as they could never go wrong. In many families, children were not even allowed to make eye contact with the elders in the house, thereby creating a concrete hierarchy of power within the family system. In such a family culture, weightage was laid upon physical and psychological proximity, thus expecting older children to take care of the ageing parents by residing with them. Closer analysis of the Indian families in the contemporary society highlights a comparatively flexible nature of parenting, quite deviant from the traditional, stubborn aspect. In other words, children are given more space to provide opinions, leading to a more permissive and child-centred style of parenting (Sondhi, 2017).

In countries like India, where families once marked by well-defined gender roles and joint family traditions (Updahyay, 2023), are slowly perishing to redefine themselves. These changes have become quite significant in this decade, with a noticeable increase in divorce rates, youth migration, single parenthood, and stepfamily formation (Härkönen et al., 2017). Even in such a dynamic socio-cultural environment, families still stand as a strong foundation for intergenerational wellbeing and support (Bau & Fernández, 2021). A dominant force that drives these foundations includes the culture one belongs to. For example, in collectivistic cultures, there is a concrete hierarchical position of the older members in the family, with stronger family cohesion and shared responsibilities. In contrast, the individualistic culture is more inclined towards independence, self-expression and assertiveness (Pyke et al., 1996). The differing central ideologies influence different aspects of parent-child relationships, including expectations, cohabitation, emotional intimacy and financial aid. However, with the increasing prevalence of migration and media dominance, some aspects of the traditional value systems have been diluted. Tensions and questioning are expected in such a context with respect to intergenerational interaction, especially when one generation's expectations don't match the behaviour and expressions of the other. Hence, it would be a safe assumption to highlight that human development is not just biological changes but a social construction, involving shared understandings, perceptions, value systems, social expectations, cultural influence and more (Sondhi, 2017). Adding on, societies in India are witnessing a drastic change from the traditional values to a modernised and industrialised society (Goswami, 2021). These changes have been witnessed in various domains, including ideas on marriage and dowry, lifestyle changes, and parenting practices (Pillai et al., 2022). The structural changes in the families have significantly influenced the intergenerational relationships, highlighting the need to bring changes in the existing parenting styles and elderly care.

The Interplay of Filial Piety and Parenting

Filial piety is a 'Confucian' family value that describes how children are supposed to take care of their parents and elders in the family (Chan & Tan, 2004). Also, described as 'Xiao', the idea of filial piety is to keep aside one's personal needs to fulfil the obligations towards the parents and pay back the sacrifices they have made while rearing children. Even though its origin is from Confucian culture, the idea is not novel in other collectivist societies, including India, which historically follows the notion of 'Matru Devo, Pitru Devo Bhava'. The idea is to respect parents and treat them with dignity as equivalent to God. A good proportion of research conducted on filial piety and parenting styles indicates the importance of adopting an authoritarian parenting style to develop reciprocal filial values in children (Chen, 2014; Lin & Wang, 2022). Lin and Wang (2022) assert that authoritarian parents often foster a sense of emotional intimacy and psychological safety among the children, thereby strengthening the bond through nurturance. A major barrier that still persists in such cultures is the expectation of parents to mould children according to their prevailing values in order to establish a sense of authority over them (Nwobodo, 2025). In short, findings emphasize the importance of flexibility in order to incorporate the changing requirements of the generations rather than been rigid and traditional.

Gen Alpha Parenting

Even though the culture varies, there has been a universal set of traits observed among Gen Alpha in general (Sanches Filho, 2024). As compared to the previous generations, this generation is not afraid to speak for themselves and what they believe is true (Nwobodo, 2025). They give importance to assertiveness, making it a challenge to modify the parenting style to match their expectations. One reason for the relatively independent nature of this generation is the wide use of the internet, which makes them less reliant on their parents for suggestions and advice. Thus, they exhibit an individualistic voice compared to the older generation. These characteristics of Gen Alpha raise questions about the traditional parenting practices, which once revolved around the idea of authority and control (Nwobodo, 2025). In a digital world, where the influence of social media overlaps with the guidance from family, parents often struggle to monitor the activities of their children, especially when they themselves aren't competent enough (Nwobodo, 2025). Another direct influence of the media is on the quality of parent-child relationships, which is slowly diminishing where more time is spent online than interacting directly with family members. The overuse of virtual space also affects the communication skills of the younger generation, affecting their ability to create meaningful bonds (Sanches Filho, 2024). Adding on to the complexities, the disillusionment of traditional values of family tends to be overshadowed by materialism, indecency, hateful speech, disrespect and so on. In order to manage the Gen Alpha generation, it is important to consider the contextual determinants that shape their behaviours and ideologies, which calls for an adaptive style of parenting which is more practical to result in positive psychological outcomes as described in Figure 1.

Figure 1

Understanding Alpha Parenting

Proposed Model

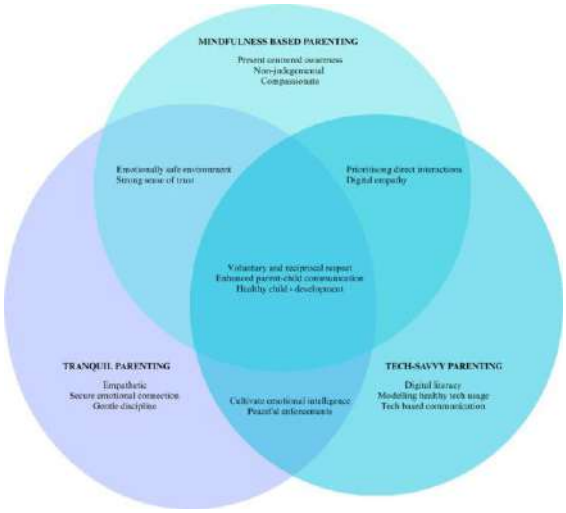
The Triadic Model of Modern Parenting

While adapting the best parenting strategy for the Gen Alphas, parents need to adopt a mindfulness-based approach (Sondhi, 2024) that considers their unique needs and characteristics. Revisiting the peculiarities of the characteristics of this generation, they are technologically dependent and expressive in demanding their position in the social domain. Everything is available at their fingertips, and children no longer have to depend on their parents to get the right supervision and direction in life decisions. This tends to make them less dependent on parents, and also gives the impression that parents are not sensitive towards their needs, nor are they competent enough to provide guidance. In such a context, it is extremely important for parents to be technologically adept themselves and incorporate parental modelling. Contrary to what the previous generation witnessed, where parents weren't technologically savvy, the alpha parents shall themselves be competent in the digital world to be a role model for their own children. In such instances, there is a higher probability that the younger generation will consult them with respect to queries and discussions. Exhibiting a mindful behaviour before them will make it easier to influence their behaviour, helping them understand the digital boundaries, what to expect, and where to find. Optimal level of supervision is required while parents themselves being digitally involved should exhibit offline activities to reinforce family time and discussions, especially during meals. However, Alpha parenting doesn't have any structured rules or ideas to be adhered to. In fact, it advises a tailored approach that incorporates the individual needs and behaviours of the offspring, thereby optimising the parent-child relationship (Catalano & Catalano, 2024). The highly sensitive nature of Gen Alpha erases the idea of corporal punishment, with calmness and authoritativeness, which is adjacent to the temperament of the child. In short, it calls for a rational and then emotion-focused parenting style (Catalano & Catalano, 2024). A mindful parent shall be aware of their own emotions and be competent in emotional regulation to provide a safe and emotionally adequate family environment. The resultant parenting style would incorporate aspects of tranquillity and calmness (Marhayati, 2024), creating a calm environment with reduced chaos and emotional reactivity. Rather, it shall be a practical skill, which could be tamed according to the situation and demands. Figure 2 illustrates the 'Triadic Model of Modern Parenting', which revolves around the ideas of tranquillity, mindfulness and tech savviness. This kind of

parenting shall fulfil the requirements of the Gen Alpha generation, by enhancing digital communication and establishing parents as the models on how to live mindfully and engage with family in the current context.

Figure 2

The Triadic Model of Modern Parenting



Discussion

The proposed traditional parenting style tends to be a balanced approach towards parenting the Gen Alpha, resulting in an emotionally available, calm, empathetic and ethically grounded generation. The proposed parenting style is assumed to redefine the existing traditional aspect of filial piety, which worked largely on dominance and obedience. Instead, a warm and welcoming home environment which values their opinion and encourages them to express emotions in a healthy way shall work better in this digital age. Hence, a reciprocal filial relationship could be established and nurtured by mutual trust and respect. Parents need to model reciprocality in their own behaviours and family interactions so that children can observe and exhibit that in their lives. A technically competent parent shall be able to monitor the activities of the child without making them feel invaded in their privacy, and also be able to resolve their dilemmas in the digital world, helping them maintain some level of dominance in the children's lives. Hence, the newer version of filial piety isn't duty driven but rather needs to be relationally driven, which is characterised by mutual respect, empathy, open communication and mindfulness.

Implication

The proposed model suggests a transformation from the traditional authoritarian filial relationship to a reciprocal relationship, which is grounded by mindfulness, tranquillity and technology. To promote holistic development and a healthy parenting style, it is important to incorporate a practical way of handling the alpha generation. Hence, a dialogical relation between the parent- child incorporating technology would make the young generation feel accepted as parents provide them a safe platform to express their opinions and emotions. Hence, educational institutions and policymakers should adopt an initiative to promote digital literacy and mindfulness-based parenting to Gen Alpha parents. The model further gives an idea of how this parenting strategy could provide a road for reciprocal filial piety among the upcoming generation, without compromising on their needs and considering the environmental determinants of the current world.

Conclusion

The nature and evolving characteristics of the new generation are not something to be terrorised, but rather dealt with care and affection in a way they could understand and empathise. This paper poses the triadic

model of modern parenting as a personalised way of rearing the Gen Alpha generation. Each of the dimensions helps to incorporate diverse needs of the generation by incorporating an inclusive parenting pattern that aligns with the digital world. The model goes beyond the traditional permissive and authoritative parenting styles by acknowledging and incorporating the shift in traditional filial beliefs, yet preserving the essence of love and respect. Hence, tradition and progressiveness shall go hand in hand for a healthy parent-child relationship. This conceptual model provides a future roadmap for policymakers and educators to better understand the needs of Gen Alpha and their parents in the context of digital complexity.

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Cognitive Overload in the Digital Age: A Theoretical Exploration of "Brain Rot" Through the Lens of Stimulus Masking

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ABSTRACT

The widespread use of digital media has raised significant concerns about its impact on cognitive functioning, encapsulated by the colloquial term "brain rot." This paper proposes a theoretical framework linking this subjective experience of cognitive and emotional dysregulation to the micro-level perceptual phenomenon of stimulus masking. Drawing from established cognitive psychology principles, we argue that the rapid, continuous, and often interrupting nature of digital content delivery (e.g., social media feeds, notifications, multitasking) creates conditions analogous to laboratory-based stimulus masking paradigms. This leads to chronic perceptual interference, disrupting attention and working memory, and contributing to cognitive overload. Consequently, individuals experience symptoms characteristic of "brain rot," including mental fatigue, fragmented attention, reduced memory encoding, and surface-level information processing. By integrating theories of cognitive load, attention restoration, and executive function interference, this review bridges the gap between controlled laboratory findings and real- world digital experiences. A conceptual model illustrating this progression is presented, offering a scientific basis for understanding "brain rot" and providing implications for digital design, educational practices, and mental health strategies aimed at mitigating its detrimental effects on cognitive well-being.

Keywords: Brain rot, Stimulus masking, Cognitive overload, Digital media, Attention, Working memory, Mental fatigue, Perception

Introduction

Brain Rot

The pervasive adoption and rapid expansion of digital media has redefined cognitive functioning by requiring constant attention and fast-paced information processing. Frequent digital interruptions fragment attention and encourage superficial engagement, while the pursuit of instant gratification weakens critical thinking. This overstimulation, along with screen time and sedentary behaviour, contributes to "brain rot," marked by diminished mental acuity. Excessive digital engagement and social media addiction have been linked to isolation, further impairing social cognition and emotional regulation, undermining meaningful social relationships, and reinforcing cognitive decline and loneliness (Yılmaz & Aktürk, 2025).

The term "brain rot" was chosen as Oxford's Word of the Year on December 2, 2024.This term refers to "the supposed deterioration of a person's mental or intellectual state, especially viewed as the

result of overconsumption of material (now particularly online content) considered to be trivial or unchallenging. Also: something characterized as likely to lead to such deterioration". Between 2023 and 2024, the frequency of its usage increased by 230%. (Oxford University Press, 2025)

While the term 'brain rot' appeared earlier, such as in Henry David Thoreau's 1854 Walden to describe a decline in critical thinking, its modern usage is distinct and tied to technology.(ÖZPENÇE, 2024; Yousef et al., 2025). In a press statement regarding the selection of "brain rot," the President of Oxford Languages, Casper Grathwohl, emphasized the term's implication of harm, particularly concerning virtual life and leisure activities. He also noted its adoption by Gen Z and Gen Alpha, the generations most involved in creating and consuming the digital content it describes' (Owens, 2025)

Brain rot, as slang, has emerged from digital culture, gaining popularity on platforms like Reddit and TikTok, and has become a prevalent term, particularly within meme culture, to articulate a subjective experience of mental fatigue, diminished attention spans, and a general sense of emotional detachment (ÖZPENÇE, 2024; Yousef et al., 2025).

Satici et al. posited that while the concept of brain rot lacks formal recognition as a medical diagnosis, its effects are tangibly experienced, particularly among younger demographics (Satıcı et al., 2022). Studies indicate that over four billion young adults with internet access spend an average of 6.5 hours daily online, with a significant portion engaging in passive consumption of low-quality content on social media platforms and the broader internet. (Yousef et al., 2025)

The understanding of "brain rot," is heavily influenced by modern digital and meme culture (ÖZPENÇE, 2024). Memes accelerate the term's spread and contribute to overconsumption of low-quality online content (Hazman et al., 2024). This, with the pursuit of instant gratification on platforms like Youtube Shorts, TikTok, exacerbates the phenomenon.

Academic sources characterize 'brain rot' by emotional desensitization, cognitive overload, mental exhaustion, diminished attention spans, and impaired executive functio ning (Yousef et al., 2025). Its subjective experience includes mental fatigue (Öztürker et al., 2025), short attention span (C le me nt e- S uárez et al. , 2024) , and emotional dullness (Yousef et al., 2025), often linked to pervasive low-quality digital content and described as a 'sluggish condition of mind' or 'mental cloudiness' (Mishra & Mishra, 2024).

The COVID-19 pandemic significantly increased screen time, integrating digital platforms into work, education, and social interact ions (Griffith et al., 2023). While offering benefits, this surge raises concerns about long-term cognitive development, especially for younger populations (Muppalla et al., 2023), linking excessive screen time to altered brain structure and heightened risks for cognitive, emotional, and behavioral issues (Manwell et al., 2022). This sustained digital usage, fueled by pandemic reliance, has unexplored long-term implications (Polyakova et al., 2023).

The 'brain rot' phenomenon is associated with physiological impacts from excessive digital media engagement. Prolonged screen time can lead to structural and functional alterations in brain regions crucial for executive functions, alongside changes in gray and white matter volumes and connectivity. This digital overload can also deregulate serotonin and dopamine neurotransmitter pathways, contributing to online activity abuse and internet addiction. Cognitive fatigue, a core component of 'brain rot,' involves shifts in brain activity within a 'fatigue network,' impacting mental energy and effort-based choices (Marciano et al., 2021) (Steward & Chib, 2024).

"Brain rot" is notably linked to emotional desensitization and blunted emotional responses, often stemming from overconsuming "low-quality online materials" and diverse stimuli (Yousef et al., 2025) (Kozubal et al., 2023). Pervasive digital media and dopamine feedback loops intensify these effects, leading to reduced negative emotional expression and difficulty engaging with one's feelings (Yousef et al., 2025) (Choudhury et al., 2014) (Carlo et al., 2023).

Prominent manifestations of 'brain rot' include 'Doomscrolling,' the compulsive consumption of negative news (Price et al., 2022; Shabahang et al., 2024); 'Attention Fragmentation,' characterized by rapid digital information flow and constant task-switching (Cao et al., 2024; Yousef et al., 2025); and 'Sleep Disruption,' stemming from excessive online activity and screen use, leading to disturbed sleep patterns (Dresp & Hutt, 2022; Martin et al., 1996; Okuda et al., 2021).

Brain rot can be understood as a form of digital numbing and a response to the overwhelming stimuli of the digital age. This "numbing" can be seen as a coping mechanism adopted by individuals when faced with digital overload and the psychological strains it causes, such as technostress and exhaustion (Tafesse et al., 2024). By engaging in such behaviors, the cognitive system may attempt to protect itself from the continuous bombardment of information and associated cognitive strain (Zhang et al., 2025), even if it leads to emotional depletion and a diminished capacity to experience a full range of emotions.

Stimulus Masking

The "brain rot" phenomenon's contextual importance stems from its impact on cognitive functions and mental well-being within the digital environment. To understand its underlying cognitive mechanisms, the concept of stimulus masking is crucial. This cognitive psychology phenomenon involves the impairment of a target stimulus's perception by another stimulus (a mask) presented in close temporal or spatial proximity (Ağao ğ lu et al. , 2015) . The study of stimulus masking has a rich historical background in cognitive psychology. While not introduced at a single point, decades of research have meticulously documented this phenomenon, with early and foundational studies frequently employing simple visual stimuli Prominent researchers like Bruno G. Breitmeyer have significantly contributed to understanding the temporal dynamics of visual perception and the underlying processes.

There are two primary types of temporal stimulus masking:

- **Forward Masking:** An earlier mask inhibits the perception of a later target stimulus (Elliott, 1962). This effect is influenced by lateral inhibition and the excitability cycle (Ми хай ло в а et al. , 2009). Research explores how the mask's physical format and information content affect masking extent (Davis & Kim, 2011).
- **Backward Masking:** A later mask impairs the perception of an earlier, briefly presented target stimulus (Francis, 2003). The mask, presented after the target, still affects its visibility, with the effect varying based on the interstimulus interval (Francis, 2003). Feedforward lateral inhibition explains how a mask's fast transient activity suppresses the target's slow sustained activity (Silverstein, 2015).

Stimulus masking involves specific physiological processes and engages various brain regions. The underlying mechanism frequently involves feed forward lateral inhibition, where a mask's rapid transient activity suppresses a target's slower activity through inter-channel inhibition. This interference can occur even without physical overlap, highlighting inhibitory processes within the visual system. Studies emphasize the critical role of both spatial and temporal factors, with models employing lateral excitation and inhibition across different neural timescales to explain masking effects (Hermens & Ernst, 2007). Visual masking has been investigated from retinal to cortical levels, impacting the conscious registration of stimuli (Breitmeyer, 2007).

Neuroimaging research indicates that masking effects are linked to neural activity in various brain areas involved in visual processing and attention. For instance, studies on visual backward masking have identified contributing regions in the human cortex (Green et al., 2005); specifically, neural correlates of meta contrast masking have been found in human early retinotopic areas, including V1, V2, and V3 (Maeda et al., 2010). Furthermore, visual masking illusions involve activation within and beyond early retinotopic visual areas in the occipital cortex (Tse et al., 2005), and visual ventral regions such as the fusiform and inferior temporal gyrus show attenuated hemodynamic signals during visual masking (Noguchi & Kakigi, 2005). The ability to resolve interference, challenged by masking, involves the dorsal anterior cingulate cortex and cingulate-frontal-parietal cognitive-attentional networks (Deng et al., 2018). In auditory masking, individual differences have been linked to the vicinity of the superior temporal gyrus (Zhang et al., 2021).

Classical Studies and Experiments

Early research on visual masking used simple stimuli like letters, numbers, or geometric shapes as targets, followed or preceded by patterned masks. These experiments demonstrated that the target's visibility and discriminability are significantly affected by the mask's luminance, spatial frequency, and the temporal interval between the target and mask (Chen & Zhang, 2022) (Polat et al., 2007). Key findings from these classical studies include:

- Metacontrast and Paracontrast Masking: Spatially non-overlapping masks can impair target perception, impacting contour processing. Metacontrast research shows target stimulus visibility is virtually lost when immediately

followed by a nonoverlapping mask (Maeda et al., 2010).

- Perceptual Interference Mechanisms: Experiments show the brain's capacity for processing visual information is susceptible to impairment by preceding or subsequent stimuli. This interference can occur even when the mask does not physically overlap with the target, highlighting complex inhibitory processes within the visual system (Breitmeyer, 1980).

Theoretical Background

These theoretical frameworks offer a comprehensive understanding of how the design and consumption patterns of digital media can contribute to the cognitive and emotional impacts encapsulated by "brain rot":

- Cognitive Overload: Cognitive overload theory suggests that when information exceeds working memory capacity, learning is impaired (Ayres & Paas, 2012). Stimulus masking exacerbates overload by hindering selective attention (Ağao ğ lu et al., 2018) and increasing cognitive workload (Yu et al., 2015).
- Attention Economy: The attention economy views human attention as a scarce resource (Davenport & Beck, 2001), the "bottleneck of human thought" (Hyland, 2023). Intense competition for attention encourages fragmented content, shortening attention spans and impairing focus (Mishra & Mishra, 2024). This mirrors "attention fragmentation" in "brain rot" (Firth et al., 2019). Stimulus masking exemplifies this fragmentation.
- Digital Fatigue and Cognitive Depletion: Digital fatigue is mental and physical exhaustion from prolonged digital engagement (Supriyadi et al., 2025), while cognitive depletion is the reduction of mental resources after sustained exertion (Franklin et al., 2017). Central to "brain rot," continuous digital exposure causes mental weariness and diminished cognitive function (Korunovska & Spiekermann, 2019). The need to process information, switch tasks, and filter distractions exhausts resources, contributing to mental fatigue and cognitive decline characteristic of "brain rot" (Steward & Chib, 2024).

To mitigate "brain rot," preventive strategies involve a multi-faceted approach focusing on individual habits, digital design, and education. Individuals can adopt healthier digital habits through mindful technology use and self-regulation strategies to minimize digital distraction (Anthonysamy et al., 2020). From a digital design perspective, there is a need for cognitively considerate app and user experience design that minimizes masking effects and cognitive overload (Li et al., 2022). This can be achieved by optimizing visual interfaces based on the neuroscience of visual perception to increase perceptibility (Gleasure et al., 2015).Educators can promote digital literacy and interventions that improve attention span, such as increasing interactivity in online content (Geri et al., 2017), to support cognitive health and emotional well-being in the digital age.

Rationale

Despite extensive research on digital technology's impact on attention and fatigue, documenting phenomena like "digital fatigue," "cognitive overload," and

"attention fragmentation" there's a critical theoretical gap. While stimulus masking is a well-established principle studied in controlled laboratory conditions to understand visual processing (Ağao ğ lu et al., 2015; Br e it me yer , 2007) , there is a lack of integration between these micro- level perceptual phenomena and the macro-level, complex cognitive effects observed from excessive screen time, such as the subjective experiences associated with "brain rot" Bridging this gap is crucial for developing a comprehensive theoretical framework to explain how the continuous, rapid stream of diverse digital content, often characterized by visual masking effects, contributes to "brain rot" .

Research Questions

1. How does the pervasive nature and design of digital media, characterized by rapid, continuous, and interrupting content delivery, create conditions analogous to stimulus masking paradigms?
2. In what ways does this digital stimulus masking contribute to chronic perceptual interference, leading to disruptions in attention and working memory?
3. How do the established cognitive psychology principles of cognitive load, attention restoration, and executive function interference integrate to explain the subjective experience of "brain rot" in digital environments?
4. What are the implications of understanding "brain rot" through the lens of stimulus masking for the development of cognitively considerate digital design principles, educational practices, and mental health strategies?

Objectives

1. To propose a theoretical framework that scientifically links the subjective experience of "brain rot" to the micro-level perceptual phenomenon of stimulus masking.
2. To bridge the conceptual gap between controlled laboratory findings on stimulus masking and real-world cognitive effects observed from excessive digital media consumption.
3. To present a conceptual model illustrating the progression from rapid digital stimuli and perceptual interference to the subjective experience of "brain rot."
4. To discuss the implications of this theoretical understanding for guiding future interventions and design strategies aimed at mitigating the detrimental effects of digital media on cognitive well-being.

Methodology

This paper employs a narrative literature review approach complemented by theoretical synthesis to investigate "brain rot," a digital-age phenomenon. The primary objective is to establish a conceptual link between this colloquial term and classical cognitive principles, specifically stimulus masking, to explain subjective experiences of cognitive overload in digital environments. This narrative method offers the flexibility which is required to combine and integrate diverse theoretical and empirical literature, thereby constructing a cohesive conceptual framework that is testable through future research. Given that

"brain rot" currently lacks a formal academic operationalization, this paper focuses on conceptual alignment, bridging classical theories with contemporary digital experiences rather than presenting new empirical data.

Relevant literature was systematically identified through comprehensive searches across three major academic databases: Google Scholar, PubMed, and PsycINFO. Keywords were carefully selected to encompass both foundational cognitive science concepts and current

digital phenomena, including: “stimulus masking,” “cognitive overload,” “brain rot,”

“attention and digital media,” “cognitive fatigue,” “screen fatigue,” “working memory and social media,” and “attention economy.”

Inclusion and Exclusion Criteria

- To ensure the relevance and academic rigor of the selected literature, studies were included if they met the following criteria:
- Peer-reviewed journal articles or scholarly book chapters.
- Published between 2000 and 2025, reflecting the widespread growth of digital media.
- Primarily focused on cognitive, perceptual, or media psychology.
- Addressed core constructs such as stimulus masking, digital media use, or cognitive fatigue.
- Written in English.

Conversely, sources were excluded if they:

- Lacked direct relevance to cognitive or perceptual theory concerning digital media.
- Articles published before 2000, unless used solely for definitional, historical, or theoretical grounding
- Focused solely on the physiological effects of screen use (e.g., eye strain) without cognitive implications.
- Were editorial, anecdotal commentaries, or non-scientific blog posts without empirical or theoretical grounding, unless specifically used for cultural illustration (e.g., defining "brain rot" in popular discourse).

Following an initial screening of titles and abstracts, 130 articles were selected for full-text review.

Results/Theoretical Integration

This section integrates findings from laboratory-based stimulus masking research with observations of digital media consumption, proposing a theoretical framework that links micro-level perceptual phenomena to macro-level cognitive outcomes, such as the "brain rot" phenomenon. The inherent characteristics of digital interfaces and content delivery create conditions closely paralleling classic masking paradigms, significantly impacting attention, memory, and general cognitive processing.

a. Naturalistic Parallels in Digital Life

The rapid-fire nature of many digital interfaces, especially platforms like Instagram reels, Snapchat, Youtube Shorts,

and various other apps inadvertently mimics laboratory-based stimulus masking conditions, leading to chronic perceptual interference.

- **Rapid Content Delivery:** Platforms like Instagram Reels and TikTok deliver new visual and auditory input every few seconds, often changing content almost instantaneously (Liu et al., 2024). This rapid sequential presentation directly parallels masking experiments (Liu et al., 2024).
- **Mimicking Backward Masking:** The most direct parallel is to backward masking, where one piece of content is almost immediately replaced by another (Ricker & Sandry, 2018). This subsequent input interferes with the cognitive system's ability to fully process and consolidate the preceding content, allowing "no time to consolidate earlier content" and impairing recall and execution (Ricker & Sandry, 2018).
- **Forward Masking Elements:** Repetitive exposure to similar content types can "dull the salience of new input" (Liu et al., 2024). The visual system may habituate to high-frequency presentation, making it harder to recognize novel or important information from a continuous stream of often low-salience content (Liu et al., 2024).
- **Notifications and Multitasking:** Pervasive digital notifications and frequent multitasking act as potent masking stimuli (Zivony & Eimer, 2023). Unexpected interruptions divert attention, and rapid task- switching—a form of self-imposed masking—interferes with deep processing and consolidation of initial information (Czoschke et al., 2023). This chronic media multitasking impairs cognitive control, including working memory and the ability to filter irrelevant information (Czoschke et al., 2023).

b. Cognitive Outcomes

The continuous exposure to masking-like conditions in digital environments contributes to the "brain rot" phenomenon through several measurable cognitive outcomes.

- **Attentional Blink:** The rapid, often incongruous succession of digital content, as seen in short-form videos, frequently causes an attentional blink (Yao et al., 2022). Observers may fail to consciously perceive or register a stimulus if it appears too soon after another, leading to fragmented understanding and preventing proper emotional integration (Yao et al., 2022).
- **Inhibition of Return:** While adaptive in guiding attention to novel information, in rapidly evolving digital environments, inhibition of return may hinder re-engagement with previously viewed stimuli (Zivony & Eimer, 2023). This can impede the ability to revisit and reinforce information accessed on digital platforms, as the cognitive system is continuously biased towards processing new, incoming stimuli (Zivony & Eimer, 2023).
- **Reduced Memory Encoding:** Constant interference from masking stimuli and

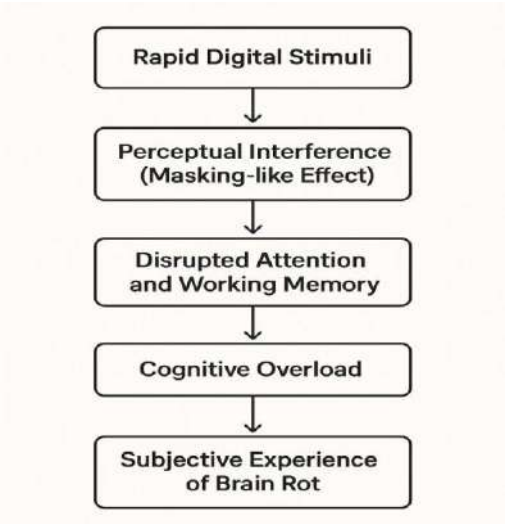
insufficient processing time inherently reduce memory encoding (Ricker & Sandry, 2018). Information not deeply processed is less likely to transfer to long-term memory, leading to a feeling of having consumed much information without retaining it, a common complaint associated with "brain rot" (Ricker & Sandry, 2018).

- **Surface-level Processing (Craik & Lockhart's Levels of Processing Theory)**: Craik and Lockhart's levels of processing theory posits that the depth at which information is processed affects how well it is remembered; shallow processing leads to weaker memory traces, while deep processing leads to stronger, more durable memories. The fast-paced, visually driven nature of digital content promotes surface-level processing. Online reading, for instance, may involve more fragmented and less continuous attention as compared to traditional reading (Sandberg, 2011). While digital technologies have benefits, research suggests they can restructure reading and thinking, potentially leading to atrophy of "deep thinking" capabilities (Burín et al., 2021), and can also cause inertia and atomized thinking (Cao et al., 2024). Continuous interruption further prevents the sustained attention required for deeper processing, resulting in a cognitive state characterized by high input but low retention.

Conceptual Model

Based on the theoretical integration presented, a conceptual model has been proposed illustrating the pathway from digital interaction to "brain rot." This visual model posits a cascading effect.

Figure 1. *Conceptual Model Illustrating the Progression from Rapid Digital Stimuli to the Subjective Experience of Brain Rot*



This model provides a simplified, yet comprehensive, theoretical pathway from specific digital behaviors and design features to the complex and multifaceted subjective experience of "brain rot." It serves as a guiding and foundational framework for future empirical and strategical investigations.

Discussion

This review has established a theoretical link between the micro-level perceptual phenomenon of stimulus masking and the macro-level cognitive and emotional consequences of excessive digital media consumption, colloquially known as "brain rot" in recent times. By integrating established theories of attention, cognitive load, and restoration with observations of real-world digital behaviors, we can better understand the mechanisms through which the modern digital environment shapes our minds.

a. Theoretical Anchoring

The theoretical integration presented is anchored in key psychological frameworks

that elucidate the impact of highly dynamic digital environments.

- **Load Theory**: Nilli Lavie's Load Theory of Attention and Cognitive Control explains how perceptual load influences selective attention, positing that irrelevant distractors are processed based on task load (Lavie, 2005; Lavie & Dalton, 2014). Digital interfaces, with their rapid succession of novel content, create continuous high perceptual load, fragmenting focus, impairing sustained attention, and contributing to mental fatigue and reduced cognitive efficiency.
- **Attention Restoration Theory**: Stephen Kaplan's Attention Restoration Theory counters the continuous demands of digital environments by suggesting that directed attention, an effortful focus, can become fatigued (Kaplan, 1995, 2001). Unlike restorative natural environments, the digital landscape is designed to capture and sustain attention, offering little opportunity for cognitive restoration, contributing to mental exhaustion and depleted cognitive resources, central to the "brain rot" phenomenon.
- **Executive Function Interference**: Multitasking, ubiquitous in the digital age, places a considerable burden on executive functions like working memory, inhibitory control, and task switching. Constant demands for re-allocation of attentional resources and cognitive set-switching, combined with the masking effects of new stimuli, lead to prefrontal cortex fatigue. This manifests as decreased efficiency in decision-making, problem-solving, and self-regulation.

b. Real-World Applications

The proposed theoretical framework provides robust explanations for frequently observed phenomena associated with digital media consumption.

- **Explaining Digital Exhaustion:** The continuous high perceptual load from digital content, without restorative opportunities, creates chronic cognitive strain. This sustained effort to process overwhelming, shifting information without adequate rest directly leads to the reported mental exhaustion and reduced performance (Öztürker et al., 2025).
- **Ties with Observed Behaviors:** The model explains behaviors like compulsive scrolling, where the constant "masking" by new content and dopamine feedback loops drive users to seek novelty, often without processing prior information, thereby impairing recall and execution (Yousef et al., 2025).
- **Low Attention in Class/Meetings:** Rapid attention switching from media multitasking (Cao et al., 2024) translates to real-world settings, making it challenging for individuals to sustain attention during longer, less dynamic tasks like lectures or meetings.
- **Poor Reading Retention:** Surface-level processing in digital reading (Cao et al., 2024), exacerbated by constant interruption and the urge for new information, impairs memory encoding. This explains low retention despite extensive online 'reading,' as digital masking prevents the deeper processing necessary for robust memory formation (Cao et al., 2024; Yousef et al., 2025).

c. Emotional Consequences

Beyond cognitive impacts, "brain rot" also encompasses significant emotional consequences, stemming from the continuous cognitive strain and attention fragmentation. The constant bombardment of new stimuli can lead to emotional desensitization, cognitive overload, and a negative self-concept (Yousef et al., 2025). This can manifest as numbness or hypo emotionality (Yousef et al., 2025), where the brain disengages from deeper emotional processing. Furthermore, the frustration from cognitive overload can increase irritability and anhedonia, contributing to a state of emotional depletion and hindering the ability to experience a full range

d. Bridge Theory and Experience

This theoretical framework connects academic concepts with subjective digital experiences. By illustrating how stimulus masking, cognitive overload, attention restoration, and executive function interference manifest in digital contexts, it provides a scientific basis for anecdotal observations. The speed of digital content, like masking paradigms, explains information overload and poor retention. The constant demand on attention without breaks accounts for mental fatigue, while the burden on executive functions clarifies focus and decision-making issues. This framework demonstrates that "brain rot" is a predictable outcome of cognitive vulnerabilities interacting with exploitative digital environments.

Implications, Limitations, and Future Directions

a. Implications

The proposed framework has practical implications across several domains:

- **Mental Health**: Understanding "brain rot" as a consequence of cognitive and perceptual overload provides a scientific basis for psychoeducation. Informing individuals about how digital design impacts their attention and memory can empower them to adopt healthier digital habits and destigmatize feelings of mental exhaustion from screen time.
- **Design**: The insights highlight the need for more cognitively considerate app and user experience design that minimizes masking effects. This includes features like less aggressive auto play, reduced notification frequency, and deliberate pauses to foster sustained attention.
- **Education**: Educators can promote digital literacy by recommending regular screen breaks, encouraging alternate sensory input, and fostering environments that support deep, sustained attention to mitigate negative cognitive impacts.

b. Limitations

While offering a novel theoretical perspective, this review has inherent limitations:

- **Theoretical only**: This review is a theoretical integration, not presenting new empirical data. The connections drawn are conceptual, synthesizing existing literature.
- **"Brain rot" not formally operationalized**: The term "brain rot" is largely colloquial and lacks formal academic or clinical definition, making precise measurement challenging.
- **Limited cultural or neurobiological exploration**: A deeper cultural or neurobiological exploration of "brain rot" is beyond this review's scope.

c. Future Research

The identified gap and theoretical framework pave the way for several critical lines of future inquiry:

- **Empirical studies**: There is a pressing need for empirical studies to test the proposed theoretical links. Quantitative, qualitative, and mixed-methods approaches could be employed to assess both behavioral outcomes and subjective experiences. Future researchers can improvise the proposed conceptual model by conducting such studies
- **Develop Scales to measure Brain Rot :** To facilitate empirical research, there is a need to develop more standardized psychometric instruments to measure brain rot phenomenon. Such a scale should aim to measure perceived cognitive numbness, attentional fragmentation, and emotional detachment reliably, allowing for systematic assessment of the phenomenon across populations.
- **Cross-cultural comparisons**: Research should explore the cultural differences in subjective experiences of brain rot, digital media consumption patterns and cognitive styles and how they lead to variations in its manifestation and severity.
- **Longitudinal studies:** Tracking digital habits and cognitive performance over extended periods is vital. These studies can reveal the long-term cumulative effects of digital masking and inform whether early interventions can mitigate cognitive impacts.

Conclusion

The colloquial term "brain rot" encapsulates a pervasive contemporary experience of cognitive and emotional dysregulation, which this review suggests is an experiential label for cognitive and perceptual overload stemming from the design and consumption patterns of digital media. This theoretical integration demonstrates a compelling link between classic, laboratory-derived principles of stimulus masking and the complex, real-world cognitive effects observed in the digital environment.

Digital environments mimic stimulus masking through notifications and rapid content delivery. This impairs memory encoding and attention, leading to reduced memory retention, fragmented attention, and shallow information processing, contributing to mental fatigue and cognitive decline associated with "brain rot". This review integrates cognitive psychology with digital behavior, offering a scientific explanation for digital experiences and a foundation for investigation and treatments. Recognizing "brain rot" as a result of cognitive processes creates opportunities for thoughtful digital designs and user practices aimed at reducing its detrimental effects on cognitive health. This research provides a crucial framework to guide future inquiry, influence digital design, and inform stakeholders, including policymakers, practitioners, educators, and parents, to address the impact of "brain rot" and promote balanced technology use that supports cognitive health and emotional well- being.

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Exploring the Interplay Between Fear of Intimacy, Self-Silencing and Rejection Sensitivity Among Transgender Individuals : A Correlational Study

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ABSTRACT

Rejection Sensitivity, Fear of Intimacy, and Self-Silencing are psychological constructs that profoundly affect emotional well-being, interpersonal functioning, and identity expression, particularly among marginalized populations. Rejection sensitivity is defined as a tendency to anxiously expect, readily perceive, and intensely react to rejection (Downey & Feldman, 1996). Among transgender individuals, this trait is often intensified by experiences of social stigma and discrimination, leading to psychological challenges such as fear of intimacy and self-silencing. Fear of intimacy refers to discomfort in forming emotionally close relationships (Descutner & Thelen, 1991), while self-silencing involves suppressing one's identity to avoid rejection or conflict (Jack & Dill, 1992). The study employs three psychological scales of assessment: Gay-Related Rejection Sensitivity Scale by Pachankis et al. (2008), Fear of Intimacy Scale by David D. Burns (1980) and The Silencing the Self Scale by D. C. Jack and Diane L. Dill (1992). Pearson correlation analysis revealed significant positive correlations between rejection sensitivity and both fear of intimacy (r = .454, p < .01) and self-silencing (r = .368, p < .01), as well as a modest correlation between fear of intimacy and self-silencing (r = .170). These findings suggest that psychological factors rooted in social stigma and marginalization can mutually reinforce one another, contributing to emotional isolation and relational strain among transgender individuals. The study underscores the importance of affirming psychological interventions that address vulnerability, relational safety, and identity expression within this population.

Keywords: Rejection Sensitivity, transgender individuals, Fear of Intimacy, Self-Silencing.

Introduction

Rejection sensitivity refers to the heightened fear and emotional response to real or perceived rejection, often stemming from repeated experiences of discrimination, harassment, or exclusion due to their gender identity (Meyer, 2003). This can lead to anxiety, social withdrawal, and difficulty forming trusting relationships, as even neutral cues may be misinterpreted as rejection. The constant anticipation of being judged or excluded can negatively affect mental health, increasing the risk of depression and conflict in relationships. Therapeutic support that focuses on building self-esteem and coping with societal non-acceptance is essential in helping transgender individuals manage rejection sensitivity (Herek, 2004).

Fear of intimacy among transgender individuals often stems from past experiences of rejection, discrimination, or body dysphoria, making emotional and physical closeness feel unsafe or anxiety-

inducing (Descutner & Thelen, 1991). Many transgender people may desire close relationships but struggle with fears of not being accepted for their gender identity or body, especially in contexts involving physical or romantic intimacy (Mereish & Poteat,2015). These fears are often heightened by internalised transphobia, trauma, and low self-esteem, leading to difficulty in trusting others and expressing vulnerability. As a result, they may avoid deep connections, contributing to emotional isolation and a reduced sense of belonging.

Self-silencing among transgender individuals refers to the tendency to withhold thoughts, emotions, or aspects of one's identity in order to avoid conflict, rejection, or social judgment (Jack & Dill, 1992). This pattern often emerges in response to experiences of stigma, discrimination, or trauma related to their gender identity (Mereish & Poteat, 2015). Transgender individuals may silence themselves to preserve relationships, ensure safety, or conform to societal expectations, even when it negatively affects their mental health. Over time, this suppression can lead to increased anxiety, depression, and a weakened sense of self, making it difficult to express needs, establish boundaries, or build authentic connections (Meyer, 2003).

Review of Literature

Mohr and Fassinger (2006) addressed internalized homophobia and fear of intimacy among gay and bisexual men, examining how societal stigma and negative attitudes toward sexual orientation impact interpersonal relationships. They found that internalized homophobia, considered a form of gay-related rejection sensitivity, significantly limited individuals' ability to form affectionate relationships. Feelings of shame and low self-esteem contributed to a heightened fear of rejection, prompting emotional withdrawal and avoidance of emotionally fulfilling relationships. Their study demonstrated how societal discrimination can be internalized and become a major barrier to forming healthy romantic connections, highlighting the importance of addressing internalized stigma in therapeutic interventions aimed at improving relationship satisfaction among LGBTQ+ individuals (Mohr & Fassinger, 2006).

Meyer (2015) expanded the minority stress model by incorporating self-silencing as a coping mechanism in LGBTQ+ populations. His study found that self-silencing—often rooted in internalized stigma—exacerbates feelings of isolation and increases rejection sensitivity. Individuals who frequently silence their identity or emotions out of fear of judgment tend to become hyper-aware of possible rejection, impairing their capacity for emotional closeness. Meyer (2015) linked this process to adverse mental health outcomes, including anxiety and depression, further emphasizing the psychological toll of stigma-based stress and the need for affirming psychological support.

Mereish and Poteat (2015) explored how perceived discrimination influences self-silencing and rejection sensitivity in LGBTQ+ youth. Their findings indicated that high levels of discrimination contributed to increased identity suppression and the anticipation of rejection in social and romantic interactions. As a result, these youth faced difficulties forming

emotionally supportive and meaningful relationships. The study underscores the detrimental effects of systemic discrimination on emotional and relational well-being, suggesting that interventions must address both external and internalized sources of minority stress (Mereish & Poteat, 2015).

Rood, Reisner, and Surace (2016), in their qualitative study, examined rejection sensitivity among transgender and gender-nonconforming individuals through the lens of minority stress. The researchers found that a chronic expectation of rejection, based on gender identity, resulted in heightened vigilance, emotional distress, and social withdrawal. Although fear of intimacy was not directly assessed, the data suggested that rejection sensitivity led to behaviors such as avoidance of emotional closeness and a reluctance to be vulnerable in relationships. These findings support the idea that rejection sensitivity may indirectly contribute to intimacy difficulties among transgender individuals, highlighting the importance of trauma-informed relational interventions (Rood et al., 2016).

In a qualitative study, Riggs and Bartholomaeus (2018) examined the impact of self-silencing and rejection sensitivity on the romantic experiences of transgender individuals. Participants described withholding their authentic identity in relationships due to fears of rejection, conflict, or discrimination. This self-silencing often led to emotional strain and difficulty forming genuine connections. The study emphasized how internal and external pressures to conform or suppress identity negatively affect mental health and relationship satisfaction, suggesting that self-silencing, when combined with rejection sensitivity, can be particularly harmful in romantic contexts (Riggs & Bartholomaeus, 2018).

Brunson, Morehouse, and Stripling (2019) explored rejection sensitivity as a mediator of perceived social acceptance among LGBTQ+ older adults. Their findings showed that individuals high in rejection sensitivity were more likely to internalize stigma and experience emotional dysregulation, which interfered with their ability to form or maintain close relationships. Although the study did not directly measure fear of intimacy, it implied a connection between heightened vigilance for rejection and avoidance of emotional closeness—core features of fear of intimacy. These findings suggest that rejection sensitivity can be a psychological barrier to intimacy, especially in older LGBTQ+ populations who face the compounded effects of aging and marginalization (Brunson et al., 2019).

In their study on self-concealment and fear of receiving compassion, Carvalho, Carvalho, and Fonseca (2022) examined how these variables contribute to psychological suffering in transgender adults. The researchers found that shame led to an increased fear of receiving compassion from others—a construct closely aligned with fear of intimacy—which subsequently elevated self-concealment. Their findings revealed that while self-concealment alone did not directly mediate distress, its link with fear of intimacy created a compounding effect that intensified depression and anxiety. The study highlights how fear of emotional openness and vulnerability, combined with suppressing one’s identity,

can severely impact the mental health of transgender individuals (Carvalho et al., 2022).

Methodology

The study was conducted on 59 transgender individuals residing in India (18 to 35 years of age). The data was taken in a questionnaire format.The Test of Normality was also run for this data. The scales used were Gay-Related Rejection Sensitivity Scale by Pachankis et al. (2008) which measures the tendency to anxiously expect, perceive, and overreact to rejection based on one's sexual orientation, the Fear of Intimacy Scale by David D. Burns (1980) which measures an individual's anxiety and discomfort with closeness and emotional vulnerability in intimate relationships and the Silencing the Self Scale by D. C. Jack (1992) which measures the extent to which individuals suppress self-expression in intimate relationships to maintain harmony.

Research Objectives

- To study the relationship between fear of intimacy and rejection sensitivity in transgender individuals.
- To study the relationship between self-silencing and rejection sensitivity in transgender individuals.
- To study the relationship between fear of intimacy and self-silencing in transgender individuals.

Hypotheses

- H01: There will be a significant positive correlation between fear of intimacy and rejection sensitivity in transgender individuals.
- H02: There will be a significant positive correlation between self-silencing and rejection sensitivity in transgender individuals.
- H03: There will be a significant positive correlation between fear of intimacy and self-silencing in transgender individuals.

Results and Interpretation

After the data collection process, the scoring and analysis was done. The results are displayed below:

Table 1: Descriptive Statistics: Mean, Standard Deviation, Minimum and Maximum of

Rejection Sensitivity, Fear of Intimacy and Self-Silencing.

	N	Mean	Std. Deviation	Minimum	Maximum
Rejection Sensitivity	59	107.32	21.897	50	146
Fear of Intimacy	59	106.54	12.223	70	133
Self-Silencing	59	90.73	9.822	65	113

Table 2: Pearson Moment Correlation between Rejection Sensitivity, Fear of Intimacy and Self-Silencing.

	1	2	3
1. Rejection Sensitivity	–	.454**	.368**
2. Fear of Intimacy	.454**	–	.170
3. Self-Silencing	.368**	.170	–

**r = 0.01 level (2-tailed), **p < 0.01

Discussion

The present study revealed significant positive correlations between rejection sensitivity, fear of intimacy, and self-silencing among transgender individuals. The strong positive association between rejection sensitivity and fear of intimacy (r = .454, p < .01) indicates that individuals who anxiously anticipate rejection often experience discomfort with emotional

closeness, likely due to fears of vulnerability and being misunderstood. This finding is consistent with prior research suggesting that marginalized individuals who face repeated social rejection may avoid intimate relationships as a protective mechanism (Descutner & Thelen, 1991; Meyer, 2003). Furthermore, the positive correlation between rejection sensitivity and self-silencing (r = .368, p < .01) demonstrates that transgender individuals may withhold self-expression in interpersonal settings to reduce the risk of conflict or exclusion, a behavior similarly linked to psychological distress in previous literature (Jack & Dill, 1992; Riggs & Bartholomaeus, 2018). Although the correlation between fear of intimacy and self-silencing (r = .170) was weaker, it still suggests that individuals who struggle with emotional closeness may also engage in suppressive behaviors within relationships (Carvalho et al., 2022). These findings reflect the broader implications of minority stress theory (Meyer, 2003), illustrating how societal stigma and internalized fear can shape relational behaviors and emotional health among transgender populations.

Conclusion

This study highlights the interconnected nature of rejection sensitivity, fear of intimacy, and self-silencing among transgender individuals in the Indian context. The significant associations observed suggest that individuals with elevated rejection sensitivity are more likely to avoid emotional closeness and suppress their authentic self in relationships, which may contribute to emotional isolation and mental health challenges (Mohr & Fassinger, 2006; Meyer, 2015). These findings underscore the importance of integrating trauma-informed and affirming psychological interventions that focus on fostering emotional safety, trust, and self-expression (Brunson et al., 2019; Mereish & Poteat, 2015). Mental health practitioners working with transgender individuals should be aware of these overlapping dynamics and aim to reduce internalized stigma while strengthening coping strategies and interpersonal confidence. Future research should employ longitudinal designs and qualitative approaches to deepen the understanding of how these constructs evolve over time and influence well-being, particularly across diverse sociocultural backgrounds (Rood et al., 2016).

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Attitude towards AI and Emotional Intelligence amongst Gen Z Employees in Higher Education Sector

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ABSTRACT

Workplace is constantly evolving and as the generation grows, the advent of Generation Z in capturing various industries is observed. Artificial Intelligence (AI) is growing and with that the usage of AI is also increasing. In the past two decades, emotional intelligence and artificial intelligence are the rising topics for exploration. Past studies have tried to investigate the roles of attitude towards emotional artificial intelligence in workplace. Teaching has been a very traditional process, however, COVID had made teaching a very technological process where teachers were taking online classes and adapting to the changes in the education sector.

This study investigates the attitude towards Artificial Intelligence (AI) and its relationship with Emotional Intelligence (EI) among Generation Z (Gen Z) employees in the higher education sector. The research investigates the relationship between attitude towards AI, a rapidly advancing technological tool, and their EI, the capacity to recognize and manage emotions, in shaping workplace dynamics. The study quantitatively focusses on the relationship that attitude towards AI has with emotional intelligence in the workplace dynamics and the qualitatively explores the reasons, advantages and challenges as perceived by the Gen Z employees working in the education sector. Through a mixed-method approach, including questionnaires and focussed group discussions with Gen Z educators across various higher education institutions, this study examines their attitude towards AI in academic tasks, its potential to enhance efficiency, and the challenges it poses. Additionally, the study evaluates how AI influences their emotional intelligence and its impact on interpersonal relations within the workplace. The results reveal that there is a low positive significant correlation between attitude toward AI and emotional intelligence. The qualitative data was collected by conducting a focussed group discussion and reflective thematic analysis was done to analyse the data. It was found that the Gen Z educators appreciate and acknowledge the ease of teaching with the AI assistance however, at the same time, they also fear that AI is reducing the learning in students and may have the potential to eventually remove educators

posing a challenge to the educators' career.. This research would help institutions to inculcate a positive attitude towards AI which could additionally enhance the interpersonal relationships at workplace.

Keywords: Artificial Intelligence, Attitude, Perception, Emotional Intelligence, Generation Z, Employee, Education Sector

Introduction

Artificial Intelligence is an advancement in technology that makes machines and devices think, reason, and solve problems like human minds (Stryker & Kavlakoglu, 2024). Artificial Intelligence also known popularly as AI has been an integral part of everyone's lives now as it has shown ways to make one's life easier. Be it rephrasing or learning something new, artificial intelligence has it all. Through its upgraded technology it tries to enhance connectedness between people in many ways (Vicci, 2024). AI has given an easier way to lead life. Where google or other search engines would have been the resort, this generation has successfully adopted AI as their personal assistant (Yeung et al., 2024). Artificial Intelligence may be just as good or probably better an assistant than humans but the emotions and morals might be questionable when it comes to AI. It has been found by Yeung et al. (2024) in his study that somewhere AI (Siri) compensates for the lack of human interaction that one may have and at the same time could be one of the reasons why human interaction could be lagging.

Teaching as a profession has always been a traditional process and the advent of COVID is where the education sector takes a turn and starts to get into the technological world (Kambur,2021). The changes and advancements in learning demands a constant upgrading of the process of teaching and learning. Today, teachers do not rely on just the text books but also focus on the various AI tools to come up with various innovative and creative ideas of teaching. AI has the capacity of providing customised feedback and results to individuals. A study by Uzumcu and Acilmis (2024) shows that individuals who are innovative have a higher capacity to adapt to technological changes. As the generation grows it becomes extremely important for a teacher to adapt themselves to the needs of the students. For a world that is so well equipped with technology and AI, students especially the college going students who have a higher preference for self-study has shown to be extremely inclined towards AI and prefers learning from AI in more innovative ways (Wang, 2020; Lai, 2021). As a result, there is a possibility that the students might easily get bored of the traditional teaching methods, especially at college levels. Hence, teachers are constantly trying to meet up to the expectations of the students, especially at the college level.

Generation Z, popularly known as Gen-Z, refers to the generation born from 1997 to 2010. This is the generation that has grown up with the advanced technologies. They have relied on social media and other digital platforms to stay connected with people rather than the face-to-face interactions (Pandit, 2015). With the kind of involvement, the generation z has with technology, their usage of AI is also much advanced than that of the Millennials (Chan & Lee, 2023). As time has passed, more

organizations and professions have seen the advent of Gen Z. They have been found to be more adaptive to technology, more advanced in terms of their capacity to grasp things and cognitively more abled than its previous generations (Tolstikova et al., 2021; Pandit, 2015). Gen Z as students too seem to be challenging the educators in terms of the teaching designs and classroom management (Sriprom et al., 2019). The Generation Z is now taking over the other side of the table and is getting into the higher education sector. As educators, they may now serve better as they would understand the requirement of the same generation much better than any other generations would.

Emotional Intelligence is the capacity of an individual to understand one's own and others' emotions (Mayer et al., 2011). An educator along with the responsibility of disseminating knowledge, also has a requirement to understand the students' emotions and that is how a teacher, a human is different from any artificial intelligence. However, with the advent of AI the teaching pedagogy has become very advanced and have been adopted by most urban faculty members when it comes to higher education (Khan et al., 2022). Education sector, with the help of AI may now facilitate a better learning among students but building a healthy learning environment still lies in the hands of the teachers. The necessity of understanding the emotions of oneself being a Gen Z is also equally important as only then an educator can focus on what he/she must deliver in the class. This brings in the need for educators to have a higher emotional intelligence. A teacher is a role model and hence is the leader when in class, and emotional intelligence has been found to be extremely important when it comes to any of the leadership dynamics (Kastberg et al., 2020; Parish, 2013).

The Generation Z is the generation that has grown up with technologies all around and the relative chances of them taking up positions in all the sectors are also highly possible because they are all between the age of 21-27. AI has become very popular and hence have not only been adopted just by the Gen Zs but also by all the other generations especially in the education sector as the need of the hour (Kizilcec, 2024). Emotional intelligence amongst Gen z has shown to enhance performance in workplace (Tolani et al., 2024). This study focusses to understand the relationship between the attitude of the Gen Z higher education sector educators towards AI and their emotional intelligence and the challenges and advantages they face when it comes to AI directed teaching.

Significance of the Study

The study has its potential in understanding the advanced technology and its adaptation to bridge the gap between AI usage and human emotional capacities in the education sector particularly amongst the Generation Z educators. As the generation Z takes up the different education sectors, it becomes a need of the hour to understand the attitude they hold towards AI and the capacity they must understand their own and others' emotions. The study will help understand how to enhance the teaching-learning experience. The higher education sector can then adopt the findings of this study to design their pedagogy and training programs and teaching designs to enhance learning. The study would also add to the existing vast knowledge on advancing technology

and understanding human emotions in the higher education sector.

Review of Literature

Artificial Intelligence is advancing every day and that has made it a very important area of research. Since AI works efficiently but does not really connect emotionally to human, emotional intelligence also becomes an interest area for many researchers along with the Artificial Intelligence. On the other hand, the Generation Z has been one of the most advanced generations who have taken up positions in the workplaces so far and has sparked the inclination of many to research extensively on the Gen Zs. The education sector has successfully adapted to the need of advancing technologically and has been found to be studied extensively making it an area to be explored more.

Vitezic and Peric in the year 2021 studied the willingness of the Generation Z to adapt Artificial Intelligence. The study was focussed around the hospitality industry and data was collected from 786 participants. The study highlighted that the Generation Z's hedonic motivation had the greatest impact on their usage of AI and their emotions. The frequency of perceived smartphone usage had a moderating effect on the usage of Artificial Intelligence and their emotions. A study by Ho et al., (2022), discusses the acceptance of automatic emotion sensing devices amongst Generation Z students across 48 countries. The study emphasises that there are various sociocultural factors that play a significant role in one's attitude towards emotional AI.

In the year 2023, Kasparova and Linhart conducted a study to investigate the emotional intelligence amongst the Generation Z. The study was conducted amongst the second-year bachelor students and data was collected from a questionnaire developed out of the theory of David Goleman. It was found that most of the respondents (N=130) had shown higher capability to manage their emotions. Another study conducted by Annamalai et al. (2023) on 568 Gen Z employees and tested their level of social isolation, emotional intelligence, loneliness, and quality of life. It was found that emotional intelligence plays an important role in the amount of loneliness one feels and interventions to enhance emotional intelligence can eventually help people overcome loneliness. In the year 2023, there was another comparative study between Gen Z and Millennials to understand the technical qualities and emotions to accept the use of Artificial intelligence such as robots. The results show that the interaction between human and technology is a very complex procedure and there are also multiple factors that determines one's acceptance of the AI.

A recent study of 2025 conducted by Kausar and Pooja examines the impact of emotional intelligence on Financial Literacy among Gen Z. About 136 participants from the Bihar-Jharkhand region participated in the study. It was found that people with a good emotional intelligence take productive decisions when it comes to finance. Vinichenko et al. (2021) tried to investigate the risks and threats of people from digitalization of the society and advent of AI among Russian and Slivak students. The samples included 1875 Gen Z students studying in 35 Universities of Russia. The study suggests that AI makes life more comfortable in many cases but at the same time in certain conditions it may also lead to

a sense of dependency among humans which may in turn reduce their skills. Keshishi and Hack in the year 2023 explores the possibilities of AI enhancing emotional intelligence among the student body. The study takes a balanced approach in combining AI with traditional teaching as well as human interactions to enhance EI.

In the year 2024, Kavitha et al., explores the effectiveness of Chatgpt as a resilience tool among Gen Z. It suggests that the presence of Chatgpt is strongly acknowledged by the Gen Z for they feel that Chatgpt could also be an emotional resilience tool as it seems to be a platform that also listens to the individual who wishes to talk. There was an investigation done by Subramani and Manoharan in 2024 to understand how AI can be humanised to bring a revolution in emotional intelligence. The study was focussed around contemporary health sectors. Many medical practitioners are resorting to AI which in turn enhances the Emotional Intelligence of humans. Vicci in the year 2024 explored emotional intelligence in artificial intelligence and claimed that there is some AI which clearly exhibit Emotional intelligence. The study suggests that by integrating emotions in AI and the further usage of it may increase empathy in many fields like those of mental health, museums, and education. Alenezi in the year 2024 conducted a study which seeks to understand the relationship between the emotional intelligence of students in higher education with artificial intelligence and E-learning. The study shows that emotional intelligence plays a crucial role in the acceptance of AI among students in an E-Learning environment.

In the year 2024, Rehman et al., studied the influence of emotional intelligence on investment decisions and the mediating role of AI. It was found that AI partially mediates the role of emotional intelligence in taking financial decisions. While most investors' emotional intelligence plays an important role in their decision making as an investor, artificial intelligence too plays a very important mediating role. Singh et al., in the year 2024 investigates the potential of AI in enhancing ones' emotional intelligence. This reveals that delving into the depth of the complex relationship between EI and AI can help develop AI in such ways that may enhance human emotional intelligence. In the year 2023, Melweth et al., conducted a study to understand the role of artificial intelligence in improving education and emotional intelligence leading to academic success. 60 faculty members of higher education sector of Saudi Arabia were the sample for the study and the results reveal that there is a moderate significant correlation between teaching competency and frequency of AI usage.

Research Gap

The above studies are all recent studies to understand and explore the role of AI and EI in education sector as well as other professions. While it is necessary to understand the relationship of AI and EI in education sector considering that the education sector is constantly technologically advancing, it is also necessary to understand the new generation that is successfully taking over all the industries and professions. There are rare studies which have studied the Gen Z employees and in particular higher education educators in India and their

attitude towards AI. Along with that the study also explores the relationship between the attitude towards AI and Emotional Intelligence in this rarely explored sample.

Methodology

Aim

The study aims to explore the relationship between attitude towards AI and emotional Intelligence among Gen Z educators teaching in higher education.

Research Question

How does attitude towards AI influence emotional intelligence amongst Gen Z educators in the higher education sector?

Operational Definition

Artificial Intelligence

The advancement in technology that makes machines and devices function like humans in terms of cognitions, communications, and performance

Emotional Intelligence

The capacity of an individual to involve in emotional understanding of oneself as well as that of others

Generation Z (Gen Z)

The generation constituting of individuals who were born between the year of 1997 to 2010.

Objectives

- To explore the relationship between attitude towards artificial intelligence and emotional intelligence among Gen Z educators from higher education sector
- To understand the preference on AI in education among Gen Z educators from higher education sector
- To highlight the perceived advantages and risks of using AI in education among Gen Z educators in Higher education

Hypothesis

- There is a positive correlation between attitude towards artificial intelligence and emotional intelligence among Gen Z educators from higher education sector

Sample

- A convenient sampling technique was employed to select the sample
- The total sample size for the quantitative data was 147 Gen Z educators from the higher education sector
- The sample size for the qualitative data was 8
- *Inclusion Criteria*
- Individuals born between 1997 to 2010
- Individuals who are educators in higher education sectors
- Individuals residing in India
- *Exclusion Criteria*
- Individuals who have been recently diagnosed with any mental health disorders (within the last 6 months)
- Individuals who are online educators

Procedure

The data was collected from 146 Gen Z educators from higher education. The tools used for quantitative data collection are the Emotional Intelligence Scale Handout 11-9 developed by Schute and his colleagues based on Salovey and Mayor's theory of emotional intelligence. The scale has a reliability of 0.87. The other scale used for the data collection is the attitude towards AI scale also known as AIAS-4 Scale. The scale was developed by Yilmax and Saran in 2019 and has a reliability of 0.84. The quantitative data was then scored and analysed using SPSS 25. Post this, the qualitative data was collected through a focus group discussion on the perception of Artificial Intelligence in

education and the various challenges and advantages associated with it. The data was collected from 8 Gen Z educators from the higher education sector. A reflective thematic analysis was done to understand the various themes associated with it and accordingly interpretations were made.

Ethical Consideration

The study ensured that no animals or humans were harmed in the process. The study was voluntary and participants were free to opt out of the study whenever they wished to, ensuring that there is no forcing. The study ensures that the ethical considerations as per APA was maintained during the collection of the data as well as conduction of the research.

Result and Analysis

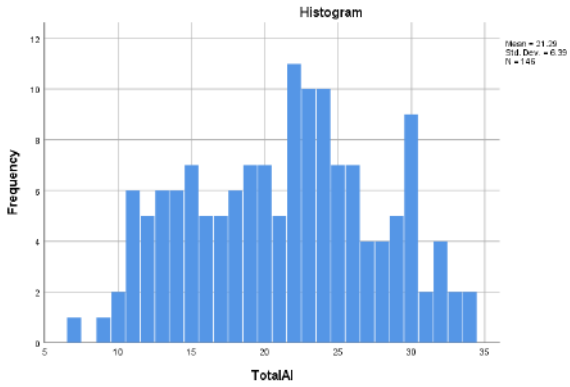
The quantitative data was first filtered and only those teaching in higher education sector and belonging to the Age range of 21-27 were taken forward for the quantitative data analysis. A normality test was conducted and descriptive statistics was done. As the data was not normally distributed the Spearman's correlation was run to check the correlation between the attitude towards AI and EI.

Table I. Showing the Shapiro Wilk scores of the data collected from the Sample

Variable	N	Shapiro-Wilk	
		df	Sig.
Attitude towards AI	146	146	0.018
Emotional Intelligence	146	146	0.000

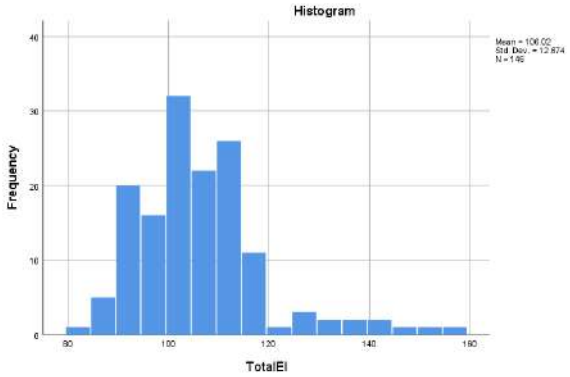
The above table shows the Shapiro-Wilk test results. The significance is found to be 0.018 for attitude for Artificial intelligence making it significant at 0.05 level which means the data is not normally distributed. The significance of Emotional Intelligence is 0.00 making it significant at 0.01 level and interpreted as data to not be normally distributed.

Figure I. Showing the histogram of the distribution of Attitide towards AI



The above graph shows that the data is slightly negatively skewed and hence is not normally distributed.

Figure II. Showing the histogram of the distribution of Emotional Intelligence



The above figure clearly depicts that the data is positively skewed. Hence the data is not normally distributed.

Table II. Showing the descriptive statistics of the data collected.

Variables	N	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Attitude towards AI	146	21.29	22	22	6.39	-0.40	-0.86
Emotional Intelligence	146	106.02	104	102	12.87	1.31	2.69

The above table reflects the descriptive statistics of the data collected. From the above table it can be seen that the total number of sample is 146 (N=146). The Mean, media, mode, and SD for attitude

towards AI is 21.29, 22, 22 and 6.39 respectively. The Skewness and Kurtosis for attitude towards AI is -0.40 and -0.86 which can be interpreted to a very negligible negative Skew. On the other hand, emotional intelligence has a mean, median, mode and SD of 106.02, 104, 102 and 12.87 respectively. The Skewness and Kurtosis of Emotional Intelligence are 1.31 and 2.69, respectively, making it positively skewed along with a positive Kurtosis higher than the value of 1.96, which further proves that a non-probability test is to be considered for further analysis.

Table III. *Showing the Spearman's correlation between attitude towards AI and EI*

Variables	N	Correlation Coefficient	Sig (2-tailed)
Attitude towards AI Emotional Intelligence	146	0.211*	0.010

The above table reflects the Spearman's rho for the sample (N=146). It has been found that there is a significant correlation between attitude towards AI and EI at a 0.05 level of significance. The Spearman's rho value is 0.211 reflecting a low positive correlation between the two variables. Hence, the alternative hypothesis that states that "there is a positive correlation between attitude towards artificial intelligence and emotional intelligence among Gen Z educators from higher education sector" is accepted. Since a non-parametric test was conducted to understand the correlation, there is no further regression analysis that is done.

To further get in depth of the perception of attitude towards AI among the Gen Z educators from the higher education, and to understand the advantages and challenges they face there was a focus group discussion conducted on 8 individuals from the sample of 146 through random selection. Around 7 questions were asked revolving around the attitude, advantages and challenges followed by discussions and leading questions. On doing a reflective thematic analysis the themes of "Easy functioning", "Student Friendly", "Engaging", "Scared for future", "Teacher's requirement in future" were derived.

It was understood that while most Gen Z educators teaching in higher education are well equipped with technology, they still feel that there is a need to further upgrade themselves with AI as the field is constantly growing. The Gen Z educators have also highlighted the fact that looking for materials, teaching techniques, assessment tools have all become easily accessible and readily available because of the presence of AI. The challenges they face as educators are that even the students use AI highly and their work is all driven by AI where the educators fear that the learning of the students might get restricted as there is no hard work to be done from their end to learn new skills, there are constant shortcut methods that are taken up to fulfil the academic needs. The educators have also highlighted the fact that they feel scared about them being replaced by AI in the education institutes as they fear that the AI is developing too rapidly and may take over completely. However, some individuals have also highlighted the fact that the human connect is important and hence AI can probably never really take over completely.

Implication and Scope

The present study highlights the correlation between attitude towards AI and emotional intelligence of the Gen Z educators in the higher education sector. This could have

educational institutions to design the curriculum in a way that promotes healthy usage of AI. It would be beneficial to hire candidates who would have a positive attitude towards AI as it would influence their emotional intelligence contributing to a better learning environment in the educational institutions. The findings of the study can also be helpful for career counsellors and mental health consultants to ensure that the attitude towards AI is improved through interventions which would enhance emotional intelligence of an individual and vice versa. The various challenges and advantages mentioned in the study could assist people in developing interventions that can enhance the overall performance of educators at work place assisted by AI and improved Emotional Intelligence.

While the study adds on to the existing literature on Gen Z, AI, and EI, it also opens a way to conduct a path analysis for researchers. Further studies can be conducted considering the fact that the data could be normally distributed and regression analysis can be conducted for the same. The data collection could also target majority of the Indian cities as the current study had majority of the educators from the state of Karnataka.

Conclusion

This study investigates the attitudes toward Artificial Intelligence (AI) and its relationship with Emotional Intelligence (EI) among Generation Z (Gen Z) employees in the higher education sector. The study was conducted using both quantitative and qualitative data. The quantitative data was collected using the Attitude towards AI and Emotional Intelligence standardised scales and a correlation was done to understand the relationship between the two variables among the Gen Z educators of higher education sector. The results reveal that there is a low positive significant correlation between attitude toward AI and emotional intelligence. The qualitative data was collected by conducting a focussed group discussion and reflective thematic analysis was done to analyse the data. It was found that the Gen Z educators appreciate and acknowledge the ease of teaching with the AI assistance however, at the same time, they also fear that AI is reducing the learning in students and may have the potential to eventually remove educators posing a challenge to the educators' career. The study holds its implication in education sectors for redesigning curriculum and inculcation of more AI generated teaching methods. As it adds on to the existing literature it also opens a path for further regression analysis and developing of interventions based on the findings.

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Does Pornography Affect How We See Ourselves? Understanding Mediating Role of Self-Objectification

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ABSTRACT

Pornography consumption has increased drastically with the spread of the internet and technological advance and it has been reported that over 120 million people regularly visit pornographic websites. The potential impact of these changes on consumers' psychological health and well-being has raised concerns. The present study aims to identify the relationship between body image and pornography consumption, with a particular emphasis on the mediating role of self-objectification among 200 young adults aged 18 to 29 years. The Pornography Usage Measure (PUM), Body Appreciation Scale-2, and Self-Objectification Beliefs and Behaviors Scale (SOBBS) were used to collect data. The results show that watching pornography has a negative effect on one's body image and is positively connected with self-objectification. Body image and self-objectification also have a negative correlation, indicating a complex connection between the two. Overall, these findings show that self-objectification has a significant mediating role in the association between body image concerns and pornography consumption. The implications of the study are vital for mental health professionals and educators, highlighting the need for targeted interventions that encourage and direct more positive perceptions of the body among young adults and address self-objectification as well.

Keywords: pornography, body image, porn consumption, self-objectification, young adults, mediating role

Introduction

Globally, the usage of pornography has increased dramatically since the rise of the Internet (Wright, 2012; Willoughby, 2018). Pornographic websites like Pornhub are regularly visited by over 120 million people (Uzieblo & Prescott, 2020). This sharp increase in usage during the 21st century, often called the "Digital Revolutionary Era," is largely due to the easy access to digital devices and the Internet. Current data indicate that in developed countries, 16–41% of females and 46-74% of males actively use this type of content (Zattoni et al., 2021).

Pornography

Hald and Malamuth (2008) defines "Pornography is any form of content intended to arouse or enhance arousal in the recipient and, at the same time, containing explicit exposure to and/or descriptions of the genitalia, as well as clear and explicit

sexual acts like sexual activity, bondage, sadomasochism, sexual assault, urine sex, animal sex, etc". According to Slade (2000), the term "pornography" (or "porn") is typically used to describe representations designed to arouse and provide sexual pleasure to people who read, see, hear, or handle them. Cooper (1988) identified three components essential for understanding this phenomenon: Access, Affordability, and Anonymity. As a result of increasing Internet usage and easy access to new technologies, both the production and consumption of pornography have drastically expanded in recent decades (Ballester et al., 2021). This greater availability has led to worries about how pornography affects body image. (Cerbara et al., 2023; Leickly et al., 2017).

Body Image

The American Psychological Association (APA) defines body image as "the mental representation that the individual has of his or her body as a whole, including its physical properties and one's attitudes toward these properties." According to Pruzinsky and Cash (1990), body image is an individual's overall attitude about his or her body, particularly the way that it looks. It is related closely to self-esteem, self-concept, and important areas of human development (e.g. sex, family, personal identity) (Harter, 1998). Evidence indicates that pornography use may have a significant impact on psychological well-being, most notably body image. Cerbara et al. (2023) stated that pornography viewing is related to lower self-esteem and body satisfaction for both men and women. Gewirtz-Meadan et al. (2021) concluded that pornography use is associated with increased body consciousness in women who are in relationships. Borgogna et al. (2018) found a decrease in women's body satisfaction as the frequency of exposure to pornography was increased. Maas and Dewey (2018) found that people who consume pornography are more likely to engage in body monitoring on a more frequent basis compared to those who do not consume pornography. Leickly et al. (2017) conducted a qualitative study with nine male participants and discovered that many of them believed that sexually explicit online content worsened the body dissatisfaction and body comparison by upholding unattainable beauty standards.

Self-objectification

Self-objectification is defined as the perception of a person's body as an object to be judged (Fredrickson & Roberts, 1997). This perception has various negative consequences, such as anxiety, shame to the body and disordered eating behaviors (Calogero, 2009; Miner-Rubino et al., 2002). Self-objectification has been consistently associated with body surveillance and body weight/shape issues (Jongenelis & Pettigrew, 2020). Pornographic viewing is linked to higher levels of body comparison and self-objectification for both males and females (Maheux et al., 2021). Longitudinal studies have showed that exposure to pornography is associated with increased body surveillance (Doornwaard et al., 2014). Vandenbosch and Eggermont (2013) found that there was a direct correlation between

sexually objectifying content and self-objectification.

The previously published literature has described a complex association between the use of sexually explicit material and body image perceptions. Nevertheless, the mechanisms of the effect of pornography on body image are not well understood. Understanding the mediating mechanisms behind the effects of pornography on body image would contribute to the classification of specific interventions designed to promote a constructive body image while reducing the possible negative effects of pornography exposure.

Objectives

1. To examine the relationship between body image, self-objectification, and pornography consumption.
2. To study the mediating role of self-objectification in the relationship between pornography consumption and body image.

Method

Participants

The study used purposive sampling and included 200 young adults (105 males and 95 females) between the ages of 18 to 29 years, with an average age of 22.71 years. Participants were chosen based on whether or not they had viewed pornographic material. Eligibility requirements included being in good health and falling within a certain age range. The study did not include married people or those undergoing mental health treatment. We used Google Forms to collect data. Due to the sensitivity nature of the topic, anonymity is maintained in order to ensure authenticity and encourage honest responses.

Measure

The short form of the Pornography Usage Measure (PUM)

This study used the seven-item short version of the Pornography Usage Measure (PUM), which was developed by Busby et al. (2020). With the choices Never (1) and Every day or nearly every day (6) on a six-point scale, it asks participants how frequently they have seen or consumed the given sexual content during the last 12 months. Overall, the reliability coefficient was high (=.94). For girls and males, the internal consistency was 0.92 in females and 0.93 in males, respectively. The correlation coefficient of r =.52 supported concurrent validity, indicating a moderate relationship with other related constructs.

The Body Appreciation Scale -2 (BAS-2)

Avalos et al. (2005) developed Body Appreciation Scale -2 (BAS -2) which is a set of ten items aiming to assess how individuals feel about their bodies in terms of acceptance, positive regard and appearance respect. Responses are noted on a five point Likert scale, with 1 denoting “never”, and 5 denoting “always”; the greater the score, the more the person will appreciate his or her body. The BAS-2 have strong psychometric characteristics: Cronbach alpha of the scale is.97, test-retest reliability is.90, and it is also stable across time thus validating the legitimacy and reliability of the scale to measure body appreciation.

Self-Objectification Beliefs and Behaviors Scale (SOBBS)

Lindner and Tantleff-Dunn (2017) developed the Self-Objectification Beliefs and Behaviours Scale (SOBBS). It has fourteen items that evaluate self-

objectification both in the physical self and the viewpoint of the observer. The items are answered on a five-point Likert scale, strongly disagree (1) to strongly agree (5). High values will indicate greater self-objectification. The scale has shown high test-retest reliability (r =.89) and internal consistency (Cronbach 89 =.92).

Procedure

The data was collected using Google Forms. The form included simple instructions about the scales, purpose of the study, demographic sheet and three sections of questionnaires. Before filling the form, participants provided informed consent. All ethical guidelines were followed during data collection. Gathered data was scored as per the scoring system of respective instruments. The data was then analyzed statistically using SPSS, and the findings were interpreted accordingly.

Results

Initially, after administering the test for Normalcy, the Pearson product-moment method of Correlation was used to find the correlation between the study variables. Subsequently, the Mediation analysis was done to check the mediating role of Self-objectification in the relationship between body image and pornography consumption.

Relationship between Pornography Consumption, Body Image and Self-Objectification

Pearson product-moment Correlation was used to analyze the association between body image, self-objectification, and pornography consumption. The following table shows the results of the correlation analysis.

Table 1

Showing Inter Correlation Matrix between Pornography Consumption, Body Image and Self-Objectification

	PUM	BI	SO
PUM	1	-	-
BI	-.443**	1	-
SO	.391**	-.329**	1

** Correlation is significant at the 0.01 level

Note. PUM - Pornography Usage Measure, BI - Body Image, SO - Self Objectification

The correlation matrix reveals there is a significant negative correlation between pornography consumption and body image ($r = -.443$, $p < 0.01$), Self-objectification and pornography consumption are significantly positively correlated ($r = .391$, $p < 0.01$). Subsequently, Self-objectification and body image are significantly correlated negatively ($r = -.329$, $p < 0.01$).

Mediation Analysis

To measure the mediating effect of Self-objectification in the relationship between Body Image and Pornography Consumption, mediation analysis was done. Results of the analysis are presented in the following figure and table.

Table 2

Showing direct, indirect and total effect between Pornography Consumption, Self-objectification and Body image

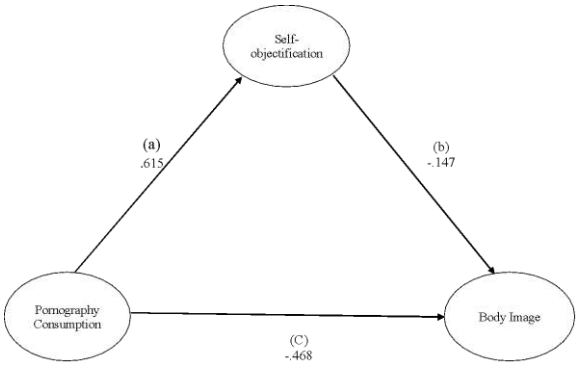
Effect	Path	β	SE	*p*	z
Total	PG→ BI	-.5587	.0803	0.001	
Indirect	PG →SO →BI	-.0907	.0433	0.01	-2.44*
Direct	PG →BI	-.4680	-.0859	0.001	

*. z is significant at the 0.05 level

Note. PG - Pornography, BI - Body Image, SO - Self Objectification

Figure 1

Mediating effect of Self-objectification between Pornography Consumption and Body image



The findings reveal a significant total effect of pornography consumption on body image (β = –0.56, p = 0.001), indicating that higher levels of pornography consumption are associated with poorer body image. Even after accounting for the mediator, the direct effect remains significant (β = –0.47, p = 0.001), suggesting that pornography consumption negatively influences body image independently of self-objectification. The indirect effect through self-objectification is also significant (β = –0.09, SE = 0.04, z = –2.44, p = 0.01), demonstrating partial mediation. Specifically, pornography consumption is positively related to self-objectification (a = 0.615), which in turn predicts lower body image satisfaction (b = –0.147). These results indicate that self-objectification partially explains how pornography consumption contributes to negative body image outcomes.

Discussion

The present study primarily aimed to examine the relationship between body image, pornography consumption and self-objectification. Findings revealed that there exists a significant negative relationship between pornography consumption and body image. Many research studies on the same have shown similar results. Frequency of pornography use has a negative effect on body satisfaction (Cerbara et al., 2023). As previous research has shown, body images conveyed by mainstream porn that show a uniform beauty standard rather than the diversity of real-world bodies can have a negative impact on how people view themselves (Paslakis et al., 2020).

Also, the current research found that there is a strong positive correlation between self-objectification and pornography use. These results are indicative that those people who view more pornographic content exhibit greater self-objectification. This finding is in line with previous studies that show that exposure to sexualized media enhances the tendency to perceive the body in an outer way. Sexualized internet content is closely linked to self-objectification, according to Vandenbosch and Eggermont (2013), and the findings of Stulhofer et al. (2010) supported these conclusions. The present results are also consistent with the Tripartite Influence Model (Thompson et al., 1999), which claims that social comparisons based on appearance are fostered by exposure to cultural body ideals.

Additionally, the study found a strong negative relationship between self-

objectification and body image. Those who reported higher levels of self-objectification were also more likely to express lower levels satisfaction with their bodies. Present finding aligns with the result of Karsay et al. (2021). Individuals who often evaluate themselves primarily on their appearance experience decreased satisfaction with their body. These findings indicate that self-objectification harms body image by making people value how they look more than who they are.

The second objective of the study was to examine the mediating role of self-objectification in the relationship between pornography consumption and body image. The results showed that self-objectification was an important mediator between the two variables, which means that pornography consumption has direct and indirect effects on body image through heightened self-objectification. These findings are in line with Liu and Zheng (2021). The current results also confirm the Objectification Theory (Fredrickson and Roberts, 1997), which states that the exposure to sexually objectifying material can induce the appearance of an outsider view of the bodies in people. Pornographic media regularly propagates idealized and unreal body ideals that arouse comparisons and interiorizing limited ideals of the body. In the long run, this internalization creates a sense of self-assessment and body control, which reduces the sense of body appreciation and creates a more negative view of the self.

Conclusion

In conclusion, the present research delineates a clear relationship between pornography consumption, self-objectification, and body image in young adults. These results suggest that high consumption of pornography is linked with lower body-image satisfaction and higher self-objectification and that self-objectification mediates this relationship. These findings indicate that the effect of viewing sexually objectifying content has direct and indirect effects on bodily self-perceptions of people, as it recreates the self-perceptions of an individual by creating an external appearance-oriented self-image. The fixation on appearance and resistance to self-acceptance can be increased by the exposure to unrealistic and idealized body images in pornography. These results, therefore, highlight the significance of media literacy and body-positive education when helping young people to develop healthier and more realistic self-concepts.

Limitations and Future Directions

The research has a number of limitations. This sample included a limited number of 200 participants which have been selected through the purposive sampling, limiting the generalizability of the results. Future studies ought to have more and varied samples in order to increase the

strength and validity of the results. As well, the current research only addressed self-objectification as a mediating factor, and future research can examine other mediators and moderators, including self-esteem, social comparison, or media literacy etc. In spite of these limitations, the research provides useful information to teachers, mental health practitioners and policymakers. Those interventions that could decrease the use of pornography and enhance the positive body image could be incorporated into clinical, preventative, and educational programs to help young adults to build healthier self-perception and be more aware of the media.

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Ayurvedic Management of Attention-Deficit/Hyperactivity Disorder in Children: A Case Series

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ABSTRACT

Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD**)** is one of the most prevalent neurobehavioral disorders of childhood, significantly affecting children's academic performance, emotional well-being, and social interactions. According to the World Health Organization (WHO), the global prevalence of ADHD ranges from 2.2% to 17.8%. The condition is often associated with multiple comorbidities and can have long-term impacts on both family dynamics and social functioning. The aetiology of ADHD is multifactorial, involving complex interactions between genetic and environmental factors. Diagnosis is based on the DSM-5 criteria**,** which serve as the standard diagnostic guidelines. In Ayurveda, ADHD can be correlated with the condition of *unmada* particularly with *Vata-Pittaja* predominance.

Keywords - Attention Deficit Hyperactivity disorder, DSM-5, unmada, Behavioural therapy

Objective

This paper presents a case series involving five children, four males and one female, aged between 5 and 10 years. All presented with symptoms of persistent restlessness, sustained and excessive motor activity, impulsivity, and difficulty in delaying responses. They also exhibited aggressive behaviour, including frequent quarrels and fights. Behavioral therapy provided based on the child's skill and abilities, including parent management training, attention-enhancing techniques, and strategies to reduce hyperactivity and impulsivity. Ayurvedic management was based on the classical treatment protocols for *Unmada*, which included *Abhyanga, Shiro Pichu*, and *Pratimarsha Nasya***,** using *Ksheerabala Taila* and *Kalyanaka Ghritha.*

Result

Outcomes were evaluated using standardized tools such as the Vanderbilt ADHD Diagnostic Rating Scale, ADHD T2 and the Clinical Global Impressions Scale.

Conclusion

The combined approach of Ayurvedic treatment along with behavioural therapies are highly effective in managing ADHD in children.

Introduction

ADHD is one of the most common *neurodevelopmental* disorders of childhood. It is usually first diagnosed in childhood and often lasts into adulthood. Children with ADHD may have difficult in sustaining attention, controlling impulsive behaviour. [1] Other associated features are,

not listen when we speak to directly, often loses necessary things for daily activities, easily distracted, climb or runs in appropriate place, talk excessively, does not follow through on instructions and fails to finish school work etc. American Psychiatric Association's Diagnostic and Statistical Manual, Fifth edition (DSM-5) is a standard diagnostic tool which also helps to diagnose ADHD(2). There are three sub type of ADHD: combined type, predominantly inattentive type and predominantly hyperactive-impulsive typ. Comorbidities associated ADHD are other neurodevelopmental disorders, learning disorders, oppositional defiant disorder, anxiety and depression may develop later in the adulthood. During preschool years when the disease manifests the child shows hyperactive behaviour and lack of attention, leading to a low self-esteem. During school age, the child may develop the disruptive behaviour, has learning difficulties and poor social skills. During adolescence, there may be associated with oppositional defiant disorder, challenging and criminal behaviour which may lead to peer rejection, school exclusion, substance abuse, conduct disorder, lack of motivation and complex learning difficulties [2]. It can lead to risk-taking behaviours like sexual activity, delinquent behaviour, substance abuse, educational underachievement, employment and relationship difficulties. This adversely affects their quality of life, mainly due to psychosocial health, directly influencing the well-being of the subjects. Usually these difficulties persist into adulthood, damaging the daily routine and decreasing self-esteem. In modern medical science, the treatment protocol for ADHD typically includes behavioral interventions such as positive reinforcement, star charting, and self-management training, along with stimulant medications. A multimodal approach is generally recommended for better outcomes.

In Ayurveda, concepts related to mental health are dispersed across various classical texts. Ayurvedic treatment of psychiatric disorders considers the body and mind as interconnected. ADHD can be interpreted within the spectrum of *Unmada* disorders, which encompass psychiatric conditions influenced by both *Dosha Prakriti* (bodily constitution) and *Manasa Prakriti* (mental constitution), including underlying or premorbid psychiatric traits.The clinical features of ADHD show similarities with *Vata-Pittaja Unmada*. According to Acharya Charaka, *Vataja Unmada* is characterized by symptoms such as constant wandering, incoherent speech, inappropriate smiling, laughing, singing, and playing, as well as physical signs like emaciation and dryness—many of which resemble ADHD symptoms. *Pittaja* features, such as irritability, anger, emotional outbursts, aggression, impulsive behavior, and a preference for cold food and water, also align with common presentations of ADHD [3].

The conventional treatment of *Unmada* is including purificatory therapies, pacificatory therapies for the body and mind control. In *Unmada* the mind and the body are functioned together the *Sodhana, Samana* /pacification along with *Chittaprasadana* measures are followed. Before adopting the sodhana therapy it is necessary to do the purvakarma (mild Sneha and sodhana). The idea behind the purvakarma in unmada is because the repeated sodhana is purifying the manodoshas. *Snehapana, Virechana,*

Vastis, *Nasyas* and *Medhya rasayanas* should be utilized for the clarity of the senses , stability of mind and promotion of the intellect. External treatments like *Murdha Taila*, and *Sarvanga abhyanga* should be done to pacify the *Vata Dosha*. *Snehavasti* after *sodhana* and also *Siramoksha* are specifically advised by Susruta [4].

Patient information and clinical findings.

Case No 1

A five year-old male child came in OPD with the c/o extreme and persistence restlessness , prolonged motor activity, difficulty in maintaining attention, impulsiveness, disturbed sleep, stereotypic movements etc. He is a first child of educated parents. Attitude of the parent towards the child is supportive. His birth history is uneventful. During the antenatal period mother is also having some psychological stress. All developmental milestones are normal. Diet is mixed. Hypersensitivity towards cold climate. Enuresis present, dry by day and night is not attained till now. Good appetite. Difficulties present in initiating and maintaining sleep.

Case no 2

A seven year-old child came in OPD with the c/o impulsiveness and temper tantrum while avoiding his needs, aggressive behavior, hyperactive in nature. Excess screening time. He is also irritated by his sibling. Educated and supportive parents. Grandparents are short tempered and one cousin brother is also having autism. Mild stress present in antenatal period. Academic performance was affected due to his in attention.

Case No 3

A five-year-old male child was brought to the OPD with complaints of difficulty in maintaining attention, making careless mistakes in schoolwork, not listening when spoken to directly, being easily distracted, unable to play or engage in leisure activities quietly, and talking excessively. He is the first child of non-consanguineous parents, born late preterm with a birth weight of 2.3 kg, following an uneventful antenatal period. As the child was preterm, the parents regularly consulted the Child Development Centre (CDC), where a mild delay in developmental milestones was noted. At the age of 3 years, the CDC diagnosed the child with hyperactivity, inattention, and impulsivity, and advised appropriate therapies. The parents are educated and supportive. The child has a dust allergy, reduced speech clarity, and exhibits hyperactive behaviour.

Case no 4

A five-year-old girl child came in OPD due to the c/o of hyperactivity, in attention, inappropriate laugh, wandering in nature, speech delay since 3 years, she is often easily distracted while facing the other people. Now the child is also having inappropriate laugh, wandering nature, irritable cry. Supportive and educated parents. Bedwetting is present. Mother is also having psychological stress present in her antenatal period. Moderate appetite was present.

Case no 5

A 5 year old male child was admitted in op with the c/o poor attention span, often fearful, reduced attention. He is 1st child of nonconsanguineous parents. Mother was hypertensive at 7th month of antenatal period. Breastmilk was deficient so formula feed was given. All milestones were attained at proper age. At school the teachers were

noted that the child is having poor attention, wandering nature and poor scholastic performance in class room. Increased screen time. He does not give sustained eye contact.

Material and methods

Children between the age group of 5 to 10 years with clinical features of ADHD attending the OPD of Kaumarabhrithya will be screened initially by using the semi-structured questionnaire. All the children completing the semi-structured questionnaire reviewed by a qualified psychologist to confirm the diagnosis of ADHD according to the Diagnostic and Statistical Manual of mental disorders fifth edition criteria. After completing the case Performa, the symptom severity will be screened by the psychologist using Vanderbilt Assessment scale 3rd edition – A parent assessment scale[5] and Attention-Deficit/Hyperactivity Disorder Test(ADHDT2) scale [6.]. Clinical Global impressions rating scales for symptom severity. The study will be conducted on OP basis. Behavioral therapy including attention enhancing, Hyperactivity/Impulsivity improving activities. Psychologist assess the cognitive skills, writing skills, arithmetic skills, conceptual skills , mental status, behavioral assessment during the time of therapy sessions. After the assessment psychologist recommended the appropriate therapy sessions need for the child. Behavioral parent training, star charting, token economy, positive reinforcement, negative reinforcement, Attention enhancing therapies etc are the types of behavioural therapies included here [7] .

Therapeutic intervention

The following medicines were given

1. Abhyangam (body massage) with vathasinithylam for 60 days.
2. Siropichu (head application) with vathasinithylam for 60 days.
3. Mild sadya snehapana with Brahmi ghritha – 3 days
4. Mild swedana – ushnodaka snanam – one day.
5. Brahmi ghritham internal administration (vicharana snehapana) – 1tsp two times / day, before food.
6. Unmadanasini choornam – ½ tsp two times/ day after food.
7. Swethasankhupushpi choornam- 2 pinch with honey daily after food.
8. Kalyanaavaleha choornam – 3 pinch with honey and lemon juice applied on tongue.

Outcome

All five cases the severity screening will be assessed before and after the treatment. The improvements noted generally as

1. Hyperactivity and restlessness reduced and attention improved
2. Clarity of speech improved.
3. Sleep disturbances are reduced.
4. Academic performance improved.
5. No side effects are noted during the time of treatment.

1.Vanderbilt Assessment scale 3rd edition-parental assessment

Patient	Name of scale	Pre	Post
1	Inattention	2.3	1.5
	Hyperactivity	2.8	1.4
	Academic performance	4.7	3.7
2	Inattention	2.3	1.3
	Hyperactivity	2.5	1.6
	Academic performance	3.1	3.1
	Oppositional Defiant Disorder	2.5	1.3
3	Inattention	2.3	1.3

	Hyperactivity	2.6	1.3
	Academic performance	3.2	2.7
4	Inattention	2.3	1.4
	Hyperactivity	2	1.2
	Academic performance	4.2	4
5	Inattention	2.3	1.2
	Hyperactivity	2	1.4
	Academic performance	3.8	2.3

2.Attention-Deficit/Hyperactivity Disorder Test (ADHDT2)

Patient	Item	Pre	Post
1	ADHD index	98	77
	Probability of ADHD	Very likely	Possible
2	ADHD index	100	80
	Probability of ADHD	Very likely	Likely
3	ADHD index	74	62
	Probability of ADHD	Possible	Unlikely
4	ADHD index	100	87
	Probability of ADHD	Very likely	Likely
5	ADHD index	89	74
	Probability of ADHD	Likely	Possible

3. Clinical Global impressions rating scales [8].

Patient	Item	Pre	Post
1	Severity of illness	Mildly ill	Much improvedl
2	Severity of illness	Moderately ill	Mildly ill
3	Severity of illness	Mildly ill	Much improved
4	Severity of illness	Moderately ill	Much improved
5	Severity of illness	Moderately ill	Mildly ill

Discussion

While analysing the aetiology of ADHD in general, here three patients mothers also have stress in antenatal period and two patients have some possible family history of behavioral issues. On analysing the clinical manifestation of the disease a predominance of symptoms of *Vata* and *Pitta* can be seen, with characteristic features of predominantly *Rajasika* and *Tamasika* features. *Vata* and *Pitta doshas are* aggravated during the developmental process of the *manovaha srotas in* fetus. The vitiated *tridoshas* affected the manas and *hridaya* , gradually it caused *manovaha srotodushti*. Later it caused the pervasion of mind, intellect, consciousness, memory, interest, habit, behaviour and conduct. Among the five functional types of *vāta doṣa*, *prāṇa vāyu* controls the functions of *buddhi* and *mana*, while *udāna vāyu* controls speech and helps in recalling the past experiences and *vyāna vāyu* that governs the motor activities of the body, which are vitiated leading to the inattention, hyperactivity and impulsivity. Here the external procedure such as *abhyanga* and *siropichu* with *ksheerabalathaila* helps to reduce the hyperactivity and improve the attention [9]. *Siropichu* comes under *murdhni thaila* which is an extracranial drug administration through oleation. It is *indriyaprasadana* and pacifies *vata* which is responsible for the impulsive behaviour. From the clinical experience and certain research studies reveals that the regular body massage (abhyanga) before bath could reduce the vitiated *vatha* and through improve the concentration, reduce hyperactivity and improve the sleep quality. Internal medication was started with *kalyanaka ghritha was* effective in *vatapaithika unmada* and it contains *medhya* drugs like *vacha, yashti* etc. *Unmadanashini choorna* is highly effective in reducing hyperactivity. *Swethasankhupushpi choornam* is *tiktha rasa pradhana*, *seeta virya* and *madhura vipaka* and hence *pittasamana*. Moreover, it is *medhyarasayana*. *Kalyanavaleha choorna* is *vatapitta samana*, *Medhya*, *improve the speech clarity*. *Pathya* (restrictions in diet and regimen) is an integral part of the Ayurvedic treatment. Strict diet was

followed during the time of treatment period.

Conclusion

Attention Deficit Hyperactivity Disorder is characterized by three core symptoms which may extend across the adolescence and later even the whole life span. Early diagnosis, treatment and supportive treatments at home play an important role in the favourable outcome of ADHD. The effective Ayurvedic interventions combined with behavior modifications has to be utilized for the prevention and cure of chronic psychiatric disorders like ADHD, by adopting the principles of *Unmada* and considering the *prakriti* and *koshta* (digestive power) of the patient.

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"Evaluating Community-Based Psycho-Nutritional Wellness Camps: Implementation, Outcomes, and Implications for Holistic Mental Health Care"

Dr Anoop Poomadam

ABSTRACT

Background:

Mental health issues, notably anxiety and depression, are becoming more common around the world, and they affect populations that don't get enough help the most. Traditional pharmacological therapies don't always do a good job of taking care of all the parts of well-being that are connected, like mental, social, nutritional, and spiritual health. The Psycho-Nutritional Intervention Approach (PNIA) is a holistic methodology that uses plant-based diet, yoga, pranayama, mindfulness, and lifestyle re-education to help individuals get better for good.

Objective:

This study looks at how wellness camps held by PNIA in communities are planned and run, as well as how they effect individuals in both rural and urban India. The study focusses at the clinical and experiential consequences of a 7-day residential program that takes a holistic approach to treating anxiety, depression, and psychosocial stress.

Methods:

There was a design that used more than one way. We obtained numbers from 120 participants using standardised pre- and post-intervention tools like the Depression Anxiety Stress Scales (DASS-21), the WHO-5 Well-Being Index, and a Food Frequency Questionnaire. We got qualitative data by observing facilitators, doing semi-structured interviews with participants, and then thinking about what we had seen. The intervention comprised systematic lessons on yoga, meditation, counselling, a plant-based diet, and everyday activities.

Results:

There were statistically substantial drops in despair ($p < .01$) and anxiety ($p < .05$), and participants felt much better about their health ($p < .01$). Qualitative themes showed that people had better emotional control, slept better, needed less medicine, and were more aware of their bodies and minds. Three months later, most of the people who took part were still following their diets and meditation schedules.

Conclusion

In short, wellness camps that use PNIA show that this strategy may be used successfully in community settings to help persons with mental health problems. Combining psychological and lifestyle therapy is a promising strategy to make mental health care more effective and easier to get. We need to undertake further research with greater sample sizes and longer follow-up periods to find out if it is possible to do it over and over again for a long time. Psycho-nutritional intervention, community mental health, holistic therapy, depression, anxiety, non-drug treatment, India, a plant-based diet, yoga, and mindfulness are all important terms.

Keywords: Psycho-Nutritional Intervention, community mental health, holistic therapy, depression, anxiety, non-pharmacological treatment, India, plant-based diet, yoga, mindfulness

Introduction

The majority of individuals in the 21st century are going through mental illness. The World Health Organisation (2023) reports that depression and anxiety are two top reasons why individuals are unable to work. It is worse in India. A report by the National Mental Health Survey (2016) says that over 14% of Indians suffer from mental illness. Over 80% of them fail to receive the level of support that they require, and this is even more deplorable, particularly in rural and disadvantaged regions.

This Titanic gap has prompted specialists to reconsider the way they work. Presently, they desire greater culturally sensitive care, community-oriented, and holistic (Patel et al., 2018). The biological approach has been the most dominant approach to address mental illnesses throughout history. The quality of the treatment of symptoms and the nature of the pharmacologic interventions employed are critical. There are people who believe that this approach is too rigid because it fails to consider how variables such as food, social environment, and spirituality can contribute to mental well-being. Due to this, existing treatments have started incorporating psychotherapy with modifications to daily living, mindfulness training, yoga, and nutritional treatment. Among them is the Psycho-Nutritional Intervention Approach (PNIA). It employs cognitive-behavioral practices, mindfulness, plant-based diets, and mainstream knowledge in conjunction with evidence-based treatment.

PNIA not only addresses symptoms, but also fundamentally changes deep down, changing by considering the individual as a whole, for instance, their environment, mind, and body. Community mental health programs have proven to hold promise in making the treatment more available, reducing barriers, and providing increased community control of health. There are plenty of theories floating around, but not all that many have examined in depth the real-world performance of these merged models. Although increasingly studies are finding a connection between diet, gut health, and mental health (Jacka et al., 2017; Sathyanarayana Rao et al., 2021), there are still plenty of people who are unaware of just how important nutrition is to their mental wellbeing.

This research is an effort to bridge that gap. We analyze 7-day wellness camps under the PNIA system to determine whether they worked for depressed and anxious patients and how participants perceived this type of healing. We use instruments such as DASS-21, WHO-5 and FFQ to marry figures with real-life experiences.

This presents a clearer image by connecting figures with the life experiences of people. This research dispels the assumption that the answer to mental illness is drugs. It depicts the role of community, nutrition, and holistic modalities in long-term recovery. It provides those in India and other areas where services are substandard with a practical and inexpensive way of getting things accomplished. This confirms that healing occurs where individuals reside, eat,

and communicate with one another rather than in hospitals or doctors' clinics.

Review of the Literature

1 What mental health problems are like Mental illness, especially depression and anxiety disorders, has become a major global health problem that affects people of all ages, nations, and economies. By keeping detailed records of how the problem has gotten worse in India, such as fewer mental health facilities, strong stigma, and poor coordination between mental health interventions and primary care (Gururaj et al., 2016). Traditional psychiatric methods work in some situations, but most of the time they don't work very well to deal with the many different things that can cause mental pain. This is especially true for people who are most often stigmatized and where cultural, economic, and even spiritual issues are a big part of health. People are embarrassed or can't get long-term care, so they don't get clinical therapy. The growing treatment gap means that we need to look for other ways to heal that don't focus on controlling symptoms at first. In this case, community interventions and holistic well-being do seem to be the right things to do.

2 Move to mental health treatment for the Whole person mental health care goes beyond only treating clinical symptoms. It includes the body, mind, and spirit of the person. And all of these leads are a mix of Western and Eastern ideas, including parts of Ayurveda, yoga, mindfulness, and therapy based on diet. Integrating models: a model that can help a resilient reaction grow over time by re-planning everyday life, psycho-emotional intelligence, and inner peace. Thisl model of health does at least suggest that living conditions, psychology, behaviour, and related pathology are important factors in health. It also makes us think about community, identity, and environment, as Engel (1977) predicted, at the one-sided model of health, from Antonovsky (1996), and at the U.S. Whole project (Snyderman & Weil, 2002). But most of those approaches only work in official health care systems, and those who live far away from cities or don't have the money to pay for them can't use them. The huge void makes a point about how important it is to look for options that are more flexible, culturally relevant, and community-based.

3 Food and Mood: The Role of Nutrition in Mental Health in the past decade, more and more evidence has emerged to demonstrate the way that nutrition affects mental health. Nutritional psychiatry demonstrates a clear link between your diet and how you feel. Mediterranean or whole foods, plant-based diets comprising high legumes, fruits, and vegetables are associated with reduced risks for depression and anxiety (Sarris et al., 2015; Jacka et al., 2017). On the other hand, diets characterized by high intake of processed foods, saturated fats, and refined sugars are associated with increased emotional distress, chronic inflammation, and alteration in gut bacteria, which influence the gut-brain axis. We now know the ways in which these effects take place in the body: vitamins play a critical role in synthesizing neurotransmitters,

modulating the immune system, and coping with stress. All of this evidence aside, teaching individuals in nutrition is not yet integrated into traditional mental health therapy. Interventions like PNIA try to fill this gap by using nutrition therapies that are attuned to the way one eats based on their culture and season.

4 Yoga and breathing exercises to remain in command of your emotions Yoga, which has centuries of use in India, is now being referred to as equally effective for the mind. Studies have consistently demonstrated that yoga lowers cortisol, blood pressure, and GABA activity, all of which are healthy for your emotional well-being (Streeter et al., 2012; Cramer et al., 2013).

Pranayama, or breathing techniques, has even greater advantages. Methods such as *Nadi Shuddhi*, *Anuloma Viloma*, and *Bhramari* help to regulate the nervous system, which can aid hypervigilance, a common state for individuals with anxiety disorders. Systematic respiration is reported to manage emotions and maximize heart rate variability (Saoji et al., 2019). Yoga and pranayama are developed in urban wellness culture but not sufficiently in rural mental illness interventions. Community-based interventions such as PNIA offer clients the opportunity to apply these ancient methods in a treatment context.

5 Mindfulness, meditation, and controlling your emotions** Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT) are two specially designed mindfulness techniques aimed at managing emotional pain, chronic anxiety, and depression (Kuyken et al., 2016). These techniques assist individuals in becoming more aware of the present moment, learning to accept events without judgment, and shifting their responses from reflexive to deliberative. Such outcomes are corroborated by imaging studies demonstrating the effects of meditation on the attention, emotion, and self-regulation control centers of the brain (Tang et al., 2015). Mindfulness also assists in addressing the somatic aspects of healing from trauma (Levine, 2010). However, most mindfulness programs are designed for readers and writers, as well as those who have access to technology. PNIA transforms these concepts into modules that are more straightforward, even for novice-level users.

6 Evidence from Global Mental Health Programs Global initiatives showcase the impact of focusing on the community level for those who require more targeted assistance. In the Friendship Bench project from Zimbabwe, community health workers trained as ‘psychotherapists’ to deliver therapy for depression on park benches. This reduced depression significantly (Chibanda et al., 2016). Mental health services have been provided in the rural parts of India through community-based programs such as MANAS and Atmiyata (Patel et al., 2011; Sanghavi et al., 2020). While these programs are primarily focused on peer support and psychoeducation, there are gaps such as yoga, and proper nutrition.” It is apparent that community mental health services center around psychotherapy as the primary

intervention. Integrating physical activity, proper nutrition, and body awareness into mental health community services has the potential to greatly enhance their effectiveness.

7 PNIA: Putting together what we already know with new science The *Psycho-Nutritional Intervention Approach (PNIA)* is a mix of new psychology and classic Indian health methods. It draws on the work of integrative therapists and teachers from the last few decades by putting together: - Counselling that is both humanistic and cognitive-behavioral - Yoga and breathwork that is aware of trauma - Mindfulness, body awareness, and relaxation techniques - Seasonal, plant-based nutrition that focusses on fresh, whole foods - Community rituals, peer support, and emotional learning circles PNIA is more than just getting rid of symptoms; it helps people transform by getting them to interact with others, move, eat, and rediscover their rhythm. One of its best features is that it's easy to travel to. Week-long wellness retreats have helped people in both rural and urban locations improve their mental health without medicines. PNIA has been popular with average people, but there hasn't been much serious research on how it impacts people. This study aims to fill that gap and add to the growing body of information on community-based mental health care that looks at all parts of a person's life.

Methodology

This study combines a variety of ways to figure out how well community-based Psycho-Nutritional Intervention Approach (PNIA) wellness camps function. The plan was to acquire both quantitative psychological results and the deeper, lived experiences of persons who went through the full intervention. The purpose was not only to see how the clinic was getting better, but also to find out how patients kept these changes in their daily life.

Study Design

The study used a mixed-methods approach using an explanatory sequential method. We employed psychological tests that had already been tested to provide numbers before and after the 7-day intervention. After that, we used open-ended feedback forms, participant reflections, and follow-up interviews to obtain qualitative data. This helped us observe the changes more clearly. This two-part plan made sure that both the objective and subjective components of the intervention were shown.

Participants and Sampling

Five distinct PNIA wellness camps brought in a total of 120 people over the period of 18 months. People came to the camps on their own and joined up through word of mouth and outreach. All of them were between the ages of 20 and 65 and showed signs of mental distress, such as anxiety, mild to moderate depression, chronic fatigue, or emotional exhaustion. But none of them had any serious mental or neurological problems that needed them to go to the hospital.

Inclusion criteria

Adults aged 18 to 65 years . Self-reported mental or emotional pain . Ability to practice light yoga and group exercises with your body . Being open to eating a plant-based diet while at camp .

Exclusion criteria

A really terrible mental illness People are still using psychotropic medicines, which could mess up the results. Not being able to follow the full 7-day plan Everyone who took part in the study agreed to it, and the study followed the ethical rules set out in the Declaration of Helsinki.

Intervention Protocol

Plan for the PNIA Wellness Camp The Psycho-Nutritional Intervention Approach (PNIA) was utilised to arrange each camp as a 7-day stay-at-home retreat. The camps were developed and run by a group of psychologists, yoga teachers, nutritional therapists, wellness educators, and mindfulness practitioners from different fields. All of the facilitators were trained in the PNIA method and used the same curriculum so that all of the camps were the same.

The schedule for the day was: Yoga and Pranayama in the Morning (6:30–8:00 AM):

A set of asanas and breathing exercises that anyone can do Diet and Nutritional plan. You can eat plant-based Satvic meals three times a day. These meals can contain fresh seasonal fruits, raw vegetables, sprouts, herbal drinks, and cooked grains. Counselling and group therapy (2 hours a day): Cognitive Behavioral Therapy (CBT) and Humanistic Counselling. Talking about yourself and having integrative discourse circles.

Mindfulness and Meditation:

Body scanning, breath awareness, and loving-kindness meditation are all part of daily mindfulness and meditation practices.

Psycho-Educational Modules:

Learning how to deal with stress, understand your emotions, and be aware of how you live your life Some activities that can help develop community are telling stories, going for silent walks, doing karma yoga, and music therapy. The goal of all the segments was to assist people detox on all levels: physically, emotionally, cognitively, and spiritually.

Measures and Tools:

Scales for Psychology, We used two validated self-report measures to see if they worked:

1. **DASS-21 (Short Form of the Depression Anxiety Stress Scales)**

A 21-question test that asks about depression, worry, and stress from the past week. Scores are put into groups based on how serious they are, and they have worked well in Indian communities.

2. **The WHO-5 Well-Being Scale**

A short test with five questions that uses a 6-point Likert scale to measure mood and well-being. The WHO-5 can tell if your mental health is getting better or worse over a short period of time. On Day 1 (before the intervention) and Day 7 (after the intervention), both tools were presented in person. Written versions were available in both English and Malayalam.

3. **Survey about Diet and Lifestyle**

We used a Food Frequency Questionnaire (FFQ) that we designed ourselves to keep track of what people ate before and after the camp. It looked at how often people ate processed foods, plant-based foods, how much water they drank, and how aware they were of their appetites. People also filled out a lifestyle inventory that kept track of how much they slept, how much time they spent on screens, and how much exercise they got satisfaction and Impact Feedback

Feedback that isn't based on numbers People were urged to submit their ideas using open-ended feedback forms and volunteer sharing sessions. We put these stories together by theme to look for patterns in how people's feelings, attitudes, and perceived barriers to keeping healthy changed.

4. Qualitative Interviews

Having conversations with people After the camp, we were done with a group of 20 people. Thematic open-ended questions were utilised in semi-structured interviews to examine reported emotional adjustments, lifestyle modifications, and symbolic transitions.

5. Data Collection

Everyone who took part signed a document saying they understood what they were doing and agreed to it. The institutional ethics board of the organising Satwa foundation gave its approval for the study. Quantitative data (DASS-21, WHO-5, FFQ) were gathered in person with printed booklets. Facilitators provided guidance to participants in local languages where necessary. Qualitative interviews were performed in a confidential environment, recorded (with permission), and transcribed verbatim for thematic analysis. To improve dependability, all evaluations were conducted by independent professionals not engaged in the implementation of the intervention.

6. Data Analysis

Looking at the Numbers We put the scores from before and after the intervention into SPSS 26. We used paired-sample t-tests to see if there were any significant changes in the DASS-21 and WHO-5 scores ($p < .05$). We utilised Cohen's d to find out how big the changes were.

7. Qualitative Research

Two experienced researchers looked at qualitative information using manual topic synthesis instead of using any rigid framework or software coding. We collected phrases, metaphors, emotional tone, and behavioural descriptions that came up a lot into themes by reading them over and over again and having different researchers look at them from different angles. This natural method preserved the participants' genuine human voice without over-coding or transferring meaning into abstract categories. We looked over the topics together and utilised quotes from people who had healed to show what it was like.

8. Ethical Considerations

Things to consider about when it comes to ethics Everyone who took part in the study knew what it was, how it operated, and that they didn't have to do it. People signed a paper saying they agreed to give their information before it was collected. We pledged that people's names and other personal information would not be shared and that all data would be kept secret and safe. No one outside of the research team could see or share any information that may be used to figure out who someone was. The intervention didn't use medicines; instead, it tried to promote mental and physical health by encouraging people to live in more natural ways. People could stop at any time, and those who needed more aid got it after the event.

Results

The community-based PNIA wellness camps have deep and layered effects,

changing many aspects of the participants' lives. What began as a retreat for many people turned into a place where they could find themselves again. Notes obtained during observations, open-ended feedback, daily group reflections, and follow-ups after camp naturally led to the following themes:

1. Mental tranquilly and emotional stability

People typically claimed that one of the things they observed was that they felt more emotionally stable. People remarked that by the fourth or fifth day of the program, their minds, which are typically busy, started to settle down. People in daily sharing circles commonly talked about "mental space," "inner calm," and "stillness." A lot of folks who came with anxiety, sadness, or racing thoughts remarked that their internal turmoil had calmed down a lot. Some people stated they were sleeping better than they had in years, while others said that the quiet moments, especially after yoga or meditation, began to feel like "coming home" to themselves. It seemed like the camp's entire rhythm—waking up slowly, eating thoughtfully, taking long walks in nature, and an atmosphere that encouraged people to slow down—was what gave me this feeling of being grounded.

2. Physical ease and Lightness

Almost everyone stated that their bodies felt different—lighter, cleaner, and more responsive—within just a few days. Some folks had never eaten a diet that was all natural, raw, and plant-based before, and they could tell the difference. A lot of people stated they didn't feel bloated or heavy at all, even after they ate. A middle-aged person who had been having digestive problems for years commented, "It feels like my stomach has finally learnt how to breathe." Doing yoga in the morning, breathing exercises outside, and not eating caffeine or processed meals appeared to help with this sensation of bodily clarity. Some persons with long-term health issues like diabetes or high blood pressure stated they felt better and had more energy, but there were no official clinical testing done.

3. Return to the self

One of the stronger trends that came out was that people started to see themselves in a different way, even if it was only a tiny change. As the days went by, a lot of people talked about sentiments that had been buried for a long time creeping back up—memories, regrets, and pain that they hadn't dealt with. It's fascinating that these times weren't defined by breakdowns but by calm pondering. People said it was: "I finally met myself after all these years." "I had forgotten about an old silence inside of me." "Everything—the music, the food, the air—felt holy." It became more and more evident that the structure of the PNIA method was accomplishing more than just educating people how to live healthy lives. It was creating a space where individuals could pause, reflect, and reconnect with pieces of themselves that they had been ignoring for a long time. The planned silence and meditation music times, especially during meals, seemed to make this process of delving inside yourself more intense. People often cried softly, not because they were unhappy, but because they sensed something let go.

4. Having a sense of belonging and connection

People changed a lot in how they talked to each other in the camps. The group felt like

it was falling apart at the start of the week since everyone had their own walls, rituals, and anxieties. But things got gentler as the days went by. People who had been quiet began to share stories. Doing activities together, like chopping vegetables, cleaning, or just walking in solitude, started to make them feel like friends. One moment that really stuck out was when a shy young lad helped an older woman roll up her yoga mat. There was no conversation, just a gesture and a smile. But it felt like a little bit of healing had happened. Many people mentioned on the last day that they felt like they were being held and that they were part of something that didn't have a name but felt extremely human. The PNIA camps seemed to help people heal, but they also seemed to help the community come back together in a way that happens when people don't have to worry about who they are or what they do.

5. Lasting Impressions and Gentle Promises

Participants were invited to write down any goals or habits they intended to follow up with before they left. The aims were clear and honest, not how huge they were. A few people wrote:

"I'll eat one meal a day that isn't cooked."

"Five minutes of silence before bed."

"Don't text or call during meals."

"I won't start my day with a screen; I'll start it with breathing."

When we casually checked in with participants a month later, we found that a lot of them had made these routines a part of their daily lives. Some people even told their family about portions of the program, including how to make dinner easier, how to do yoga with their kids in the morning, or how to take a vacation from electronics on the weekends.

More importantly, a lot of respondents reported they felt like they were in charge of their own rehabilitation and no longer needed help from others to feel better. People felt in control, in touch with themselves, and really wanted to live more mindfully.

Discussion

The results of these PNIA wellness camps reveal a message that is hard to get across with only normal clinical criteria. What happened during these retreats wasn't just the outcome of a few random actions; it was the ripple effect of a well-planned, highly human process of reorientation.

People who came with different levels of emotional, bodily, or existential distress seemed to slowly reconnect with a part of themselves that had been quiet for a long time. Their problems weren't "solved," but their relationship with those difficulties improved in a little way. People went from trying to control things and fight them to being aware of them and accepting them.

1. Finding coherence again in everyday life

One of the most obvious changes was how individuals started to live their days. It was clear that something inside had softened by the way they moved, ate, or simply rested their eyes. For a lot of people, the camp's disciplined schedule—early morning yoga, quiet lunches, and slow evenings—helped them feel more stable. Life had gotten too fast, too loud, and too broken apart. PNIA gave a soft counterpoint.Almost every reflection presented had a thread that talked of going back to a rhythm, a slower, more physical manner of living. It was if they

remembered something they had always known but had forgotten in the chaos of modern life.

2. Food as a Healing Experience

The food was surprisingly one of the more powerful parts. It wasn't just what was served—simple, plant-based, and clean—but also how it was shared. People ate in silence, paying attention, and often outside. Eating became more than just food; it became a way to feel grounded.

People often said that the cuisine was "healing," not just because it was good for them, but also because of the way it made them feel. Many people had never dined without being distracted by screens, talking, or being in a hurry. This made me very conscious of how my body reacts to food and even more aware of the feelings that come up when I'm quiet.

It looked like this calm way of eating carried over into other parts of life. It made people more aware of when they were really hungry, how their feelings turned into cravings, and how eating had frequently become a way to deal with problems instead of taking care of themselves.

3. The Body as a Place of Listening

Many people started to understand how long they had been living without being connected to their bodies through yoga, breathwork, and walking meditations. Pain, tightness, and tiredness—symptoms that had been ignored for a long time—started to talk.

This was notably clear in the tears that came out of nowhere during deep relaxation sessions or the sense of serenity people said they felt after merely sitting motionless with their eyes closed and no plans. They weren't "doing yoga," but they were starting to listen slowly.

These times weren't very exciting. They were quiet, private acknowledgements. But for many, they were the start of a deeper relationship with themselves that no outside solution had ever given them.

4. Connection as a Cure

What touched me the most was how quickly strangers became mirrors and friends to each other's healing. At first, people were wary, but they started to reach out. They helped carry water buckets, cut vegetables together, and were there to listen during long walks.

There were no assigned support groups or daily sharing circles. But in this place that wasn't very tightly held, emotional safety grew. People started to feel like they were being seen, not in a clinical way, but as other people on their own chaotic, beautiful journeys.

The term "family" came up more than once by the end of the day. Not because the people involved understood everything about each other, but because they had shared something true, raw, and unedited. This gives us an important insight: healing isn't necessarily a solo process. It typically comes from the common ground of everyday kindness.

5. After the Camp:

Small Changes That Last Many people who took part said they would do things like wake up earlier, make meals simpler, spend time in silence, and cut down on digital noise. Some people said they wanted to introduce places like this to their families or towns.

What impressed out was not how well these resolutions were kept, but how real they felt. They didn't come from outside pressure; they came from real life. The changes

weren't aims; they were just natural results of a new inner state.

Follow-ups show that for a lot of people, something changed for good. Even when things got back to normal, they still felt clear. They knew they could get to something quieter inside of them. They had mouth it, even Humber. Pall. And that recollection appeared to last.

Conclusion

What happened at these PNIA wellness camps was more than just organised activities or therapeutic procedures; in many respects, it was a quiet return to what it means to be healthy. Not just in a medical sense, but also in the way people started to recall how to feel, rest, breathe, and connect with others.

There wasn't just one way or formula that explained this transformation. It wasn't the big things that made people feel safe enough to be themselves again; it was the small things, like a mindful breath, a bowl of raw food, a shared stillness, and a walk under trees. And in that space, something small but important started to change.

For a lot of people, the camp was a turning point, a break between the life they had been leading and the life they wished to go back to with more presence. The change wasn't loud or dramatic. It came in the form of subtle awakenings: a softer glance, a longer night's sleep, and a talk they had been putting off for years. These are not results that can be seen on data charts, but they are just as genuine.

It looks like PNIA doesn't give a "solution" to pain, but a place to come together again, to weave together bits that had grown apart. Mind and body. Eating and feeling. Talking and being quiet. Me and other people. It gives you a rhythm, a chance to start over, and a way to live in the present.

This approach invites us back to something older, simpler, and maybe more lasting: the healing that comes from being listened to—not just by another person, but by our own body, breath, and the natural world around us. This is especially important now when so many people feel lost in speed, distraction, and disconnection.

Of course, we will need more organised trials to find out how PNIA will affect people in the long run. Metrics and follow-ups can give you useful information. But it's just as vital that we don't forget the stories—the human side of what happened when a group of people came together, slowed down, and took care of each other and themselves with honesty.

This study doesn't only give answers. It finishes with an opening, a call for both specialists and regular people to reassess how they think about mental health and wellness. The research we've seen reveals something quietly radical: that when patients have the correct space, rhythm, and support, they typically start to heal on their own.

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Exploring the Psychological Impact of Performance Appraisal Pressure on Employee Anxiety: A Qualitative Investigation into Employee Perceptions and Coping Strategies

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ABSTRACT

This qualitative study investigates the psychological impact of performance appraisal pressure on employees, focusing on how it influences their emotional well-being and workplace behavior. Through thematic analysis, the research examines employee perceptions of appraisal processes and the various coping strategies they adopt in response to the pressure. Key findings highlight several sources of anxiety, including unclear or inconsistent appraisal criteria, organisational culture, and the personal drive for career advancement. The study identifies both adaptive coping mechanisms, such as meticulous preparation, seeking peer or managerial support, and engaging in mindfulness practices, as well as maladaptive strategies, such as avoidance, overworking, or self-criticism. Additionally, the research explores how these coping mechanisms influence overall job satisfaction and work performance. Emphasising the importance of clear communication, transparency, and on-going feedback, the study underscores the need for organisations to create a supportive and well-structured appraisal system. These insights are valuable for HR professionals and managers aiming to reduce the negative psychological impact of performance appraisals while promoting a healthier and more productive work environment.

***Keywords**:* Performance Appraisal Pressure, Employee Well-being, Coping Strategies, Organisational Policies

Introduction:

Performance appraisal, an integral component of human resources management, plays a pivotal role in shaping employee development and organisational progress. This practice seeks to comprehensively evaluate an employee's job performance and potential for professional growth. However, the process of delivering a sincere and candid evaluation based on performance metrics can often be an arduous task for those in the evaluator's seat, resulting in occasional confrontational interactions. Furthermore, the intense scrutiny employees face during the appraisal process may lead to a unique form of stress referred to as "appraisal pressure." This stress arises when there is a perceived conflict between the demands of the job and the level of control an appraiser has over an employee's professional destiny.

This research paper aims to delve into the complex and often underexplored psychological ramifications of performance appraisal pressure on employee anxiety. Through a qualitative investigation into employee perceptions and their strategies for coping with this stress, we seek to uncover the intricate dynamics at play

during the appraisal process. Our study is based on a sample of managers and senior managers with 8-10 years of professional experience, situated in the Delhi National Capital Region (NCR).

In this research, we adopt a cross-sectional design and employ two pivotal instruments: the Performance Appraisal Discomfort Scale and the General Work Stress Scale. These tools assist us in discerning the relationship between the discomfort experienced by appraisers and the overall work-related stress they encounter during the appraisal period. The study's findings bring to light a moderate correlation between discomfort and stress, underscoring the significant link between these two factors.

Our investigation not only contributes to a deeper comprehension of the psychological toll exacted by performance appraisal pressure on employees but also emphasises the necessity of acknowledging the employee's perspective within this process. In the following sections, we will embark on a historical journey, tracing the evolution and role of performance appraisal in organisational contexts. We will also explore its potential effects on employee well-being, with a focus on anxiety. Through qualitative research methods, we aim to provide a comprehensive analysis of employee perceptions and the various strategies they employ in response to the challenges posed by performance appraisal pressure. This research promises to offer valuable insights into the nuanced interplay between employee psychology, appraisal processes, and organisational dynamics.

Need For Study:

There's a growing awareness among business and HR communities that workplace well-being is essential for employee performance and organisational success. This awareness has led to increased focus on creating environments that promote physical and mental health for employees.

Concerns are mounting: Despite the increased awareness, there is still a need for a study on workplace well-being. Employee burnout, stress related illnesses and mental health challenges are on the rise, which highlights the need for well-being to be addressed in the workplace.

Lack of comprehensive understanding: While organisations know well-being is important, many don't understand the specific factors that affect it. Research is needed to identify the factors that affect employee well-being and how they impact organisational well-being.

Link to organisational outcomes: Employee well-being is strongly linked to organisational outcomes. Research shows that well-being impacts employee engagement and job satisfaction, as well as productivity and retention. Knowing this relationship is essential for organisational success.

Review of Literature

Antoniou, A. S., Polychroni, F., & Vlachakis, A. N. (2006). Gender and age differences in stress and coping among Greek teachers. Work & Stress, 20(2), 149-161.

This study examines stress and coping strategies among teachers but is relevant as it discusses the impact of performance evaluation on employee stress. It suggests that gender and age may influence how

employees perceive and cope with appraisal-related stress.

Appelbaum, S. H., & Shapiro, B. T. (1993). The effects of performance appraisal on organisational commitment. The Academy of Management Journal, 36(2), 351-357.

This paper explores the effects of performance appraisal on organisational commitment, shedding light on how the process can influence employee anxiety and their commitment to the organisation. It highlights the significance of a fair and supportive appraisal process.

Fisher, C. D., & Gitelson, R. (1983). A meta-analysis of the correlates of role conflict and ambiguity. Journal of Applied Psychology, 68(2), 320-333.

This meta-analysis delves into role conflict and ambiguity, which can be exacerbated during the performance appraisal process. It emphasises how employees' perceptions of their roles and expectations can lead to anxiety and stress.

Chou, H. Y., & Yeh, R. S. (2018). Stress, appraisal, and coping: Exploring the role of the human resource management system in Chinese firms. International Journal of Human Resource Management, 29(6), 1055-1074.

This paper explores the relationship between stress, appraisal, and coping strategies. It highlights the role of the human resource management system in influencing how employees perceive and manage stress, particularly in the context of performance appraisal.

Taylor, S., & Brown, J. (1988). Illusion and well-being: A social psychological perspective on mental health. Psychological Bulletin, 103(2), 193-210.

Although not directly related to performance appraisal, this paper provides a broader perspective on how perception and self-illusions can influence well-being. It can be relevant in understanding how employees' perceptions of performance appraisal pressure contribute to their anxiety and well-being.

Tremblay, M. A., Blanchard, C. M., Taylor, S., Pelletier, L. G., & Villeneuve, M. (2009). Work extrinsic and intrinsic motivation scale: Its value for organisational psychology research. Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 41(4), 213-226.

This study focuses on work motivation but can be pertinent to the topic as it discusses extrinsic and intrinsic motivation. Understanding employee motivation is crucial in the context of performance appraisal pressure and how it relates to anxiety and coping strategies.

Dulebohn, J. H., & Ferris, G. R. (1999). The role of influence tactics in perceptions of performance evaluations' fairness. Journal of Business and Psychology, 13(4), 593-603.

This study examines the role of influence tactics in how employees perceive the fairness of performance evaluations. It highlights that the use of certain influencetactics by evaluators can lead to increased anxiety and perceptions of unfairness among employees.

Murugan, P., & Abogunrin, S. O. (2013). Occupational stress and coping strategies among nurses in South West Nigeria. International Journal of Business and Social Science, 4(3), 248-254.

While focused on nurses, this study provides insights into coping strategies for occupational stress, which is relevant to understanding how employees cope with the stress induced by performance appraisals. It underscores that employees often employ various coping mechanisms to deal with appraisal pressure.

Murphy, K. R., Cleveland, J. N., Skattebo, A. L., & Kinney, T. B. (2004). The effects of goal setting on implicit and explicit learning. Organisational Behaviour and Human Decision Processes, 94(1), 21-35.

This study explores the effects of goal setting on learning and performance. It suggests that the way goals are set and communicated during performance appraisals can impact employee anxiety. Ambiguity in goal setting may lead to increased stress and performance-related anxiety.

Steel, R. P., & Ovalle, N. K. (1984). A review and meta-analysis of research on the relationship between behavioural intentions and employee turnover. Journal of Applied Psychology, 69(4), 673-686.

While primarily focused on turnover intentions, this paper provides insights into how the psychological impact of performance appraisal pressure can influence employees' intentions to stay or leave their jobs. Anxiety and stress resulting from performance appraisals can contribute to higher turnover intentions.

Smith, R. B., & Kagan, N. (1978). The stress of appraisal: A psycho-physiological study. Journal of Occupational Psychology, 51(2), 149-159.

This study explores the psycho-physiological aspects of the stress experienced during performance appraisals. It indicates that the stress associated with appraisal can have physiological effects on employees, including increased heart rate and stress-related symptoms.

Methodology

Preamble:

In a rapidly evolving work landscape, the significance of workplace well-being has garnered increased attention. The well-being of employees not only contributes to their overall quality of life but also has profound implications for organisational success. With this understanding, our study endeavours to explore and analyse the various facets of workplace well-being and its impact on employees and organisations. By conducting a comprehensive investigation, we aim to provide valuable insights and recommendations for fostering a healthier, more productive work environment.

Statement of Problem:

The contemporary workplace is marked by heightened concerns related to employee well-being, including issues of stress, burnout, and mental health. This necessitates a deep examination of the factors influencing workplace well-being and their effects on organisational outcomes. The problem at hand is the need to understand these factors and their interplay to enhance well-being for employees and, in turn, contribute to organisational success.

Research Question:

What are the key factors influencing workplace well-being, and how do they relate to employee performance and organisational outcomes?

Research Objective:

The primary objective of this study is to investigate the multifaceted dimensions of workplace well-being, identify the key factors influencing it, and examine how these factors impact employee performance and organisational outcomes. Specifically, the research aims to:

- Identify the factors affecting workplace well-being.
- Explore the relationship between workplace well-being and employee performance, job satisfaction, and retention.
- Examine the impact of well-being on organisational productivity and success.
- Provide actionable insights and recommendations for organisations to enhance workplace well-being.

Operational Definitions:

- **Workplace Well-being:**

  For the purpose of this study, workplace well-being is defined as the overall state of physical, mental, and emotional health and satisfaction of employees within their work environment.

- **Employee Performance:**

  Employee performance refers to the quality and productivity of work carried out by an employee within the organisation.

- **Organisational Outcomes**:

  Organisational outcomes encompass factors such as productivity, employee retention, and overall success, which are influenced by the well-being of employees.

Inclusion/Exclusion Criteria:

Inclusion Criteria:

- Participants must be current employees in diverse industries.
- Participants must provide informed consent to participate in interviews.
- Participants should have at least one year of work experience. Exclusion Criteria:
- Former employees, retirees, or individuals not currently employed.
- Participants unwilling to provide informed consent.
- Individuals with less than one year of work experience.

Research Design:

This study will adopt a qualitative research design, using semi-structured interviews to gather in-depth insights and personal experiences related to workplace well-being. The qualitative approach allows for a rich exploration of the topic, capturing the nuances and diversity of participants' perspectives.

Data Collection Process (Interview):

Participant Selection: Participants will be selected through purposive sampling, ensuring a diverse representation of industries and backgrounds.

Informed Consent: Participants will be provided with informed consent forms, explaining the study's purpose, confidentiality, and their rights as participants.

Semi-Structured Interviews: In-depth interviews will be conducted with participants, allowing open-ended questions and prompts for detailed responses. These interviews will be audio-recorded and transcribed for analysis.

Data Analysis: The transcribed interviews will undergo rigorous qualitative analysis, starting with open coding, followed by axial coding and selective coding to identify recurring themes and relationships.

Findings and Recommendations: The study's findings will be presented in a comprehensive report, along with recommendations for organisations to improve workplace well-being.

RESULTS (Themes**)**

There were a few questions asked to the participants, Blow shows the theme based question segregation and the combined average response by the participants:

The themes explored in this study offer a comprehensive view of the psychological impact of performance appraisal pressure on employees. The "Experience with Performance Appraisals" theme delves into the diverse emotions and feelings employees associate with the appraisal process, from anticipation to stress. The "Coping with Appraisal Pressure" theme sheds light on the various strategies individuals employ to alleviate anxiety, including preparation and mindfulness.

The "Physical and Psychological Impact" theme uncovers the physical and psychological symptoms experienced by employees and their journey toward acceptance. In the "Behavioral and Organisational Impact" theme, the study reveals how appraisal pressure can influence work behaviour and highlights the significance of organisational factors. Lastly, the "Recommendations and Well-being" theme emphasises the need for a more transparent and supportive appraisal process. These themes collectively provide a nuanced understanding of the intricacies of performance appraisal pressure and its effects on employees, offering valuable insights for improving workplace well-being.

Theme 1: Experience with Performance Appraisals:

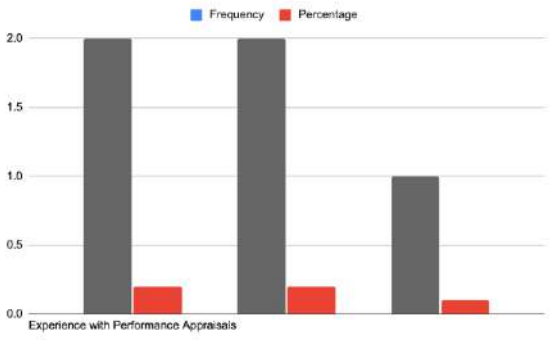
Q. Can you describe your overall experience with performance appraisals and the associated pressure or stress it brings?

"My experience with performance appraisals has been quite challenging. The pressure and stress associated with them often make me feel on edge. It's like waiting for judgement day. I feel the impact on my emotional well-being, and it certainly affects my job satisfaction."

Q. How do you perceive the impact of performance appraisal pressure on your emotional well-being and job satisfaction?

"I've had both positive and negative experiences with appraisals. The pressure can be quite stressful, especially when I'm not sure about the evaluation criteria. The impact on my emotional well-being is undeniable; it's like a rollercoaster of emotions."

Themes	Sub-themes	Frequency	Percentage
Experience with Performance Appraisals	Challenging Experience	4	40%
	Rollercoaster of Emotions	4	40%
	Uncertainty about Evaluation Criteria	2	20%



Theme2:CopingwithAppraisalPressure:

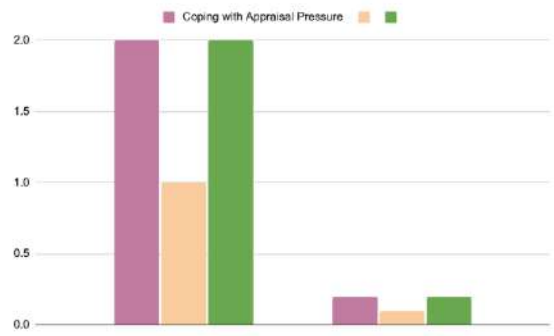
Q. What coping strategies or mechanisms do you employ to manage anxiety or stress related to performance appraisals?

"To cope with the anxiety, I usually prepare meticulously for the appraisal, gather feedback, and set realistic goals. I find these strategies quite effective in alleviating anxiety during the process."

Q. How effective do you think your coping strategies are in alleviating anxiety during the appraisal process?

"My coping strategy involves seeking support from colleagues and practising mindfulness. It helps, but there are moments when I still feel the pressure."

Coping with Appraisal Pressure	Meticulous Preparation	4	40%
	Gathering Feedback	2	20%
	Seeking Support from Colleagues	4	40%



Theme3:PhysicalandPsychologicalImpact:

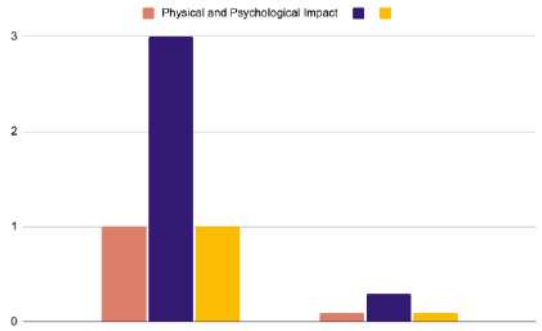
Q. Have you noticed any physical or psychological symptoms (e.g., increased heart rate, sleep disturbances, nervousness) associated with performance appraisals, and if so, can you describe them?

"Yes, I've noticed physical symptoms like increased heart rate and nervousness before appraisal meetings. It's like an impending storm. However, with time, I've learned to accept the challenges, and it's made me more resilient."

Q. How have you accepted the challenges of performance appraisals, and how does it affect the way you handle them?

"Performance appraisals can sometimes lead to sleep disturbances and restlessness. I've learned to manage it through self-reflection and accepting that it's part of the process."

Physical and Psychological Impact	Increased Heart Rate	2	20%
	Nervousness	6	60%
	Sleep Disturbances	2	20%



Theme 4: Behavioral and Organisational Impact:

Q. Can you describe any changes in your behaviour or work performance as a result of performance appraisal pressure?

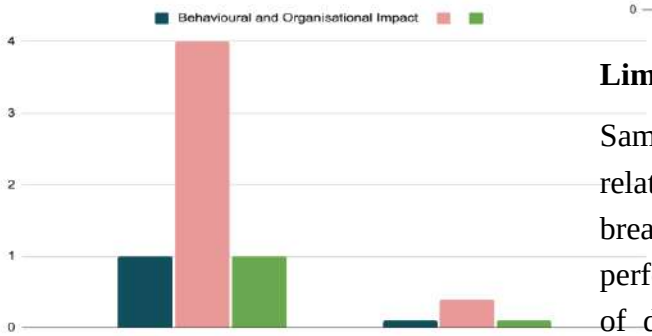
"The pressure from performance appraisals often drives me to be more detail-oriented and diligent in my work. It's a double-edged sword. I've also noticed that a lack of clear feedback mechanisms in our organisation contributes to the anxiety."

Q. Are there any organisational factors or policies that you believe contribute to or mitigate the anxiety associated with performance appraisals?

"I tend to become more cautious and even hesitant in sharing ideas during appraisal

periods. It's the fear of criticism. In our organisation, a more open feedback culture would go a long way in reducing anxiety."

Behavioural and Organisational Impact	Detail-oriented Work	3	30%
	Hesitancy in Sharing Ideas	4	40%
	Lack of Clear Feedback Mechanisms	3	30%



Theme5:RecommendationsandWell-being:

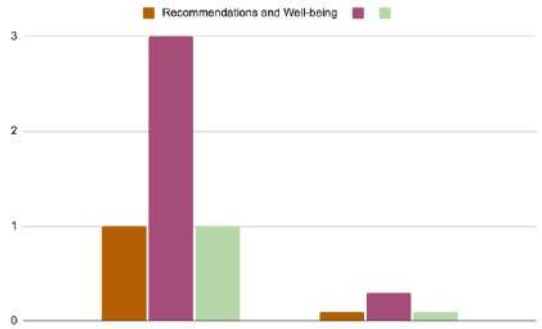
Q. What recommendations or suggestions do you have for improving the performance appraisal process to reduce anxiety and stress among employees?

"I think regular feedback sessions and more transparency in the evaluation criteria would greatly improve the process and reduce anxiety. It's not just about performance; it's about well-being too."

Q. How do you see your natural strengths and challenges in dealing with performance appraisals, and how does it impact your well-being?

"My natural strength is resilience. I've learned to bounce back from the anxiety. However, my challenges lie in the organisational culture, which needs to be more supportive to ensure our well-being isn't compromised."

Recommendations and Well-being	Regular Feedback Sessions	1	10%
	Transparency in Evaluation Criteria	8	80%
	Organisational Support	1	10%



Limitations:

Sample Size and Diversity: The study's relatively small sample size may limit the breadth of employee experiences related to performance appraisal pressure, and the lack of diversity in the sample may affect the generalizability of findings.

Self-Report Bias: The reliance on self-report data introduces the potential for bias, as participants may provide responses influenced by social desirability, affecting the accuracy of the findings.

Single-Method Data Collection: The primary use of qualitative interviews, while valuable, might limit the depth of insights. Employing a single data collection method may not capture the full range of employee experiences.

Contextual Specificity: Findings may be specific to the unique organisational and cultural context in which the study was conducted, potentially limiting their applicability to other settings.

Limited Exploration of Organisational Factors: The study briefly addresses organisational factors but does not thoroughly investigate their impact on employee experiences. A more in-depth analysis of organisational policies and practices could provide deeper insights.

Conclusion:

This study explored the psychological effects of performance appraisal pressure on employees, revealing how such processes can significantly impact mental well-being, job satisfaction, and workplace behavior. By examining employee narratives, the research uncovered a range of emotional responses and coping strategies used to manage appraisal-induced stress.

The thematic analysis highlighted five key dimensions: emotional experience, coping mechanisms, physical and psychological symptoms, behavioral changes, and suggestions for improvement. These findings reinforce the need for clear, consistent appraisal systems and emotionally intelligent managerial practices.

Overall, the study demonstrates that performance appraisal pressure is not just a managerial or procedural issue—it is a psychological challenge with real consequences. By promoting transparency, regular feedback, and organisational support, companies can foster healthier environments where employees feel valued, understood, and resilient.

Appendix

1. Can you describe your overall experience with performance appraisals and the associated pressure or stress it brings?
2. What specific aspects of the performance appraisal process do you find most anxiety-inducing or stressful?
3. How do you perceive the impact of performance appraisal pressure on your emotional well-being and job satisfaction?
4. Have you noticed any physical or psychological symptoms (e.g., increased heart rate, sleep disturbances, nervousness) associated with performance appraisals, and if so, can you describe them?
5. What coping strategies or mechanisms do you employ to manage anxiety or stress related to performance appraisals?
6. How effective do you think your coping strategies are in alleviating anxiety during the appraisal process?
7. Have you sought support or assistance from your supervisor, HR department, or colleagues regarding your anxiety or stress related to performance appraisals? If so, how helpful was this support?
8. Can you describe any changes in your behaviour or work performance as a result of performance appraisal pressure?
9. Are there any organisational factors or policies that you believe contribute to or mitigate the anxiety associated with performance appraisals?
10. What recommendations or suggestions do you have for improving the performance appraisal process to reduce anxiety and stress among employees?

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The Impact of Coping Strategies and Emotional Intelligence on AI Anxiety among Employees

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ABSTRACT

In today's rapidly evolving technological advancements and trends in the industries, societies and organizations have brought in immense anxiety, challenges, and stress among employees. This has also introduced significant concerns about job security, adaptability, and overall well-being. The aim of this study is to investigate the relationship between coping strategies, emotional intelligence (EI), and AI anxiety among employees. This study utilizes standardized questionnaire for data collection from employees across various organizations like IT sector, education sector, manufacturing sector, Finance, and others. Coping Strategy Scale developed by A K Srivastava, Emotional Intelligence Scale developed by Daniel Goleman and Artificial Intelligence Anxiety scale developed by Wang were utilized. This study is an attempt to assess the employees AI anxiety, the different coping strategies used by them, and their degree of emotional intelligence. Correlation and Regression methods, will be used to analyse the inter-relationships between these variables. Having an in-depth understanding of the relationship between these variables will provide valuable insights for HR professionals and policymakers to formulate policies and develop interventions that focus on promoting employee emotional intelligence and adaptive coping strategies towards AI technologies.

Keywords: Coping strategies, Emotional intelligence, AI anxiety, Employees, Wellbeing.

Introduction

Artificial Intelligence (AI) is a comprehensive and multidimensional domain, focussed on the systems which can intensively replicate intelligence in the machines. This concept was initially introduced in 1950's and since them AI has significantly undergone advancements, enhancements, and extensive reshaping (Haenlein et al, 2019). It has undergone reshaping in areas like language processing, machine learning, symbolic reasoning,

robotics and others which has paved way for AI to successfully perform activities like diagnosing of diseases, Automated driving, individualized recommendations, chat bot, excellent customer service and others (Vaswani, 2017). Due to these rapid advancements in the field of Artificial Intelligence, people have started to develop concerns regarding these developments (Clarke,2019). The major reason for these concerns or anxiety towards AI is because AI is intellectually more advanced than humans in many areas. The McKinsey Global Institute has predicted that around 400 to 800 million employees in the near future of 2030 will be replaced by AI (Manyika et al., 2024). Allam, Z. (2021) in her study on a representative sample of the UK population measured the frequency of Fears, experienced by employees like AI taking over human jobs or replacing people and the "Hopes" they feel like AI assisting or making life easier. In this study it was found that employees had a set of negative opinions regarding AI and the belief that AI has the potentiality to take the centre stage in the employment replacing the humans. Few professionals have estimated that AI can be disadvantageous or threat to human in the long run. Fast and Horvitz (2017) conducted a review study on Artificial intelligence. They reviewed the New York times news articles of three decades and they found that from 2009 there was a significant rise in positive attitude towards AI and apprehensions towards AI. The apprehension was majorly towards lack of control over work, dilemmas, override of Tech in work, job insecurity and others. Artificial Intelligence Anxiety, or AI Anxiety, refers to *the apprehension, dread or uneasiness that individuals experience as a response to the rapid development and integration of AI technologies into various aspects of society* (Kim et al., 2003). This form of anxiety includes a spectrum of concerns, ranging from fear towards job security, breach of privacy, data infringements, absence of human control over the AI systems, and concern of misinformation, deception and bias due to AI information, AI redundancy (Nomura et al., 2006). These concerns indicate the societal-level of psychological response to the various indecisiveness, uncertainties and challenges posed by AI in a human's life. This shift in technology and a rapid development in AI has brought anxiety among employees, precisely known as AI Anxiety (Raisch & Krakowski, 2021). Realizing and bringing awareness about this anxiety is crucial to nurture an optimistic and productive work culture. It also contributes for ensuring the employees' psychological well-being and promote a smooth shift to the technology-enriched work environments. During this period of AI-induced anxiety or stress, the individual's manner of responding to theses are critically important. The coping strategies used by people can determine how effectively one is responding to this anxiety.

Coping strategies

The AI anxiety is often manifested in the form of feelings of uncertainty, stress, and low confidence in one's abilities to survive in an AI-driven work environment (Raisch & Krakowski, 2021). Coping strategies play an important role in determining how individuals effectively manage stress that arises due to AI. Coping strategies refer to the cognitive and behavioural efforts taken up by a person to manage stressors (Lazarus & Folkman, 1984). Employees experiencing

AI anxiety may adopt a range of coping strategies to deal with it and based on which form of coping style they use their ability to address stressors effectively and build resilience in the face of technological disruption is determined. Research has found that, effective coping mechanisms, like problem-focused or emotion-focused coping strategies, can reduce the adverse effects of stressors like AI anxiety. Constructive coping strategies contributes to emotional wellbeing, promote good feelings, improve performance and productivity, heighten job satisfaction, and lower burnout and exhaustion (Sacgaca et al., 2023). Hennekam et al. (2020), in their study found that employees with adaptive coping strategies tend to experience less feelings of sadness, experience heightened confidence, improved social support, express pro social behaviour and are more efficient in discharging their duties in occupation or work sector. These strategies enable a person to be better equipped for dealing with stress and to survive in the technology driven environment at work (Park & Folkman, 1997). On the contrary employees with maladaptive or passive coping strategies like denial or suppression of negative emotions, momentary distraction from stress, substance abuse, social isolation and others are likely to experience feelings of worthlessness, deteriorating mental health and impaired quality of life (Li et al., 2021). Organizations on the other hand need to support this process by facilitating the required platform and resources to nurture a work culture for emotional intelligence, assertive and open communication to reduce this uncertainty of AI.

Emotional intelligence

Emotional intelligence, comprises of the ability to identify, understand, and manage one's emotions as well as the emotions of others (Salovey & Mayer, 1990). High Emotional Intelligence assists individuals in accommodating to stress and adapt to changes or challenges, potentially defending the effects of AI anxiety (Goleman, 1995). In a workplace, it is an essentiality to identify, rectify and understand the emotions of colleagues and to utilize this knowledge and skills for the growth and development of self and others (Kapur, 2018). Professionals with high Emotional Intelligence are more successful in their work, mainly because they can understand and reason their emotions which drives the conduct and behaviour. Ioannis & Ioannis (2002) in their study found that emotional intelligence is negatively associated with work stress. The results of this study revealed that people with high EI tend to experience lower level of exhaustion or strain in the work environment. Another study by Furnell (2008) revealed that team leaders/managers with high emotional intelligence suffer from lower burnout. Hence, emotional intelligence plays an important role in helping individuals manage and mitigate the feelings of fear, apprehension or uncertainty people may experience due to the rapid advancements and integration of artificial intelligence in the work sector. Another research by Gardner (2005) found that providing training on Emotional Intelligence to employees will result in experiencing lower levels of stress and decreased anxiety, fosters in a better understanding of the advent of Artificial intelligence into the work sector.

Coping Strategies and AI Anxiety

Coping strategies are crucial in managing the stress and uncertainty that is generate through AI. There are various Coping

strategies which can help a person deal with this Anxiety, but the broad classification of this is problem-focused and emotion-focused strategies. Problem-focused coping strategies include in development of skills like enrolling in AI training programs and having clear, open communication like workshops, seminars to discuss about the purpose and impact of AI in the workplace, thereby helping employees feel more included, prepared and less uncertain (Lazarus & Folkman, 1984) about the advent of AI. Emotion-focused strategies, include practicing mindfulness, seeking support from trusted people, can help in regulating and minimizing the emotional responses, reducing stress and anxiety (Park & Lee, 2021).

Emotional Intelligence and AI Anxiety

Emotional intelligence is imperative in managing AI anxiety. High Emotionally Intelligent employees are more self-aware and in a better position to recognize, identify their emotions like when they are anxious or stressed. This feature facilitates in effective emotional regulation (Goleman, 1995). Employees with high EI can better support and understand their colleagues who face similar anxieties and also have positive collaborations during transitions to AI. Emotional Intelligence is also essential to maintain calmness, adaptability to change and approach the integration to AI with a constructive mindset and as well, help other colleagues to adapt to this. People with EI are better aware that embracing AI will provide an opportunity for growth professionally and personally and its not a threat to employees (Park & Lee, 2021). This paves way for adaptability, job satisfaction, smart working and increase productivity, all contributing to a positive work culture (Park & Lee, 2021).

Significance of the study

Coping strategies and emotional intelligence (EI) are essential components which will significantly influence an employee's response to AI. A high EI and adaptive coping strategy will help in reducing the anxiety and stress caused by advent of AI. This study can contribute to the understanding of the way employees deal with the rapid advent of Artificial Intelligence in the work sector. As the AI is increasingly growing and automating the tasks, replacing humans, improving the efficiency and quick working many employees are facing stress regarding job insecurity, adapting to the technological changes and learn these AI strategies. This research study can help in identifying the coping strategies to reduce the AI anxiety and understand the role of Emotional intelligence in managing AI induced anxiety among employees across the work sectors. Employees with high Emotional intelligence are in a better position to handle the advancements of technology and understanding this relationship can foster in organizing training programs, offering resources to develop Coping strategies and enhance emotional intelligence. This study provide constructive insights for organizations to develop supportive and adaptable employees, with long-term job satisfaction, enhanced productivity, and ensure a smooth transition to AI-driven work set up.

Research Gap

The above studies are all recent studies to understand and explore the role of Coping strategies and Emotional Intelligence on AI anxiety in the employment sector. While it is necessary to understand the role of Coping

strategies and Emotional Intelligence on AI anxiety considering that there is a persistent technologically advancements in the work area. It is essential to understand that an adaptive coping strategy and high Emotional intelligence can help an employee to tackle the stress and anxiety arising in the work sector. But to what extent these strategies can help in dealing with AI related anxiety is under researched. Along with that the study also explores the relationship between the Coping styles and Emotional Intelligence.

Methodology

Research Question

Does coping strategies and emotional intelligence play a role in the AI anxiety of employees?

Objectives

- To analyse the role of Coping strategies on AI anxiety
- To analyse the relationship between Emotional Intelligence and AI Anxiety

Hypothesis

- There is no statistically significant association between employee's coping strategies and with the levels of AI-anxiety.
- There is no statistically significant relationship between employee's emotional intelligence and AI anxiety.

Sample

- The sampling technique employed for the study is convenient sampling technique
- The total number of Sample was 176 which included employees from various sectors such as education, IT, Health, Banking, Digital Marketing, Real Estate and Marketing.

Inclusion Criteria

- Individuals who are working Individuals residing in India

Exclusion Criteria

- Individuals who have been recently diagnosed with any mantal health issue (within the last 6 months)
- Individuals who are retired or presently at home

Procedure

The data was collected from 176 employees residing in India. The tools used for the collection of data are as follow:

- The Coping Strategy scale by Srivastava (2001). The scale is a 5-point rating scale measuring 5 domains in coping strategy: Behaviour Approach Coping, Cognitive Approach Coping, Cognitive Behaviour Approach Coping, Behavioural Avoidance Coping and Cognitive Avoidance Coping. The Scale has a reliability of 0.9.
- Emotional Intelligence Scale Handout developed by Schute and his colleagues based on Salovey and Mayor's theory of emotional intelligence. The scale has a reliability of 0.87.
- AI Anxiety Scale developed by Wang & Wang (2022) was the other tool used for collecting the data. The scale is a 7-point Likert scale with 4 domains such as Learning, Job Replacement, Socio-technical blindness, and AI Configuration. The scale has a reliability and validity of 0.9 and 0.8 respectively. The data was then scored based on the norms of the standardised scale and an analysis was run on SPSS 25. A normality check was done first followed by descriptive statistics and correlation.

Ethical Considerations

The study ensured that no animals or humans were harmed in the process. The study was voluntary and participants were free to opt out of the study whenever they wished to, ensuring that there is no forcing. The study ensures that the ethical considerations as per APA was maintained during the collection of the data as well as conduction of the research.

Results and Analysis

The data was first scored and then analysed for the normality of the data. It was found during the Shapiro-Wilk test that the data was not normally distributed.

Table 1

Showing the Shapiro Wilk scores of the data collected from the Sample

Variable	N	Shapiro-Wilk	
		df	Sig.
Behavioural Approach	176	176	0.01
Cognitive Approach	176	176	0.09
Cognitive Behavioural Approach	176	176	0.00
Behavioural Avoidance	176	176	0.01
Cognitive Avoidance	176	176	0.12
Emotional Intelligence	176	176	0.00
Learning	176	176	0.00
Job Replacement	176	176	0.28
SocioTechnical Blindness	176	176	0.27
AI Configuration	176	176	0.03

The above table shows that the Shapiro-Wilk value for all the other variables except for Cognitive Approach, Cognitive Avoidance, Job Replacement and Sociotechnical Blindness are all not significant at 0.05 level ($p<0.05$) indicating the data is significant and hence normally distributed. While the other variables, Behavioural approach, Cognitive behavioural approach, Behavioural avoidance, Emotional intelligence, and Learning are significant at 0.01($p>0.01$) level, while AI configuration is significant at 0.05($p>0.05$) level indicating the data is not normally distributed. This further calls for a non-parametric test for the correlation.

Table 2

Showing the descriptive statistics of the data collected.

Variables	N	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Behavioural Approach	176	31.14	31.00	26	5.356	0.26	0.07
Cognitive Approach	176	16.07	16.00	15	3.240	-0.22	0.01
Cognitive Behavioural Approach	176	19.46	19.00	19	4.211	0.40	-0.21
Behavioural Avoidance	176	24.51	24.51	24	4.164	0.48	0.63
Cognitive Avoidance	176	14.44	14.00	14	3.444	0.06	0.25
Emotional Intelligence	176	106.26	102.50	99	15.09	1.02	0.83
Learning	176	31.14	32.00	36	8.522	-0.44	0.43
Job Replacement	176	24.64	25.00	21	6.574	-0.26	1.05
SocioTechnical Blindness	176	16.19	16.50	18	4.713	-0.00	-0.04
AI Configuration	176	11.59	12.00	10	4.223	-0.07	-0.56

The above table shows the mean, median, mode, SD, skewness and kurtosis for each of domains for the three variables for the sample size of 176. The mean, median and mode is not the same for the variables Behavioural Approach, Emotional Intelligence, Learning, Job Replacement, Sociotechnical Blindness and AI configuration showing that the data is not normally distributed. However, the data is not extremely skewed as all the values of the skewness and kurtosis falls within the range of +/– 1.96.

Table 3

Showing the Spearman's correlation between Coping Strategies, Emotional Intelligence and AI Anxiety.

Variables	N	Learning		Job Replacement		Sociotechnical blindness		AI Configuration	
		rho	Sig.	rho	Sig.	rho	Sig.	rho	Sig.
Behavioural Approach	176	0.01	0.83	0.00	0.91	0.08	0.29	-0.02	0.74
Cognitive Approach	176	-0.11	0.14	0.01	0.85	0.06	0.38	-0.10	0.16
Cognitive Behavioural Approach	176	-0.12	0.08	0.00	0.92	0.11	0.13	-0.08	0.25
Behavioural Avoidance	176	-0.11	0.13	-0.00	0.93	-0.01	0.89	-0.04	0.54
Cognitive Avoidance	176	0.07	0.32	0.06	0.40	-0.00	0.92	0.07	0.32
Emotional Intelligence	176	-0.14	0.06	-0.07	0.34	0.153	0.04	-0.20	0.00

The above table shows that the domain Behavioural Approach (which means techniques that an individual might take up in order to cope with a stressful situation), Cognitive Approach (which means the process of thinking and cognition involved to cope with a stressful situation), Cognitive Behavioural Approach (which refers to a combination of thoughts and actions put together to deal with a stressful situation), Behavioural Avoidance (Which is a domain that talks about how one may take steps or actions to avoid a situation that is stressful) and Cognitive Avoidance (which is a domain that refers to one's intentional ways to distract oneself from thinking about the stressful situation) has no significant relationship with Learning AI ($p>0.05$), Job Replacement ($p>0.05$), Sociotechnical blindness ($p>0.05$), AI Configuration ($p>0.05$). This implies coping strategies are not related to the AI anxiety. Indicating that the employee's method of managing stress may not directly influence their levels of anxiety due to artificial intelligence.

On the other hand, while Emotional Intelligence (EI) has no significant relationship with learning and Job replacement. But the dimension EI has a significant negligible relation with sociotechnical blindness at 0.05 level ($rho=0.15$; $p<0.05$). This indicates that higher the Emotional Intelligence of an employee, higher is the sociotechnical blindness. Also, EI has a significant negative negligible relation with AI Configuration at 0.01 level ($rho=-0.20$; $p<0.01$). This indicates that as EI increases the AI configuration anxiety decreases or vice versa. This could mean that employees with higher emotional intelligence are more likely to experience lesser anxiety regarding how the AI is configured, or make decisions, or how AI functions. Since the significance is extremely low, there is no regression analysis that is conducted for the above data.

Discussion

The present study did not find a statistically significant relationship between coping strategies and AI anxiety, thereby accepting the first null hypothesis, "there is no statistically significant association between employee's coping strategies and with the levels of AI-anxiety." This indicates the way employees manage their stress may not directly influence their anxiety due to artificial intelligence. These results are in contrast with the earlier research where they have found contrary results where employees who adopted problem focusses coping underwent lower level of digital transformation anxiety (Chaudhari et al., 2025). Study by Liţan D. E. (2025) revealed that employees using emotional regulation strategies are likely to experience lower levels of technostress while adapting to AI. This implies that few coping strategies can play a role in reducing the stress or anxiety levels related to AI or technology.

The present study did not find a statistically significant relationship between employees Emotional Intelligence and AI anxiety, thereby partially accepting the second null hypothesis, "There is no statistically significant relationship between employee's emotional intelligence and AI anxiety." The results revealed a low negative correlation between EI and AI Configuration Anxiety which suggests that employees who are emotionally intelligent are likely to experience a lower anxiety regarding the AI design, updates, and functioning of AI. Study by Xu et al. (2023) found that though AI awareness led to an increase in depression and emotional exhaustion, but EI did not moderate this relationship. Contrary findings were also found where employees who are emotionally intelligent are more observant of the subtle emotional cues or changes, which can pave way to detect complexity, loss of control or ethical concerns in AI designs which can further trigger AI configuration anxiety.

Another key finding found was a low positive correlation between EI and Sociotechnical Blindness Anxiety, which indicates that employees with higher EI are likely to experience higher anxiety because of their limited understanding about the social, ethical, and institutional consequences of technology. This is a very unlikely finding as Emotional intelligence is often associated with higher awareness of AI's societal benefit. This could be because individuals with higher EI tend to value emotional connection and trust, could have faith in the humanized AI which ca reduce their critical evaluation of the socio-technical systems. Hence, people with high sociotechnical blindness are likely to overly depend on AI without questioning. These results were supported by Ehsan & Riedl (2020), who found that people who emphasize on harmony are likely to believe on humanized AI, which can lead to underestimating the actual and structural risks of AI. These contrary results and findings in the present study could be due to attributed to the differences in the industry type, AI implementation, or the awareness levels of employees. Along with this AI anxiety, being a new and specific area of research, employees may not be properly addressed or exposed in terms of coping strategies.

Implications & Scope

Research on understanding the role of coping strategies and emotional intelligence (EI) in reducing AI anxiety is essential as it assists organizations to create supportive environments where employees feel empowered, confident, and less stressed about AI advancements into the workforce. This study sheds light into the importance and necessity of emotional intelligence in the employment. It suggests to organize training programs to improve emotional intelligence as EI helps employees to manage stress and smoothly adapt to new technologies which will make a big difference in how they approach towards advent of AI. Additionally, by recognizing the employees need for different coping strategies, organizations can provide individualized support to develop coping strategies, helping them cope with changes more effectively. These will together lead to a happier, more engaged, productive, secure employees who can embrace the AI advancements and developments in optimistic manner and improves productivity and job satisfaction. Ultimately,

addressing AI anxiety could help companies navigate transitions to AI-driven work environments more smoothly, ensuring their workforce remains adaptable in the face of technological change.

Conclusion

This study investigates the role of Coping strategies and Emotional Intelligence on AI anxiety among employees of all the sectors. This study is a quantitative, correlational research study where the data was collected using Emotional Intelligence scale, coping strategies scale and AI Anxiety scale which were standardized ones. The dimensions in the Coping strategies scale are Behavioural approach, Cognitive approach, Cognitive-Behavioural approach, Cognitive avoidance, and Behavioural avoidance. The sub scales in AI anxiety are Learning, Job replacement, Sociotechnical blindness, and AI configuration. The analysis conducted was Spearmans Correlation to understand the relationship between Coping strategies, Emotional intelligence and how it influences AI anxiety among employees. The results of the study indicate that there is no significant correlation between Coping strategies and AI anxiety. While, emotional intelligence has no correlation with learning and Job replacement, it does have a significance at 0.05 level with sociotechnical blindness with a very low correlation and a significance at 0.01 level with AI Configuration with a low correlation of 0.2. This means that, the more the Emotional Intelligence of an individual, the more is the sociotechnical blindness and AI configuration of the individual. Since the significance is extremely low, there is no regression analysis that is conducted for the above data. Though the study did not find significant relationship between the variables, it still holds its implication in all the organization sectors to initiate training sessions for the employees organize training programs to improve emotional intelligence and develop coping strategies as they both help employees to manage stress on AI and to ensure the smooth transition for the technological advancements. This study adds on to the existing literature and it also opens a path for further regression analysis and developing of interventions based on the findings.

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Exploring the Predictive Role of Resilience on Emotional Competence Among Adolescents

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ABSTRACT

Emotional, psychological, and social changes that occur during adolescence have a major impact on long-term mental health and wellbeing. Emotional competence and resilience are two important components that promote healthy adjustment during this time. Since both of these constructs are essential to coping, emotional regulation, lowering the risk of mental health problems, and enhancing interpersonal functioning, it is imperative to comprehend how they relate to one another. Investigating the predictive impact of resilience on teenagers' emotional competence was the goal of the current study. The study used a quantitative, cross-sectional design with 140 teenage participants. The Perceived Emotional Competence Questionnaire (PECQ) and the Brief Resilience Scale (BRS) were used. The link was assessed using Spearman's rho correlation due to the non-normal distribution of resilience scores, and the predictive value of resilience was then ascertained using basic linear regression analysis. The findings indicated that emotional competence and resilience had a small but statistically significant negative connection ($r = -.178$, $p = .035$). According to regression analysis, emotional competence was substantially predicted by resilience ($\beta = -.198$, $p = .019$), which explained 3.9% of the variation. Resilience and emotional competence have a weakly negative relationship, which raises the possibility that other mediating or moderating factors like social support, personality traits, and family dynamics may be involved. In addition to directly supporting the United Nations Sustainable Development Goal 3 (Good Health and Well-Being), specifically Target 3.4, which aims to enhance mental health and well-being by 2030, this research is in line with the World Health Organization's emphasis on juvenile mental health. The results emphasize the necessity of culturally aware therapies that foster emotional intelligence and resilience. In order to create a foundation for healthier communities, educational institutions and mental health professionals should think about creating programs that simultaneously improve emotional intelligence and resilience while also evaluating the importance of family dynamics and social support.

Keywords: resilience, emotional competence, adolescents, psychological adjustment, mental health

Introduction

The ability to effectively identify, communicate, control, and react to one's own and other people's emotions is known as emotional competence (EC). It is essential for social adjustment, psychological health, and successful functioning in the interpersonal, professional, and academic spheres (Kaur & Kumar, 2018). According to Daniel Goleman, emotional intelligence (EC) is an acquired skill that includes self-awareness, self-regulation, social awareness, and relationship management. These skills all work together to enable successful life adaptation (Kaur & Kumar, 2018)

(Garmezy, 1991). According to Brasseur et al. (2013), higher EC is associated with improved mental health, stronger social bonds, less stress, and more productivity at work (Goleman, 1999).

Resilience, on the other hand, refers to the ability to preserve or restore psychological health in the midst of hardship (Punjabi & Manimekalai, 2022). Modern perspectives see it as a dynamic, context-sensitive process impacted by accumulated life stressors, internal strengths, and external supports, as opposed to the personality feature that early perspectives presented it as (Hall, 1904) (Santrock, 2011). Examining the relationship between EC and resilience is crucial during adolescence, a time of fast emotional and cognitive change. Adaptive emotional strategies are necessary to manage the demands of the environment, relationships, and academics throughout this developmental stage, which is frequently characterized by emotional instability and identity exploration (Masten, 2014; Herrman et al., 2011) (Santrock, 2014; NCBI Bookshelf, 2019).

Drawing on Bronfenbrenner's ecological model, adolescent resilience develops through intricate relationships with peers, family, and societal systems, (Santrock, 2014). Since their answers to difficulties are shaped by their neurodevelopment and past experiences, adolescents are active participants in their own growth rather than passive recipients (Mahesh & Ajilal, n.d.). When emotional competence and resilience are in harmony, adolescents demonstrate higher self -efficacy, better social functioning which aids in the development of identity, values, and psychological stability (Azam, 2012).

Adolescent growth depends heavily on emotional competence, which also has a major impact on academic achievement, mental health, and the capacity to build positive interpersonal relationships (Buckley, 2013; Sampaio et al., 2020). Research explicitly examining resilience's predictive role in emotional competence is lacking, particularly in the context of Indian adolescents (Mehta & Gupta, 2024; Ganesan et al., 2021), despite the fact that resilience has been positively associated with life satisfaction and adaptive personality traits (Di Fabio & Saklofske, 2014; Botha, 2014). The majority of the work currently in publication concentrates on correlations as opposed to predicting relationships.

Furthermore, the COVID-19 epidemic has made youngsters more emotionally distressed and less resilient, which makes it even more important to comprehend these psychological concepts (Belinda et al., 2024; Mesman et al., 2021). Additionally, behavioral problems and a reluctance to seek treatment during adolescence have been linked to low emotional competence, which can have a detrimental effect on development and well-being (Ciarrochi et al., 2003; Hessler & Katz, 2009). Therefore, by examining whether resilience may be used as a predictor of emotional competence, this study seeks to close a significant gap. The results could guide the development of adolescent-specific intervention programs for families and in schools.

Review of Literature

Resilience and emotional competence are important for adolescent development, according to a large body of research from 2005 to 2023, although few studies

specifically look at their predictive relationship. While conflict and negative parenting diminish resilience and emotional regulation, supportive environments such as warm parenting and positive family dynamics strengthen them (Sampaio et al., 2020; Di Fabio & Saklofske, 2014; Mehta & Gupta, 2024). Additionally, research has highlighted how emotional competence supports impulsive control, mental health, and help-seeking behavior (Ciarrochi et al., 2003; Hessler & Katz, 2009).

Emotional skills training increases competence and resilience, allowing teenagers to control their emotions and cut back on harmful behaviors like substance abuse (Botha, 2014; Belinda et al., 2024). Better academic achievement, self-control, and interpersonal communication are all correlated with high resilience (Ganesan et al., 2021; Mesman et al., 2021). On the other hand, both attributes are adversely affected by negative factors like as stress, low social support, dysfunctional parenting, and excessive digital exposure (Hessler & Katz, 2009; Mesman et al., 2021; Ciarrochi et al., 2003). The COVID-19 pandemic also brought attention to how vulnerable teenage mental health is, necessitating measures that foster resilience (Belinda et al., 2024).

In conclusion, there is a noticeable lack of study that focuses on predictions, particularly among Indian teenagers, despite the fact that both structures have been thoroughly examined separately. This justifies the need to explore whether resilience can predict emotional competence, thereby guiding future psychological interventions and youth support programs.

Method

Research Design and Objectives

The present study adopted a correlational research design to investigate the predictive role of resilience on emotional competence among adolescents. The primary research question guiding this inquiry was: Does resilience significantly predict emotional competence in adolescents? Accordingly, the study aimed to examine the nature and strength of the relationship between these two psychological constructs.

Hypotheses

Two null hypotheses were formulated for empirical testing:

- $\mathbf{H_{01}}$: There is no significant relationship between resilience and emotional competence in adolescents.
- $\mathbf{H_{02}}$: Resilience does not significantly predict emotional competence in adolescents.

Variables

- **Independent Variable**: *Resilience*, defined as an individual's capacity to recover from stress and adapt effectively to adversity.
- **Dependent Variable**: *Emotional competence*, conceptualized as the ability to perceive, understand, express, and regulate emotions in oneself and others.

Sample Design

Data was gathered using a non-probability convenience sampling technique. A minimum sample size of N = 140 was established based on power analysis using G Power in order to guarantee sufficient statistical power. A total of 170 teenagers living in Mangalore, India, between the ages of 10 and 19, provided the data. The requirements for inclusion were (a)

teenagers between the ages of 10 and 19, (b) proficiency in English and (c) the provision of informed consent in conjunction with parental consent.

Measures

Brief Resilience Scale (BRS)

This ability to recover from stress was measured using the Brief Resilience Scale (BRS), which was created by Smith et al. (2008). On a 5-point Likert scale, 1 represents strongly disagree and 5 represents strongly agree. There are six items in all. Strong psychometric qualities are demonstrated by the BRS, which has a test-retest reliability of r =.69 and internal consistency values ranging from α =.80 to.91. Positive correlations with optimism and subjective well-being demonstrate its convergent validity, whereas negative correlations with anxiety and depression demonstrate its discriminant validity.

Profile of Emotional Competence (PEC)

Five intrapersonal and five interpersonal dimensions of emotional competence were evaluated using the Profile of Emotional Competence (PEC), which was created by Brasseur et al. (2013). A 5-point Likert scale is used to score the 50 items in the PEC. With subscale reliabilities ranging from.60 to.85, it exhibits good internal consistency (α =.87). Correlations with emotional intelligence, empathy, and psychological well-being indicate the instrument's good construct and criterion validity. Exploratory and confirmatory component analyses further validate the factorial validity of the instrument.

Procedure

The Institutional Ethics Committee provided ethical clearance prior to data collection. The purpose of the study, the confidentiality and anonymity of their answers, and their ability to withdraw at any moment were all explained to the participants. The participants and their guardians gave their informed permission. When administering the questionnaire, standardized procedures were adhered to, as described in the manuals of the corresponding scales.

Ethical Considerations

The study received approval from the institutional ethics committee. Throughout the study, confidentiality and voluntary participation were ensured, and informed written consent and assent were acquired. Autonomy and the freedom to stop participating without consequence were guaranteed to the participants.

Data Analysis

To analyze the data, the Statistical Package for the Social Sciences (SPSS) was used. To summarize the data, descriptive statistics (mean, standard deviation) were employed. The statistical assumptions were checked using normality tests. Pearson's correlation coefficient was employed to evaluate the connection between emotional competence and resilience. Simple linear regression analysis was done to see how well resilience predicted emotional competence.

Results

Data Screening and Normality Testing

IBM SPSS Statistics was used to enter and analyze the data (Version 23). Descriptive statistics and normalcy tests were used in the initial screening. The Shapiro-Wilk and Kolmogorov-Smirnov tests were used to determine normality (see Table 3). The BRST scores did not follow a normal distribution: W =.979, p =.027; D(140) =.131, p <.001. The emotional competence (PECGT) scores, on the other hand, showed

a normal distribution (D(140) =.039, p =.200; W =.995, p =.944). Consequently, non-parametric techniques were used for additional resilience-related study.

Sociodemographic Characteristics

Table 1 presents the demographic details of the sample (*N* = 270). The majority of participants were aged between 15 and 17 years, with 17-year-olds forming the largest age group (36.4%). Gender distribution showed more females (39.3%) than males (12.6%), though a considerable percentage of gender data was missing (48.1%). Most students were studying in the 12th standard (40.7%).

Table 1

Sociodemographic Details of the articipants (N = 270)

Variables	Categories	Frequency	Percent (%)
AGE	13year	1	0.4
	14year	1	0.4
	15year	44	16.3
	16year	35	13.0
	17year	51	18.9
	18year	7	2.6
	19year	1	0.4
GENDER	Male	34	12.6
	Female	106	39.3
EDU	8std	15	5.6
	9std	9	3.3
	10std	27	10.0
	11std	31	11
	12std	57	21.1

Note : EDU= Eduation

Descriptive Statistics

Table 2 presents the mean and standard deviation (SD) values for resilience and emotional competence (*N* = 140). The mean resilience score was 18.9 (SD = 3.09), and the mean emotional competence score was 156.8 (SD = 26.78). The relatively close mean and median values for both variables suggest approximate symmetry.

Table 2

Means and Standard Deviations of Study Variables

	Mean	Median	SD
BRS_T	18.9	18.0	3.09
PECG_T	156.8	157.5	26.78

Note : BRS= Resilience,PECG= Emotional competance

Normality Test

As shown in Table 3, resilience scores significantly deviated from normal distribution ($p < .05$), while emotional competence scores were normally distributed ($p > .05$). This confirmed the use of **Spearman's rho** for correlation analysis.

Table 3

Tests of Normality for Study Variables

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BRST	.131	140	.000	.979	140	.027
PECGT	.039	140	.200	.995	140	.944

Note : BRS= Resilience,PECG= Emotional competance

Correlation Analysis

A **Spearman's rank-order correlation** was conducted to assess the relationship between resilience and emotional competence (see Table 4). A weak, negative correlation was found, *rs* = –.178, *p* = .035, suggesting that higher resilience is slightly associated with lower emotional competence.

Table 4

Spearman's Correlation Between Resilience and Emotional Competence (N = 140)

			PECGT	BRST
Spearman's rho	PECG	Correlation Coefficient	1.000	-.178
		Sig. 2 (tailed)		.035
		N	140	140
	BRST	Correlation Coefficient	.035	1.000
		Sig. 2 (tailed)	140	
		N	1.000	140

Note : BRS= Resilience,PECG= Emotional competance

Regression Analysis

A simple linear regression was performed to assess the predictive value of resilience on emotional competence (see Table 5). The model was statistically significant, $F(1, 138) = 5.65$, $p = .019$, with an R^2 value of .039. This suggests that resilience accounts for 3.9% of the variance in emotional competence, indicating a weak predictive effect.

Table 5

Regression Summary Table

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2015.685	1	2015.685	5.646	.019
Residual	49269.251	138	357.024		
Total	51284.936	139			

Note : df = Degrees of Freedom, F = F-statistic, Sig.= Significance (p-value)

The **unstandardized coefficient** for resilience was $B = –1.23$, $SE = 0.52$, $t(138) = –2.38$, $p = .019$ (see Table 6). This indicates that for every unit increase in resilience, emotional competence decreases by 1.23 units. The standardized beta ($\beta = –.198$) further confirmed this weak negative relationship.

Table 6

Regression Coefficients Predicting Emotional Competence from Resilience

Unstandardized Coefficients			Standardized Coefficients		
Model	**B**	**Std.Error**	**Std.Error**	**t**	**Sig**
(constant)	182.241	9.902	9.902	18.405	.000
BRS_T	-1.231	. 518	. 518	-2.376	.019

Note : B = Unstandardized Coefficient, t = t-statistic (t-value), Sig = Significance (p-value)

Discussion

The purpose of the current study was to investigate the predicted association between adolescents' emotional competence and resilience. The results showed that emotional competence and resilience had a small but statistically significant negative relationahip ($\rho = -.178$, $p = .035$). Although the variance explained was small ($R2 = .039$), regression analysis also demonstrated that emotional competence was substantially predicted by resilience ($p = .019$).

These findings contrast with previous research that mostly reports a positive correlation between adaptive emotional functioning and resilience (Di Fabio & Saklofske, 2014; Botha, 2014). Resilience may entail emotional suppression or restriction to preserve social conformity or academic focus, and the found inverse association may be a reflection of certain contextual or cultural subtleties within the Indian teenage community (Southwick et al., 2014; Block & Kremen, 1996).

The results emphasize that resilience is a public health priority and not just a personal characteristic. It is closely related to teenagers' emotional intelligence and general mental health. As Emotional and cognitive changes are hallmarks of the growth stage of adolescence, resilience may manifest more as behavioral flexibility than as expression of emotions (Mesman et al., 2021). This functional difference explains the negative relationship observed in the current study.

All things considered, this study adds to the paucity of predictive research on Indian adolescents and highlights the necessity of multifaceted interventions that include contextual resilience-building techniques and emotional socialization. Fostering adolescent resilience in line with SDG goal 3 (Good Health and Well-Being) guarantees

not only healthier individuals but also stronger society.

Future Implications

The findings of this study suggest that resilience alone is not a sufficient predictor of emotional competence in adolescents. Therefore, future interventions should focus on integrating emotional regulation training, secure attachment development, and social-emotional learning in both educational and clinical settings. School-based programs can incorporate modules that enhance both resilience and emotional awareness, while parents and caregivers should be educated on the role of supportive environments in adolescent emotional development.

Training for Teachers and Parents: Provide educators and parents with behavioral techniques (emotion coaching, modeling, and positive reinforcement) to promote resilience in the classroom and at home. Training for parents and teachers on developing life skills and resilience

In order to develop resilience as a fundamental life skill in teenagers, future interventions must go beyond symptom management. We can prepare young people to deal with difficulties by integrating resilience and emotional competency training into the curriculum, enlisting the help of parents and educators, and utilizing culturally based techniques from Indian psychology. In addition to improving people's mental health, these initiatives help India achieve SDG 3, which calls for the development of a resilient, emotionally balanced, and socially conscious generation.

Additionally, this study opens avenues for exploring multidimensional models of resilience emotional, cognitive, and social as potential predictors of various aspects of emotional competence. Understanding these sub-dimensions may inform more targeted interventions in psychological and educational contexts.

Suggestions for Future Research

Future study ideas include using longitudinal designs to better understand how the relationship between emotional competence and resilience evolves and shifts during adolescence. Because sociocultural circumstances have a significant impact on emotional development and resilience, cross-cultural studies are also encouraged. These comparative investigations may reveal distinctive patterns in various populations. Future studies should also look into how possible mediating and moderating factors, like personality traits, attachment styles, techniques for regulating emotions, and family dynamics, might affect or explain the associations that have been found. Last but not least, using qualitative or mixed-method techniques, including in-depth interviews, may provide insightful information about teenagers' lived experiences and highlight the complex ways that emotional functioning is influenced by resilience.

limitations

There are a number of restrictions on this study. First of all, it used a convenience sampling technique that was limited to a particular age range and geographical area, which restricts the findings' applicability to larger teenage groups. Second, the use of self-report questionnaires raises the possibility of response bias, which includes inaccurate self-evaluations and socially acceptable responses. Thirdly, the research's cross-sectional design makes it difficult to determine a causal relationship between

emotional competence and resilience. Lastly, the study's explanatory power was limited since it failed to take into consideration a number of additional psychological and environmental factors that are known to affect emotional competence.

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A Study of Resilience and Body Image Perception as Predictors of Self-Esteem among Adolescents

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ABSTRACT

Adolescence is a formative stage for self-esteem development, shaped significantly by psychological resilience and body image perception. Previous research has demonstrated that having a positive body image and resilience can increase self-esteem (Acharya & Gulwani, 2021; Rajagopalan, 2022). Conversely, body dissatisfaction negatively predicts self-esteem and increases anxiety and depression (Mancilla-Díaz et al., 2016; Sholeha & Ayriza, 2019). This study focuses on how resilience and body image perception influence adolescents' self-esteem. A total of 150 participants (75 males and 75 females) were randomly chosen from the Pithoragarh district of Uttarakhand. To assess the variables, well-established standardized instruments were employed, including the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Resilience Scale developed by Lakshmi and Narain (2017), and the Body Self-Image Questionnaire Short Form (Rowe, 2005). Results revealed that among males, health-fitness evaluation (BSIQ) showed a positive association, whereas both social dependence (BSIQ) and perseverance (Resilience Scale) negatively predicted self-esteem. For females, faith (Resilience Scale) and attention to grooming (BSIQ) were positive predictors, while perseverance (Resilience Scale) remained a negative predictor. The independent samples t-test revealed significant gender differences at the 0.05 level in perseverance, composure, faith, social dependence, self-esteem, investment in ideals, overall appearance evaluation and attention to grooming. These findings emphasize the important role of gender in shaping various psychological dimensions.

Keywords: Resilience, self-esteem, body image perception, adolescents.

Introduction

In today's rapidly evolving and appearance-focused world, particularly for adolescents and young adults, cultivating psychological strengths such as resilience and self-esteem has become increasingly vital. These attributes play a critical role not only in enhancing mental well-being and academic success, but also in fostering emotional stability, social competence, and overall personal development. Adolescence is a particularly sensitive developmental phase during which individuals begin to consolidate identity and form enduring perceptions of self-worth (Rosenberg, 1965). Self-esteem, defined as one's overall evaluation of self-value, has been strongly linked to motivation, interpersonal functioning, and the ability to cope with stress (Orth & Robins, 2014). Resilience,

often described as a dynamic and adaptive process, enables individuals to recover and maintain psychological well-being despite adversity, trauma, or chronic stressors (Windle, 2011; Southwick et al., 2014). A major psychosocial aspect that seems to affect self-esteem and resilience is body image perception, which refers to the subjective assessment of one's physical appearance (Cash & Pruzinsky, 2002; Koduri, V., & Baishya, D. 2025). Empirical studies reinforce the interconnections among these psychological constructs. For instance, Acharya et al. (2021) found that adolescents with more positive body image and stronger resilience exhibited significantly higher self-esteem. Similarly, Shankar and Dutt (2024) reported positive correlations among body image satisfaction, resilience, and psychological well-being in Indian youth, with gender emerging as a significant moderator. Hedaoo et al. (2020) identified widespread body dissatisfaction among Indian adolescents, especially girls, due to incongruence between perceived and actual body size, highlighting the influence of socio-cultural factors. There has also been investigation into the Relation between physical activity and body image; (Gualdi-Russo et al. 2022; Li, H., & Hao, F. 2025) through a systematic review, confirmed that higher levels of physical activity are generally associated with lower body image dissatisfaction and improved self-esteem. Fan et al. (2023) added another layer by showing that self-compassion moderates the negative psychological outcomes of body dissatisfaction, including suicidal ideation. Research in non-Western contexts, such as Ghana, further supports the connection between body image and self-esteem, highlighting the impact of family dynamics and gender roles on adolescents' self-perceptions (Ahaya et al., 2021). In a similar vein, Huang et al. (2025) underscored how body satisfaction mediates the link between parenting styles especially maternal rearing approaches and self-esteem. Rachmayanti et al. (2025) found that life satisfaction, body image, and family support were significant predictors of resilience, suggesting the importance of holistic interventions for youth mental health. Despite growing academic interest in adolescent mental health, existing literature often examines body image, self-esteem, and resilience as distinct constructs, without fully exploring their interconnected and dynamic relationships (Moksnes & Espnes, 2012; Masten, 2014). This compartmentalized approach may obscure important insights into how these psychological factors influence one another, especially during adolescence a developmental period characterized by heightened emotional sensitivity, identity formation, and vulnerability to social comparison (Steinberg, 2014). Moreover, much of the existing empirical work has been concentrated in Western populations, with limited research that accounts for cultural norms, family structures, and societal expectations in South Asian contexts (Tiggemann & Slater, 2014). Given the increasing influence of digital media and the rising mental health concerns among Indian adolescents (Kaur et al., 2021), there is a pressing need to adopt a more integrated

framework. To design interventions that are sensitive to both cultural and developmental needs, it is important to explore the relationship among self-esteem, resilience, and body image perception. In this context, the present study specifically investigates how resilience and body image perception, specifically in the Indian setting, influence teenagers' self-esteem.

Objectives

1. To assess the level of Resilience, Body image perception and Self-esteem of adolescents.
2. To study the relationship between Resilience, Body image perception with Self-esteem of adolescents.
3. To find out how far Resilience, Body image perception contribute in predicting Self-esteem.
4. To compare male and female adolescents on the variable Self-esteem.
5. To compare male and female adolescents on the variables Resilience.
6. To compare male and female adolescents on the variable Body image perception.

Hypotheses

H1: There would be a significant correlation between self-esteem and resilience, including its dimensions, among adolescents.

H2: Resilience and its various dimensions would significantly contribute to adolescents' self-esteem.

H3: There would be a significant correlation between self-esteem and body image perception, including its dimensions, among adolescents.

H4: Body image perception and its different dimensions would significantly contribute to adolescents' self-esteem.

H5: There would be a significant difference between male and female adolescents in their level of self-esteem.

H6: There would be a significant difference between male and female adolescents in the level of resilience.

H7: There would be a significant difference between male and female adolescents with respect to body image perception.

Methods:

The present study employed a cross-sectional, correlational research design to examine the relationships among body image perception, self-esteem, and resilience in adolescents. Data were analyzed using multiple regression to determine the predictive effects of body image and resilience on self-esteem, additionally an independent samples t-test was performed to compare males and females on body image perception, resilience, and self-esteem scores. A total of 150 adolescents (75 males and 75 females), aged 14–18 years, were selected using simple random sampling from the Pithoragarh district of Uttarakhand, India. Self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), Body image perception was measured using the Body Self-Image Questionnaire–Short Form (BSIQ-SF; Rowe et al., 2005), Resilience was measured using the Resilience Scale developed by Lakshmi and Narain (2017).

Results

Table -1 Correlation matrix for Males (N=75)

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}
Self esteem														
Perseverance	-.375*													
Composure	.113	.279*												
Self-reliance	.060	.114	.005											
Faith	.231*	.046	-.056	.569*										
OAE	.182	-.156	-.023	-.070	.105									
HFI	-.178	.361*	.137	.279	.105	.049								
II	.104	.108	-0.17	.172	-.063	.233*	.350*							
HFE	.302*	-.72	.049	.350*	.396*	.141	-.069	.120						
AG	.251*	-184	.146	.109	-.206	.093.	.097	.207	.220					
HD	.087	-.077	-076	-.177	-.229	033	-.224	.044	.130	-.037				
FE	-.096	.076	-.163	.191	-.168	-.153	-.098	.088	-.098	.081	.139			
NA	-.144	-.132	-.086	-.256*	-.465*	.143	-.118	.003	-.041	.223	.252	.382*		
SD	-.092	-.244*	-.308	.127	.031	.215	.097	.136	.109	-.037	.326	.081	.156	

*** At .05 level- Significant value .217**

Table 1 shows that among males, the criterion variable Self-esteem has a positive, significant correlation with predictor variables Faith, Health-fitness evaluation and Attention to grooming at the .05 level. Additionally negative significant correlation with predictor variable Perseverance, was found but no significant relationship was found between other predictor variables. Therefore, based on that, the hypotheses H1 and H3 is partially accepted.

Table -2 Perseverance (X2), Health-fitness evaluation (X7) and Social dependence (X14) as predictors for Self-esteem

S. No	Variable code	Mean	S.D	Correlation with criterion Variable (r)	Beta (β)	R	R^2	% Contribution
1.	$\mathbf{X_2}$	27.95	3.69	-.375	.375	.375	.141	14.06
2.	$\mathbf{X_2, X_7}$	9.75	2.87	.302	.375, .276	.466	247	8.33
3.	$\mathbf{X_2, X_7, X_{14}}$	8.81	2.81	-.092	-.408, .297 -.224	.513	.264	2.0

Regression equation- 1st

$X_1 = 39.292 - .434X_2$

Regression equation- 2nd

$X_1 = 33.125 - .411X_2 - .555\ X_7$

Regression equation- 3rd

$X_1 = 37.436 - .472\ X_2 + .596\ X_7 - .340\ X_{14}$Table 2 shows that the correlation between self-esteem and perseverance was –0.375, indicating a significant negative relationship. Regression analysis showed that perseverance negatively predicted self-esteem, explaining 14.06% of the variance; therefore, H1 was partially accepted. Additionally table 2 shows a significant positive correlation between self-esteem (X_1) and health-fitness evaluation (X_7), with r = .302. In the regression model, inclusion of X_7 increased the R value from .375 to .466. Health-fitness evaluation contributed

8.33% to the explained variance in self-esteem, raising the total to 22.39%. Furthermore table shows a non-significant negative correlation between self-esteem (X_1) and social dependence (X_{14}), with r = –.092. However, in the regression model, inclusion of X_{14} increased the R value from .466 to .513. Social dependence made a negative but statistically significant contribution of 2.0% to self-esteem, raising the total explained variance to 24.39%. Based on this hypothesis H4 is partially accepted.

Table - 3 Correlation matrix for Females (N=75)

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}
Self esteem														
Perseverance	-.375*													
Composure	.113	.279*												
Self-reliance	.060	.114	.005											
Faith	.231*	.046	-.056	.569*										
OAE	.209	-.197	-.018	-.052	.175									
HFI	-.167	.308*	.130	.295*	.160	.060								
II	.096	.036	-.041	.191	-.003	.246*	.372*							
HFE	.290*	-.136	.041	.330*	.417*	.172	-.033	.212						
AG	.276*	-.227*	.158	.072	-.206	.119	-.088	.240*	.215					
HD	.093	-.155	-.075	-.216	-.228*	.041	-.200	.167	.189	.084				
FE	-.044	.007	-.117	.113	-.148	-.079	.104	.190	.003	.146	.266*			
NA	-.82	-.183	-.046	-.308*	-.421*	.208	-.065	.151	.042	.266*	.327*	.492*		
SD	-.096	-.257*	-.317*	.109	-029	.324*	-.005	.240*	.190	.084	.333*	.186	.232*	

*** At .05 level- Significant value .217**

Table 1.5 shows that among females, the criterion variable Self-esteem has a positive, significant correlation with predictor variables Faith, Health-fitness evaluation and Attention to grooming at the .05 level. Additionally, self-esteem had a negative significant correlation with predictor variable Perseverance, but no significant relationship was found between self-esteem and other predictor variables. Therefore, based on that, the hypotheses H1and H3 is partially accepted

Table - 4 Perseverance (X_2), Faith (X_5) and Attention to Grooming (X_{10}) as predictors for Self-esteem

S. No	Variable code	Mean	S.D	Correlation with criterion Variable (r)	Beta (β)	R	R^2	% Contribution
1.	**X_2**	27.95	3.69	-.375	375	.375	.141	14.06
2.	**X_2, X_5**	23.25	4.44	-.375, .231	.381,.289	.450	.203	5.75
3.	**X_2, X_5, X_{10}**	10.36	3.96	-.375, .231, .276	.381,.289, .263	.515	.266	7.25

Regression equation- 1st

X_1= 39.292 -.434X_2

Regression equation- 2nd

X_1 = 34.090-.447X_2 -.240X_5

Regression equation- 3rd

X_1 = 28.147 -.381 X_2 +.289 X_7 -.284 X_{10}

Table 2 shows that the correlation between self-esteem and perseverance was –0.375, indicating a significant negative

relationship. Regression analysis showed that perseverance negatively predicted self-esteem, explaining 14.06% of the variance; therefore, H1 was partially accepted. Additionally table indicates that the correlation coefficient between Self-esteem and faith .231, indicating a positive significant correlation between X_1 and X_5, and the regression equation, as variable X_7 increases, the value of R has increased from .375 to .450, and the percentage contribution in the criterion variable has increased to 19.81%. Here, the predictor variable Faith and the criterion variable Self-esteem are making a positive significant contribution of 5.75%. Therefore, hypothesis H1 is partially accepted. Furthermore table shows a significant positive correlation between self-esteem (X_1) and attention to grooming (X_{10}), with r = .276. In the regression model, adding (X_{10}) increased the multiple correlation coefficient (R) from .450 to .515. Attention to grooming contributed 7.25% to the variance in self-esteem, raising the total explained variance to 27.06%. These results support the hypothesis H4 is partially accepted.

Table -5 Mean, S.D, t value and p-value for the variable Resilience and its dimensions among adolescents

Dimension of Resilience	Male		Female		t-value	p-value	Significance level
	N=75		N=75				
	Mean	SD	Mean	SD			
Perseverance	27.94	3.69	26.42	4.45	2.274	.024	Sig.
Composure	30.22	4.27	31.74	4.00	2.248	.026	Sig.
Self-reliance	26.06	5.11	26.46	5.11	.560	.576	Non-Sig.
Faith	23.25	4.44	25.10	3.60	2.807	.006	Sig.

The above table depicts gender differences in resilience and its dimensions Perseverance, Composure, Self-reliance, and Faith with data evaluated using independent samples t-tests. The findings showed significant gender differences in three dimensions of resilience except self-reliance. Table 9 showed males reported a mean Perseverance score of 27.94 whereas females had a significantly lower mean Perseverance score of 26.42, indicating that males had more Perseverance than females. The results indicated a statistically significant difference between groups (t = 2.247, p = .024), as the p-value was below the alpha level of 0.05. In terms of Composure, male adolescents had a mean score of 30.22, whereas females scored 31.74. This difference also proved significant (t = 2.248, p = .026), suggesting that females report high composure than males. Furthermore, mean score for males in faith 23.25, whereas the mean score for females was 25.10. With the t-test producing a t-value of 2.807 and a p-value of .006, this gender difference was statistically significant, suggesting that females had a higher faith than males. Therefore, the alternate hypothesis H5 is partially accepted.

Interestingly, the mean score for males in self-reliance was 26.06; and for females, it is 26.46 but this difference is not significant on basis of gender. Therefore, the alternate hypothesis H5 is partially rejected.

Table - 6 Mean, S.D, t value and p-value for the variable Body image perception among adolescents

Dimension of Body self-image questionnaire	Male		Female		t-value	p-value	Significance level
	N=75		N=75				
	Mean	SD	Mean	SD			
OAE	8.50	1.94	9.48	2.77	2.488	.010	Sig.
HFI	9.89	2.28	10.56	2.63	1.656	.100	NS.
II	8.25	2.84	9.57	3.45	2.554	.012	Sig.
HFE	10.14	2.27	10.34	2.97	.462	.644	NS.
AG	8.78	2.31	10.30	3.92	2.887	.004	Sig.

HD	8.93	2.75	8.34	3.32	1.177	.241	NS.
FE	6.88	2.77	7.26	3.51	.747	.456	NS.
NA	7.96	2.74	7.78	3.22	.354	.724	NS.
SD	9.58	2.40	8.78	2.82	2.301	.023	Sig.

Independent samples t-tests were applied to examine body image perception and its nine dimensions. The analysis revealed significant gender differences in four of the variables related to body image perception. Table 6 showed males reported a mean overall appearance evaluation score of 8.50 whereas females had a significantly higher mean score of 9.48. This difference was statistically significant, with a t-value of 2.488 and p-value of .010, which is less than the alpha level of 0.05. Furthermore, women scored 9.57 on the Investment in Ideals scale, which is substantially higher than the mean score of 8.25 for men (t = 2.554, p =.012). In a similar vein, males scored 8.78 on the Attention to Grooming (AG) scale, while females scored 10.30, with a statistically significant difference (t = 2.887, p =.004). These results suggest that women prioritized grooming more than men did. Remarkably, the average score for Social Dependency (SD) was 8.78 for women and 9.58 for male, indicating that males had higher social dependence with t-value of 2.301 and p-value of .023 which was statistically significant, therefore hypothesis H7 partially accepted. Additionally no significant difference was found in adolescents' Health and fitness influence (HFI), Height dissatisfaction (HD), Health and fitness evaluation (HFE), Fitness evaluation (FE), Negative affect (NA) on basis of gender. Therefore, the alternate hypothesis H7 is partially rejected.

Table - 7 Mean, S.D, t value and p-value for the variable Self-esteem among adolescents

Rosenberg self- esteem scale	Male		Female		t-value	p-value	Significance level
	N=75		N=75				
	Mean	SD	Mean	SD			
	26.68	4.31	28.52	4.33	2.605	.010	Sig.

Table 7 presents the gender comparison in self-esteem among adolescents as measured by the Rosenberg Self-Esteem Scale. The mean score for males (M = 26.68, SD = 4.31) was lower than that of females (M = 28.52, SD = 4.33). The difference was statistically significant (t = 2.605, p = .010), indicating that females reported higher self-esteem than males which is significant at the alpha level of 0.05, therefore hypothesis H5 is partially accepted.

Discussion

The current study sought to determine how well body image perception and resilience predict adolescents' self-esteem. The results provide some evidence in favor of the hypotheses H1, H2, H3, H4, showing that while perseverance showed a negative correlation with self-esteem; faith, health-fitness evaluation, and attention to grooming were significant positive predictors. These findings highlight the intricate relationship between psychological strengths and body-related self-evaluations in determining adolescents' sense of self-worth at a pivotal developmental point.

The positive association between resilience and self-esteem among the resilience factors in both male and female individuals suggests that a strong belief system may serve as a psychological anchor that increases self-worth during adolescence. This is in line with previous research that

emphasizes spirituality as a protective factor in youth development (Kim & Esquivel, 2011). In contrast, perseverance demonstrated a significant inverse relationship with self-esteem in both genders, indicating that this cohort's propensity for self-criticism or internalized pressure may be connected to persistent effort. Contrary to the commonly reported positive associations between perseverance and psychological outcomes, these findings highlight the necessity of differentiating between adaptive and maladaptive persistence in adolescent populations (Duckworth & Quinn, 2009). Self-esteem was positively correlated with health-fitness evaluation and grooming attention within body image perception, suggesting that adolescents who have a positive perception of their physical appearance and health are more likely to report feeling good about themselves (Voelker et al., 2015; Swami et al., 2020). The inclusion of social dependence in the regression model marginally increased explained variance, despite the fact that it displayed a non-significant negative correlation (r = -.092), indicating a possible indirect role through interaction with other psychosocial factors (Tiggemann & Slater, 2015). The results provide some support for the hypothesis by demonstrating that adolescent self-esteem is significantly predicted by specific dimensions of resilience and body image perception. In addition, notable gender differences were observed in certain dimensions of resilience as well as in specific aspects of body image perception, were found using independent samples t-tests. Perseverance and social dependence suggesting a greater propensity for task persistence and reliance on peer evaluation. Women, on the other hand, reported higher levels of faith, poise, grooming, appearance evaluation, and investment in beauty ideals, indicating a greater ability to control one's emotions and being more sensitive to one's physical appearance.

These results are consistent with earlier research showing that boys prioritize achievement and social validation, but teenage girls seem to internalize appearance-related pressures more profoundly (Tiggemann & Slater, 2015; Swami et al., 2020). There were no significant gender differences in factors such as height dissatisfaction, fitness influence, negative affect, and health-fitness evaluation. This is in line with additional research that demonstrates the general consistency of gender-neutral health-related body perceptions (Voelker et al., 2015). These results show the need for gender-sensitive therapies that address girls' demands for appearance and boys' performance or social approval issues. They also partially supports the hypotheses H5, H6, H7.

Conclusion:

This study found that specific dimensions of resilience and body image perception particularly faith**,** health-fitness evaluation, and attention to grooming were positively associated with adolescent self-esteem, while perseverance showed a negative association. Gender differences were also observed, with females scoring higher on composure and grooming-related traits, and males showing higher perseverance and social dependence. While these findings offer valuable insights, the cross-sectional design limits any causal interpretation.

Future Suggestions, Implications, Limitations:

Present study provides useful information about how resilience and body image perception impact adolescents' self-esteem, but this study has several limitations too. The cross-sectional design limits the ability to make inferences about causality, and the use of self-report measures may introduce bias due to socially desired responses. Additionally, the sample was limited to a specific demographic and geographic region, which would restrict the generalizability of the findings. Furthermore, peer relationships, media exposure, and family history all of which are known to have an impact on body image and self-esteem were not taken into account in this study.

In order to properly capture changes over time and pinpoint cause-and-effect links, future research should take into account longitudinal methodologies. Including a wider range of demographics would help improve the results' generalizability. A deeper understanding of the viewpoints of adolescents may be possible by incorporating qualitative techniques like focus groups and interviews. Studies could also evaluate the success of intervention programs that promote a better body image and build internal resilience, especially in community and educational contexts.

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The Role of Need for Achievement and Self -Regulation in Academic Procrastination of Undergraduate Students

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ABSTRACT

Students frequently make plans to study, only to realize at the end of the day that they have not followed through on their plans. In the fast-paced and demanding environment of higher education, academic procrastination is a problematic behaviour that affects the effectiveness and well-being of students. This study aimed to determine how the variables such as need for achievement, and self-regulation work towards the academic procrastination of undergraduate students of a certain age group. Data were collected from a sample of 640 college students, encompassing various personal, educational, and sociodemographic variables such as age, gender, self-employment, parents' education, birth order, stream of study, and year of education. Correlation analysis demonstrated that academic self-regulation positively correlated with Need for Achievement (r=0.277) and negatively with academic procrastination (r=-0.411). Need for Achievement and academic procrastination were strongly negatively correlated (r=-0.910). Regression analyses highlighted that Need for Achievement explained 82.8% of the variance in academic procrastination, while academic self-regulation accounted for 16.9%. These findings emphasize the pivotal role of Need for Achievement in reducing academic procrastination, suggesting that interventions should focus on enhancing motivation.

Keywords: Academic Procrastination, Need for Achievement and Self -Regulation, Undergraduate Students

Regardless of their age, most people have probably experienced procrastination. When people plan to accomplish something, they frequently end up doing nothing or something else instead. Students frequently make plans to study, only to realize at the end of the day that they have not followed through on their plans. Procrastination is a phenomenon that can have an impact on practically every aspect of a person's everyday life. Procrastination has been linked to numerous things. According to Steel (2007), the term "procrastination" refers to the act of purposefully delaying or postponing a task despite being aware of the repercussions. Ineffective and undesirable delays, such as decisional delays, implementation delays, or lack of timeliness, are all symptoms of procrastination (Mann et al., 1997; Steel, 2010). According to Milgram et al. (1998), procrastination is " a tendency or behavioral disposition to put off or delay doing something, making a decision, etc.".

According to a study done by Hayat et al. (2020) among medical students, academic procrastination is present in 29.25% of students always or almost always, while it is present in 47.9% of students at a moderate level and is troublesome for them.

It was discovered in a subsequent study by Putri Daryani et al. (2021) that 55.1% of the participating students displayed more than normal levels of academic procrastination. Research by Madhan et al. (2012) of undergraduates in India revealed that 27% of them had extreme procrastination as a feature. Academic procrastination, according to Soloman & Rothblum (1984), is the propensity to put off doing work linked to one's studies so that the person is either unable 2 to do the task completely by the due date or may rush to finish it. Steel (2008) demonstrated through his research that procrastination could have an impact on self-efficacy and self-actualization. In addition, the author demonstrated how procrastination affects a person's impulsiveness, self-control, and even their organizing style as a student. When it comes to academic subjects, it makes students lazy and causes them to develop a passive postponing tendency. It indicates that either pupils are reluctant to start work or assignments, or they are afraid to begin them (Steel, 2008).

Numerous primary and secondary issues connected to academic procrastination have been found through studies. Psychological characteristics such as impulsivity, depression, excessive anxiety, and low self-efficacy are among those that have an impact on procrastination (Balkis & Duru, 2007). In the past, scholars thought procrastination was a time management issue. For instance, Lay and Schouwenburg (1993) investigated how university students manage their time and exhibit trait procrastination, and they discovered an inverse link between trait procrastination and perceived time control. A study by Ugurlu (2013) identifies ineffective time management habits and inefficient use of time as two factors contributing to procrastination in people. All of those were conveying the idea that people who struggle with time management will frequently put off doing their work.

Self-regulation has been defined as "the capacity to plan, guide, and monitor one's behaviour flexibly in the face of changing circumstances" (Brown, 1998, p. 162). In a study conducted by Steel (2007), procrastination was identified as a failure in self-regulation, a finding consistently substantiated by subsequent research. Similarly, Kandemir (2014) arrived at analogous conclusions in a study focusing on the causes of academic procrastination, where self- regulation, academic self-efficacy, and life satisfaction were investigated. Notably, self-regulation emerged as the second most significant predictor of procrastination, following academic success.

Henry Murray first described and defined the term the need for achievement as a desire to "accomplish something difficult, to master, manipulate, or organize physical objects, human beings, or ideas; to do this as rapidly and as independently as possible; to overcome obstacles and attain a high standard; to excel oneself; to rival and surpass others; to increase self regard by the successful exercise of talent". (1938, p. 164) Murray's definition of achievement is a generalized desire, and the enjoyment comes from honing talents rather than from meeting objectives. McClelland (1961,1971) defines "high need for achievement (n Ach) as a self-motivation to high levels of accomplishment. High achievers are turned on by the accomplishment of a task, the

attainment of a skill, the meeting of challenge or the invention of something new". Achievement motivation (often 4 termed need for achievement)—the desire to accomplish difficult tasks or excel—and motivation to engage in complex cognitive activity, or need for cognition (Cacioppo et al., 1996). There is a significant variation among people regarding their drive to achieve. While some individuals place a high value on accomplishing challenging tasks and meeting exceptional standards, others are content with just meeting the minimum requirements.

A descriptive survey method was used while collecting data. The sample of the study consisted of both male and female undergraduate students (between18- 25 years of age) selected from different colleges in Malappuram district of Kerala, state of India. Sample consist of 640 students (male =224, female =410) studying in Malappuram district of Kerala selected by purposive sampling. After getting permission from respective people a small orientation about the topic was given to the students. Those who were willing to participate was seated separately, then developed a rapport with them and distributed the questionnaires to gather their data. The study followed a correlational design in which the need for achievement and self- regulation were treated as predictors and academic procrastination as criterion variable among undergraduate students.

Results

The demographic distribution of the participants:

The sample is predominantly female, accounting for 64% (410) of the participants. Males represent 35.1% (224) of the respondents, while those identifying as "Other" constitute 0.3% (2) of the sample. Participants are distributed across three educational streams. Participants from Arts comprising 37.5% (240) of the sample, Science accounts for 33.8% (216) and Commerce represents 28.8% (184). Most respondents, 93.6% (599), belong to the middle social class. A small percentage are from the lower social class (3.4%, 22) and the upper social class (3%, 19). A significant proportion, 76.6% (486), reside in rural areas, while 23.4% (150) live in urban areas. About 24.1% (254) of the participants are self-employed, whereas 76.6% (486) are not.

Independent t-test

The study analyzed differences in academic self-regulation, achievement motivation, and academic procrastination between self-employed and not self-employed participants. The mean for self-employed individuals (78.34) is slightly higher than for those not self-employed (76.25). The results are significant at p=0.047, with an ANOVA confirming differences among groups (F=6.474, p=0.000) in self-regulation. Self-employed individuals report a significantly higher mean (100.44) compared to those not self-employed (83.85), with a highly significant t-test (p=0.000) and ANOVA result (F=24.807, p=0.000) in achievement motivation. Those not self- employed show a higher mean (120.18) compared to self-employed individuals (109.90). The t- test (p=0.000) and ANOVA (F=25.612, p=0.000) confirm significant differences in academic procrastination.

The study analyzed differences in academic self-regulation, achievement motivation, and academic procrastination between urban and

rural participants. The mean score for rural participants (77.10) was slightly higher than for urban participants (75.62). However, the t-value (-1.39) and p-value (0.165) indicate no statistically significant difference between the two groups in academic self-regulation. Urban participants had a higher mean score (91.31) compared to rural participants (86.79). The t-value (1.23) and p-value (0.217) suggest that this difference is not statistically significant in achievement motivation. The mean scores for urban (117.32) and rural (117.82) participants were almost identical. The t-value (-0.23) and p-value (0.814) confirm no significant difference between the groups in Academic procrastination

The findings reveal no significant differences between urban and rural participants across the studied variables. This suggests that residence may not play a major role in influencing academic self-regulation, achievement motivation, or academic procrastination in the sampled population.

Table 1 ANOVA results for Academic self-regulation differences Across Demographic Groups

Factor	Groups	t/f Ratio	p-value
1.Gender	Male	6.474	.000
	Female		
	Other		
2. Stream	Commerce	5.291	.005
	Science		
	Arts		
Social Status	Lower	0.682	0.563
	Middle		
	Upper		

The analysis reveals a significant difference in academic self-regulation across genders (**t/f ratio = 6.474, p < .001**). This finding suggests that gender significantly influences academic self- regulation levels. A statistically significant difference was identified across the streams of study (**t/f ratio = 5.291, p = .005.** This indicates that the academic stream is a relevant factor influencing self-regulation among students. No significant differences were found among social status groups (**t/f ratio = 0.682, p = 0.563**). This suggests that social status does not have a measurable impact on academic self-regulation.

The results highlight that gender and educational stream significantly influence academic self-regulation, while social status does not. These findings emphasize the importance of tailoring strategies to enhance self-regulation based on gender and educational contexts.

Table 2 ANOVA results for Achievement Motivation differences Across Demographic Groups

Factor	Groups	t/f Ratio	p-value
1.Gender	Male	24.809	.000
	Female		
	Other		
2. Stream	Commerce	56.981	.005
	Science		
	Arts		
Social Status	Lower	2.651	0.048
	Middle		
	Upper		

A highly significant difference in achievement motivation is evident across genders (**t/f ratio = 24.809, p < .001**). This result underscores the strong influence of gender on achievement motivation. Significant differences were also found among students from different educational streams (**t/f ratio = 56.981, p = .005**). This finding indicates that the educational stream significantly affects achievement motivation levels. A marginally significant difference in achievement motivation was found across

social status groups (**t/f ratio = 2.651, p = .048**). While the difference is statistically significant, the relatively low f-ratio suggests that the impact of social status on achievement motivation may be less pronounced than gender or educational stream.

The analysis highlights that gender and educational stream significantly impact achievement motivation, with highly significant results. Social status also demonstrates a notable but weaker influence. These findings suggest the need for targeted approaches to support and enhance achievement motivation based on demographic characteristic.

Table 3 ANOVA results for Academic Procrastination differences Across Demographic Groups

Factor	Groups	t/f Ratio	p-value
1.Gender	Male	25.612	.000
	Female		
	Other		
2. Stream	Commerce	64.561	.000
	Science		
	Arts		
Social Status	Lower	2.352	0.071
	Middle		
	Upper		

A highly significant difference in academic procrastination was found across genders (t/f ratio = 25.612, p < .001). This result suggests that gender significantly influences academic procrastination behavior. There is a statistically significant difference among students from different educational streams (t/f ratio = 64.561, p < .001). This finding indicates that the educational stream has a strong impact on academic procrastination levels. No significant difference was observed across social status groups (t/f ratio = 2.352, p = .071). Although close to the threshold of significance, this result suggests that social status does not have a notable effect on academic procrastination.

The analysis shows that gender and educational stream have a substantial and statistically significant influence on academic procrastination. However, social status does not appear to play a significant role in this behavior. These results emphasize the need for interventions targeting procrastination based on gender and educational stream dynamics.

Table 4 Correlation Matrix

Variables Regulation	Academic Self-Motivation	Achievement Motivation	Academic Procrastination
Academic Self-Regulation	1.00	0.277**	-0.411**
Achievement Motivation	0.277**	1.00	-0.910**
Academic Procrastination	-0.411**	-0.910**	1.00

Correlation Analysis:

A significant positive correlation (r=0.277r = 0.277, p<0.01p < 0.01) was found between academic self-regulation and achievement motivation, indicating that higher self-regulation is associated with higher motivation. Academic self-regulation was negatively correlated with academic procrastination (r=−0.411r = -0.411, p<0.01p < 0.01), showing that better self-regulation is linked to reduced procrastination. A strong negative correlation (r=−0.910r = -0.910, p<0.01p <0.01) was observed between achievement motivation and academic procrastination, suggesting that higher achievement motivation significantly reduces procrastination tendencies.

Table 5: Model Summaries

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Predictor
Model 1: Academic Procrastination (DV)	0.910	0.828	0.828	9.58262	Achievement Motivation
Model 2: Academic Procrastination (DV)	0.411	0.169	0.168	21.07541	Academic Self-Regulation

Regression Analysis:

- Model 1: Achievement motivation explained 82.8% of the variance in academic procrastination (R2=0.828R^2 = 0.828), with a strong predictive relationship (R=0.910R = 0.910).
- Model 2: Academic self-regulation explained 16.9% of the variance in academic procrastination (R2=0.169R^2 = 0.169), indicating a weaker predictive relationship (R=0.411R = 0.411).

The findings highlight the critical role of achievement motivation in reducing academic procrastination. The very strong correlation (r=−0.910r = -0.910) and high explanatory power of the regression model (R2=0.828R^2 = 0.828) underscore that students with higher achievement motivation are significantly less likely to procrastinate. While academic self-regulation also negatively correlates with procrastination (r=−0.411r = -0.411), its predictive power is notably weaker (R2=0.169R^2 = 0.169). This suggests that while self-regulation plays a role, it is not as influential as motivation in combating procrastination. Practical implications for educators and policymakers could involve designing interventions to enhance both achievement motivation and self-regulation. However, prioritizing motivation-related strategies may yield greater reductions in procrastination behaviors.

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