

## Standardisation of Academic Stress Scale and its Relationship with General Procrastination Scale

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### Abstract

Modern scenario has necessity to explore best possibilities to throw the academic stress from academic domain of the students. Literature reveals that researchers are studying continuously related aspects of academic stress. In this view, present study focuses on standardisation of Academic Stress Scale and its relationship with General Procrastination Scale. Research was conducted in two phases. Initially, 79 items were written, and finally 30 were retained with consultation of experts of Psychology and English language. Data of 400 participants (152 males and 248 females) with age range 16-27 years was collected and psychometric properties were ascertained in terms of factorial validity and Cronbach's alpha reliability. In both phases, participants were taken from various senior secondary schools, colleges, universities and other institutions through online mode. Using the number of factor solution criteria, two factors were extracted which are Exam Stress and Classroom Stress. Alpha reliabilities are found .83 (14 items) and .80 (16 items) respectively. In second phase, data of 70 (35 males and 35 females) participants was collected by administering the Academic Stress Scale and General Procrastination Scale. Composite score of Academic Stress Scale was correlated with General Procrastination Scale. Pearson correlation coefficient was found  $r=.351p<.01$  which predicts the construct validity of the scale. Overall findings reveal the satisfactory psychometric properties of Academic Stress Scale. Hence, it may be useful for researches in academic stress among general population of the students.

**Keywords:** Academic Stress, Academic Stress Scale, Procrastination Behaviour.

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### Introduction

The advancement of science and technology all over the world has enabled humans to be more responsive, aware, and sensitive to their academics, careers, professions, lifestyles, relationships, and personal development. Due to this massive progress, a variety of psychological, social and physical problems have arisen, therefore modernity is both a world of achievements and a world of stress. Stress can have a variety of causes, such as physical, social mental, and emotional issues. Seley (1936) coined the term stress and contributed a lot regarding researches in this area, and defined the stress in terms of "the non-specific response of the body to any demand for change". It may have different causes and can reflect in different domains but when it has an academic reason, it is called academic stress. With today's fast-paced and increasingly competitive lifestyles, stress has become a difficult domain to ignore in every person's life, especially among students, who are seen as the foundation of any nation.

Academic stress is defined 'as a demand related to academics that taxes or exceeds the available resources (internal or external) as cognitively perceived by the student engaged (Bisht, 1989)'. Academic stress is a significant component that influences academic progress. Academic stress also defined in terms of mental distress associated with some anticipated academic failure or resulting from a combination of academic related demands, college or university demands, various internal and external stressors, and environmental or social obligations that exceed students' available adaptive resources (Krishan, 2014; Kadapatti and Vijayalaxmi, 2012; Rachel, 2008; Lee and Larson, 2000; Gupta and Khan, 1987).

There are many aspects of academic stress throughout the educational hierarchy. It is a result of the anticipation of academic challenges or failures, which ultimately results in an inability to cope with these expectations and depletion of the individual's reserves. It negatively affects personal, emotional, psychological, and physical well-being of students. Various studies show

academic stress to be positively associated with poor academic performance, academic anxiety, academic frustration, various learning problems, and lack of concentration, irritability, school failure, social isolation, depression, and suicidal ideation.

A number of research investigating and reporting a variety of psychological and demographic correlates associated with academic stress and their relationship with it can be found in the literature on academic stress. A significant negative correlation between academic stress and mental health is found among students (Verma, et al., 2002; Aggarwal, 2011; Anjana, 2011; Kaur, 2014; Deb, 2014; Ruzhenkova et al., 2018). Academic stress studied among students of government and private schools and found higher in students of private schools than in government schools (Deb et al., 2014; Prabhu, 2015; Ghosh, 2016; Razia, 2016; Thenmozhi and Poornima, 2020). A significant relationship is found between academic stress and gender with contradictory findings. There are studies that show males are more susceptible to academic stress than females (Prabhu, 2015), while other studies have revealed that females are more prone to develop academic stress than males (Razia, 2016; Kumar and Alam, 2018). A negative correlation is investigated between academic stress and academic performance (Malik and Badla, 2006; Bharti, 2013; Khan, et al., 2013; Crego et al., 2016; Kumar and Alam, 2018). Academic stress has found negatively associated with social support (Sarita and Sonia, 2015; Menaga and Chandrasekaran, 2006). The relationship between academic stress and the family type is found to be significant. Students of nuclear families experience more academic stress than joint families (Banga, 2015).

Rahardjo and colleagues (2013) studied the significant positive relationship between academic procrastination and academic stress. Academic stress has also studied in relation to parental emotional support and parental pressure. Parental emotional support yielded significant negative association with academic stress (Leung et al., 2010), while parental pressure found positively correlated with parental pressure (Deb et al., 2015). Several studies have also investigated the negative correlates of academic

stress such as emotional intelligence (Ranasinghe et al., 2017; Jassal, 2021), Adjustment (Hussain et al., 2008; Balaji and Rao, 2012), and Self-Efficacy (Pinungu, 2013; Zajacova et al., 2005). According to a study by Renk and Smith (2007), female students with an authoritarian father experienced higher level of academic stress compared to students with non-authoritarian parents. Positive significant relationship revealed between academic stress and suicide ideation (Oginyi et al., 2018, Banerjee, 2012; Ang and Huan, 2006). Academic stress has also studied in relation to locus of control, life satisfaction and achievement motivation (Karaman et al., 2017). Empirical evidences support the significant association between personality factors and academic stress (Dennis and Nwankwo, 2020; Bhatti et al., 2018; Kumar, 2018; Bhatti et al., 2017; Velayudhan et al., 2016; Bob et al., 2014; Khan et al., 2013). Neuroticism and Psychoticism correlated negatively, and Extraversion, Agreeableness, Conscientiousness and Openness to Experience positively with academic stress.

Today, students have become the vulnerable section of society towards academic stress. Therefore, it has become a pervasive problem for students and society across countries, cultures, and ethnic groups (Wong et al., 2006) because of the numerous internal and external expectations placed upon them. Every student is acquainted with stress to varying degrees. Nowadays students have so many academic demands to meet, from continuous exams and assessments, to showing equal progress in all subjects, to the need to understand various teaching techniques, to the pressure of curriculum expectations from teachers and parents, to the pressure of financial obligations, personal and social expectations, contributing to academic stress. Whether it's in a family, schools, colleges, any social or economic condition it exists everywhere. Though it is necessary to a certain extent, to encourage students or any individual to accept challenges around them. However, when it crosses the optimum level, eustress turns into distress, which disrupts an individual's normal functioning and has serious psychophysiological repercussions.

Several statistical findings have revealed a concerning truth that academic stress among

students is real. India's suicide rate for young adults ages 15-29 is the highest among the world's nations; according to statistics published by the National Crime Record Bureau (2011), approximately one student commits suicide every hour. Student's physical and mental demands increase as they progress in school (Reddy et al., 2018), and if they are unable to meet those demands, they may experience stress, which has been linked to addictions in attempts to cope with this stressful situation. The ACHA-National College Health Assessment-II National Survey, released in 2019 which indicates that stress and anxiety significantly affect undergraduate students' academic performance negatively (ACHA, 2019).

The present study is an attempt to construct and ascertain psychometric properties of academic stress scale among school, college and university students. The alarming statistics mentioned above as well as the increasing prevalence of academic stress among students makes the necessity and importance of the development of such type of instrument which may facilitate to screen out the population of students who are suffering from academic stress. Therefore, present study is designed to develop academic stress scale as well as to assess psychometric properties in terms of reliabilities and validities.

### Methodology

*Participants:* To accomplish objectives of the study, two data sets were prepared. In case of first data set, sample of 400 students from various senior secondary schools, colleges, universities and other institutions was taken. Data was collected with the help of Google form through online mode. Students were taken from different streams/disciplines like sciences, commerce, humanities, arts, engineering etc. Out of 400 participants, 152 and 248 were males and females respectively. The age ranged between 17 to 28 years with the mean age of 22.30 years.

Second data set of 70 participants was collected after administering the newly developed Academic Stress Scale and Procrastination Scale, and ascertained the construct validity. All participants were selected from several disciplines such as sciences, social sciences, commerce, humanities, arts etc. across the colleges and

universities. Age range was from 18 to 25 years with the mean age of 22.70 years.

*Measures:* Following measures were used:

1. *Academic Stress Scale:* Initially, 79 items were written with the help of review of literature, existing scales and insight of the researchers. Scale was presented to experts of Psychology and English Language for editing, deleting, and retaining the genuine items. Finally, 30 best items were retained and used to analyse psychometric properties. Respondents may response on five point Likert scale (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree) which ranges from 0 to 4 on each item. High composite score indicates the high level of academic stress. All 30 items are also supposed to assess two types of academic stress i.e. academic stress related with classroom and exam.
2. *General Procrastination Scale (Lay, 1986):* It consists of 20 items and which are based on five point Likert scale. Respondent responses in terms of extremely uncharacteristic, moderately uncharacteristic, neutral, moderately characteristic and extremely characteristic. Composite score can be obtained after adding raw scores of all items. Satisfactory psychometric properties have ascertained by author.

*Administration and Procedure:* In beginning, researchers wrote the items with the help of related review, existing scales and their own experiences. Total 79 items were written and given to experts of Psychology and English language. Experts did the judgement based item analysis in view of the modification, deleting, ambiguity and phrases of items. Finally, 30 items were retained, supposed to also assess two kinds of academic stress (Classroom and Exam) and data was collected along with General Procrastination Scale. In view of development and psychometric properties of Academic Stress Scale, data of 400 participants was collected. And, to ensuring the construct validity, data of 70 participants was collected along with General Procrastination Scale. Data was collected keeping in view the ethics of testing. Obtained data was analysed by applying required statistical analyses with the help of software of SPSS.

### Results

Data set of 30 items was analysed by applying Pearson Product Moment method of correlation, Principal Component Factor Analysis and Cronbach's alpha coefficient. Results are reported in following headings:

*Principal Component Factor Analysis:* To extract the factors, Principal Component Factor

Analysis was applied. Firstly, KMO and Bartlett's test were applied to assess the sampling adequacy of data. KMO value was found .835, showed in Table-1 which is considerable. Bartlett's test of Sphericity is significant at 0.000 level.

**Table-1**  
**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.835
Bartlett's Test of Sphericity	Approx. Chi-Square	3336.571
	Df	435
	Sig.	.000

Number of factors solution was used and found that two factor solution is more interpretable. Table-2 shows the unrotated and

rotated factor matrices along with communalities, eigenvalues, and percent of variance. Communalities ranged between .504 and .114.

**Table-2**  
**Unrotated and Rotated Factor Matrix**

Variables	Unrotated Factors		Rotated Factors		h <sup>2</sup>
	I	II	I	II	
ASS1	.478	.223	.191	<b>.492</b>	.278
ASS2	.483	.289	.150	<b>.543</b>	.317
ASS3	.584	-.400	<b>.698</b>	.114	.501
ASS4	.403	.257	.114	<b>.464</b>	.228
ASS5	.517	.092	.310	<b>.424</b>	.276
ASS6	.553	-.352	<b>.643</b>	.128	.430
ASS7	.378	.436	-.028	<b>.577</b>	.333
ASS8	.459	.079	.278	<b>.374</b>	.217
ASS9	.520	-.312	<b>.591</b>	.134	.367
ASS10	.620	-.088	<b>.509</b>	.365	.393
ASS11	.464	-.119	<b>.417</b>	.235	.229
ASS12	.381	-.345	<b>.514</b>	.015	.264
ASS13	.501	-.161	<b>.473</b>	.230	.277
ASS14	.386	.201	.140	<b>.412</b>	.189
ASS15	.466	.254	.161	<b>.506</b>	.282
ASS16	.442	.323	.096	<b>.539</b>	.300
ASS17	.390	.174	.162	<b>.395</b>	.182
ASS18	.441	-.325	<b>.543</b>	.070	.300
ASS19	.506	-.498	<b>.710</b>	-.011	.504
ASS20	.505	-.314	<b>.582</b>	.122	.354
ASS21	.508	-.079	<b>.422</b>	.294	.264
ASS22	.337	.121	.160	<b>.321</b>	.129
ASS23	.577	-.161	<b>.529</b>	.282	.359
ASS24	.392	.182	.157	<b>.403</b>	.187
ASS25	.376	.408	-.010	<b>.555</b>	.308
ASS26	.561	.306	.194	<b>.609</b>	.408
ASS27	.338	.002	.243	.235	.114
ASS28	.372	.131	.178	<b>.352</b>	.156

ASS29	.406	.458	-.023	<b>.612</b>	.375
ASS30	.403	-.193	<b>.425</b>	.139	.200
% of Variance	21.576	7.498	21.576	7.498	
Eigenvalues	6.473	2.249	6.473	2.249	

First factor loaded significantly on item numbers 3, 5, 6, 9, 10, 11, 12, 13, 18, 19, 20, 21, 23 and 24 with respective positive loadings of .698, .310, .643, .591, .509, .417, .514, .473, .543, .710, .582, .422, .529 and .425. Total 14 items loaded on this factor. All loaded items are depicting the positive association among them. It also indicates the internal consistency reliability of this factor. Item number fifth has also significant loading .424 on second factor and .310 on first factor. Hence, it is considered on second factor. Item number 27 have .243 and .235 loadings on first and second factor respectively. Approaching the level of significance, it has retained under first factor. Thus, total 14 items are found to construct first factor. This factor has accounted for total 21.57 percent of variance with eigenvalue of 6.473. In view of the nature of items, it seems the factor of **Exam Stress**.

Second factor borne with significant positive loadings of item numbers 1 (.492), 2 (.543), 4 (.464), 5 (.424), 7 (.577), 8 (.374), 10 (.365), 14 (.412), 15 (.506), 16 (.539), 17 (.395), 22 (.321), 24 (.403), 25 (.555), 26 (.609), 28 (.352) and 29 (.612). Total 17 items significantly loaded on this factor. Obtained pattern of factor structure depicts the positive association among all items which have significant loadings, and also evidences for internal

consistency reliability. Nature of all loaded items reveals that it apparent the factor of **Classroom Stress**. Item number 10 significantly loaded positively on both first and second factors with respective loadings of .509, and .365. So, it was retained under first factor not under the second factor. Total 7.498 percent of variance has accounted. It has 2.249 eigenvalue.

*Construct Validity:* Construct validity of the academic stress scale calculated after taking composite score. Procrastination scale and academic stress scale, both were correlated and found the coefficient of correlation .351 which is significant at .01 level of probability. It concludes that those students frequently avoid or postpone the academic activities they are more prone to develop the tendency of academic stress.

*Internal Consistency Reliability:* Internal consistency reliabilities were calculated in terms of inter-item correlations and Cronbach's alpha for both the scales. Inter-item correlations are calculated and reported in Table-3 and Table-4. First scale (Exam Stress) consists of 14 items. Out of 91, 88 correlations are positively significant at .05 or .01 levels of probability. Alpha coefficient for first factor is .83 (items 14) which claims the satisfactory internal consistency reliability.

**Table-3**  
**Inter-Item Correlations**

Items	3	6	9	10	11	12	13	18	19	20	21	23	27	30
3	XX	.46	.38	.38	.21	.19	.27	.22	.48	.40	.25	.37	.18	.26
6		XX	.36	.37	.19	.26	.15	.18	.40	.35	.21	.36	.22	.30
9			XX	.34	.28	.29	.28	.34	.34	.29	.19	.27	.10	.18
10				XX	.30	.19	.19	.20	.28	.29	.14	.34	.20	.20
11					XX	.24	.37	.26	.24	.20	.29	.17	.00	.08
12						XX	.27	.28	.22	.23	.23	.22	.04	.27
13							XX	.39	.29	.18	.51	.21	-.00	.09
18								XX	.35	.29	.31	.19	.08	.16
19									XX	.29	.28	.32	.18	.20
20										XX	.17	.39	.11	.31
21											XX	.19	.15	.14
23												XX	.26	.31
27													XX	.23
30														XX

Decimal points are omitted.

Second scale (Class Stress) consists of 16 items. Out of 120, 110 correlations are significant at .05 or .01 levels of probability. Alpha

coefficient for this scale is .80. It reveals the satisfactory internal consistency reliability.

**Table-4**  
**Inter-Item Correlations**

Items	1	2	4	5	7	8	14	15	16	17	22	24	25	26	28	29
1	XX	.38	.24	.30	.28	.20	.18	.21	.19	.15	.04	.18	.20	.31	.08	.23
2		XX	.30	.30	.29	.21	.11	.20	.22	.16	.22	.29	.20	.24	.19	.15
4			XX	.23	.20	.23	.13	.22	.12	.15	.04	.25	.14	.24	.10	.20
5				XX	.12	.65	.10	.10	.23	.16	.18	.07	.11	.30	.09	.22
7					XX	.12	.24	.23	.30	.17	.12	.19	.33	.23	.06	.24
8						XX	.04	.11	.15	.13	.15	.16	.06	.28	.08	.16
14							XX	.36	.24	.08	.15	.05	.16	.25	.03	.31
15								XX	.29	.12	.12	.09	.18	.34	.17	.24
16									XX	.27	.11	.06	.26	.31	.11	.24
17										XX	.17	.22	.16	.06	.35	.25
22											XX	.11	.07	.24	.31	.13
24												XX	.21	.30	.25	.12
25													XX	.35	.18	.32
26														XX	.14	.28
28															XX	.21
29																XX

Decimal points are omitted.

### Discussion

Present research was endeavoured to standardization of Academic Stress Scale and its relationship with General Procrastination Scale. Now a days, academic domain emerges as crucial field which includes careers, professions, and expectations of students, parents and teachers. Of course, it facilitates our lives but sometimes students feel academic stress due to unavoidable circumstances, pressure from parents and teachers, certain psychological traits, and demands of society. Related review of literature also clearly reveals the existence of academic stress and its correlates. In this view, several measuring instruments have been standardized. So, present study also aimed to construct standardized instrument of academic stress which may helpful to screen out those students who are more prone to develop the tendency of academic stress.

Initially, 79 items were written and reduced in a pool of 30 items by applying judgement based item analysis process with the consultation of experts from Psychology and English language, and supposed to assess two kinds of academic stress (classroom and exam).

Principal Component Factor Analysis was applied with the help of varimax rotation, and ascertained the factorial validity. Two factors are extracted using the criteria of number of factor solution. Two factors are Exam Stress and Classroom Stress. Exam Stress Subscale consists of 14 items, whereas Classroom Stress subscale includes 16 items.

Exam Stress factor includes the characteristics of worry, tense, feeling of exhaustion, irritability, disturbed sleep cycle, feeling of embarrassment and thirsty during exam, stress about completion of syllabus, sickness, and fear of failing and to seek help from other students. Item-inter correlations also yielded the internal consistency reliability of the subscale. Approximately, 97 percent coefficients of correlations are significant at or above .05 level of probability and all are positive. Cronbach's alpha was also found .83 which shows that all items assesses the same construct.

Classroom Stress factor can be explained mainly in terms of lack of concentration in classroom, difficulty in remembering, hesitation, feeling of rejection, lack of confidence, feeling of overburdened, dependency, pressure of parent's

expectations, and difficulty in adjustment of new academic environment. Inter-item correlations and Cronbach's alpha (.80) predict the internal consistency reliability of the subscale.

Academic Stress Scale was correlated with General Procrastination Scale and found the positive significant correlation ( $r=.351p<.01$ ), which indicates the construct validity of Academic Stress Scale. Those students use the procrastination behaviour they tend to be high on academic stress. Literature shows the adverse impact of academic procrastination and delay behaviours on academic progress (Pathak M., 2011; Ingram J. S., 2007). Pynchyl (1995) studied the positive relationship of academic procrastination with anxiety, stress, and guilt. In 2020, Rizki and colleagues investigated the significant association between student life stress and academic procrastination.

In conclusion, Academic Stress Scale may help to assess the academic stress among students of schools, colleges, universities and other academic institutions. Moreover, large and diverse sample may also be used to ascertain empirical evidences and psychometric properties.

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## Appendix

### Academic Stress Scale

Respondents can give their responses in view of SD (Strongly Disagree), D (Disagree), N (Neutral), A (Agree), and SA (Strongly Agree). Scoring pattern of all items is in positive direction. It ranges from 0-4. Composite score can be acquired after adding scores of all items. Total score ranges from 0 to 120. High score indicates the high level of academic stress.

1. I feel a lack of concentration in the class.
2. I face difficulty in remembering.
3. I remain worried about exams.
4. I think my teachers don't accept my ideas.
5. I hesitate to ask questions in the class.
6. I feel tense about the result after exams.
7. I feel my teachers are biased towards me.
8. I feel unable to share my viewpoint in the classroom.
9. I mostly feel exhausted during exams.
10. I mostly feel embarrassed due to lack of confidence.
11. I usually get irritated during exam time.
12. Usually during exams my sleep cycle gets disturbed.

13. I often suffer with poor health during exam days.
14. I think my teachers give too much homework.
15. I often need help from someone while doing homework.
16. I often avoid the teacher of the subject that you find difficult.
17. My parents force me to study.
18. I feel thirsty more frequently during exam days.
19. I often feel stressed before the exams.
20. I am often too worried about my syllabus.
21. I often get sick during exam days.
22. New social relations affect my academic achievement.
23. I have a fear of failing in exam.
24. I feel difficulty to adjust in changing academic environment.
25. I do often quarrel with my classmates.
26. Probably, I can't understand the topics taught in class.
27. I often feel the need for help from someone in academic work.
28. My family members compare to me with my siblings and friends.
29. I feel that teachers put a lot of pressure on me.
30. I worry a lot about the academic achievement.

*Separate scores for two subscales can also be derived. Distribution of items for both the scales is as follows:*

*Exam Stress Scale:-3, 6, 9, 10, 11, 12, 13, 18, 19, 20, 21, 23, 27, 30; total items-14*

*Classroom Stress Scale:-1, 2, 4, 5, 7, 8, 14, 15, 16, 17, 22, 24, 25, 26, 28, 29; total items-16*