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Illness Perception among Diabetes in TamilNadu: A Pilot Study

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Abstract

The main objective of this study was to determine the illness perception of diabetic patients in Coimbatore city, TamilNadu, India. This cross-sectional study focused on 60diabetic patients undergoing treatment at a public hospital and private hospital. Demographic data sheet and illness perception questionnaires (revised) were used as measuring instruments. The collected data were analyzed using Pearson product moment correlation, 't' test and frequency analysis. The findings of the study revealed that perceived symptoms (Identity) had positively related to risk factors. Patients' perception of timeline belief about their illness had positively related with consequences at the same time inversely related to their personal control. The perception of patients' consequences due to diabetes had positively related to psychological attributions and risk factors. The patients' belief in their personal control and treatment control had positively related with illness coherence.

Keywords: *Diabetes, Illness Perception, India*

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Introduction

Diabetes mellitus has become a global epidemic in India and the prevalence of diabetes is being doubled as compared to the last decade (WHO,2008). According to the International diabetic federation, (seventh edition) until 2015 there were 69.3 million people living with diabetes in India and number will rise up to 123 million by 2040 (IDF, 2015). The recent report revealed that In India, Tamil Nadu is being a highly populated state in diabetes. In Tamil Nadu death rate due to diabetes was significantly higher than (53) the national mean (23) (WHO, 2017). When blood sugar is not under control it reflects more than just a condition as it has connections with other chronic illnesses. People with diabetes also may have doubled risk of suffering from the heart diseases. Moreover, it also creates other problems such as diabetic retinopathy, neuropathy, limb amputations and kidney diseases. However, consequences due to diabetes could be fortunately preventable by the regular adherence to lifestyle modifications such as diet, physical exercise and appropriate medication and so on. Unfortunately, yet many diabetic people are non-adherent to the therapeutic treatment (Divya S &Pratibha N, 2015). To ensure the normal blood sugar level in the body and being healthy, their illness perception also may play a significant role in self-care behavior.

Hence, there is a crucial need to prevent and control the disease further, so that it could prevent the other complications due to it. More than the external factors such as social support and quality of treatment, which is used to

provide by the physicians, the patients' own perception also plays an important role in coping and treatment outcomes. Relevant to this context, Leventhal and his colleagues have developed a model of Illness Perception, which addresses the illness beliefs of the patients with various chronic illnesses.

Illness perception is organized away of cognitive representation of patients holds about their illness (Leventhal H et al. 1997). At most of the time, patients' perception of their illness does not match with physicians' views. Rarely physician tends to ask what he/she thinks about illness (Weinman J et al. 2007). However, measuring these illness perceptions at the early stages creates room for the medical practitioners to categorize the patients in order to provide the appropriate care for those who tend to have negative beliefs about their illness. An understanding of illness representation is essential for effective patient management (Weinman J et al. 1996).

The Illness Perception model addresses any kind of illness mainly in three stages such as interpretation of the illness, coping procedures, and appraisal of the coping procedures (Leventhal H 1980 & Lau R,Hartman KA, 1983). Generally, perception originates from the patients' own experience and lay referral systems (Doctor, nurses, family members' friends etc.). In addition to that, illness perception has been found to be vital determinants of treatment adherence and functional recovery (Leventhal H et al. 1997). Uncertainty about the symptoms and emotional distress about the illness were associated with less satisfaction of the consultation.

In India, Public health system is providing necessary care for diabetic patients. Since India is having high diabetic burden parallel to public hospital, more private hospitals also delivering diabetic care services. However, treatment provided by public and private hospitals may not give the same outcome perception for the patients. We could see that there are many differences in the approach and modes of treatment. Private hospitals used to have many specialized cares such as diabetic foot clinic, podiatry, diabetes education, nutrition & diet counseling and obesity clinic and many more. We may not find these kinds of specialized departments in public hospitals. Thus, Government health policymakers can also focus to provide these kinds of specialized treatments to enhance the treatment efficiency, so that most diabetes can get benefit from it. Moreover, Perception of the illness does change person to person even for the same disease severity also (Weinman J et al. 2007 &Weinman J et al. 1996). This study has focused on diabetic patients' illness perception since the very little study is been carried out especially in the southern part of India.

Objectives:

- To study the illness perception among diabetic patients
- To compare the illness perceptions based on socio-demographic variables such as gender, family income of diabetic patients.

Method

Sample

The diabetic patients who were undergoing treatment from Coimbatore city public and private hospitals were included in the study by using purposive sampling method. The researcher approached concerned authorities for conducting the study from the public and private diabetic clinic. The samples consisted of 60 (Male-30 and Female-30) diabetic patients from the public hospital and private hospital who visited the outpatient department for their treatment. Age of the participants ranged from 35 to 64 (M=50.13) with the illness duration up to 15 years.

Procedure

The data were collected during the month of February and March- 2016 using the survey method in Coimbatore city- Public and Private hospital which is located middle part of Tamil Nadu in India. Before collecting the data, the researcher explained to the diabetic patients about the purpose of the study and informed consent obtained from the patients. Patients who were willing to participate in the study were provided with the questioner and requested to respond to it based their beliefs about own diabetes. In the end, participants were thanked for their active participation in debriefing. The Ethical committee's approval was obtained from Central University of Karnataka, India.

Measure

Socio-demographic data sheet and Illness perception questionnaire- revised (diabetes) was administered to measure the diabetes' beliefs on Identity (Symptoms), Timeline belief, Consequences, Personal control, Treatment control, Timeline Cyclical, Emotional representation and Causes (Psychological attribution, Risk factors, Immunity and Accident or chance) (Lau R, Hartman KA, 1983). The questions were to be responded using five-point Likert scale items such as, Strongly Disagree =1, Disagree =2, Neither Agree or Disagree = 3, Agree = 4, Strongly Agree=5. The IPQ-R questionnaire demonstrated the factorial structure of the IPQ-R for healthy individuals is similar to the structure for different patient groups, with an internal reliability for each illness dimension ranging from 0.64 to 0.81 (Weinman J, 2007).

Table-I Reliability statistics for IPQ-R in the present study

Illness perception domains	Number of items	Mean	SD	Cronbach's Alpha
Timeline Acute or Chronic	6	19.42	6.619	0.911
Consequences	6	21.32	4.332	0.721
Personal Control	6	18.82	3.213	0.384
Treatment Control	5	16.28	2.308	0.110
Illness Coherence	5	17.30	3.082	0.526
Timeline Cyclical	4	12.10	2.420	0.376
Emotional Representation	6	21.45	2.965	0.374
Psychological Attributions	6	17.40	4.138	0.594
Risk Factors	7	23.00	4.186	0.406
Immunity	3	08.02	2.079	0.340
Accident or chance factors	2	04.43	1.741	0.422

The reliability of the tool was assessed using the study dataset. Reliability coefficients (Cronbach alpha) were computed for the IPQ-R subscales. Among nine illness perception subscale, two had an adequate reliability coefficient (α levels > 0.70). Internal consistencies of the other dimensions were found, moderate and treatment control subscale was very low (0.110).

Results

Table-II The profile of the participants respective to the age, illness duration and family income of the patients

	Minimum	Maximum (N=60)	Mean	SD
Age	35	64	50.13	6.82
Illness duration	1	15	3.62	3.21
Family income	4500	150000	21691	29852

The participants' age ranges from 35 to 64. Their illness duration ranges from 1 year to 15 years maximum. The monthly family incomes of the patients were 4500 up to 150000 with the mean income of 21691 rupees.

Table III: Illness Duration among the participants

Illness duration	N	Percentage
<2 years	31	51%
>=2 years and above	29	49%

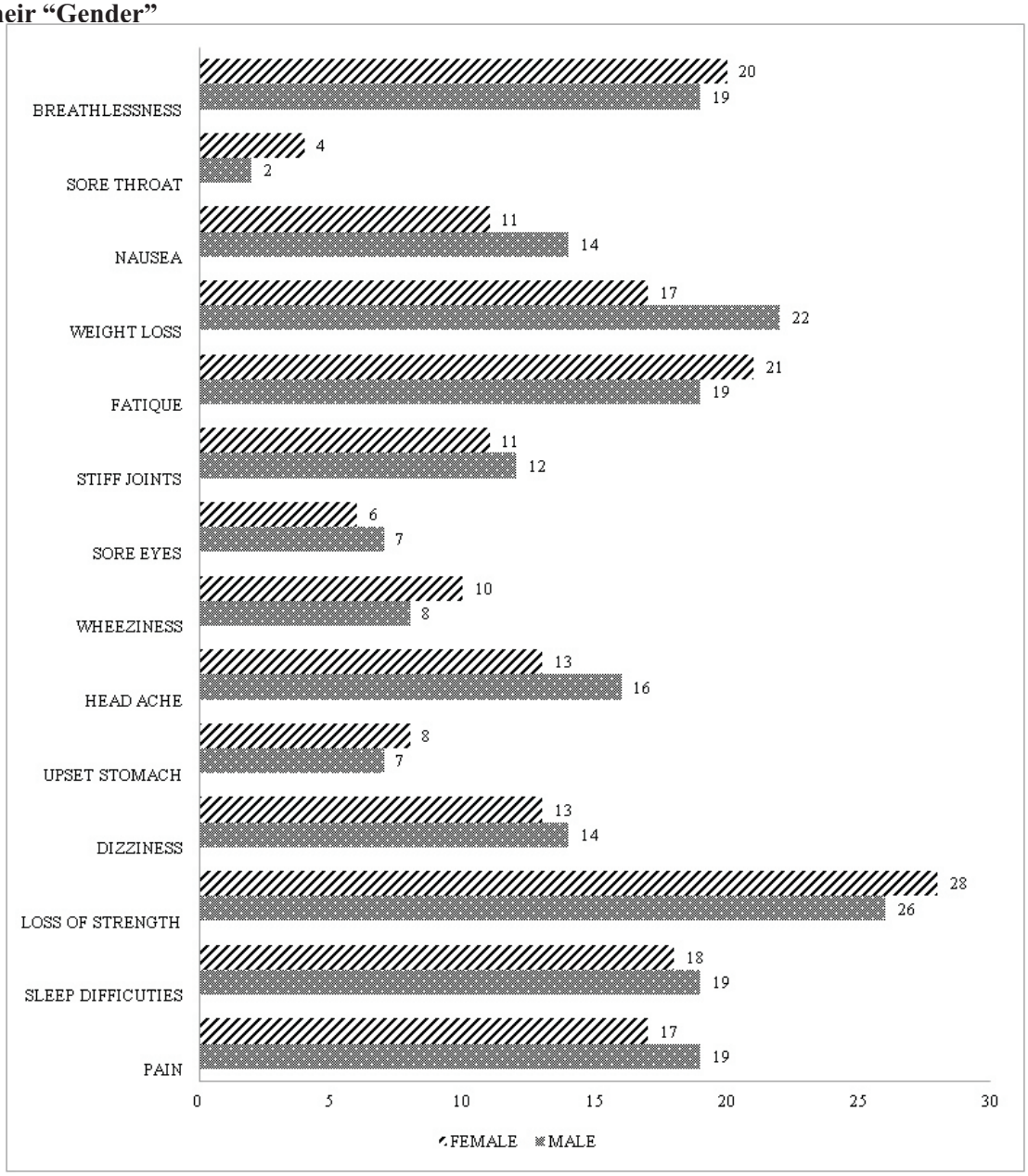
Among the participants, 31 patients have had diabetes for 2 years; another 29 were having illness more 3 years up to 15 years respectively.

Table IV: The participants' perceived symptoms of diabetes by frequency analysis

Symptoms	Number of patients perceived(*f)	Percentage
loss of strength	54	90
fatigue	40	66.7
breathlessness	39	65
weight loss	39	65
sleep difficulties	37	61.7
Pain	34	60
Headaches	29	48.3
Dizziness	27	45
Nausea	25	41.7
stiff joints	23	38.3
Wheeziness	18	30
Upset stomach	15	25
Sore eyes	13	21.7
Sore throat	6	10

f- Frequencies out of 60 Participants

Fig-1 Graphical representation of symptoms perceived by the diabetic patients' respect to their "Gender"



The above table IV(a) indicates that symptoms perceived by diabetes based on gender. Most of the patients'irrespective of their gender perceived loss of strength, weight loss, and breathlessness, fatigue, and sleep difficulties. Sore throat and sore eyes perceived at the last level in this present study diabetic patients.

Table-V Pearson product moment correlation analysis: Relationship between the subscales of IPQ-R

	ID	TI-AC/CR	CONS	PC	TC	IC	TCY	ER	PA	RF	IM	AC/CH
IDENTITY (ID)	1	0.226	0.250	-0.177	0.002	0.054	0.066	0.173	0.218	**0.383***	0.246	-0.010
TIMELINE (Acute/Chronic) (TI- AC/CR)		1	**0.497***	**-0.305***	-0.053	-0.109	0.108	0.181	0.254	**0.302***	0.215	**0.258***
CONSEQUENCES (CONS)			1	-0.109	0.120	0.059	0.134	0.192	**0.256***	**0.391***	0.231	-0.075
PERSONAL CONTROL (PC)				1	0.062	**0.331****	0.133	0.140	-0.109	-0.156	-0.213	-0.140
TREATMENT CONTROL (TC)					1	**0.391****	0.056	-0.004	-0.133	-0.093	-0.047	-0.099
ILLNESS COHERENCE (IC)						1	0.007	0.107	-0.218	-0.163	-0.157	-0.208
TIMELINE CYCLICAL (TCY)							1	0.055	0.187	0.120	**0.296***	0.239
EMOTIONAL REPRESENTATIONS (EC)								1	0.247	0.041	0.202	-0.025
PSYCHOLOGICAL ATTRIBUTIONS (PA)									1	**0.408***	**0.417****	**0.467****
RISK FACTORS (RF)										1	0.218	0.184
IMMUNITY (IM)											1	**0.443****
ACCIDENTORCHANCE												1

*Correlation is significant at 0.05 level

**correlation is significant at 0.01 level

Participants have perceived symptoms due to diabetes has positively correlated with risk factors such as alcohol, smoking, and diet or eating habits significantly at 0.01 levels. The belief of the timeline acute/chronic was positively correlated with consequences due to diabetes significant at 0.01 level. When the diabetes timeline of their illness increases consequently it declines, the belief of their personal control negatively correlated at 0.05 levels. Belief about the timeline is positively correlated with risk factors attributions at 0.05 levels. Timeline acute or chronic also positively correlated with cause beliefs of accident or chance at 0.05 levels. Consequences beliefs positively correlated with psychological attributions such the illness due to stress or worry at 0.05 levels. Again, consequences also positively correlated with risk factors, beliefs such as alcohol and smoking at 0.01 levels.

Patient's belief about their personal control was positively correlated with illness coherence (understanding about diabetics) at 0.01 level. Treatment control was positively correlated with illness coherence at 0.01 level. Timeline cyclical belief was positively correlated with immunity at 0.05 levels. Psychological attribution belief was positively correlated with risk factors, immunity, an accident or chance at 0.01 level. Immunity was positively correlated with accident or chance at 0.01 level.

Table –VI Comparison of Perceived belief about the causes of diabetes respect to their "Gender"

Causes sub-dimensions	Gender	N	Mean	SD	't'
Psychological attributions	Male	30	18.2	4.01	1.51
	Female	30	16.6	4.17	
Risk factors	Male	30	25.67	3.14	6.38**
	Female	30	20.33	3.32	
Immunity	Male	30	8.53	2.06	1.97
	Female	30	7.5	1.99	
Accident or chance	Male	30	4.7	1.62	1.19
	Female	30	4.17	1.84	

** Significant at 0.01 level

Male diabetes perceived the risk factors for their illness was significantly different from female diabetes perception of risk factors at 0.01 levels. In addition to that, psychological attributions, immunity, accident or chance did not significantly differ based on their gender.

Table- VII Comparison of perceived beliefs about the consequences due to diabetes respect to patients' "family income"

Illness Perception Sub dimension	Family Income level	N	Mean	SD	't'
Consequences	>= 10000	38	19.45	2.835	2.052**
	< 10000	22	17.73	3.588	

** Significant at 0.01 level

The above table indicates that diabetic patients' family income more than 10000 rupees were significantly different from the less than the income of 10000 rupees among diabetic patients in terms of their consequences beliefs at 0.01 levels.

Discussion

As noted earlier the illness perception changes in individuals with the same disease, ethnic groups with this background illness perceptions' theoretical assumptions intended to investigate in the present study and findings are as follows;

Most of the participants felt suffering fromloss of strength, which may attribute to their inability of blood glucose to convert into energy properly, and further, in turn, it led to fatigue (extreme tiredness). The other symptoms due to diabetes are perceived as an only moderate number. However, very few patients had reported that stomach upset, sore eyes and sore throats.

Patients were possessed with different degrees of illness beliefs. Identity component has a stronger correlation with risk factors. Subcontrary to the present finding, the initial study conducted by Moss-Morris reported that identity dimension correlated most strongly with psychological and immune attributions and less associated with risk factors (Rona Moss-Morris et al. 2002).Specifically, illness coherence was positively related with treatment control &personal control, which was clearly indicating that when the patient has sufficient understanding about his/her illness, it could predict the controllability of the illness it was also supported by Rona moss &Morris et al in the study of validation of IPQ-R (Rona Moss-Morris et al. 2002). Timeline belief showed that positive relation with series consequences due to diabetes in personal and social life and negatively with personal control. Moreover, timeline belief of diabetes strongly associated with causal attributions such as risk factors (alcohol and smoking) and accident or chance factor has also supported the findings of Moss-Morris (Rona Moss-Morris et al. 2002).

The attributed risk factor such as drinking alcohol and smoking behavioras well as stress or worry (Psychological factors) also predicted the consequences due to uncontrolled diabetes. Conversely, when the illness coherence increases, it enhances the belief of personal control and treatment control. It revealed that patients with beliefs of symptoms/illness perceived that it was the result of heredity and it may have been persistent to run in their past and present generations. Likewise, patients' psychological attributions such as

stress or worry interrelated with all other three casual factors (Risk factors, Immunity, and Accident or chance factors) and supported by the study of Moss-Morris (Rona Moss-Morris et al. 2002).

In addition to that, gender-wise comparison of the causes of diabetes has revealed that male patients tend to perceive the condition of disease due to the drinking alcohol and smoking than female patients. It may be partially true that when the genetic predispositions (family history of diabetes) to get diabetes added with this kind of health risk-taking behaviors' also would worsen their condition even more that may result in such beliefs of them. On the other hand, the additional reasons for getting diabetes (psychological cause, immunity and accidental or chance factors) did not make any difference with respect to their gender because these casual beliefs are most common in both the gender. Surprisingly, it has also revealed that when people with better economic status might tend to perceive more consequences of diabetics on their lives compared to lower economic status. This may be because of when people are economically in better status, they tend to be less physically active than poorer patients who engage in a hard physical activity for their livelihood.

Limitation of the study and recommendations for future studies

The present study could be understood with few limitations. Firstly, the researcher had explored only illness perception of diabetic patients. Further studies can focus on exploring coping measures and outcome variables' such as self-care management or self-care behavior diabetic patients and HbA1c. Secondly, the samples were small in size the findings has certain limitations. Thus, upcoming studies can be conducted with large patient samples. So that reliability of the tool can be tested adequately and better generalizability of the findings possible. Lastly, diabetes patients have been recruited irrespective of the types of diabetes and it would be better if we could specify the population and explore like type-2 diabetics.

Conclusion

Our present study has found that majority of the participated diabetic patients were more frequently perceived loss of strength and fatigue due to the inefficiency of produced and unproduced insulin for the conversion of energy for the seamless body functions. In addition to that, Illness perception dimensions had associated positively and negatively with each other. Illness coherence could enhance both forms of personal and treatment control.

Compliance with ethical standards:

Conflict of Interest-

The author(s) declared that they have no conflict of interest

Funding-

This present study was not sponsored by any organization.

Ethical Approval-

All the study participants signed a written informed consent after obtainingthe full explanation and objectives of this study. Inaddition to that, the whole procedures involved in this study were in accordance with the ethical guidelines of American Psychological Association and Indian Council for Medical Research on human participants.

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