Diabetes & Metabolic Syndrome: Clinical Research & Reviews 13 (2019) 965–967

Contents lists available at ScienceDirect

Diabetes & Metabolic Syndrome: Clinical Research & Reviews

journal homepage: www.elsevier.com/locate/dsx

Case Report

The relationship between diabetes-related emotional distress and illness perceptions among Indian patients with Type II diabetes

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ARTICLE INFO

Article history:
Received 26 November 2018
Accepted 26 December 2018

Keywords:
Type II diabetes
Emotional distress
Illness beliefs
India

ABSTRACT

Aims: To examine the relationship between diabetes-related emotional distress (DED) and illness perceptions among Indian patients with Type II diabetes (T2D).
Material and methods: 92 patients with T2D completed questionnaires on their demographic and medical details, DED and illness perceptions. Multiple regression analysis was conducted to examine the association between demographic, medical and illness perceptions variables and DED.
Results: Increased number of children, personal control and illness-related concern were associated with increased levels of DED.
Conclusions: Additional support is needed for Indian patients with T2D who have more children, greater sense of personal control and higher levels of diabetes-related worry.

1. Introduction

Diabetes is a challenging chronic illness owing to the number of complex behaviours (i.e., diet, exercise, self-managing blood glucose levels, taking medication) patients need to adhere to in order to optimally manage their blood glucose levels [1,2]. Consequently, diabetes research evidenced high levels of diabetes-related emotional distress (DED)[1] among patients with Type II diabetes (T2D)[2] [3,4]. In India, DED ranges from 16% to 40% among patients with T2D [5,6], with increased levels of emotional distress being associated with poor glycemic control [6].

Worldwide research indicates that DED can be linked to cultural and social norms [7–9], emphasizing the role of beliefs about diabetes in levels of distress among patients with T2D. The Common Sense Model of Self-regulation (CSM)[3] [10] suggests that individuals develop beliefs and emotions about a health threat which include five dimensions of identity, timeline, consequences, cause, and cure/control. The CSM is a useful theoretical framework to explain how patients with T2D make sense of their illness and to predict well-being and self-management behaviours [11–13]. The current study aimed to explore the relationship between DED and illness perceptions among Indian patients with T2D.

2. Methods

2.1. Participants

Using convenient sampling, 92 patients diagnosed with T2D living in Chennai and Mumbai, India were recruited into the study. Potential participants were approached during their medical visit and explained the study. Interested patients were provided further details about the study and given ample time to ask any questions. After answering these questions, informed consent was obtained from patients who expressed an interest to participate. Ethical approval for the study was received from the Institute Ethics committee, Indian Institute of Technology Hyderabad, Hyderabad, India and from the Hospital Ethics Committee, Osmania General Hospital, Hyderabad, India.

2.2. Procedure and measures

Participants were first asked about their demographic (e.g., age, education) and medical (e.g., time since diagnosis, treatment type)

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[1] DED - Diabetes-emotional distress.
[2] T2D – Type II Diabetes.
[3] CSM - Common Sense Model of Self-regulation.

https://doi.org/10.1016/j.dsx.2018.12.018
1871-4021/

Table 1
Demographic and medical information.

Description		N
Age (years)	Mean	50.03
	Range	25–76
Gender	Male	40
	Female	52
Marital Status	Married	77
	Widowed	6
Number of children	Mean	3.04
	Range	0–9
Education	Below/completed 10th	27
	12th/Intermediate	6
	Degree	22
	Postgraduate	4
	PhD	1
	No formal education	19
Yearly average household income (Rs)		22317.24
Time since diagnosis (in months)	Mean	77.90
	Range	1–300
Treatment	Oral medication	59
	Oral medication and insulin	6
	Insulin	16
Presence of comorbid illness	Yes	53
	No	32
Types of comorbid illness	Blood pressure	42
	High cholesterol	4
	Kidney disease	2
	Asthma	2
	Others	3

details. Following this, questionnaires on DED (Problem Areas in Diabetes[4][PAID; 14]) and illness beliefs (Brief Illness Perceptions Questionnaire[5] [BIPQ; 15]) were administered in patients' preferred language (Hindi = 50, Tamil = 26, English = 16).

3. Results

3.1. Participants

Of the 92 participants, 40 were male and 52 were female with a mean age of 50.03 years (SD = 11.38 years). Majority of participants (83.7%) reported being married. The average time since diagnosis was 6.49 years with 64.1% participants reporting they took oral medication, 17.4% insulin and 6.5% taking oral medication and insulin. More than half of the participants (57.6%) reported having a comorbid illness such as high blood pressure, high cholesterol, kidney disease, asthma, thyroid. Table 1 describes participants' demographic and medical information.

3.2. Relationship between demographic, medical and illness beliefs with DED

Pearson correlation was carried out to understand the association between demographic, medical and psychological variables (PAID and BIPQ). DED was positively correlated with number of children ($r = -.35$, $p = 0.01$) and illness beliefs sub-scales of personal control ($r = 0.39$, $p = 0.01$), identity ($r = 0.24$, $p = 0.05$), emotional representation ($r = 0.22$, $p = 0.05$) and illness-related concern ($r = 0.28$, $p = 0.01$). Table 2 depicts the matrix for significant correlations among the demographic, medical and psychological variables.

3.3. Predictors of DED

Multiple regression analysis was conducted to understand the demographic and psychological variables that predict DED. DED was regressed on number of children, personal control, identity, emotional representation and illness-related concern. These variables explained 40% of variance for DED, $F_{(5, 77)} = 10.28$, $p<0.001$. Personal control ($b = .45$, $t_{(90)} = 4.52$, $p<0.001$), illness-related concern ($b = .36$, $t_{(90)} = 3.02$, $p<0.003$) and number of children ($b = -0.33$, $t_{(90)} = -3.64$, $p<0.001$) were significant predictors of DED. Emotional representation was not a significant predictor of DED.

4. Discussion

The current study examined the relationship between DED with illness perceptions among Indian patients with T2D. The study revealed that the number of children and illness perceptions dimensions of personal control and illness-related concern were associated with DED.

Table 2
Correlations among the demographic, medical and psychological variables.

	Age	Inc	N.Chil	TSD	PAID	Consq	TL	PCont	TCont	Iden	Coher	ERep	Con	BIPQ
Age	1	.04	-.17	-.01	.18	-.00	-.05	**.22**[b]	-.02	.14	-.02	.20	.06	.06
Inc		1	-.03	.06	.21	**-.40**[a]	**-.41**[a]	.18	.16	**-.30**[b]	.06	.04	**-.35**[a]	**-.30**[b]
N.Chil			1	-.14	**-.35**[a]	.17	**.31**[a]	-.09	.09	-.11	-.03	-.09	.04	.08
TSD				1	.03	-.20	-.11	.04	-.02	-.15	.02	.09	-.07	-.11
PAID					1	.03	-.10	**.39**[a]	-.00	**.24**[b]	.19	**.22**[b]	**.28**[a]	.14
Consq						1	.07	.07	**-.25**[b]	**.54**[a]	.20	.04	**.67**[a]	**.47**[a]
TL							1	-.15	.01	.04	.00	-.04	.10	**.80**[a]
PCont								1	.20	.09	.14	**.41**[a]	.02	.19
TCont									1	**-.22**[b]	.03	.07	**-.26**[b]	.05
Iden										1	.05	.01	**.61**[a]	**.40**[a]
Coher											1	.18	**.21**[b]	**.28**[a]
ERep												1	.10	**.25**[b]
Con													1	**.50**[a]
BIPQ														1

Note: Income (Inc), Number of children (N.Chil), Time Since diagnosis (TSD), Problem Areas in Diabetes (PAIDS), Consequence (Consq) Timeline (TL), Personal Control (PCont), Treatment Control (TCont), Identity (Iden), Coherence (Coher), Emotional Representation (ERep), Concern (Con), Brief Illness Perception Questionnaire (BIPQ).
[a] Correlation is significant at the 0.01 level (2-tailed).
[b] Correlation is significant at the 0.05 level (2-tailed).

[4] PAID – Problem Areas in Diabetes.
[5] BIPQ - Brief Illness Perceptions Questionnaire.

The current study found that having more children was associated with increased levels of DED among the patients. One likely explanation for this finding is that patients felt responsible towards their children and were distressed that their diabetes was interfering with their ability to take care of their children. Indeed, Indian parents are deeply involved in child rearing/development [16] as well as ensuring their children are well-educated and married [17]. These findings indicate that Indian patients with T2D who have more children may require additional psychological support.

The illness perceptions dimension of personal control was associated with DED in the current study, such that stronger beliefs of personal control predicted increased levels of emotional distress. This finding is in line with previous worldwide research [18–20], suggesting that the more patients felt that they were in control of their diabetes, the more responsible they felt towards self-managing. These feelings of duty to engage in self-care can, in turn, cause heightened feelings of distress, especially if they perceived their efforts to be unsuccessful/insufficient. The current study revealed that higher illness-related concern predicted increased levels of DED. This finding adds to existing worldwide research which reported that higher levels of worry about diabetes was related to increased emotional distress about the illness [14], indicating a need to identify and address patients' worries in order to reduce their levels of emotional distress. Future research will benefit from using qualitative methods to explore in-depth the experiential aspects of *how* the illness beliefs of personal control and illness-related concern are related to DED, thus informing development of an appropriate intervention to reduce Indian patients' emotional distress.

5. Conclusion

This study revealed that having more number of children, perceiving a greater sense of control over one's illness, and having more illness-related worries was associated with increased levels of DED among Indian patients with T2D.

6. Summary

This study reported that increased number of children, greater personal control and illness-related concern were associated with increased levels of diabetes-related emotional distress among Indian patients with T2D, suggesting a need to provide additional emotional and psychological support to these patients.

Conflicts of interest

The authors state that they have no conflict of interest.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgments

We would like to thank the hospital staff for facilitating data collection. We would also like to extend our gratitude to the participants who gave us their time and willingly participated in the study. We thank Dr. Tracy Epton, Manchester Centre for Health Psychology, University of Manchester, UK for her comments and feedback.

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