

RELATIONSHIPS BETWEEN GENERAL HEALTH CONCERN AND ILLNESS UNCERTAINTY IN DIABETIC PATIENTS; ROLE OF SELF-REGULATION

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ABSTRACT

Objective: To investigate the relationship between general health concern and illness uncertainty in diabetics and to find out the role of self-regulation.

Methodology: This cross-sectional study was conducted in the department of Psychology, University of Sargodha from April to September 2018. A sample of 250 diabetic patients was enrolled inclusive of males and females from different hospitals of Sargodha, Joharabad and Khushab. Measure of Health Status Form (SF-36), Illness Uncertainty Scale and Self-Regulation Questionnaire (SRQ) were administered. Data was analyzed with the help of SPSS version 24.

Results: Results of the present study indicated a significant negative relationship between general health concern and illness uncertainty ($\beta = -.34, p < .001$). Low level of self-regulation was also negatively correlated with illness uncertainty in diabetics ($\beta = -1.76, p < .05$). Moreover, self-regulation played a significant moderating role between the relationship of general health concern and illness uncertainty ($\beta = .30, p < .001$).

Conclusion: Illness uncertainty significantly and negatively affected the general health concern and self-regulation of diabetics. Moreover, self-regulation of diabetics was also vital as a moderator between the relationship of general health concern and illness uncertainty.

Key Words: General health concern, Diabetes, Illness uncertainty, Self-regulation

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INTRODUCTION

General health concerns are perceptions of health and wellness that can be physical or psychological. By becoming concerned about their disease, patients develop abilities to cope better with disease and its complications. Illness uncertainty can be a danger or opportunity but in general, it has been described as a difficulty in understanding illness-related events and have trouble in positive adjustment¹. Yet, it depends on the appraisal of the situation whether it is positive or negative. In social and cognitive theory, it is described as an explanatory mechanism. It results from suppressing the undesirable and competing behaviors and also executing the behavior in a way that is effective². Patients become concerned about improving their physical and psychological complications due to the disease. These situations are those that cause cardiovascular diseases leading to acute illness and premature death³. In addition, patients feel difficulty due to the use of medication and become

less functional⁴. Diabetes is a risk factor for many complications and is found to decrease the psychological well-being of patients; the main reason for patients to develop grave physical and psychological health concerns. Numerous other factors contributing to these concerns include routine life changes, some strained coping styles, relationships issues especially familial and spousal relationships, work, and financial matters as they are greatly present and sustained at the time of the disease⁵. Reduction of distress related to diabetes occurs through intensive use of cognitive-behavioral or educational interventions⁶. Yet there is very little information available about factors that can encourage patients to cope with their increased level of distress successfully. Empirical evidence⁷ has reported that in type 1 diabetic patients who live with the disease for many years show a significant prevalence of moderate to severe depression.

In human beings, the experience of uncertainty is considered an inherent phenomenon but in the chronic illnesses, it becomes more severe⁸. Illness uncertainty

scale given by Mishel (1988)⁹ and later modified for longer periods and chronic intensity of illness¹⁰ is used to determine uncertainty. The theory of illness uncertainty has four stages and among these, first stage is related to those antecedents that generate an uncertain situation. The second stage is related to the perception of illness uncertainty as an opportunity or as a threat and fourth and final stage is the adaptation state¹¹.

In diabetes, self-regulation is defined as a set of skilled behaviors engaged in managing one's illness. Good self-regulation of diabetes is essential for reducing long-term adverse health consequences and disability¹². The primary purpose of the management of type 2 diabetes is to lower the level of blood glucose and prevent the complications such as reduction of the risk of cardiac diseases. Self-regulation can play active role in controlling the habits of smoking, balancing the diet and exercise. In health care, it is guaranteed by the integration of education and providing care to patients¹³.

The general health concern is related to illness uncertainty in both positive and negative sense but the present study is focused on its positive impacts that means when people become concerned about their health, uncertainty or threat related to the disease tends to decrease. In the form of coping, people use self-regulation and other psychosocial resources to overcome physical or psychological disturbances¹⁴. Although illness uncertainty (IU) has been studied in different chronic illnesses but it is the least studied phenomenon in diabetes. Similarly, self-regulation in diabetics has been perceived as an adaptation of a set of behaviors that helps in the management of diabetes as an illness.

Self-regulation is a third force for the longitudinal association between stress and mental health in college students¹⁵. Regulatory practices help the students to overcome their stress and improve their mental health thus making them confident and prevent them from the development of chronic diseases. Self-regulation has also been studied as a mediator between sibling relationship quality and early adolescents' positive and negative outcomes¹⁶ and findings, where it was concluded that self-regulation reduced the negative outcomes, and ultimately uncertainty was also reduced. The purpose of this study was to examine the relationship between general health concern and illness uncertainty in diabetics and to explore the role of self-regulation in this relationship. Relationships between general health concern and illness uncertainty is the least studied phenomena in diabetics in Pakistan. It was hypothesized that 'general health concern and self-regulation would negatively predict illness uncertainty in diabetics' in terms of coping, prognosis and overall outcome.

METHODOLOGY

This was a cross-sectional study conducted on 250 diabetic patients, enrolled from different hospitals of Sargodha, Joharabad and Khushab cities with purposive convenience sampling technique. Only those individuals were considered as part of the sample who were diabetic and had no acute or chronic complications. Diabetic patients with co morbidities like hypertension, coronary artery disease, renal failure etc. were excluded.

A Measure of Health Status Form (The Euro Qol Group, 1990) urdu version was used that enables the respondents to classify or define their health according to five dimensions i.e., mobility, self-care, usual activities, paid discomfort, and anxiety/depression¹⁷. Illness Uncertainty Scale (IUS)¹⁸ was used to assess uncertainty. It is a 5-points self-answered likert scale containing 24 items, which evaluates the illness in terms of prognosis, treatment, and coping with uncertainty. The total uncertainty score is the sum of the 24 items. The Self-Regulation Questionnaire (SRQ) urdu version¹⁹ was used to measure self-regulation on 4-points likert scale. High scores on this scale suggest high self-regulation and vice versa.

The study was conducted in the department of psychology, university of Sargodha, Pakistan after formal approval of departmental research and ethics committee University of Sargodha. The sample size estimation was based upon the theorem of normality. Descriptive statistics along with skewness and kurtosis were executed to ensure the data normalcy. The product of skewness/kurtosis and standard error was below 2 that endorsed the sample normalcy. For the collection of data, permission was obtained from the department of Psychology. Diabetic patients were approached in different hospitals along with the permission of the hospital administration department. Patients were briefed about the purpose of the study and were requested to participate in the research by filling the self-reported measure of behavior. Data was analyzed with SPSS 24. Pearson correlation test and linear regression were applied to see the correlation.

RESULTS

General health concern had a negative correlation with illness uncertainty in terms of prognosis, coping, and overall uncertainty but it had a strong and positive correlation with self-regulation as given in Table 1. Predictions were checked by using Linear Regression as shown in in table 2 and 3.

The alpha reliabilities of the scales ranged from .65 to .96. It is evident from results that self-regulation has significant negative correlation with illness uncertainty along with its subscales.

To investigate contributions of general health concern on illness uncertainty, linear regression analysis was carried out and results in Table 2 suggested that 2% of the variance in total illness uncertainty can be explained by a general health concern. Overall, the model was significant { $F(1, 248) = 6.15, p < .01$ } and general health concern ($\beta = -.16, t = -2.48, p < .01$) was significant negative predictor of illness uncertainty in diabetics.

To investigate the contributions of self-regulation on illness uncertainty, linear regression analysis was carried out and results were presented in table 3 suggesting that 4% of the variance in total illness uncertainty can be explained by self-regulation. Overall, the model was significant { $F(1, 248) = 7.25, p < .01$ } and self-regulation ($\beta = -.18, t = -2.48, p < .01$) was the significant negative predictor of illness uncertainty in diabetics.

Table 4 shows the moderating influence of self-reg-

ulation in the relationships of general health concerns and total illness uncertainty. Findings indicate that general health concern significantly and negatively predicted total illness uncertainty ($\beta = -.34, p < .001$) as well as self-regulation negatively predicted illness uncertainty ($\beta = -1.76, p < .05$). Interaction of general health concerns and self-regulation ($\beta = -.30, p < .001$) are significant negative predictor of total illness uncertainty. Self-regulation significantly moderated the relationship between general health concern and total illness uncertainty.

Figure 1 displays the moderating effect of self-regulation in the relationship with general health concern and illness uncertainty. Slope lines indicate that the positive relationship between general health concerns and illness uncertainty is stronger in case of low self-regulation as compared to the high level of self-regulation.

Table 1: Descriptive statistics and alpha reliabilities, and correlation matrix for all study variables (N= 250)

Variable	1	2	3	4	5	α	M	SD
1	--	-.12*	-.18**	-.16*	.13*	.78	13.86	4.33
2	--	--	.94***	.99***	-.10*	.93	33.25	9.83
3	--	--	--	.98***	-.24**	.92	23.99	7.19
4	--	--	--	--	-.22**	.96	57.24	16.76
5	--	--	--	--	--	.65	21.66	3.26

1 = General health concern; 2 = Illness uncertainty in terms of prognosis; 3 = Illness uncertainty in terms of coping; 4 = Overall illness uncertainty; 5 = Self-regulation. * $p < .05$. ** $p < .01$.

Table 2: Regression analysis for general health concern predicting the overall illness uncertainty (N = 250)

Predictor Variable	β	R^2	F
General Health Concern	-.16*	.02	6.15*

* $p < .01$.

Table 3: Regression analysis for self-regulation predicting the illness uncertainty (N = 250)

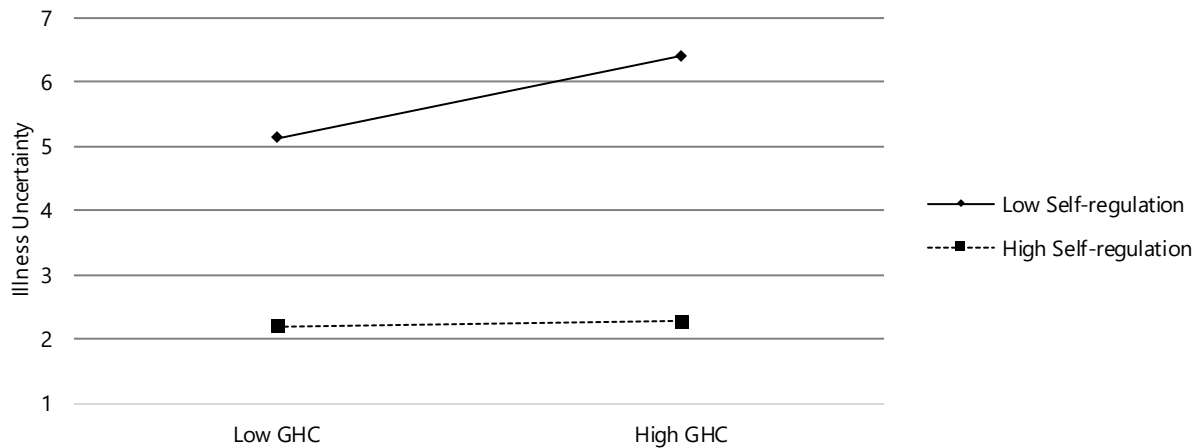
Predictor Variable	β	R^2	F
Self-regulation	-.18*	.04	7.25*

* $p < .01$.

Table 4: Moderating role of self- regulation between the general health concern and illness uncertainty in diabetics (N = 250)

Models	Predictors	Total illness uncertainty	
		β	R^2
Model 1	General health concern	-.34***	
	Self-regulation	-1.76*	.12
Model 2	General health concerns \times Self-regulation	-.30***	

* $p < .05$. *** $p < .001$.

Figure 1: Complications in PPH patients treated with B-Lynch

DISCUSSION

Findings of current research indicated that self-regulation had significant negative correlation with illness uncertainty in terms of prognosis, coping, and the overall construct of the illness uncertainty. General health concern negatively predicted the illness uncertainty in terms of prognosis, coping, and overall illness uncertainty. When the patient is diagnosed with diabetes, it is emotionally shocking for both the patients and their family as this disease requires lifelong management and compels the patients to live with certain limitations. If they receive physical and psychological help, they become less uncertain related to prognosis and coping with their disease²⁰.

In Pakistani society it has been observed that when people come to know that they are diabetic, they experience relatively more uncertainty about the prognosis. When people start paying attention to their general health and deeply understand their disease, they tend to become less uncertain. They usually believe that diabetes is a condition much amenable to life style changes. They just need to follow their physician or dietitian suggested diet plan, exercise, and regularly use their prescribed medication. Although at the initial stage of disease it is not an easy task as diabetic patients sometimes feel burn out or overwhelmed due to the daily basis of extensive self-care and distressing feelings about the disease. But patients who learn to live with it, lower their level of blood glucose level, and in this way their uncertainty decreases.

Despite some problems such as poverty, terrorism, and unemployment, they receive support from their families²¹. As the majority of the Pakistani population is Muslim, they also opt for some religious coping tactics to recover or seek refuge from feelings of anxiety and uncertain life situations.

Supportive behavior can be positive or negative and the positive behavior is associated with several practices related to health care that are about physical activity and diet. The negative perception of social support behavior are related to only one practice of self-care such as taking the medication recommended for them. Furthermore, support from friends and family exert influence on observable self-care behaviors as compared to behaviors performed in isolation²².

In case of facing uncertain situations, such as adapting to the illness, is dependent on how the person makes appraisals related to the levels of uncertainty. It might be viewed as a chance or opportunity in which some alternatives become more certain with undesirable outcomes. A person can appraise the uncertainty as an opportunity of motivation for the sake of adaptation in positive ways. Moreover, many psychosocial variables have been linked with a lower level of distress and less glycosylated levels of hemoglobin, and in this way, patients can develop a good understanding of the effects of distress and the buffering outcomes related to diabetes²³. Previous researches also support our finding that general health concerns have negative relationships with illness uncertainty in term of coping and in terms of prognosis and total illness uncertainty as well.

The current study further hypothesized that "self-regulation is the significant negative predictor of the illness uncertainty in diabetic patients" which was confirmed as findings revealed that when a person adopts a self-regulated behavior, his or her uncertainty about chronic illness reduces. The person becomes less uncertain about the complication of the disease; and to defeat their disease as to live normally with a full functioning adoption of self-regulating behaviors seems crucial. In this way results of the current study seemed to be quite logical. Self regulatory behavior makes diabetic patients less uncertain about their disease be-

cause most people learn to follow the rigid lifestyle. They struggle hard in their lives to support their families financially. Therefore, following the self-regulation practices is not difficult for them²⁴.

Among diabetics, irrespective of weight loss, engaging in the regular activities that have improved health outcomes, is preferred²². Good self-regulation of diabetes is essential for reducing long-term health consequences and preventing disability¹¹.

The final hypothesis of the study stated that "self-regulation would moderate the relationships of general health concerns and illness uncertainty in diabetic patients" and results revealed that general health concern negatively predicted illness uncertainty and their relationships was quite logical. Moreover, when self-regulation intervenes in their relationships as a moderator, their relationship is also negative. It is because self-regulation is negatively correlated with illness uncertainty and this can be interpreted as that those individuals who possess a strong ability of self-regulation, they use it to overcome the impact of disease by becoming concerned about their general health concerns. These results confirmed the present research hypothesis and previous empirical support also provided the same notion^{14, & 15}. Studies also showed self-regulation as a moderator or being a third variable such as a research conducted to examine the relationship between self-regulation and variables such as achievement orientation, conscientiousness, and self-efficacy as a third variable, found self-regulation as significant moderator and concluded that highly achievement oriented individuals with high self-regulated behaviors are also highly focused and direct their efforts towards goal fulfillment. In this way, they become highly concerned about their health that is worrisome for them, so that it comes under their control and their uncertainty is reduced²³. A study by Zahniser and Evan (2016) concluded the significant moderating role of emotional self-regulation on a longitudinal association between stress and mental health in college students¹⁴. The result further showed that regulatory practices helped students to overcome their stress and improve their mental health. In this way they become certain that this might prevent them from developing chronic diseases. From previous findings, researcher came to know that although the moderating effect of self-regulation was not found in the relationships of general health concerns and illness uncertainty, yet it was found to play as moderating role with other variables that have some direct and indirect effect upon general health concerns and illness uncertainty^{25, 26, 27}.

CONCLUSION

Illness uncertainty has a significant and negative correlation with general health concern and self-regulation. Moreover, self-regulation was found to be a sig-

nificant moderator in the relationship of general health concerns and illness uncertainty.

PRACTICAL IMPLICATIONS

Findings of the present study may help the patients to better understand illness uncertainty which may be sometimes physically as well as psychologically more threatening for them. Health care professionals may take measures to instill positive psychosocial resources in patients to improve their physical and psychological well-being.

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CONTRIBUTORS

AA conceived the idea, wrote initial manuscript, made the plan and followed the project. MA and NIM helped in acquisition and interpretation of data, literature review, bibliography and wrote final draft of the manuscript. All authors contributed significantly to the submitted manuscript.