

## Gender Differences in Risk Perception and Emotional Distress in Patients with Type 2 Diabetes

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The present study examined the risk perception related to diabetes and its complications and emotional distress experienced by patients with Type II diabetes. It was hypothesized that: a) male and female diabetic patients are likely to differ in the level of emotional distress and risk perception; b) the level of emotional distress and risk perception of patients with diabetes are likely to correlate. The sample comprised 100 patients with Type II diabetes and was recruited from a diabetic clinic of a teaching hospital in Lahore, Pakistan. Risk Perception Survey-Diabetes Mellitus Scale and Diabetes Distress Scale were administered individually to the participants. Data was analyzed using independent sample t test and Pearson product moment correlation. Female patients reported significantly more emotional distress as compared to male patients. The findings highlight the significance of psychological services for patients with diabetes to help them deal with emotional distress. Male patients perceived more diabetes-related risk compared to female patients. A significant relationship was found between emotional distress and risk perception of patients. Findings have very important implications for patients, their families, and healthcare professionals.

**Keywords:** diabetes; emotional distress; risk perception.

Patients with Type II diabetes may experience psychological distress i.e. depression and anxiety, but little recognition or intervention has been offered to them. There is an evidence to suggest that depression affects 10-20% of patients with Type II diabetes but often it goes unrecognized and unnoticed (Pouwer, 2009).

In diabetes mellitus (DM), the body is unable to produce insulin, or becomes incapable of utilizing the pancreatic hormone properly (Richard, 2002). In DM, there is a high level of blood glucose which results from a deficit of insulin. This deficiency could be absolute insulin deficiency, or insufficient insulin action (insulin resistance), and/or a failure of the beta-cells to produce sufficient insulin (Jenny, Ivan, Victor, & Francois, 2011). The prevalence rates of diabetes varies markedly around the world; the disease is absent or rare in some indigenous communities in developing countries in Africa, the Eastern Mediterranean, and the Western Pacific, while among some Arabic, Asian Indian Chinese, and Hispanic American populations, it has been

reported 14 to 20 percent (WHO, 2000). In the United States, African Americans, Hispanic American, and Native Americans are at a higher risk for adult-onset diabetes than European Americans and Asian Americans (USDHHS, 2000).

Diabetes has been reported as the third most common chronic illness and one of the leading causes of death. The population of developing countries appears to be at a greater risk of DM. The WHO ranks Pakistan seventh in the prevalence of diabetes and around 5,217,306 people in Pakistan are estimated to suffer from diabetes. By 2030, it is estimated that the number will rise to 14,899,131 (WHO, 2009).

Risk has been viewed as an objective reality which is measureable, controllable, and manageable. Risk is often socially constructed, and depending on the socio-cultural context, different groups of people generally understand it differently. In a specific dangerous situation, risk has often been seen as the likelihood that an individual will experience the effect of danger

(Short, 1984). There seems to be consensus among researchers that risk consists of the probability of an adverse event and the resulting consequences (Rayner & Cantor, 1987). Uncertainty of a situation also holds significance in the context of risk as it has been considered as an event or a situation in which something of human importance is at stake and there is uncertainty about the outcome (Rosa, 2003). Thereby, uncertainty is closely related to risk and psychological uncertainty has been assumed to be an important mediator of human responses in situations, where outcomes are uncertain.

Risk perception is a subjective phenomenon that assesses the likelihood of occurrence of a specific event and the degree to which one shows concern about its consequences. In addition to individual perception, perception of risk is a social and cultural construct and it reflects ideology, values, history, and symbols (Weinstein, 1989). Risk perception varies in accordance with one's cultural and social context (Boholm, 1998). It is a subjective judgment which is determined by a combination of individual characteristics and nature and severity of the risk (Douglas, 1985).

A risk-as-feeling hypothesis was proposed by Loewenstein, Weber, Hsee and Welch (2001) and it highlights affective experiences at the time decision-making when one is exposed to risk. They further assert that affective responses to risky situations often interrupt cognitive evaluations of those risks. Sovic (1992) proposed a psychometric theory of risk. The major assumption of this paradigm is that risk is inherently subjective and it is an individual cognitive process, i.e. the perception of threats to health or feelings of uncontrollability that make one perceive danger. McDaniels (1995) proposes that psychometric paradigm should be considered as an approach to identify those characteristics which influence people's perception of risk. According to him, risk is inherently multidimensional, and it is not only the evaluation of likelihood of harm but other factors which effect individual judgments. In the context of human health risk perception, it may include diverse factors, for example, developing a list of hazardous risky situations, information, and availability of

technologies, and practices that include a wide range of potential hazards; developing psychometric scales that could help assess characteristics of risks that can be instrumental in shaping human perception of, and their probable reaction to different risky situations. Risky situations may predispose people to experience emotional distress.

Emotional distress is a negative emotional experience that is characterized and accompanied by physiological, emotional, cognitive, and behavioral changes and these changes either help an individual either bring changes in stressful situations or help deal with its effects (Baum, 1990). According to Hanlin and Hefferanh (2004), emotional distress refers to psychological or mental pain experienced due to personal injury or hurt that may result in damage.

Diabetes studies have indicated that patients with diabetes report increased levels of psychological and emotional distress, mainly depression and anxiety. Other unfavorable outcomes have also been reported, i.e. reduced quality of life, compromised self-care, impaired glycemic control, increased level of complications, and increased mortality rates. Diabetes-related distress refers to a patient's concerns about management of the disease; availability of support; emotional distress being experienced, availability and access to care. Such concerns of patients should not be mixed with depression (Jenny, Ivan, Victor, & François, 2011). In Diabetes Type II patients, diabetes-related emotional problems are particularly common and these problems may be accompanied by clinical depression. It has been reported that male diabetes patients with a depressive disorder are particularly more vulnerable to develop high levels of diabetes-specific emotional distress (Kokoszka, 2009).

Considering that the prevalence of diabetes is increasing in Pakistan and the WHO has rated it seventh among the listing of countries, the present research aimed to assess the degree of emotional distress in the potential problematic areas of the patients with diabetes. It is also important to assess the significance of perception

of patients of diabetes-related risks. Therefore, the present study aimed to examine patients' perception of risk and the potential problematic areas that diabetic patients may experience in Pakistan. The present study aimed to assess diabetic patients' perception of risk associated with diabetes complications; examine the relationship of emotional distress with potential problematic areas of diabetes; and examine gender differences in risk perception and emotional distress in patients with diabetes.

#### **Hypotheses:**

It was hypothesized that male and female patients are likely to differ in the level of emotional distress and risk perception; risk perception of the patients is likely to have relationship with emotional distress in patients.

#### **Method**

##### **Sample:**

The sample comprised 50 male and 50 female (N=100) patients diagnosed with Type II diabetes and were recruited from a diabetic clinic of one of the major teaching hospitals of Lahore, Pakistan. The said public sector hospital is the biggest hospital in Lahore and is attached with a medical University and caters not only to patients from Lahore but also from the periphery and other cities of the province. Patients were excluded from the study if they had history of any psychiatric illness; cognitive impairment; any other chronic condition; terminal illness; speech or hearing problems; and co-morbid conditions such as hypertension and obesity. The mean age of the participants was 48 years (SD = 9.81), majority being married (90 %) and living in joint family system (67%).

##### **Measures:**

*Risk Perception Survey-Diabetes Mellitus Scale (RPS-DM):* It is a 31-item measure developed by Walker particularly developed for people with diagnosed diabetes (Type I or II). It assesses comparative risk perceptions associated with diabetes and its complications. Subscales in this survey include an environmental risk scale; personal control scale; risk knowledge scale; and comparative disease risk scale. It has been reported to have a Cronbach alpha of 0.81 and its reliability for the present study was high

( $\alpha = .70$ ).

*Diabetes Distress Scale (DDS-17):* The DDS is developed by Fisher and it is a 17-item measure and each item is rated on six point scale ranging from 1- 6, where 1 means no distress and to 6 means severe distress experienced over the last one month. It comprises of four subscales of distress: emotional burden scale; physician related distress scale; regimen related emotional distress and diabetes related interpersonal distress scale. The DDS has been reported to have a consistent factor structure with reasonable internal reliability and validity. The reliability of the emotional distress scale for the present study was very high ( $\alpha = .95$ ).

*Demographic Information Form:* The data collection protocols included a self prepared demographical form enquiring about age gender, education, profession, marital status, and family status, no of children, and qualification, number of dependents, socioeconomic status, duration of diagnosis, and monthly income.

##### **Procedure:**

The patients were screened for inclusion and exclusion criteria prior to recruiting them in the study. Those meeting inclusion criteria were explained nature and purpose of the study and were informed that data provided by them will be kept confidential and will be used only for research purpose. Those who were willing to participate were requested to complete the consent form. Individual assessment was carried out and the questionnaires were completed by the patients in the researcher's presence.

#### **Results**

Independent sample t-test analysis was carried out to compare male and female patients on risk perception and emotional distress. Male and female patients did not differ in environmental risk and comparative disease risk, however, men had significantly more personal control and risk knowledge compared to female patients.

Female patients reported significantly more emotional burden, regimen-related distress, and interpersonal distress compared to male patients. In order to examine the relationship between emotional distress and risk perception, correlation

**Table 1. Comparing Male and Female Patients on Risk Perception**

Risk Perception	Males		Females		<i>t</i>	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
Environmental Risk	30.04	13.63	29.65	11.59	-.15	.87	-4.63	5.41
Personal Control	39.86	7.74	35.38	7.03	3.02	.001	1.54	7.41
Risk Knowledge	30.90	5.35	28.49	5.77	2.16	.05	.20	4.62
Comparative Disease Risk	60.02	15.70	62.50	12.43	-.87	.38	-8.10	3.13

**Table 2. Comparing Male and Female Patients on Emotional Distress**

Emotional Distress	Males		Females		<i>t</i>	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
Emotional Burden	23.36	11.21	28.39	10.38	-2.32	.05	-9.32	-.74
Physician Related	17.06	8.23	20.26	9.55	-1.79	.07	-6.74	.34
Regimen Related	21.50	8.74	27.60	8.09	-3.60	.001	-9.46	-2.74
Diabetes related Interpersonal	12.76	5.79	15.44	5.89	-2.29	.05	-4.99	-.36

**Table 3. Relationship between Risk Perception and Emotional Distress in Patients**

Variables	1	2	3	4	5	6	7	<i>M</i>	<i>SD</i>
1. Emotional Burden								25.87	11.04
2. Physician Related	.74**							18.66	9.02
3. Regimen Related	.76**	.57**						24.58	8.92
4. Interpersonal Distress	.56**	.51**	.73**					14.10	5.95
5. Environmental risk	.09	.06	-.02	-.01				29.85	12.59
6. Personal control	-.43**	-.25*	-.26**	-.15	-.09			37.62	7.70
7. Risk knowledge subscale	-.05	.06	-.07	-.01	-.25*	.13		29.70	5.66
8. Comparative disease risk	.27**	.17	.28**	.12	-.09	-.19*	.00	61.26	14.15

analysis was carried out (Table 3). Environment risk and risk knowledge had no relationship with emotional distress in diabetic patients. Personal control had a significant negative relationship with emotional burden, physician-related distress, and regimen-related distress. Comparative disease risk had a positive relationship with emotional burden and regimen-related distress.

The findings revealed that participants were highly distressed and reported regimen-related distress the most and distress related to interpersonal aspect the least. It was also found that patients had more knowledge about disease risk as compared to environmental risk and risk knowledge.

### Discussion

The present research aimed to study risk perception and the level of emotional distress in patients with diabetes. The purpose of this study was to assess the risk perceptions related to diabetes complications. Patient characteristics

and emotional distress experienced by them was also examined. The findings from the study indicate that there is a significant correlation between emotional distress and risk perception of patients with diabetes. With the decrease in the knowledge about the risk factors of diabetes, emotional distress increases.

Male and female patients significantly differed in the level of emotional distress and risk perception. The existing literature on male-female differences in emotional distress has produced consistent results with the current study. For instance, in a study conducted on 2816 people (1566 women and 1250 men) aged between 18 and 65 years, with varied socio demographic characteristics, women scored significantly higher than men in chronic stress and minor daily stressors. No gender differences were found in the number of life events experienced in the last two years, however, women rated their life events as more negative and less controllable compared

to their male counterparts. Men were reported to exhibit more emotional inhibitions as compared to women, who, in turn, manifested more somatic symptoms and psychological distress (Matud, 2004). One of the possible explanations for gender differences in emotional distress could be that women and men have different ways of channeling and expression of their distress. Along with the problems related with their disease, women also have to deal with household problems due to which they suffer from more stress.

Our findings indicated that women experienced more emotional distress as compared to male diabetic patients. The results go in accordance with the previous researches. A study was conducted by Marianna, Mary, Chopey, Spivak, and Lemko (2001) to examine whether there were gender differences in relationship of depressive, anxiety-related, and somatic symptoms with presence, severity, and duration of asthma. Relative to healthy women, women with both mild and moderate asthma showed increased level of distress in multiple domains reflecting somatic and psychological complaints. In contrast, only men with relatively more severe disease of longer duration showed elevated symptomatology relative to healthy men, with depressive symptoms predominating. Research has shown that women express emotions more freely and men keep emotions to themselves. It has been found in psychopathology research that there is an increased vulnerability to anxiety and depression in females compared to males (Rudolph, 2002). Women appear to experience greater impact of diabetes on their quality of life and experience more worries about complications and hypoglycemia than men (Hiltunen, Kiukaanniemi, Laava, & Kivela, 1996).

Overall the research findings were in accordance with the proposed hypotheses. To summarize, there was correlation between emotional distress and risk perception of patients with diabetes. There were significant gender differences in the level of emotional distress and risk perception of patients with diabetes. Female diabetic patients experienced more emotional distress as compared to male diabetic patients

### Implications

Diabetes affects almost every aspect of a person's life and changes the person's entire lifestyle. There is a dire need to educate families of patients so they can be adapted to different responsibilities and methods according to the needs of the patients. Findings from the present study will help medical professionals provide awareness regarding the potential problematic areas of patients with diabetes. The findings will help patients understand the importance of perception of risk associated with different dimensions of diabetes. As Pakistan is a developing country and unfortunately, diabetes affects people in their productive years of life, future research on examining different aspects and its effects on a person's daily functioning will provide a great deal of knowledge for designing intervention strategies to help improve quality of life of patients.

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