

Received : 10 January 2024, Accepted: 15 April 2024

DOI: <https://doi.org/10.33282/rr.vx9i2.98>

Effect of Risk Perception on Quality of Life among Diabetics. Moderator Role of Psychological Adjustment

Jawairia Zafar¹, Saba Zar Naz Hafsa², Iqra Jabbar³, Kanwal firdoos⁴, Hadia Malik⁵, Rabia Shaheen⁶, Syeda Ismat Haider⁷, Sadia Shaukat⁸

1. Jawairia Zafar, Ph.D. Scholar, Senior lecturer department of applied psychology, Riphah international university, GGC, Islamabad, Pakistan. **Email: Jawairia.zafar@riphah.edu.pk (corresponding author)**

2. Saba Zar Naz Hafsa, Ph.D. Scholar, Senior lecturer department of applied psychology, Riphah international university, GGC, Islamabad, Pakistan

3. Iqra Jabbar, Mphil Psychology, Lecturer, Department of psychology, University of Lahore, Sargodha Campus.

4. Kanwal firdoos, M.Phil. psychology, National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan.

5. Hadia Malik, M.Phil, Department of Psychology, University of Sargodha, Pakistan.

6. Rabia Shaheen, M.Phil, National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan.

7. Syeda Ismat Haider, Psychologist Govt of Punjab Special Education Department.

8. Sadia Shaukat, M.Phil, National Institute of Psychology. Quaid e Azam University Islamabad.

Abstract

The current study aimed to investigate the relationship between risk perception, quality of life, and psychological adjustment and to see if locality plays any role in this relationship. The correlational study was conducted at the Department of Psychology, University of Sargodha, and Punjab, Pakistan. By using purposive sampling, an equal number of male diabetics and female diabetics of different localities were selected. Risk Perception Survey for Diabetes Mellitus, Diabetic Quality of Life, and Psychological Adjustment to Diabetes Scale were used for evaluation. Statistical analysis was run by using SPSS 21. Of the 150 subjects in the study, 75

(50%) each were female and male diabetics. Risk perception and its subscale were negatively correlated with quality of life ($r = -.42, p < .001$) and psychological adjustment ($r = -.24, p < .01$). There is a significantly positive relationship between quality of life and psychological adjustment ($r = .48, p < .001$). Risk perception ($\beta = -.42, t = -5.6, p < .001$) and psychological adjustment were significant predictors of quality of life ($\beta = .48, t = 6.59, p < .001$). Psychological adjustment significantly moderated the relationship between risk perception and quality of life ($\beta = .45, p < .001$). There were significant differences among diabetics belonging to urban areas and rural areas ($p < .05$). There was no significant gender difference in the three variables ($p > .05$). Risk perception and psychological adjustment were significant predictors of quality of life among diabetics. Psychological adjustment significantly moderated the relationship between risk perception and quality of life among diabetics.

Keywords: Diabetes, Psychological Adjustment, Quality of Life, Risk Perception

Introduction

Diabetes is a chronic disease that is manifested by an increase in the glucose level of blood or due to the inability of the pancreas to produce insulin. It is also manifested by the inability of our body to use insulin (WHO, 2016). Clinically diabetes is manifest as intolerance of glucose and changes in protein metabolism and lipid. Such metabolic abnormalities will lead to many complications like retinopathy, neuropathy, and cardiovascular disease (Jiang, et al., 2024).

There are main three types of diabetes that are recognized by the International Diabetes Federation (IDF). It includes type I, type II, and gestational diabetes. (IDF, 2011). Type I diabetes is also called insulin-dependent diabetes. It is usually caused by an autoimmune disorder which is the destruction of the insulin-producing cells by our body's defense system in the pancreas. A higher incidence of type I diabetes was observed in Scandinavian and Northern European countries and this higher incidence has been attributed to changes in environmental factors (Guo, et al., 2024). Type II diabetes is also called non-insulin-dependent diabetes and it is more prevalent in all types of diabetes. It is usually caused by the resistance or deficiency of insulin from the pancreas. It is manifested after 40 years of age and therefore is also named adult-onset diabetes. This type of diabetes refers to the abnormally high glucose level in the

blood during pregnancy. It is revealed by some studies that more than 90 percent of the time woman's health is affected by GDM (Ellahham, 2020).

Most of the researches show that Healthier behaviors play a very important role in preventing diabetes and its complications among individuals at a high risk of the disease (Li, et al., 2024). Therefore according to Kim and his colleagues understanding the risk factors of a disease can be an important cause of changing behavior (Esubalew, et al., 2024). The theoretical basis of the health belief model, suggests that a higher risk perception of disease would increase healthier behavior specifically in the area of smoking, physical inactivity, and diet (Zhang, et al., 2024). According to Xie and his colleagues, this ideal relationship is not true in all populations. To determine the impact of lifestyle modifications on the incidence of diabetics, separate interventions were carried out by Wang and his colleague on an ethnically mixed population. It includes Americans and Africans. It was concluded that rigorous lifestyle interventions produce enduring beneficial changes (in physical activities and diet) which ultimately reduce the risk of diabetes (Wang, et al., 2024). According to the commonsense model of illness representation, the perception of illness shapes the procedure for dealing or coping with illness. For developing illness perception, Illness identity is the stimulus. Cues or symptoms are stimuli of protective behavior (WHO., 2016).

Quality of life is a wide concept that is affected in a composite way by a person's state of physical and psychological health, social relationships, personal beliefs, and level of independence. Quality of life is defined as a perception of the individual about their position in life concerning their cultural context, goals, concerns, expectations, and standards (Alswat et al., 2024). For most patients, it will be a very difficult condition to live with diabetes. It looks very burdensome and frustrating for diabetics to demand self-care. The long-term complications can turn more severe, they can bring major changes in a person's ability to function in daily life. Interpersonal and social relationships also be affected. In a systematic review, it is concluded that people having diabetes have a poorer quality of life than people with no diabetes. It is also reported that good glycemic control is connected with a good quality of life and the presence of complications was the disease-specific contributing factor to quality of life (Care, 2019).

Subjects and Methods

The correlational study was conducted at the Department of Psychology, University of Sargodha, and Punjab, Pakistan. Using purposive sampling, an equal number of male diabetics and female diabetics of different localities were selected. Risk perception was measured with a Risk perception survey for diabetes mellitus by Elizabeth Walkers (2007). It contains six subscales having different response formats but by the permission of the author, just 4 subscales were used and they all are converted into four-point Likert from 1= strongly agree to 4 = strongly disagree. Items no 8 to 13 were reversely coded. Quality of life was measured by Burroughs diabetic quality of life scale (2004). The scale is based on a 5-point Likert-type response pattern from 1 = never to 5 = all the time. The psychological adjustment was measured by Welch, Dunn & Benney's (1994) psychological adjustment to diabetes scale which contains 19 items. Respondents will indicate the extent of their agreement or disagreement with each item on a scale from 1 = I disagree completely to 5 = I agree.

Data was analyzed using SPSS 21. Pearson product-moment Correlation, Regression analysis, and independent sample t-test were applied.

Results

Of the 150 diabetics in the study, 75 (50%) each were males and females. While 75 (50%) belonged to rural areas and 75 (50%) belonged to urban areas. Risk perception and its subscale were negatively correlated with quality of life ($r = -.42, p < .001$) and psychological adjustment ($r = -.24, p < .01$). There is a significant positive relationship between quality of life and psychological adjustment ($r = .48, p < .001$) (Table-1). Risk perception had a significant negative impact on the quality of life ($\beta = -.42, t = -5.6, p < .001$) and psychological adjustment had a significant positive effect on the quality of life ($\beta = .48, t = 6.59, p < .001$). (Table 2). Psychological adjustment significantly moderated the relationship between risk perception and quality of life ($\beta = .45, p < .001$) (Table 3). In terms of gender, the findings were non-significant for risk perception ($p > .05$), quality of life ($p > .05$) and psychological adjustment ($p > .05$). Urban diabetics scored high on risk perception ($M = 33.24, p < .05$) as compared to rural

diabetics ($M = 31.25, p < .05$). There was non-significant difference of locality on quality of life and psychological adjustment (Table 4).

Table 1: Descriptive Statistics, Psychometric Properties, and Pearson Correlation between Study Variables (n= 150).

Sr	Variables	<i>M</i>	<i>SD</i>	<i>a</i>	1	2	3	4	5	6	7
1.	Risk perception	32.24	5.14	.71	-	.74***	.81***	.66***	.54***	-	-.24**
2.	Risk knowledge	9.26	2.10	.50	-	-	.42***	.29***	.25**	.42***	-.27**
3.	Perceived personal control	10.29	2.37	.53	-	-	-	.40***	.28**	.54***	-.14
4.	Worry	6.44	1.51	.47	-	-	-	-	.28***	-.12	-.09
5.	Optimistic biased	6.05	1.18	.50	-	-	-	-	-	-.18*	-.18*
6.	Quality of life	76.90	7.16	.83	-	-	-	-	-	-	.48***
7.	Psychological adjustment	60.94	6.31	.81	-	-	-	-	-	-	-

*** $p < .001$, ** $p < .01$, * $p < .05$.

Table 2: Linear Regression Analysis Predicts Quality of Life from Risk Perception and Psychological Adjustment among Diabetics (n= 150).

Predictor variables	β	R^2	<i>F</i>
Risk perception	-.42***	.17	31.5
Risk knowledge	-1.46		
Perceived personal control	-1.18	.30	15.61
Worry	.38		
Optimistic biased	-.19		
Psychological adjustment	.48***	.23	43.4

*** $p < .001$.

Table 3: Moderating Role of Psychological Adjustment in the Relationship between Risk Perception and Quality of Life among Diabetics (n = 150).

Models	Predictors	Quality of life	
		β	ΔR^2
Model 1	Risk perception	-.32***	.17
	Psychological adjustment	.39*	
Model 2	Risk perception \times psychological adjustment	.45***	.12
	Total R ²		.29

*** $p < .001$.

Table 4: Mean, Standard Deviation and T-Values for Urban and Rural Diabetics on Risk Perception, Psychological Adjustment and Quality of Life among diabetics (n= 150).

Variables	Urban (n = 75)		Rural (n = 75)		t(148)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Risk perception	33.24	3.29	31.25	6.35	2.40	.01	.35	3.62	.39
Psychological adjustment	76.44	3.93	77.36	9.34	-.78	.43	-	1.39	.13
Quality of life	61.76	4.66	60.12	7.56	1.59	.11	-3.23	3.66	.26

Discussion

The present study anticipated to examine the effect of risk perception on quality of life and the role of psychological adjustment among diabetes mellitus. The first hypothesis of the present study concluded that there is a significant positive relationship between psychological adjustment and quality of life. When individuals can cope with certain types of dilemmas including chronic disease and also can adjust themselves in difficult situations then this would enhance their quality of life. The results of the present study are in line with a study conducted by Bilous et al., (2021) which also indicates a positive relationship between psychological adjustment which would validate their quality of life if they adopt self-care behavior.

The present study includes a second hypothesis which states that quality of life is negatively predicted by risk perception. The results of the present study are also consistent with the hypothesis and revealed that when there is an increased risk of diabetes, then patients would be

more psychologically disturbed. Their social, psychological, and physical functioning is also destroyed. The perception of illness shapes the procedure for dealing or coping with illness. Sayed and his colleague (2024) conducted a study that investigates the risk of cardiovascular disease and cardiovascular mortality and the findings of this study show that men who perceived themselves to be at high risk of having a heart attack were at increased risk of death from cardiovascular disease, even after controlling for actual cardiovascular disease risk. Other findings show that there would be poor perceived health status and quality of life of cancer survivors who believe themselves to be a great risk of disease as compared to cancer survivors who perceive themselves to be at low risk of recurrence (Holt, & Flyvbjerg, 2024).

The current study hypothesized psychological adjustment would moderate risk perception and quality of life. Findings examined that psychological adjustment is a significant moderator among the variables. It could be justified that as patients are more psychologically adjusted then their quality of life would also enhanced. Adjustment describes the healthy re-balancing of patients to a new condition. The term Psychological adjustment is used to refer specifically to behavioral, social, or emotional adjustment to disease. Therefore when a person perceives their disease in a more positive and controllable way then they can easily cope with it (Ma, et al., 2024). When patients receive fair treatment and have great chances of success and progress this ultimately strengthens their quality of life up to greater times. It indicates how psychological adjustment along with the quality of life is fruitful in overcoming the risk perception of chronic disease.

Research conducted by Northeastern University cites the importance of psychological concerns, behavioral and adjustment modification, and problem-solving to support informed decisions in self-care for diabetes (Carver & Abrahamson, 2019). One of the studies is conducted by Papatheodorou, and colleagues (2018) to see the association between diabetes-related psychological distress and anger coping styles. Findings show that diabetes-related distress endorsed poorer glycemic control. Individuals who could not balance glycemic control started worrying about the problems which resulted in “burnout” with the diabetes treatment (Funnell et al., 2017). Results also show that there is no significant gender difference in risk perception among diabetics. Results show that diabetic patients from urban areas would perceive more risk

as compared to diabetics from rural areas. Most of the research showed the same result as people from urban areas has more knowledge about risk and they perceived more personal control so therefore they perceived greater risk toward health.

Conclusion

The present study would provide important information about self-caring diabetes to enhance their quality of life. The results of this study would strengthen the importance of quality of life and psychological adjustment in diabetes mellitus and would help keep them fair in their dealings and concentrating on self-care behavior. Results may also contribute to various clinical practices and health policies to take necessary measures to make their policies fair for all patients.

References

Carver, C., & Abrahamson, M. (2019). Diabetes Mellitus Overview. In K. Weinger & C. Carver (Eds.), *Educating Your Patient with Diabetes*. Boston: Humana Press.

Funnell, M., M., Tang, T., S., & Anderson, R., M. (2017). From DSME to DSMS: Developing empowerment self-management support. *Diabetes Spectrum*, 20(4), 221-226.

Care, D. (2019). Care in diabetes 2019. *Diabetes care*, 42(1), S13-S28.

Ellahham, S. (2020). Artificial intelligence: the future for diabetes care. *The American journal of medicine*, 133(8), 895-900.

Zimmet, P. Z., Magliano, D. J., Herman, W. H., & Shaw, J. E. (2014). Diabetes: a 21st century challenge. *The lancet Diabetes & endocrinology*, 2(1), 56-64.

World Health Organization. (2016). *WHO Global report on diabetes*.

Holt, R. I., & Flyvbjerg, A. (Eds.). (2024). *Textbook of diabetes*. John Wiley & Sons.

Bilous, R., Donnelly, R., & Idris, I. (2021). *Handbook of diabetes*. John Wiley & Sons.

Papatheodorou, K., Banach, M., Bekiari, E., Rizzo, M., & Edmonds, M. (2018). Complications of diabetes 2017. *Journal of diabetes research*, 2(18).

Jiang, S., Luo, T., Zhu, Z., Huang, Y., Liu, H., Li, B., ...& Zeng, K. (2024). Latent Profile Analysis of Medication Beliefs in Patients with Type 2 Diabetes in the Hospital-Home Transition and Comparison with Medication Adherence. *Patient preference and adherence*, 839-853.

Guo, G., Chen, X., Zhang, J., Meng, X., Jia, A., Xing, X., ...& Zhang, Q. (2024). Serum Folate and Vitamin B12 Modify the Associations of N6AMT1 Genetic Variants with Gestational Diabetes Mellitus: A Cross-Sectional Study in Chinese Pregnant Women. *Diabetes, Metabolic Syndrome and Obesity*, 1781-1791.

Li, X., Shang, J., Li, S., & Wang, Y. (2024). Identification of a Novel Mitochondrial tRNA Mutation in Chinese Family with Type 2 Diabetes Mellitus. *Pharmacogenomics and Personalized Medicine*, 149-161.

Esubalew, D., Melese, M., Belete, M., Ambelu, A., Mulat, B., Adane, T., ...& Diress, M. (2024). Prevalence and Associated Factors of Sensorineural Hearing Impairment Among Patients with T2DM in Amhara Region, Northwest Ethiopia, 2022: A Multi-Centered Cross-Sectional Study. *Diabetes, Metabolic Syndrome and Obesity*, 1821-1832.

Zhang, J., Hou, Y., Zhang, Z., Shi, Y., Wang, Z., & Song, G. (2024). Correlation Between Serum Vitamin E and HOMA-IR in Patients with T2DM. *Diabetes, Metabolic Syndrome and Obesity*, 1833-1843.

Xie, Z., Hu, J., Li, M., Hu, X., & Chen, J. (2024). Health Technology Assessment: Evaluation of 7 Glucagon-Like Peptide-1 Receptor Agonists for the Treatment of Type 2 Diabetes Mellitus. *Risk Management and Healthcare Policy*, 1053-1067.

Liu, L., Zhang, Q., Chang, J., & Yang, K. (2024). Causal Association Between Diabetes, Body Mass Index and Lichen Sclerosus: A Bidirectional Two-Sample Mendelian Randomization Analysis. *Clinical, Cosmetic and Investigational Dermatology*, 931-940.

Alswat, K. A., Almorgi, Z., Aljardahi, A. N., Alobaylan, R. M., Altowairqi, M. K., Almorgi, M. W., ... & Alshehri, K. M. (2024). Erectile Dysfunction and Depression Prevalence Among Male Patients with Type II Diabetes. *Journal of Multidisciplinary Healthcare, 17*, 2041-2051.

Sayed, D., Deer, T. R., Hagedorn, J. M., Sayed, A., D'Souza, R. S., Lam, C. M., ...&Grider, J. S. (2024). A Systematic Guideline by the ASPN Workgroup on the Evidence, Education, and Treatment Algorithm for Painful Diabetic Neuropathy: SWEET. *Journal of Pain Research, 17*, 1461-1501.

Ma, N., Bai, L., & Lu, Q. (2024). First-Trimester Triglyceride-Glucose Index and Triglyceride/High-Density Lipoprotein Cholesterol are Predictors of Gestational Diabetes Mellitus Among the Four Surrogate Biomarkers of Insulin Resistance. *Diabetes, Metabolic Syndrome and Obesity, 17*, 1575-1583.

Wang, Z., Lavikainen, P., Wikström, K., &Laatikainen, T. (2024). Trajectories of Body Mass Index and Risk for Diabetes Complications and All-Cause Mortality in Finnish Type 2 Diabetes Patients. *Clinical Epidemiology, 18*, 203-212.