Moderating Role of Coping Mechanism Between Physical Self Care and Quality of Life Among Diabetic Patients

Anam Khan, Adnan Adil, Maryam Zulfiqar, Sadia Niazi, Saba Ghayas
Department of Psychology, University of Sargodha, Sargodha.

Abstract

Background: Diabetes is an important health issue, causing most of the other co-morbidities resulting in the high morbidity and mortality burden of any country. Diabetic patients need to engage in regular self-care behaviors with positive coping strategies to enjoy a better quality of life.
Objective: To study the moderating role of coping mechanism between physical self-care and quality of life among diabetic patients.
Study type, settings & duration: A cross-sectional study was conducted at different hospitals in the Lahore district from November 2020 to March 2021.
Methodology: The present study recruited a sample of (N = 300) adults from different hospitals of Lahore using G*Power[12] software, which indicated that for a moderation analysis, a small to medium effect size can reliably be detected in a sample of 284 individuals with 95% level of significance and a 95% power of the test. However, a larger sample of 300 diabetic adults was enrolled. The sample had equal representation of both men and women with an age of ≥ 30 years (M = 33.24 years, SD = 5.78 years). The data was collected from November 2020 to March 2021. The study sample was from the diagnosed patients of diabetes; they were aware of their chronic illness and were taking medicines regularly. The reported ailment was verified from their medical record. The Self-Care Inventory Scale, the Glucocoper Scale, and the Quality of Life Scale were used to measure physical self-care, coping mechanism, and quality of life respectively.
Results: The data was analyzed through IBM SPSS. Findings of the Pearson correlation analysis showed the significant positive relationship of physical self-care with coping mechanism (r = .55, p = .001) and quality of life (r = .43, p = .001); results also highlighted that coping mechanism was positively related to quality of life (r = .37, p = .01). Results of the moderation analysis showed that the coping mechanism strengthened the positive relationship between physical/ self-care and quality of life (B =.18, p < .001, R^2 =.28) in diabetic patients.
Conclusion: Diabetic patients who are involved in physical self-care enjoyed a better quality of life and their quality of life much more improved if these diabetic patients adopted some coping mechanism. Coping mechanism strengthened the positive relationship of physical self-care and quality of life of diabetic patients.
Key words: Coping mechanism, physical self-care, quality of life, diabetes.

Introduction

With the advancement in technology, the number of diseases is also increased in ratio. Diabetes is one of the most common diseases nowadays that has adverse effects on the health of all age groups. Both environmental and hereditary factors contribute to an important role in diabetes. Diabetes mellitus is a condition of various problems of metabolism, the main problem of metabolism is chronic hyperglycemia, the reason for diabetes is low insulin production or action.[1] Physical self-care includes physical actions such as diet and exercise that guide people to stay healthy, energetic, and enjoy life. Physical self-care is defined as good and healthy eating and take plenty of quantity of water, good wellbeing, relaxation, satisfactory sexual requirements, and healthy physical contact. It is also characterized as keep in touch with nature, enough sleep, drinking a good quantity of water, inhaling

Corresponding Author:
Adnan Adil
Department of Psychology,
University of Sargodha, Sargodha.
Email: livespirit786@yahoo.com

Authors Contribution

fresh air, avoiding much time with electronic devices such as television, mobile phones, and computer screens.[2] Physical self-care is important for the body to work effectively, it includes a good diet, sound sleep, medication, and good physical health.

The coping mechanism is the ability to counter and recoup the situations and events that are stressful. The coping mechanism is described as the cognition and behaviors that are recycled to control the overt and covert requirements of stressful conditions.[3] Coping is the process in which the mental and behavioral actions make to lead, allow, and diminish the intrinsic and extrinsic conflicts.[4] World Health Organization[5] defines health as not merely the absence of disease but a state of complete physical, mental, and social well-being. Quality of life comprises of individual's perception of his/her position in life by the society, culture, and value systems in which he/she survive concerning their aims, potentials, values, and ethics.[6] World Health Organization has defined health as long as a half-century ago, in a very broad and detailed way. Various dimensions of this construct considered by the public health community are physical, mental, and social health.[7] No contradictions lie in considering that health is the most important domain of quality of life, but there are other domains as well i.e. occupation, living conditions, schooling, external environment, and neighborhood etc.[8] Domains like culture and spirituality are also very important in measuring and assessing the quality of life. No doubt, such a wide variety of domains add complexity to the measurement of quality of life.[9]

The self-care actions have some favorable impacts on the quality of life of people with diabetes.[10] Physical domain was the most prompted domain of quality of life in self-care expertise. The results of past research concluded that self-care behavior was positively associated with the quality of life of diabetic patients.[11] Self-care actions such as walking, proper sleeping, medication, follow a good diet plan, and also spend time without media may contribute positively to the quality of life. In today's world, millions of peoples have diabetes so different coping mechanism helps to improve the quality of life of those individuals and act as a buffer against diabetes. The individuals who use physical self-care activities and coping mechanism have a good quality of life as compared to those who don't use physical self-care and coping mechanism to manage this disease. In consonance with the aforementioned literature, the present research has formulated the following hypotheses:

H1: Physical self-care will positively predict the quality of life in diabetic patients.

H2: Coping mechanism will moderate the positive relationship between physical self-care and quality of life among diabetic patients.

Methodology

The present research employed a cross-sectional survey research design. All instruments used in the present study were pretested for their suitability on a convenient sample of 30 adult diabetic patients (Age range 31-45 years, M = 36 years, SD = 5.69 years). The pretest indicated that all measures were appropriate and well-comprehended by the participants, which indicated that they could be used for the data collection.

We could not recruit the sample of the present study through the probability proportionate to size (PPS) technique since the population size was unknown. Therefore, for determining the appropriate sample size of the present research, a power analysis was undertaken through G*Power[12] software, which indicated that for a moderation analysis, a small to medium effect size can reliably be detected in a sample of 284 individuals with 95% level of significance and a 95% power of the test. However, a larger sample of 300 diabetic adults was enrolled for the study from different hospitals of Lahore district. The sample had equal representation of both men and women with an age of ≥ 30 years (M = 33.24 years, SD = 5.78 years). The data was collected from November 2020 to March 2021. The sample was diagnosed patient of diabetes; they were aware of their chronic illness and were taking medicines regularly. The reported ailment was verified from their medical record.

With formal permission (informed consent) participants were approached. They were instructed about the research purpose and were provided guidelines about response format and completion of questionnaires. The questionnaires included Urdu translated versions of The Self-Care Inventory Scale, The Glucocoper Scale, and the Quality of Life Scale. These instruments were translated into the Urdu language by following the standard backward translation procedure given by Anderson and Brislin.[13] (i) forward translation into Urdu (ii) reconciliation of translated items by a committee of experts (iii) the back translation of the finalized Urdu version into English by independent bilingual experts; and (iv) expert opinion on the equivalence of the instruments in the source and the target languages.

The Glucocoper Scale[14] comprised of 6 items was used to measure the coping mechanism by summing up the responses of all items on a 5-point Likert-type scale that ranged from 1 (never) to

5 (always) The authors reported a satisfactory level of internal consistency for this scale (Cronbach's α 0.87).

Self-Care Inventory Scale[15] consisted of 10 items was used to measure self-care behavior on a 5-point Likert-type scale that ranged from 1 (never) to 5 (frequently). The authors reported the value of Cronbach's alpha for the scale was 0.80.

Quality of Life Scale[16] consisted of 26 items was used to measure the quality of life on a 5-point Likert-type scale that ranged from 1 (not satisfied) to 5 (more satisfied) The authors reported a satisfactory level of internal consistency for this scale (Cronbach's α 0.86).

The data was analyzed through IBM SPSS. Various statistical analyses such as Pearson correlation, linear regression were used to test the hypotheses of the research.

The Ethical approval was obtained from Research Ethics Committee/ Institutional Review Board of the Department of Psychology, University of Sargodha, Sargodha. All ethical codes of the American Psychological Association (APA) were strictly followed throughout the research.

Results

From the total sample (N=300) of diabetic patients 150 were male with mean age = 66.23 years, SD = ±5.63 and 150 women with mean age = 62.43 years, SD = ±6.21 years.

In the present research, the summated score on each of the scales provided the operationalization of its corresponding construct. Descriptive statistics, alpha coefficients of reliability, and inter-scale correlations are presented in Table-1. The potential range reflects the possible minimum and maximum score on each of the scales whereas the actual range reflects the actual lowest and the highest score on each scale in the data set of the current research. All instruments demonstrated a commendable degree of internal consistency and the focal variables were significantly related to one another in the expected direction. Furthermore, the skewness values suggest that all variables were symmetrically distributed.

Table-2 showed that physical self-care was the significant predictor of quality of life. Table-2 also revealed that coping mechanism was also positively predicting the quality of life. Results also showed that coping mechanism strengthened the positive relationship between physical self-care and quality of life in diabetic patients.

Table 2: Comparison of direct effects of coping mechanism on quality of life among diabetic patients. (N = 300)

Predictors	Outcome Quality of Life 95% CI		
	B	LL	UL
Constant	83.55	82.02	85.93
Physical Self-care	1.57	1.18	1.95
Coping Mechanism	.95	.45	1.45
PSC*CM	.18***	.06	.30
Low	1.01	.51	1.50
Medium	1.57	1.18	1.95
High	2.13	1.58	2.60
R^2	.28		
F	38.79***		

Note. LA= leisure Activities; PSY = psychological wellbeing; CM = coping mechanism. ***$p < .001$.
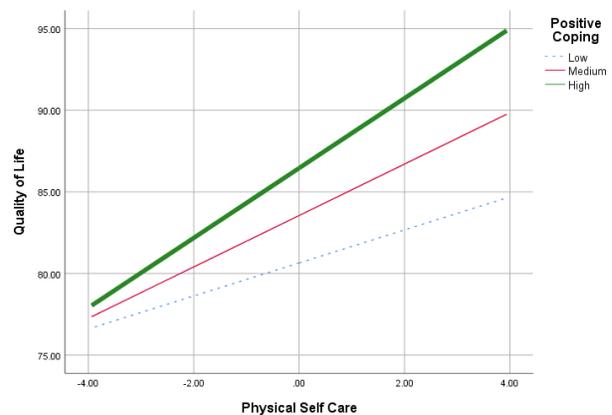

Figure: Health coping mechanism as the moderator between physical self-care and quality of life.

Table 1: Descriptive statistics, reliability of the research variables. (N = 300)

Variables	1	2	3	N	Mean	SD	α	Range Potential	Actual	Sk
1. PSC	_	.43**	.55***	300	27.18	3.80	.78	8-40	18-36	-.49
2. QoL	_	_	.37**	300	84.42	14.33	.81	26-130	54-121	-.14
3. CM	_	_	_	300	9.82	3.95	.88	6-30	9-27	-.20

Note. LA= leisure Activities; PSY = psychological wellbeing; CM = coping mechanism. **$p < .05$. ***$p < .001$.

Figure shows that the positive coping mechanism strengthens the positive relationship between physical self-care and quality of life in diabetic patients. The positive correlation between physical self-care and quality of life is strongest for the patients with a high degree of positive coping (bold line), while the same relationship is weakest in patients with a low degree of positive coping (dotted line.)

Discussion

The finding of the present research indicated that physical self-care led to a more positive coping and better quality of life. Moreover, positive coping also led to improved quality of life. Results also revealed that the positive coping strengthened the positive relationship between physical self-care and quality of life in diabetic patients. Present research provided new opportunities to evaluate the antecedents and indicators of quality of life and its relationship with physical self-care and coping mechanism among diabetic patients. On the pragmatic side, the findings of the present study could be beneficial for health practitioners and psychologists in many ways. The health practitioners may use the findings of the present study to improve the quality of life of diabetic patients. The present research elaborated that how patients could enhance the level of their physical self-care and quality of life and what type of coping strategies could save them from the negative impacts of diabetes. The present research also highlighted the importance of physical self-care activities such as walking, proper medication, sound sleep, and having a healthy diet plan that could substantially contribute to the improved quality of life of diabetic patients. The findings of the present research also confirmed the same relationship among the variables in the indigenous culture. The findings provide support for all the proposed hypotheses of the present research. More specifically, the first hypothesis of the research was that physical self-care would be positively associated with quality of life which was supported by the current findings. Results of the present research are also in line with the findings of previous research, which showed that physical self-care actions such as taking a proper and healthy diet, in-time medications, exercise, sound sleep, had a significant positive effect on the quality of life of diabetic patients.[17] Results of past research also supported the findings of current research indicated that the patients who used physical self-care activities such as fruitful exercises, good sleep, and appropriate medicines had improved quality of life.

There was a positive and significant relationship was found between physical self-care and all domains of quality of life including the physical, psychological, environmental, and social domains of quality of life.[18] The patients who used physical self-care activities had more ability to cope with diabetic stress different daily routine problems. It was found that the patients with high physical self-care behaviors could tackle many problems as well, and it improved their physical, psychological, and social quality of life.[19] These pieces of empirical evidence from the pertinent western literature establish strong evidence for the positive relationships among physical self-care, coping mechanism, and quality of life in our indigenous culture and support our findings that diabetic patients who take good physical self-care and employ positive coping mechanism enjoy a better quality of life.

The second hypothesis of the present research was also supported as we found that coping mechanism strengthened the positive relationship between physical self-care and the quality of life of diabetic patients. To cope up with stressful situations, the individuals used different coping strategies and the aim of using these strategies is to deal with the problem effectively and manage the emotional outcome. The different researches showed that coping strategies increased the quality of life of individuals of all ages. The diabetic patients used numerous coping mechanism such as acceptance, planning, optimism, and action to up with the stress that is created due to chronic illness. The starting of diabetes is a stressful event for humans[20] because their eating patterns and activities are changed. The more they are optimistic, create acceptance about their disease, and plan how they cope up with stress doing exercise, take medication properly and the most important follow their plans are easily cope up with stress. The coping literature gave evidence that males use more problem-focused coping and females use emotion-focused coping. Coping mechanism positively affect the physical, psychological, social, and environmental domains of quality of life.[21]

The research has several limitations that must be addressed. There is a dire need to research on patients with different types of diabetes to enhance the generalizability of the research. This research was done on cross-sectional data; therefore, the changes that occurred with time in the older adults were also unknown to the researcher. In the current research, only self-report questionnaires had used which were unable to detect the true responses and feelings of the older adults. The validity in future researches could also be enhanced by using the longitudinal research

design, with a diverse and large sample. The sample of the current research was recruited only from various hospitals of Lahore city that restricts the generalizability of the sample. In future studies, the sample must be diverse to enhance the external validity of the research. It should be across the different cities of Pakistan. Further, this research will be beneficial for understanding the basic concerns of diabetic patients; it will surely helpful for the gerontologists and family counsellors to deal effectively with the patients having different problems associated with diabetes by focusing and minimizing the negative impacts of diabetes can bring positive and constructive change to individual and even for society. This research will open a new pathway of learning and mindfulness which would be productive for health psychologists for managing individuals and helping the individuals to make themselves more resilient to cope up with diabetic stress.

Physical self-care had a positive effect on the quality of life of diabetic patients. The coping mechanism also had a positive relationship with the quality of life of diabetic patients. Coping mechanism strengthened the positive relationship of physical self-care along with the quality of life of diabetic patients. At the indigenous level, necessary steps should be taken to reduce the prevalence of diabetes by means of increasing awareness through both electronic and print media, improvement in social services, formulating effective policy for patients, effective laws to start with, and free health care facilities. Special attention should be given to the proper treatment of diabetes as it could be fatal especially in the case of different wounds and injuries if they remain untreated.

This study was based on cross-sectional data, as a result, the changes over time in the relevant constructs among the older adults also remained unknown. Longitudinal research design should be used in future researches for assessing the causal effects of study variables. Furthermore, future studies are essential to better understand the relationship of these constructs across different cultures. The potential role of different moderators such as gender, family system, and residence for future researches is suggested. Future researchers may investigate the role of personality traits in relation to physical self-care and quality of life in diabetic patients in order to discern how people with different personalities adopted different coping mechanisms.

Conflict of interest: None declared.

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