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Original Article

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Diabetes-specific quality of life scale (DSQOL): Translation and validation of Urdu short version

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ABSTRACT

BACKGROUND & OBJECTIVE: Quality of life has been affected by numerous psychosocial factors. Thus, for diabetic patients, it was necessary to identify the underlying factors, keeping in view the cultural norms. The objective of the current study was to validate the cultural norms of DSQOL (Diabetes-Specific Quality of Life Scale)through translation into "Urdu" language.

METHODOLOGY: A correlational research design was used in the study. Initially, the forward and backward translation method was followed to translate DSQOL. Afterward, the final Urdu translated version (20 items) was tested on a representative sample of 200 diabetic patients to establish its psychometric properties.

RESULTS: Internal consistency and correlational matrix of original, Urdu, and English scales yielded reliable results. In the main study, 200 male and female diabetic patients with an age range of 30-70 years and an average of (M±SD;45±8.25) participated. The reliability analysis showed a significant alpha coefficient for five subscales; "Social relations (α= .80), Physical complaints (α=.90), Worries about the future (α= .88), Daily hassles (α= .88), and Emotional worries (α=.87)". The item analysis of Urdu version confirmed the item total correlation of all subscales except three items. Further, CFA confirmed the factor structure of the newly translated Urdu version of DSQOL through AMOS(Analysis of Moment Structure), and the model yielded acceptable model fit indices (CFI=.90; NFI= .90). The Final Urdu version of DSQOL had 20 items.

CONCLUSION: The Urdu version of DSQOL is a valid and reliable measure for assessing the diabetics-specific quality of life. This translated tool overcame the cultural barrier with respect to language and norms.

KEYWORDS: Diabetes Specific Quality of Life (D-QOL), Diabetes, Quality of Life.

INTRODUCTION

Quality of life is an important outcome variable in health psychology. It has been affected by an unhealthy lifestyle, less social support, and inadequate treatment. The diseases like diabetes have the potential to impact several aspects of patient's lives, especially the individual himself and his family [1,2].

The bio-psycho-social/cultural aspects expose physical malfunctioning (cardiovascular diseases, diabetic neuropathy, diabetic foot ulcer, stroke), psychological complications (e.g., generalized anxiety disorder, depression, and emotional problems), and social distress (ignorance by family members, less care from peers, lack of financial support, feeling oneself as a source of burden). Indeed, these psychosocial factors seem to be better predictors of relevant clinical outcomes among diabetic patients (i.e., distress, mortality, and hospitalization) than any other physiological indexes commonly used to assess diabetic health statuses such as Blood Sugar Fasting (BSF), Blood Sugar Random (BSR), and Glycated hemoglobin (HbA1C)[3,4,5].

Diabetes is emerging as a major health problem. It has been estimated that about 34% of women and 23% of men with diabetes have comorbid depression that results from poorer metabolic or glycemic control, which exacerbates these symptoms [6]. Moreover, the World Health Organization (WHO) stated that the assessment of the quality of life

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on psychological parameters is of key importance by considering the impact of such protracted disease and its treatment on individuals' physical, social, and mental well-being[7].

However, the causation of dysfunctionality does not depend only on certain medical conditions but also individual's attitude towards his/her self-care [8], and the role of social support (e.g., the quality of family relationships, peer groups, and the relationship with healthcare personnel). Because these factors are highly associated with treatment adherence which helps in managing it [9].The long-term impact of all chronic diseases and their treatments on the patient's quality of life (QOL) and normal living standards is a major concern for the patients, their families, and physicians as well. This is particularly relevant in the case of patients suffering from diabetes because the bio-psycho-socio/cultural burden of diabetes negatively affects patients' self-care behaviors, relationships, management of disease, its therapeutic adherence, and consequently, the Quality of Life (QOL) [10,11].

However, despite the clear understanding of the scientific and clinical community about the importance of giving voice to diabetic patients regarding their specific health-related QOL, especially within cultural boundaries, there is no clear agreement about the operational definition of such measures used, especially in collectivistic countries like Pakistan[8]. So, the objective needs a deeper comprehension of such measures to develop better suggestions and eligibility criteria to orient clinical practitioners and researchers in the development of the most reliable and specific measurement tool according to the culture and language-specific population. In the current clinical practice, it would directed to develop cultural adaptive tools to measure the level of patients' perceived diabetic-related quality of life. The prevalence rate of diabetes in Pakistan is 17%, especially Type II, due to a rich carbohydrate diet. Moreover, the rate is expected to rise by about 30% in 2030, highlighting the current demand to control the vulnerabilities of this problem [12].

The Diabetes Specific Quality of Life Scale (DSQOL) was first developed in English version and administered to determine the quality of diabetic patients under care in the diabetic care unit in Germany [13]. The majority of Pakistani patients are not well versed in the English language, as Urdu is the national language of Pakistan. The original scale was very lengthy and time-consuming. Half of the items were repeated, which may cause the fatigue effect. Hence, the present study was conducted to develop an Urdu short version of (DSQOL) to develop a better understanding of diabetics' quality of life and to reduce the fatigue effect among Pakistani patients.

METHODOLOGY

It was quantitative research in which a correlational research design was used.The ethical approval was obtained from the institutional ethical review committee (Reference no GCU. IRB/334. An in-person data collection model was used to approach diabetic patients from clinics and residential areas of Lahore and Fort Abbas. Moreover, these patients were also seeking treatment from private and government hospitals. A purposive sampling technique was used to collect the data from the respective population. The final sample was calculated by multiplying the "(n=10)" number of participants by item numbers. It consisted of 200 diabetic patients with an age range of 30-70 years comprising males (n=90) and (n=110) females.

The inclusion criteria were confirmed through the doctor's diagnosis and prescription given to participants. It included patients who had diabetes and were seeking treatment. Diabetic patients having visual, auditory, and physical impairments were excluded. Moreover, those who were not taking treatment and in the age range below 30 and above 70 were also excluded from the study. The demographic variables that were used in this study were gender, age, marital status, education, and duration of the disease.

Diabetes-Specific-Quality of Life Scale (DSQOL) was developed to assess the Quality of Life of individuals with diabetes by distinguishing them from different treatment and dietary regimes. The scale was composed of 77 items, including 3 subscales: individual treatment goals (10-items); treatment success (10-items); diabetes-related distress (57-items) with five Likert scale answer formats. Diabetes-related distress of DSQOL had 8-subscales such as social relations, leisure time, daily hassles, physical complaints, emotional worries, worries about the future, diet restriction, and problems related to low blood sugar [13].

Diabetes-Specific-Quality of Life Scale Urdu Short Version

Urdu Short version of DSQOL was an assessment tool used to measure the diabetic's specific quality of life of Urdu-speaking participants with age ranges from 30-70 years. This construct comprised of 20-items including five factors social relations (4-items), physical complaints (4-items), daily hassles (4-items), emotional worries (4-items), and worries about the future (4-items), with a five Likert scale answer format.

Procedure:

Stage I: Translation

Stage I was carried out in five steps: Forward translation, the best Urdu-translated questionnaire was selected by using the committee approach; backward translation, the selection of the best English questionnaire by using the committee approach; and Cross-language validation of DSQOL.

Step 1: Translation of (DSQOL) into the Urdu language. For the urdu translation of DSQOL 3 PhD bilinguals of university professors were approached. Translators were requested to use such words in translation that can be easily understood in Pakistani culture. For each item, three options for Urdu translation were presented.

Step 2: Selection the best Urdu-translated version of (DSQOL) by using the committee approach. The three PhD professors of Psychology from the psychology department of GC University Lahore were approached for the selection of

the best Urdu translation. The final draft was accomplished with the best Urdu translation for each item.

Step 3: Backward translation of (DSQOL) into English. Urdu translation was selected and further given to three English bilingual teachers of the English Department from GC University Lahore. One of them was PhD, and the rest of the two were M.Phil. English. All three faculty members were requested to translate DSQOL (Urdu version) into Eng-lish.

Step 4: Selection of the best English translation version of (DSQOL) by using the committee approach. Three Professors of Psychology were approached again. They selected the back translation that was very close to the original version of DSQOL (Diabetes specific quality of life scale). Moreover, 6 overlapping items were also excluded due to the same meaning, such as diabetes has controlled my life and relationships, restricted my diet, and the thought of being diabetic bothers.

Step 5: Cross-language validation of (DSQOL). In cross-language validation (n=20) participants, including (n=5) males and (n=15) females, were approached. These diabetic patients were highly qualified and had proper command of both languages of Urdu and English.

Stage II: Validation Study

The final translated version of the DSQOL was administered to the target population. Participants were selected by keeping under consideration their ability to understand the Urdu language. Following demographics of the research sample (n=200), age, gender, education, marital status, and duration of disease were confirmed by measuring the frequency percentage. Moreover, descriptive, reliability analysis, Item analysis, and confirmatory factor analysis were conducted to confirm the factor structure of the newly adapted and translated DSQOL Urdu short version.

This research followed research ethics ERC/IRB No. GCU/IIB/334. First of all, the author's permission for scales was taken via email. After that, informed consent was taken of the targeted population which highlighted the purpose of the study and assured them that participation in this study would not cause any harm or damage. Further, the participants have been given the right to withdraw from the research at any time. Moreover, it ensured that their personal information would be kept confidential and would be utilized solely for research purposes.

Each participant took 10-15 minutes on average to complete the questionnaire. The duration of the whole study was estimated around 6 months, from January 2018-June 2018.

RESULTS

The result section is comprised of two phases. In phase I, psychometric properties and inter-scale correlation were found. Moreover, phase II comprised the main study, in which factor analysis yielded satisfactory factor loadings for 20-items of the newly translated Urdu version of DSQOL.

Phase I: Translation

Table-I: Psychometric properties of diabetes specific quality of life scale original, Urdu, and English(n=20).

Scale	k	M ±SD	α
Original DSQOL	57	199.1±32.86	.93
Urdu DSQOL	57	194.7±39.28	.95
English DSQOL	51	195.1±39.23	.95

Note:α=Cronbach Alpha, k=total items,
M±SD=Mean±Standard Deviation

Table-I indicates the internal consistency of all the scales. It was estimated by using the Cronbach Alpha Co-efficient. The estimates of internal consistency reliability of the original version of DSQOL were considerably high (α=.93), the reliability of the Urdu version of DSQOL was slightly higher than the original version (α=.95), and the reliability of the backward translated English version of DSQOL was also higher than the original version of DSQOL (α=.95).

Table-II: Correlation matrix among diabetes-specific quality of life scale (n=20).

Variables	I	II	III
I DSQOL Original	-	.97**	.98**
II DSQOL Urdu	-	-	.97**
III DSQOL English	-	-	-

Note: **p<.01, Diabetes-specific quality of life scale original version (DSQOL-O), Diabetes-specific quality of life scale Urdu translation (DSQOL-U), and diabetes-specific quality of life scale English translation (DSQOL-E).

Table-II indicated that there is a significant, positive correlation between diabetes-specific quality of life scale (O) and diabetes-specific quality of life scale (U). (r= .97, p<.01), and positive, significant correlation between diabetes-specific quality of life scale (O) and diabetes-specific quality of life scale (E). (r= .98, p<.01). Results also suggest that there is a positive, significant correlation between diabetes-specific quality of life scale (U) and diabetes-specific quality of life scale (E). (r= .97, p<.01)

These results support the concurrent validity of the Urdu translation of diabetes-specific quality of life scale.

Phase II: Validation Study

The main study comprised descriptive, reliability, and confirmatory factor analysis of (N=200).

The above table-III shows the frequency distribution of demographic variables. The results indicated an increased number of participants in the age range of 40-50 years, whereas a greater number of females participated as compared to males.

Table-IV indicates the estimation of reliability. The researcher set the standard value (α=.75). The results indicated that the Cronbach Alpha Co-efficient of five subscales comprised of 40 items was significant. These were "Social relations (α= .80), Physical complaints (α= .90), Worries about the

future (α= .88), Daily hassles (α= .88), and Emotional worries (α=.87)". But the values of the following three subscales "Diet Restriction (α= .64), Leisure time (α= .44), and Low blood sugar (α= .67) consisted of 11-items were non-significant as the Cronbach alpha values were below the standard value of .75. So, these subscales were excluded.

Table-III: Demographic characteristics of study participants (N=200).

Categories		n(%)
Age	30-40years	80(40.0)
	40-50 years	85(42.5)
	50-60years	20(10.0)
	60-70years	15(7.5)
Gender	Male	90(27.0)
	Female	110(55.0)
Marital Status	Married	195(97.5)
	Unmarried	5(2.5)
Education	Literate	180(90.0)
	Illiterate	20(10.0)
Duration of Disease	1-10 years	157(78.5)
	11-20 years	39(19.5)
	21-30years	4(2.0)

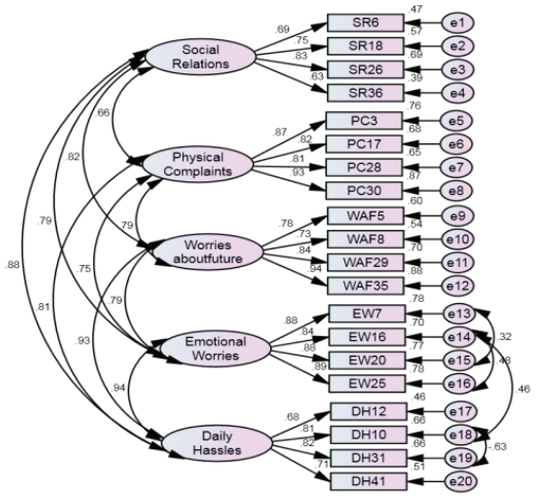

Figure-I: Confirmatory Factor Analysis (CFA) showing the final Factor Structure of (DSQOL) Urdu version.

Figure-I shows the factor structure of the newly translated version of DSQOL. It was confirmed through confirmatory factor analysis (CFA). The final model showed factor loadings for 20-items (>.40) for five subscales: social relations, daily hassles, worries about the future, emotional worries, and physical complaints. Moreover, the analysis yielded acceptable fit indices, which were the value of the Comparative Fit Index (CFI = .90) and Non-normed Fit Index (NFI =.90).

Furthermore, the results indicated that the item total correlation of items was significant and above the standard point (r=.30). However, the item-total correlation of three items were SR44 (r = .28), DR2 (r=-.22) and LBS46 (r=.15) is below the standard point (r =.30). So, these items were also excluded from the scale.

Table-IV: Descriptive statistics and reliability analysis of study variables (N=200).

Variables	k	Mean±SD	α
Social relation	8	21.38±7.55	.80
Leisure time	3	8.25±2.36	.44
Physical complaint	10	29.42±8.61	.90
Worries about future	7	20.36±6.86	.88
Diet restrictions	6	21.17±4.29	.64
Daily hassles	8	23.26±6.26	.88
Emotional worries	7	11.86±4.22	.87
Low blood sugar	2	8.64±2.63	.67

Note: α=Cronbach Alpha, k=total items, M±SD=Mean±Standard Deviation

DISCUSSION

The study aimed to translate and validate the Urdu short version of the Diabetes Specific Quality of Life Scale (DSQOL). The Urdu DSQOL was carried out on 200 diabetic patients. Translation and cross-validation led to the best Urdu DSQOL version. Item-total correlation revealed issues in three items (diet restrictions, social relations, and low blood sugar). Reliability analysis indicated significant Cronbach alpha values for five subscales (social relations, daily hassles, physical complaints, worries about the future, emotional worries), but not for certain items in subscales like diet restrictions, leisure time flexibility, and low blood sugar problems. Confirmatory factor analysis (CFA) initially showed poor fit, but after adjustments, a statistically well-fitted model was achieved. The final version included 20 items across 5 subscales.

In the subscale "social relations," items highlighted challenges like others finding diabetes unattractive, restricted relationships due to diabetes, social perceptions. In the "emotional worries" subscale, items indicated feeling upset, worried due to diabetes-related issues[14,15,16,17,18]. The "physical complaints" subscale items pointed to pain, skin problems, fatigue, and dry mouth. The "worries about the future" subscale items reflected concerns about health, lifespan, diabetes complications, and low sugar problems. The "daily hassles" subscale items addressed difficulties in traveling, carrying medicine, and dissatisfaction with treatment time. These five domains of the Urdu DSQOL were validated as the factor loadings of these items were (>.40)[19, 20, 21, 22].

LIMITATIONS: The translated Urdu short version of the Diabetes Specific Quality of Life Scale (DSQOL) has been validated on a sample of patients residing in Lahore.

Researchers and clinicians may extend this work to validate its psychometric properties by collecting data from other provinces of Pakistan or may translate this scale into their specific regional languages as well.

CONCLUSION

Several measures of diabetic-specific quality of life exist in the scientific literature that are culturally specific in terms of norms and language. In Pakistan, the majority of the people have Urdu as their first language. Therefore, the Western measures were not easy to understand. Moreover, the underlying factors of quality of life vary in cultures due to the nature of the family system and approach to culture. Thus, in Pakistan, collectivistic culture helped the patients to combat such chronic illnesses. The results of the study indicated that the Urdu short version of DSQOL is a valid and reliable measure for assessing the diabetics-specific quality of life.

IMPLICATIONS: Several measures comprised content related to the quality of life but not a diabetic-specific quality of life. Thus, it would help the researchers by specifying their research orientation and knowing the prevalence of the problem. The administration of Western tools is much more difficult due to language and cultural barriers. Thus, it would direct the researcher to identify the risk factors within the cultural context and help them to discriminate between individuals on various dietary regimens and medical treatments.

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REFERENCES

1. Tang TS, Brown MB, Funnell MM, Anderson RM. Social support, quality of life, and self-care behaviors among African Americans with type 2 diabetes. Diabetes Educator. 2008;34(2):266-276. Doi:10.1177/014572170831568
2. Peyrot M, Rubin RR, Lauritzen T, Snoek FJ, Matthews DR, Skovlund SE. Psy-chosocial problems and barriers to improved diabetes management: results of the Cross-National Diabetes Attitudes, Wishes and Needs (DAWN) Study. Diabetic Medicine. 2005;22(10):1379-1385. Doi:10.1111/j.1464-5491.2005.01644.x
3. Palamenghi L, Carlucci MM, Graffingna G. Measuring the quality of life in dia-betic patients: A scoping review. Journal of Diabetic Research. 2020:19. Doi:10.1155/2020/5419298
4. Ormel J, Kempen IJMG, Deeg JHD, Brilman EI, Relyveld J, et al. Functioning, well-being, and health perception in late middle-aged and older people: Compar-ing the effects of depressive symptoms and chronic medical conditions. Journal of the American Geriatric Society. 2015; 46:39-48. Doi:10.1111/j.1532-5415.1998.tb01011.x
5. Zhang L, Yang H, Yang P. The correlation between type 2 diabetes mellitus and cardiovascular disease risk factors in the elderly. Applied Bionics and Biomechanics.2022:1-7.
6. Prigge R, Wild SH, Jackson CA. Depression, diabetes, comorbid depression and diabetes and risk of all-cause and cause-specific mortality: a prospective cohort study. Diabetologia. 2022; 65:1450–1460.Doi:10.1007/s00125-022-05723-4
7. Trzcionka A, Włodarczyk-Sielicka M, Surmiak P, Szymańska A, Pohl A, Ta-nasiewicz M. Quality of life assessment in students from Polish universities during the COVID-19 pandemic according to WHO quality of life questionnaire. Interna-tional Journal of Environmental Research and Public Health. 2022;19(13):8117. Doi:10.3390/ijerph19138117
8. Krahn GL, Horner-Johnson W, Hall TA, Roid GH, Andresen EM, Fujiura GT, et al. Development and psychometric assessment of the function-neutral health-related quality of life measure. American journal of physical medicine & rehabilita-tion. 2014;93(1):56-74. Doi: 10.1097/PHM.0b013e3182a517e6
9. Wooldridge JS, Soriano EC, Harris DE, Afari N. Feasibility and acceptability of ecological momentary assessment of psychosocial factors and self-management behaviors among veterans with Type 2 diabetes. Diabetes Spectrum. 2022;35(1):76-85. Doi: 10.2337/ds21-0020
10. Barello S, Palamenghi L, Graffigna G. The mediating role of the patient health en-gagement model on the relationship between patient perceived autonomy support-ive healthcare climate and health literacy skills. International Journal of Environ-mental Research and Public Health. 2020;17(5):1741. Doi:10.3390/ijerph17051741
11. Tareen RS, Tareen K. Psychosocial aspects of diabetes management: the dilemma of diabetes distress. Translational Pediatrics. 2017;6(4):383–396. Doi: 10.21037/tp.2017.10.04
12. Speight J, Reaney MD, Barnard KD. Not all roads lead to Rome—a review of quality of life measurement in adults with diabetes. Diabetic Medicine. 2009;26(4):315-327. Doi: 10.1111/j.1464-5491.2009.02682.x
13. Bott UW, Mühlhauser I, Overmann H, Berger M. Validation of a diabetes-specific quality-of-life scale for patients with type 1 diabetes. Diabetes Care. 1998;21(5):757-769.Doi:10.2337/diacare.21.5.757

14. Chen M, Yun Q, Lin H, Liun S, Liu Y, Shi Y, et al. Factors related to diabetes self-management among patients with type 2 diabetes: A Chinese cross-sectional survey based on self-determination theory and social support theory. Patient Pref-erence and Adherence. 2022; 16:925-936. Doi:10.2147/PPA.S335363
15. Hofstede, G. Dimensionalizing Cultures: The Hofstede Model in context. Online Reading in Psychology and Culture. 2011;2(1). Doi:10.9707/2307-0919.1014
16. Lisa L. Encyclopedia of Personality and Individual Differences: Springer International Publishing. 2017. Doi:10.1007/978-3-319-28099-8_1162-1.
17. Tariq O, Rosten C, Huber J. Experiences of living with type 2 diabetes in Pakistan: the role of culture and family in physical activity. International Journal for Equity in Health. 2022;21(1):1-1. Doi:10.1186/s12939-022-01706-4
18. Rodríguez-Ramírez AM, Alcántara-Garcés MT, Hernández-Jiménez S, García-Ulloa AC, Arcila-Martínez D, Velázquez-Jurado H, Arizmendi-Rodríguez RE. Long-Term Effects of Anxiety on the Metabolic Control of Recently Diagnosed Type 2 Diabetes Patients: Results from the CAIPaDi Cohort Study. Neuropsychi-atric Disease and Treatment. 2023:197-207. Doi:10.2147/NDT.S392672
19. Nance CM, Betancourt H, Flynn PM. The role of cultural beliefs and distress in adherence to recommended physical activity among patients with type 2 diabetes mellitus. Journal of Behavioral Medicine. 2022;45(3):472-480. Doi:10.1007/s10865-022-00301-w
20. Asmat K, Dhamani K, Froelicher ES, Gul R. A Patient-Centered Self-Management Intervention to Improve Glycemic Control, Self-Efficacy and Self-Care Behaviors in Adults with Type 2 Diabetes Mellitus: A SPIRIT Compliant Study Protocol for Randomized Controlled Trial. Diabetes, Metabolic Syndrome and Obesity. 2023:225-236. Doi:10.2147/DMSO.S385715
21. Riley G. The role of self-determination theory and cognitive evaluation theory in home education. Cogent Education. 2016;3(1):1163651. Doi:10.1080/2331186X.2016.1163651
22. OudinDoglioniD,Pham-HungD'AlexandryD'Orengiani AL, Galactéros F, Gay MC. Psychometric characteristics of the Revised Illness Perception Questionnaire (IPQ-R) in adults with sickle cell disease. Health Psychology and Behavioral Medicine. 2022;10(1):60-80. Doi: 10.1080/21642850.2021.2016411

Authors Contribution:

Laraib Javaid: Did data collection, translation, manuscript writing, analysis and final results writing.
Nasreen Akhtar: Conceived, designed, and did statistical analysis & manuscript writing.
Iffat Batool: Substantial contributions to the conception and design of the work.
Muhammad Zohaib Khan: Drafting the work and reviewing it critically for important intellectual content.

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