JPSIM Journal of Pakistan Society of Internal Medicine

Original Article

Quality of Life in Patients with Type 2 Diabetes Attending A Specialist Endocrine Clinic in Lahore, Pakistan: A Cross-Sectional

Atif Munir, Maham Murtaza, Kainat Iqbal, Aijaz Zeeshan Khan Chachar, Najeeb Ullah, Asma Afzal Khan

[1]*Omar Hospital, Lahore, Pakistan,* [2]*Fatima Memorial Hospital/ Fatima Memorial College of Medicine & Dentistry, Lahore, Pakistan*

Abstract

Objective: To assess QoL in adults with T2DM attending a specialist endocrine clinic in Lahore, Pakistan, and to identify clinical factors associated with various domains of QoL.

Methodology: Our study is a cross-sectional study enrolled adults with T2DM attending the Diabetes & Endocrine Clinic, Omar Hospital, Lahore. QoL was measured using the WHOQOL-BREF questionnaire. Demographics and clinical data were recorded, including HbA1c, diabetes duration and complications. Data were analysed using correlation and multiple regression techniques to identify predictors of QoL.

Results: Among 100 participants mean age was 50.0 (43.0–60.0) years; 28% of participants male, 73% female. The physical health domain was most impaired. Duration of diabetes showed a weak but statistically significant negative correlation with the physical health domain score indicating that longer diabetes duration was correlated with lower physical health-related qu. Age and HbA1c did not show statistically significant correlations with WHOQOL-BREF domain scores in this sample.

Conclusion: In this sample, male gender and shorter diabetes duration were correlated with better quality of life in selected WHOQOL-BREF domains. According to complication status, treatment modality, age, or HbA1c no statistically significant differences were observed.

Keywords: Type 2 Diabetes, Quality of life, Pakistan

How to cite this:

Munir A, Murtaza M, Iqbal K, Chachar AZK, Ullah N, Khan AA. Quality of life in patients with type 2 diabetes attending a specialist endocrine clinic in Lahore, Pakistan: A cross-sectional study. J Pak Soc Intern Med. 2026;7(4): 300-304

Corresponding Author: Dr. Atif Munir **Email:** atif113_2000@yahoo.co.uk

Received: 08-06-2026 **Revised:** 24-08-2026 **Accepted:** 04-11-2026 **DOI:** https://doi.org/10.70302/jpsim.v7i4.2660

2709-8729/© 2026 The Author(s). Published by JPSIM on behalf of Pakistan Society of Internal Medicine, Lahore, Pakistan. This is an open access article under the CC BY 4.0 license https://creativecommons.org/licenses/by/4.0/

Introduction

Rising type 2 diabetes mellitus (T2DM) prevalence continues to pose major health challenges to world population. These are most challenging in low- and middle-income countries and has significant morbidity associated with it. As per updated International Diabetes Federation figures, about 589 million adults with diabetes across the globe which is estimated to be about 11.1% of the global adult population. Numbers are projected to approximately reach 853 million by 2050, with most number of people with diabetes living in low- and middle-income countries. Estimated 34.5 million population aged between the ages of 20-79 years in Pakistan have diabetes. The age-standardised prevalence estimated as 31.4%, one of the highest globally. The number is expected to rise to nearly 70 million over the next 25 years.[1,2]

First definition of quality of life was introduced by World Health Organization (WHO) in 1997 and it was defined as "state of complete physical, mental, and social well-being not merely the absence of disease". WHO then introduced quality of life (QoL) as a marker of health and effects of health on physical, mental and social aspects of daily life.[3]

Presence of any chronic illness can deteriorate a person`s QoL. Type 2 Diabetes and the risk of its long-term health complications can lead to functional impairment, psychological distress and affected health-related QoL.[4-7]

There has been increasing focus on individualization of diabetes treatment and patient involvement in treatment decisions along with the healthcare practitioners as reflected in American Diabetes Association (ADA) and European association for the

study of diabetes (EASD) diabetes management guidelines) hence diabetes specific HRQoL tools have been developed over last few years.[8]

One of such tools is the WHOQOL-BREF, developed by the WHO, and is validated to assess QoL in chronic disease populations. The questionnaire has been extensively used in clinical research to evaluate impact of diabetes on patient`s holistic wellbeing.[9,10] The questionnaire consists of 26 questions and encompasses physical and psychological and environmental health along with social interactions. Each domain score is then marked on a 0–100 scale. Higher the scores better is the patient`s perceived QoL.[11]

Our study aims to characterize QoL among adults with T2DM attending a specialist endocrine clinic in Lahore and to identify clinical predictors affecting QoL domains.

Methodology

This was a cross-sectional observational study and was undertaken over six months at Omar Hospital, Lahore, Pakistan. Patients aged ≥18 years with T2DM were consecutively enrolled. Patients with included type 1 diabetes, gestational diabetes, and severe systemic or cognitive impairment were not included. Demographic and clinical information included age, gender, diabetes duration, HbA1c, treatment modality and presence of complications. The WHOQOL-BREF questionnaire was used as the data collection tool. This has 26-validated score items. It measures QoL across four domains. These include physical, psychological and environmental health and social relationships. Data were analysed using SPSS. Continuous variables were described as mean ± SD. and Frequencies and percentages were calculated for categorical variables. Associations between demographic and clinical variables and WHOQOL-BREF domain scores were assesses through inferential analysis. Differences in quality-of-life domain scores between two independent groups, such as gender, complication status, and treatment category, were assessed using the Mann–Whitney U test. Spearman's rank correlation was used to evaluate associations between continuous clinical variables, including age, duration of diabetes, and HbA1c, and WHOQOL-BREF domain scores. Variables showing clinical relevance or statistical significance in bivariate analysis were considered for multivariable linear regression analysis. A p-value was considered statistically significant if it was <0.05.

Results

Table 1 outlines the baseline profile of the patient cohort, which is primarily female (72.3%) with a median age of 50 years and a median diabetes duration of 6 years. It highlights that most participants manage their condition using oral anti-diabetic drugs (81.2%), exhibit elevated glycemic levels (median HbA1c of 9.0%), and predominantly present without diabetic complications (68.3%).

Table 1: *Clinical Characteristics and demographics*

Variable	Result
Age (years)	50.0 (43.0–60.0)
Duration of diabetes (years)	6.0 (2.9–13.0)
HbA1c (%)	9.0 (7.5–11.0)
Male	28 (27.7%)
Female	73 (72.3%)
Oral anti-diabetic drugs	82 (81.2%)
Insulin	2 (2.0%)
Both oral drugs and insulin	16 (15.8%)
No complications	69 (68.3%)
Any complication	32 (31.7%)
Retinopathy	1 (1.0%)
Neuropathy	20 (19.8%)
Nephropathy	0 (0.0%)
Cardiovascular disease	5 (5.0%)
Multiple complications	6 (5.9%)

Overall domain scores are presented as mean ± standard deviation. Gender-specific scores are

Table 2: *Overall WHOQOL-BREF domain scores and comparison by gender*

WHOQOL-BREF domain	Overall score, mean ± SD	Male (n=28), median (IQR)	Female (n=73), median (IQR)	Mann–Whitney U	p-value
Physical health	59.9 ± 19.8	64.3 (57.1–75.9)	53.6 (46.4–67.9)	1307.5	**0.030***
Psychological health	61.4 ± 14.9	64.6 (53.1–75.0)	62.5 (50.0–75.0)	1129.5	0.415
Social relationships	65.7 ± 23.0	75.0 (58.3–83.3)	66.7 (41.7–75.0)	1286.5	**0.043***
Environmental health	64.0 ± 18.7	65.6 (53.1–78.9)	62.5 (46.9–81.2)	1006	0.906

Table 3: *Association of clinical characteristics with WHOQOL-BREF domain scores*

Clinical characteristic	Physical health	Psychological health	Social relationships	Environmental health
A. Diabetes-related complication status				
No complications (n=69)	60.7 (50.0–71.4)	62.5 (50.0–70.8)	75.0 (50.0–75.0)	62.5 (46.9–81.2)
Any complication (n=32)	57.1 (46.4–75.0)	66.7 (49.0–75.0)	66.7 (47.9–83.3)	65.6 (55.5–78.9)
Mann–Whitney U	1112.5	1004.5	1121	998
p-value	0.953	0.468	0.903	0.441
B. Treatment modality				
Oral drugs only (n=82)	60.7 (50.0–75.0)	62.5 (50.0–70.8)	66.7 (50.0–83.3)	65.6 (46.9–81.2)
Insulin-containing treatment (n=18)	53.6 (46.4–64.3)	62.5 (50.0–75.0)	75.0 (52.1–83.3)	62.5 (59.4–77.3)
Mann–Whitney U	870	627	687	720.5
p-value	0.237	0.32	0.648	0.879
C. Correlations with continuous clinical variables				
Age (n=99)	−0.046 (0.648)	0.140 (0.166)	−0.003 (0.974)	0.026 (0.797)
Duration of diabetes (n=96)	**−0.248 (0.015)***	0.070 (0.497)	−0.037 (0.721)	0.035 (0.733)
HbA1c (n=69)	0.041 (0.736)	−0.063 (0.605)	−0.020 (0.868)	−0.194 (0.110)

*Values for complication status and treatment modality are median (interquartile range) and were compared using the Mann–Whitney U test. Correlation results are Spearman's rho (p-value). *p<0.05*

presented as median (interquartile range) and were compared using the Mann–Whitney U test.*p<0.05 was considered statistically significant

Table 2 evaluates the patients' quality of life across four specific health domains and highlights how these scores differ between genders. The data reveals that male participants scored significantly higher than female participants in both physical health (p=0.030) and social relationships (p=0.043), while psychological and environmental health scores remained statistically similar.

Table 3 analyzes how specific clinical variables impact the patients' quality of life scores. The statistical tests reveal that diabetes-related complications and treatment modalities do not significantly alter domain scores, but a longer duration of diabetes is significantly correlated with a decline in physical health (p=0.015).

Discussion

Physical health and social relationship scores of males were significantly higher than female patients at the unadjusted 0.05 level (table 2). Psychological and environmental domain scores were not significantly different by gender. Between patients with and without diabetes-related complications, on oral medications or insulin no differences were observed that reached statistical significance in WHOQOL-BREF domain scores (table 3).

For bivariate analysis, WHOQOL-BREF domain scores were compared across gender, complication status, and treatment modality using the Mann–Whitney U test. Male participants scored higher in physical health and social relationship domain scores compared with female participants.

Duration of diabetes had a weak though statistically significant negative correlation with the physical health domain score (rho = -0.248, p = 0.015), indicating that longer diabetes duration had lower physical health-related QoL. Age and HbA1c did not show statistically significant correlations with WHOQOL-BREF domain scores in this sample (table 3).

There is large scale scientific data about QoL in patients with T2DM globally assessing the physical, social and psychological impact of type 2 diabetes.[12-15] With one of the highest global prevalence of type 2 diabetes Data from Pakistan about QoL in patients with type 2 diabetes is limited and small scale. This study adds to the evidence that T2DM substantially impairs quality of life in Pakistan, consistent with international data.[3-7]

Studies from Pakistan have highlight the sociodemographic factors such as education, income and gender on QoL outcomes, underlining the need for biopsychosocial approaches in diabetes care. Colleagues in Kohat using the WHOQOL-BREF reported significantly lower domain scores in patients with complications, particularly among women from

their study.[16] A tertiary hospital study in Rawalpindi similarly described average overall QoL with environmental domain as weakest.[17] Large descriptive work from Faisalabad found associations of age, BMI and socioeconomic factors with WHOQOL-BREF domain scores.[18] Earlier research from Quetta using EuroQol also indicated poor HRQoL associated with disease and treatment factors.[19] These Pakistan-specific findings underline the multifaceted impact of T2DM in local populations.

Routine QoL assessment can inform comprehensive management, offering opportunities for psychosocial support, lifestyle optimization and targeted interventions that extend beyond glycaemic targets. Use of a validated WHOQOL-BREF tool, specialist care setting, incorporation of clinical correlates. Cross-sectional design is not the most accurate method of causal relationship and single-centre recruitment may affect generalization.

Conclusion

In our study, male gender and shorter diabetes duration were associated with better QoL in selected WHOQOL-BREF domains. There were no statistically difference significant amongst complication status, treatment modality, age, or HbA1c. Integrating QoL evaluation into routine practice may improve holistic diabetes care and patient outcomes.

Ethical Approval: The IRB/EC approved this study via letter no. OHJR-IRB2025/01/MA dated March 12, 2026.

Conflict of Interest: None

Funding Source: None

Authors' Contribution

AM: Conception.

MM, KI: Design of the work.

AZKC, NU, AAK: Data acquisition, analysis, or interpretation.

KI, AZKC, NU, AAK: Draft the work.

AM, MM: Review critically for important intellectual content.

All authors approve the version to be published.

All authors agree to be accountable for all aspects of the work.

References

1. Valavanidis A. Cancer Death Rates (age-standardized) in Developed Countries Are at their Lowest Level on Record, 30% Down from 1990.
2. Magliano DJ, Boyko EJ, Atlas D. 3. The global picture of diabetes. InDiabetes Atlas [Internet]. 11th edition 2025. International Diabetes Federation.
3. Filho AM, Laversanne M, Ferlay J. The GLOBOCAN 2022 cancer estimates: data sources, methods, and a snapshot of the cancer burden worldwide. Int J Cancer. 2025;doi:10.1002/-ijc.35278.
4. Sun KX, Liang X, Zhu Q. Global patterns and trends in cancer-related premature death and their impact on life expectancy across 185 countries: a population-based analysis. Mil Med Res. 2025; doi:10.1186/s40779-025-00645-9.
5. World Health Organization. Cancer [Internet]. Geneva: World Health Organization; 2025 Feb 3 [cited 2026 Oct 25]. Available from: https://www.-who.int/news-room/fact-sheets/-detail/cancer
6. Li W, Huang S, Chen Q, Wang T, Lu G, Niu X, et.al. Global cancer statistics for children: two decades of change and projections to 2050. CA Cancer J Clin. 2026;76(2):e70069.
7. Kim J, Harper A, McCormack V, Sung H, Houssami N, Morgan E et al. Global patterns and trends in breast cancer incidence and mortality across 185 countries. Nat Med. 2025;31(4):1154-62.
8. Crosby D, Bhatia S, Brindle KM, Coussens LM, Dive C, Emberton M, et al. Early detection of cancer. Science. 2022; 375(6586):e9040.
9. Gunn T. UK cancer death rates down to their lowest level on record [Internet]. Cancer Research UK; 2026 Mar 9 [cited 2026 Oct 25]. Available from: https://news.cancerresearchuk.org/2026/03/09/uk-cancer-death-rates-down-to-their-lowest-level-on-record/
10. Warkentin MT, Tremblay RA, Brenner DR. The impact of tobacco control on lung cancer mortality across 48 countries. J Thorac Oncol. 2024;19(10 Suppl):S107.
11. Islami F, Nargis N, Liu Q. Averted lung cancer deaths due to reductions in cigarette smoking in the United States, 1970–2022. CA Cancer J Clin. 2025;75(3):216-25. doi:10.3322/caac.70005.
12. American Cancer Society. Cancer mortality in the USA continues to drop despite rising incidence in women; rates of new diagnoses under 65 higher in women than men [Internet]. Atlanta (GA): American Cancer Society; 2025 Jan 16 [cited 2026 Oct 25]. Available from: https://pressroom.cancer.org/2025-CancerFactsandFigures
13. Trikkalinou A, Papazafiropoulou AK, Melidonis A. Type 2 diabetes and quality of life. World J Diab. 2017;8(4):120.

14. Liu G, Li T, Chen C, Xiao N. Health-Related Quality of Life and Psychosocial Outcomes in Patients With Type 2 Diabetes Mellitus: A Bibliometric Analysis. J Diab Res. 2025;25(1):5164503.
15. Jing X, Chen J, Dong Y, Han D, Zhao H, Wang X, Gao F, Li C, Cui Z, Liu Y, Ma J. Related factors of quality of life of type 2 diabetes patients: a systematic review and meta-analysis. Health Quality Life Outcomes. 2018;16(1):189.
16. Amin MF, Bhowmik B, Rouf R, Khan MI, Tasnim SA, Afsana F, et.al. Assessment of quality of life and its determinants in type-2 diabetes patients using the WHOQOL-BREF instrument in Bangladesh. BMC Endocrine Disorders. 2022;22(1):162.
17. Zulfiqar S, Mahmood H, Riaz M, Azam N, Khan J, Asif R. Quality of life among type-ii diabetes mellitus patients; a cross sectional study at a tertiary care hospital of RawalpindI. Pak Armed Forc Med J. 2022;72(Suppl-1):S12.
18. Yousaf MF, Aslam A, Aslam Z, Mukhtar F. Assessment of Quality of Life of Patients with Type-II Diabetes Mellitus. Ann Punjab Med Col. 2023 Jun 30;17(2):168-73.
19. Iqbal Q, ul Haq N, Bashir S, Bashaar M. Profile and predictors of health related quality of life among type II diabetes mellitus patients in Quetta city, Pakistan. Health Quality Life Outcomes. 2017;15(1):142.