QUALITY OF LIFE AMONG TYPE-II DIABETES MELLITUS PATIENTS; A CROSS SECTIONAL STUDY AT A TERTIARY CARE HOSPITAL OF RAWALPINDI

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ABSTRACT

Objective: To assess the quality of life of type-II diabetic patients and to obtain correlation between demographic variables and Qol domains.

Study Design: Cross-sectional study.

Place and Duration of Study: Tertiary care hospital of Rawalpindi, from Mar to Sep 2020

Methodology: Convenience sampling technique was used with sample size of 370. Type-II DM patients, more than 30 years of age, with or without complications were included. Patients with terminal illnesses, dementia and unstable mental states were excluded. Ethics approval and informed consent were taken. WHO QoL BREF was used to measure quality of life. Analysis was done using SPSS version 23.

Results: A total of 377 participants were included in this study, 56% were males and 44% were females. Mean age was 52 years with mean duration of diabetes of 10 years. In this 26% received education till primary level, 34% were into a private job, 74% of the participants had urban location. Out of 65% were married and 52% were earning between 11,000-50,000. The mean of the total score of the QoL was 48 ± 13.9 SD, the weakest domain being environmental. Correlation analysis showed strong positive association between education and socioeconomic status and environmental domain. Age, residence, duration of disease and its treatment had a strong negative association. Out of 44% self- reported their QoL as moderate and 49.1% self-reported their health status satisfaction as moderate.

Conclusion: QoL of type-II diabetics was found to be average with environment as weakest domain.

Keywords: Complications, Glycemic control, Quality of life, Type-II diabetes mellitus, WHO QoL 26 Bref.

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INTRODUCTION

Diabetes mellitus is a chronic condition giving rise to public health concerns. It is associated with increasing prevalence and various complications.[1] An estimated 150 million people globally have diabetes mellitus.[2] By the year 2025, this figure is expected to be doubled. The highest prevalence, 37.5%, is in the Western Pacific region.[3] Some 50% of all individuals with diabetes are undiagnosed, especially in developing countries.[4] Much of the burden is in the developing countries.[2] Pakistan stands on the 7th rank on the diabetes prevalence list by World Health Organization.[2] The prevalence of diabetes mellitus in Pakistan is 9.8%[2] and 32.9% in Rawalpindi.[5] Type-II diabetes mellitus or non-insulin-dependent diabetes mellitus had always been known as a disease of adults but now young adolescents are also becoming a target.[1] It is a non-communicable, chronic disease, which is caused by either insufficient functioning of the pancreas, or by ineffectively utilization of the insulin by the body or ineffective insulin itself.[6] This leads to many physiological and anatomical mal-functions,[7] and is associated with minor as well as many major and debilitating complications.[8] There is an excessive amount of glucose circulating in the blood plasma.[10] The typical symptoms of DM, like polydipsia, polyurea, continuous feeling of being tired and a weight loss may not be always seen in type-II diabetes mellitus. Sometimes there are no symptoms at all and the disease is diagnosed many years after its onset, due to the developing complications.[1] Many studies have found QoL of diabetics worse than that of similarly aged non diabetics.[8]

Diabetes mellitus is on the rise in Pakistan with a huge burden on the health and economy. It can lead to number of complications that can be prevented only through an immaculate glycemic control and a healthy life style. A lot of studies have been done regarding different aspects of diabetes mellitus, still there are gaps left, mainly regarding HRQoL. WHO's step forward to develop an assessment of QoL, is because of a need for an authentic check on the perceived QoL. HRQoL self-assessment is one of the most widely-used measures. It measures the health in physical, psychological, social and environmental domains.

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HRQoL survey is an important tool to collect evidence-based data so as to sort out the weakest domain and make recommendations to the policy makers to take useful steps in bringing about improvement in the prevention, management and control of the disease in that particular domain.

METHODOLOGY

A cross sectional study with a non-probability convenient sampling was conducted at a diabetic clinic of a tertiary care hospital in Rawalpindi, from March to September 2020. The sample size was calculated by WHO sample size calculator with 95% CI, 5% margin of error and using the prevalence of type-II DM in Rawalpindi (32.9%) (5) and 10% added for the non-response, final sample size of 377 was calculated.

Inclusion Criteria: Patients with type-II diabetes mellitus, >30 years of age, with or without complications were included

Exclusion Criteria: While patients with a terminal illness, dementia and unstable mental states were excluded.

Project was approved by ethical committee of AFPGMI, NUMS, Rawalpindi. Informed consent was taken.

Data was collected by questionnaire comprising of two sections. First section included demographic profile such as age, sex, marital status, educational level, occupation, residence, duration of diabetes, co-morbidities: any chronic diseases other than diabetes mellitus and type of treatment. Second section consisted of Quality of Life scale by WHO-BREF with 26 questions. It is valid and measures QoL on a five-point rating scale showing domain scores in Physical, Psychological, Social and Environmental domains. The questionnaire was translated into Urdu and back to English. The initial scores for all the four domains were calculated by adding values of designated questions for the respective domains and were transformed on the scale ranging from 0-100, where 100 is the highest and 0 is the lowest QoL. A total mean score with SD and means and SD of each domain were calculated. The first two questions in WHO QoL-BREF were taken for the analysis of perceived QoL. They showed self-reported quality of life and self-reported health satisfaction. The responses were calculated as frequencies and percentages.

Computed mean of QOL was rounded off to 50 to keep as a cut-off point and total score was categorized as poor 1-25, average 26-50, good 51-75, very good 76-100. Pearson's Correlation was used to find associations between demographic variables and all four domains of QoL. The value of the correlation coefficient (r) varies between +1 and -1, where +1 is a perfect positive correlation, and -1 is a perfect negative correlation. 0 means there is no correlation at all. Data was analysed using SPSS-23.

RESULTS

A total 377 patients participated in the study. 56% were males and 44% were females. Mean age was 52 years. Mean duration of disease was 10 years, 26% received education till primary level, 34% were into a private job, 74% of the participants had urban location. Out of 65% were married and 52% were earning between 11,000 to 50,000. Sociodemographic characteristics of patients are given in Table-I.

Table-I: Socio demographic characteristics of the respondents.

Variables	Mean ± SD /n (%)
Age	52 ± 10
Duration of Disease (years)	10 ± 7.5
Gender	
Male	210 (56%)
Female	167 (44%)
Education	
Uneducated	40 (11%)
Primary	96 (25%)
Matriculation	83 (22%)
Intermediate	77 (20%)
Graduate	67 (18%)
Post Graduate	14 (4%)
Socio-Economic Status (rupees)	
Less than 10000	43 (11%)
11000-30000	196 (52%)
31000-50000	94 (25%)
More than 50000	44 (12%)
Occupation	
Private Job	132 (35%)
Government Job	38 (10%)
Businessperson	37 (10%)
Housewife	126 (33%)
Retired	29 (8%)
Unemployed	15 (4%)
Residence	
Urban	279 (74%)
Rural	98 (26%)
Marital Status	
Single	20 (5%)
Married	247 (65%)
Widowed/Divorced/Separated	110 (30%)
Co-Morbidities	
CVD's	63 (17%)
Vision	37 (10%)
Renal diseases	37 (10%)
Foot problems	26 (7%)
Arthritis	12 (3%)
Others	93 (25%)
None	109 (29%)
Treatment	
Diet/exercise	18 (5%)
Oral hypoglycemics	207 (55%)
Insulin	74 (20%)
Oral hypoglycemics plus insulin	78 (20%)

For QoL Scores, the mean of the total score of the QoL was 48.7 with ± 13.9 SD. Lowest mean was of the environmental domain (45.7 with ±16.9 SD) and the highest was of the social domain (52 with ± 26.6 SD). Given in Table-II.

Table-II: QOL domain scores of study participants (n=377).

	Mean ± SD	95% CI
QoL	48.7 ± 13.9	47.3-50.1
Environmental Domain	45 ± 16.9	44.04-47.47
Psychological Domain	47.7 ± 12.5	46.49-49.03
Physical Domain	49.2 ± 11.7	48.10-50.48
Social domain	52 ± 26.6	49.53-54.75

Out of 377 participants, 5 (1%) reported their self-reported QoL as very good and 7 (2%) as very poor. For self-reported health satisfaction, out of the 377 participants, 7 (2%) reported their health status as very dissatisfied and 3 (1%) as very satisfied. Self-reported QoL and health satisfaction is given in Table-III.

Table-III: Self-reported QOL and health status satisfaction of participants (n=377).

Self-Reported QOL		Satisfaction with Health Status	
Response	**n (%)**	**Response**	**n (%)**
Very poor	7 (2)	Very dissatisfied	7 (2)
Poor	114 (3)	Dissatisfied	123 (33)
Moderate	167 (45)	Neither dissatisfied nor Satisfied	185 (49)
Good	84 (22)	Satisfied	59 (15)
Very Good	5 (1)	Very Satisfied	3 (1)

Pearson Correlation analysis between the environmental domain and the demographic variables showed a significantly positive correlation between environmental domain and education (0.52) and socio-economic status (0.32). However, the environmental domain was found to have a significant negative correlation with residence (-0.2) and age (-1.7) (p<0.01) (Table-IV).

For physical domain, significantly positive correlation was found with education (0.25) and socio-economic status (0.24) and a significant negative correlation with age (-0.17), residence (-0.19) and duration of DM (-0.19) (p<0.01).

For psychological domain, significantly positive correlation was found with education (0.32) and socio-economic status (0.24) and a significant negative correlation with age (-0.2), residence (-0.25), duration of DM (-0.18) and its treatment (-0.2) (p<0.01) (Table-IV).

DISCUSSION

The results showed that the socio-demographic factors like duration of the disease, education and socio-economic status were significantly associated (p-values <0.01) with QoL of type-II DM patients. These findings are in consistency with a study conducted in Sargodha City, Pakistan. Gender, income, education, location, and duration of disease (p-value <0.001) had a significant association with HRQoL of T2DM patients and type-II diabetes mellitus.[10]. A study conducted in Kenya also showed similar results.[12] Another study conducted in Bulgaria, concluded that the duration of disease and diabetes complication seem to be the most influential factors which have a negative and statistically significant effect on all the SF-36 subscales.[13] The results of our study also revealed that type-II dia-betics had an average QoL in general and in all four domains. The maximum and minimum scores were related to social and environmental domains, respec-tively. The mean of the total score of the QoL was 48.7 with ± 13.9 SD. Most of the domain categories were average, with the lowest found domain was environ-mental (45.75 with ± 16.93 SD) and the best was social (52 with ± 26.6 SD). This contrasted with a study con-ducted in India which showed the mean QoL, using the same tool, as

Table-IV: Co-relation between QoL domains of T2DM patients and socio-demographic factors of participants (n=377).

	Age	Education	Occupation	Residence	S/Economic Status	Duration of T2 DM	Treatment	p-value
Physical Domain	-0.170	0.258	-0.016	-0.194	0.247	-0.191	-0.090	≤0.01
Psycho logical Domain	-0.209	0.323	-0.114	-0.253	0.240	-0.185	-0.207	≤0.01
Social Domain	-0.154	0.160	0.161	-0.121	0.173	-0.207	-0.041	≤0.01
Environ Mental Domain	-0.17	0.528	-0.058	-0.275	0.326	-0.134	-0.067	≤0.01

Correlation between the social domain and the demographic variables showed a significant positive correlation with education (0.1), occupation (0.16) and socio-economic status (0.13) and a negative correlation with duration of diabetes mellitus (-0.27) and age (-0.15) (p<0.01).

58.03. Out of 63% had good QoL in physical domain, 69% had good QoL in psychological domain, 27% had good QoL in social domain and 85% had good QoL in environmental domain. Sixty eight percent of the patients had an overall good QoL.[14] This difference could be because the patients in that study were from

Vellore district, which had good public health infrastructure and access as compared to our setting. A study conducted in Mexico showed results similar to our study. The HRQoL had a median of 50.1 points. The result showed that age, gender, marital status, occupation, comorbidities and duration of type-II DM had an impact on QoL of the patients.[15] An-other study results, using the same questionnaire, showed that type-II diabetic patients had the lowest score (47.31 ± 2.51 out of 100) in the environmental domain compared to the three domains, whereas the social domain had the highest score (55.88 ± 17.63).[16] These results are in consistency with our findings. The possible explanations for both the studies could be the same psycho-social, economic, and environmental conditions. A study in Iran with WHOQoL-BREF showed that all the four domains of QoL were higher than those of the current study.[17] A possible explanation might be differences in economic status, health infrastructure and services and demographic characteristics of patients. Another study from India also showed that type-II diabetes mellitus had an adverse effect on the QoL of the study subjects.[18] For self-reported QoL, in our study, 44% reported their QoL as neither good nor poor (moderate), which corresponds with the mean quality of life in all domains (48.7 with ± 13.9 SD). For self-reported health status satisfaction, 49.1% reported their health status satisfaction as neither dissatisfied nor satisfied (moderate). This too is in accordance with our mean QoL score. A study showed similar results, with self-reported QoL as Neutral (33.58%) and self-reported health satisfaction as neutral (55.39%).[15] The reason for these similar results could be same socio-economic and environmental factors. Another study showed 80% QoL and health satisfaction.[13] This is in contrast with our study results, possibly due to better socio-economic and educational status.

CONCLUSION

This study has shown that the QoL of type-II diabetic was found to be average. The environmental domain of QoL scores were the lowest and social was found to be the best. Self-reported QoL and health status were average (moderate) too. Duration of disease, socio-economic status, education and age had a significant association with QoL of patients.

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Conflict of Interest: None.

Author's Contribution

SZ: Literature search, data collection, HM: Concept, guidance, analysis, MR: Manuscript writing, NA: Planning & guidance, JK: Proof reading, RA: Data collection.

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