

Quality of Life among Diabetics: A Cross-Sectional Study in a Tertiary Care Center of Rohtak, Haryana

Meena Rajput, Yashodha Arivarasan, Aereosonova Khongsit, Rajesh Rajput¹

Departments of Community Medicine and ¹Endocrinology, PGIMS, Rohtak, Haryana, India

Abstract

Introduction: The most severe health threats dominating the low- and middle-income countries are no longer the dreaded communicable diseases; but, they are everyday diseases due to changes in lifestyle, which are the noncommunicable diseases. Quality of life (QOL) is defined by the World Health Organization as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. QOL assessment in health system is a multidimensional construct that can be measured by evaluating objective levels of health status filtered by the subjective perceptions and expectations of the individual. **Aim and Objective:** To assess the QOL among diabetics attending the endocrine outpatient department (OPD) in a tertiary care hospital of Haryana. **Materials and Methods:** A hospital-based cross-sectional study was conducted at endocrinology OPD of Pt. B. D. Sharma PGIMS Rohtak, Haryana from May 2014 to April 2015. Five hundred diabetics (Type 1 and 2) were recruited for the study. Patients registered on the day of interview were selected using systematic random sampling. A predesigned, pretested, semi-structured schedule which included sociodemographic variables of the study participants along with information about family history of diabetes was filled by interviewing the study subjects in their vernacular language individually. Generic instrument, SF-36 v2 was used to assess the QOL. **Results:** The mean age of the study participants was 50.41 ± 9.1 years. The mean disease duration was 6.12 ± 5.55 years. Majority of our respondents belonged to Hindu religion (97.4%). The mean scores for the bodily pain domain (79.52 ± 28.15) and social functioning domain (76.47 ± 26.10) of QOL were the highest. **Conclusion:** The mean scores for the bodily pain domain and social functioning domain of QOL were the highest. Assess the QOL in patients with diabetes by measuring the multiple domains involving physical, psychological and social aspects.

Keywords: Diabetics, quality of life, sociodemographic

INTRODUCTION

The most severe health threats facing the low-and middle-income countries are no longer the dreaded communicable diseases; but, they are everyday diseases due to changes in lifestyle that the community understands and could address but fails to take action against it; they are the noncommunicable diseases (NCDs). Diabetes mellitus is fast gaining the status of a potential epidemic in India. Currently, NCDs cause more deaths than all other causes combined, and the deaths due to NCDs are projected to rise from 38 million in 2012–52 million by 2030. The 82% of NCD deaths are due to four major NCDs – cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes.^[1,2] Globally, 387 million people are affected by diabetes mellitus which is expected to increase by another 205 million by 2035, with the South East Asian region being the home to about 75 million

diabetics.^[3] Modern medicine is slowly beginning to realize the importance of perspective of the patient in health care and more scientific studies are needed to elicit the importance of the inter-relationships among health needs, satisfaction, and quality of life (QOL).^[4] QOL is defined by the World Health Organization as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.^[5] QOL is highly recognized as an important health outcome in its own right, representing the ultimate goal of all health interventions.^[6] Diabetes is a demanding disease.

Address for correspondence: Dr. Meena Rajput,
House No. 241, Sector-2 HUDA, Rohtak, Haryana, India.
E-mail: drmeenarajput@outlook.com

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Almost every diabetic person feels that diabetes strongly affects their lives, and most feel burdened by the manifold demands of their disease, an experience that could be called “diabetes overwhelms.”^[7] Low QOL has been shown to affect metabolic control by reducing regimen adherence.^[8] When health-related QOL is properly measured in individuals with diabetes and when these results are incorporated into healthcare management, improvements tend to occur in patients’ health.^[9] This study was conducted to assess the QOL among diabetics attending the endocrine outpatient department (OPD) in a tertiary care hospital of Haryana.

MATERIALS AND METHODS

Study area

The study will be conducted in the Endocrine OPD attached to the Pt. B. D. Sharma PGIMS, Rohtak, Haryana.

Study subjects

Five hundred diabetics (taking a prevalence of 27%^[10] and allowable error of 15%), ≥ 20 years and ≤ 60 years of age were selected by systematic random sampling method.

Study duration

This study was conducted from May 2014 to April 2015.

Methodology

A predesigned, pretested, semi-structured schedule which included sociodemographic variables of the study participants along with information about family history of diabetes was filled by interviewing the study participants in their vernacular language individually. Weight in kg and height in cm of the study participants were recorded. Weight was recorded for each participant without shoes and heavy clothing, with standing erect using weighing machine to an accuracy of 0.5 kg using a standard procedure. Height was measured with a measuring tape to the nearest of 0.1 cm, using a standard procedure. Using the weight and height, body mass index (BMI) was calculated in Kg/m^2 , for each subject. Generic instrument, SF-36 v2 was used to assess the QOL. The SF-36 v2 questionnaire has eight domains, namely physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health. The domains were scored on a scale of 0–100, with 0 being worst outcome and 100 being best. The completed schedule was checked for completeness, consistency and was coded. Data entry was done using MS Excel 2010. Categorical data were presented as percentages (%). The statistical tests were performed at 5% level of significance; thus, an association was significant if the *P* value was < 0.05 . Binary logistic regression was applied to analyze the relationship between the dependent and independent variables. Data analysis was performed using scores and odds ratio using Statistical Package for Social Sciences (SPSS) version 20 (PGIMS, Rohtak, Haryana, India). Mean of summary scores of perceived qualities of life were used to categorize quality of perceived QOL into high and low. Ethical clearance was taken from the institutional ethical committee.

RESULTS

A total of 500 study participants were interviewed, and the mean age of the study participants was 50.41 ± 9.1 years. Among the study participants, 51% were males and 49% were females. The overall mean score for all the domains was 63.71 ± 23.17 . The mean scores for the bodily pain domain (79.52 ± 28.15) and social functioning domain (76.47 ± 26.10) of QOL were the highest, which indicates that QOL in the bodily pain and social functioning domains was least affected. It was followed by role emotional (68.86 ± 30.76) and role physical (68.46 ± 31.13). Vitality (43.46 ± 19.35) and general health (47.17 ± 19.21) domains had the minimum mean scores indicating that QOL in vitality and general health domains was the most affected. The mean score of males was higher than that of females in all the eight individual domains however the associations were statistically significant only in physical functioning, bodily pain, and vitality domain ($P < 0.05$). It was found that the overall score in males was higher (65.30 ± 19.15) than their female counterparts, and it was statistically significant ($P = 0.006$). The QOL was higher in males than females [Table 1].

The study participants in the obese category were around 25% and 42% in overweight category. Individuals having their BMI in normal range were around 32% and merely 0.4% were in underweight category (BMI < 18.5). Among females, individuals, i.e., 37.1% were obese when compared to males (14.1%). The genderwise relationship with BMI was statistically significant [Table 2].

Table 1: SF-36 Scale: Mean scores and genderwise comparison of individual domains scores of qualities of life ($n=500$)

Domain	Male	Female	Mean score \pm SD	<i>P</i>
Physical functioning	68.02 \pm 21.88	59.22 \pm 23.67	63.71 \pm 23.17	0.000*
Role physical	70.49 \pm 30.47	66.40 \pm 31.74	68.49 \pm 31.13	0.143
Role emotional	71.08 \pm 29.84	66.56 \pm 31.57	68.86 \pm 30.76	0.101
Bodily pain	83.72 \pm 24.57	75.15 \pm 30.90	79.52 \pm 28.15	0.001*
General health	48.03 \pm 19.31	46.29 \pm 19.11	47.17 \pm 19.21	0.312
Vitality	46.05 \pm 20.33	40.77 \pm 17.93	43.46 \pm 19.35	0.002*
Social functioning	78.14 \pm 24.51	74.74 \pm 27.66	76.47 \pm 26.10	0.417
Mental health	56.92 \pm 18.97	53.92 \pm 17.58	55.45 \pm 18.34	0.067
Overall	65.30 \pm 19.15	60.38 \pm 20.68	63.71 \pm 23.17	0.006*

*Statistically significant. SD: Standard deviation

Table 2: Categorization of study participants as per their body mass index

BMI (kg/m^2)	Males	Females	Total
< 18.5	1 (0.4)	1 (0.4)	2 (0.4)
18.5-24.99	100 (39.2)	59 (24.1)	159 (31.8)
25-29.99	118 (46.3)	94 (38.4)	212 (42.4)
≥ 30	36 (14.1)	91 (37.1)	127 (25.4)
Total	255 (100)	245 (100)	500 (100)

Figures in parentheses indicate percentage $\chi^2=36.923$, $df=3$, $P=0.000$.

BMI: Body mass index

On applying multiple logistic regression, gender and age groups were found to have statistically significant ($P < 0.05$) association with QOL of study participants. With male gender as the reference group, female participants were nearly 1.5 times (adjusted odds ratio [aOR] 1.565, confidence interval [CI]: 1.082–2.264) more likely to have low QOL. Similarly, when <35 years of age group was taken as reference, study participants in >50 years of age group were 1.7 times more likely to have low QOL (aOR: 1.731, CI: 1.171–2.560). Duration of diabetes and type of treatment taken were found to have statistically significant ($P < 0.05$) association with QOL of study participants. The QOL was found to be better around 1.7 times (aOR: 1.773, CI: 1.005–3.127) and 1.8 times (aOR: 1.884, CI: 1.078–3.291) in study participants who had disease duration of <5 years than in those with diabetes duration >10 years and 5–10 years, respectively. Further, in terms of treatment type, individuals on insulin alone were likely to have 0.5 times low QOL than those on OHA (aOR: 0.558, CI: 0.358–0.872). No significant association was found in individuals on insulin + OHA while taking reference group as individuals on OHA. No significant association was found between QOL and family history of diabetes [Table 3].

DISCUSSION

Assessing QOL is useful for documenting the patient's perceived burden of chronic diseases, tracking changes in health over time, assessing the effects of treatment and quantifying the return on health care investment. In our study, it was observed that 51% study participants were males and 49% were females. Studies conducted by Arnold-Wörner *et al.* and Srinivas *et al.* reported that 56.5% and 50% were males, respectively. There was no major gender difference among diabetics attending the tertiary care hospital.^[11,12]

The overall mean score for all the domains in our study was 63.71 ± 23.17 [Table 1]. Vitality (43.46 ± 19.35) and general health (47.17 ± 19.21) domains had the minimum mean scores indicating that vitality and general health domains were the most affected. Bodily pain and social functioning were the least affected domains. Similar findings were reported in a study conducted by Gautam *et al.*, where the overall mean score was 59.47 ± 18.70 .^[13] These subjective domains are compared by patients to their earlier healthy states so these are always affected.

Our study revealed that the overall QOL score was lower in females (60.38 ± 20.68) and the difference was statistically significant ($P = 0.006$). Males had higher scores in all the eight domains [Table 1]. The QOL was significantly affected among females in three individual domains physical functioning, bodily pain and vitality as compared to males. Sepúlveda *et al.* reported females to have a significantly low QOL in the domains of physical functioning ($P < 0.001$), vitality ($P = 0.001$) and overall QOL than men.^[14] A cross-sectional study conducted by Al Hayek *et al.* showed that the QOL was found to be significantly lower among females on subscale physical functioning and bodily pain than male

Table 3: Association of independent sociodemographic variables and variables of diabetes with quality of life (logistic regression analysis)

Variables	Prevalence (%)	aOR	P
Gender			
Male	51	Reference	
Female	49	1.565 (1.082-2.264)	0.018
Marital status			
Married	97.4	Reference	
Unmarried	2.6	0.578 (0.158-2.115)	0.407
Age groups (in years)			
<35	6.6	Reference	
35-50	38.2	1.152 (0.516-2.574)	0.73
>50	55.2	1.731 (1.171-2.560)	0.006
Family type			
Joint	48.8	Reference	0.073
Nuclear	51.2	1.394 (0.969-2.003)	
Duration of diabetes (years)			
<5	47.4	Reference	
5-10	31.3	1.884 (1.078-3.291)	0.026
>10	21.3	1.773 (1.005-3.127)	0.048
Family history			
No history	59.6	Reference	
History either parent	35.8	0.861 (0.360-2.057)	0.736
Both parents	4.6	1.423 (0.582-3.481)	0.440
Treatment type			
OHA alone	76.2	Reference	
Insulin alone	2.4	0.558 (0.358-0.872)	0.010
Insulin + OHA	21.4	0.414 (0.120-1.427)	0.163

aOR: Adjusted odds ratios, OHA: Oral Hypoglycaemic agents

individuals ($P < 0.001$).^[15] However, Hanninen *et al.* reported that the QOL did not differ with gender, and the association was statistically insignificant.^[16] This difference may be due to females having lesser physical stamina, and they are likely to complain more about their health status as compared to males.

In our study, 25.4% of study participants were obese (BMI ≥ 30) and 42.4% were overweight [Table 2]. Findings by Bener *et al.* reported study participants having BMI ≥ 30 were 26% and overweight (BMI = 25–29.9) were 46%.^[17] Similarly, Bourdel-Marchasson *et al.* also reported that overweight individuals were around 40%.^[18] The reason for this might be due to the fact that obesity and overweight are one of the risk factors for developing diabetes.

On logistic regression analysis [Table 3], it was observed that QOL among female subjects was 1.5 times (aOR: 1.565; 95% CI: 1.082–2.264; $P = 0.018$) lower than male (reference) individuals. Similar findings were reported in a study conducted by Manjunath *et al.* where the QOL among male individuals was 3.8 times (aOR: 3.85; 95% CI: 1.10–13.51) better than female individuals (reference).^[19]

In the age group of 35–50 years, QOL was 1.1 times lower (aOR: 1.152; 95% CI: 0.516–2.574; $P = 0.730$) and in age group >50 years QOL was 1.7 times lower (aOR:

1.731;95% CI: 1.171–2.560; $P=0.006$) than those in age group of <35 years (reference) [Table 3]. Multivariate analysis of a study by Papadopoulos *et al.* revealed that QOL was lower in elderly individuals ($P < 0.01$).^[20] The QOL among study participants decreases as the age advances due to association of other comorbid conditions.

QOL was 1.8 times lower and 1.7 times lower in individuals having a disease duration of 5–10 years and >10 years, respectively, than those individuals having a disease duration of <5 years (reference). Findings observed by Manjunath *et al.* showed that QOL among individuals with disease duration <5 years was 1.7 times (aOR 1.77; 95% CI: 0.50–5.23) better than individuals having disease duration >5 years (reference).^[19] The QOL was 0.5 times lower (aOR: 0.558;95% CI: 0.358–0.872; $P = 0.010$) and 0.4 times lower (aOR: 0.414;95% CI: 0.1201.427; $P=0.163$) in patients on insulin treatment and insulin + OHA, respectively, than those on treatment with OHA alone (reference). Similarly, Bourdel-Marchasson *et al.* observed that on multivariate analysis, the QOL was low in individuals treated with insulin than individuals on treatment with oral drugs.^[18] The most likely reason for a better QOL in patients on OHAs was that it is available in the tertiary care center and its easy administration compared to insulin.

CONCLUSION

Diabetes is of growing public health concern in developing countries. It imposes a personal burden on an individual and consumes a significant portion of society's scarce healthcare resources. The mean scores for the bodily pain domain and social functioning domain of QOL were highest. There is an essentiality to assess the QOL in patients with diabetes for helping in bringing about a change and improvement.

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Conflicts of interest

There are no conflicts of interest.

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