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Original Article

Health Related Quality of Life of Type-2 Diabetes Mellitus Patients Attending a Selected Tertiary Hospital in Bangladesh

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Abstract

Background: Diabetes is a chronic disease with a considerable impact on the health related quality of life and is considered an urgent public-health issue.

Objective: The main purpose of this study was to assess the health related quality of life of a type-2 diabetes mellitus patient.

Methodology: The study was a cross-sectional type of descriptive study which was conducted within the time period of January-December 2022 among 356 respondents. Adult respondents, had diabetes for at least 6 months were included in the study. Pregnant women were excluded from the study. Convenience sampling technique was used in this study. After pretesting a face to face interview was conducted among the patient with type-2 diabetes from outpatient department of Endocrinology in Sir Salimullah Medical College and Mitford Hospital, Dhaka by using a validated Bangla version scale of Eurocol-5 dimensions-5-Level (EQ-5D-5L).

Results: Out of 356 respondents, 56% were male and 44% were female and mean±SD age was 50.69±11.325 years and highest frequency 74.7% from 30-59 years age groups. The majority were married 96.6%, Muslim 87%, service holder 37.6% and urban resident 56.5%, had family history of DM 68.3% and HbA1c, (<7) level 69.1%. Among the respondents, 61.0% were sedentary worker, 53.4% took oral anti-diabetic medications. About 58.4% had problem in mobility, 55.9% in self-care, 64.6% in usual activities, 88.8% in pain/discomfort, and 86.5% in anxiety/depression. The majority of respondents to this study reported problems with pain/discomfort 88.8%, and anxiety/depression 86.5%, which had the significant (p=>0.05) difference with different age groups, marital statuses, educational levels, treatment modalities and physical activity levels. BMI had significant (0.01) correlation with quality of life of the respondents.

Conclusion: Among five dimensions, the highest reported problem was pain/discomfort, than anxiety/depression, than usual activities.

Keyword: Diabetes, Type-2, Quality of life, Tertiary hospital, Health, Patients, Bangladesh.

Introduction

Diabetes mellitus (DM) is a chronic disease caused by insulin deficiency or insufficient levels of insulin in the pancreas, leading to serious complications in many parts of the body and greatly increasing the risk of morbidity and premature death[1]. In the long term, DM is prone to heart attack, stroke, kidney failure, leg amputation, vision loss, nerve damage and even depression[1-3]. According to the World Health Organization (WHO), DM is the seventh leading cause of death worldwide, with 1.6 million direct deaths per year[4]. Now a day, the number of type 2 diabetes people is increasing in every country, and in every 6, a person dies from diabetes.[5]

The number of people with diabetes is increasing rapidly, and by 2030, the number of adults with diabetes in developing countries is expected to increase by 69% and 20% respectively increasing in developed countries[6]. The prevalence and incidence of type 2 diabetes is increasing in Bangladesh. In 2013, the prevalence in Bangladesh was estimated at 7.11% by the International Diabetes Federation (IDF)[5,6]. According to the WHO report. In 2016, 8% (12.88 million) of the total population of Bangladesh had diabetes, which accounted for 3% of all age-related[4].

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Materials & Methods

Study Design and Population:
This study was a cross sectional type of descriptive study. Sample size was 356. The study population was the respondents having type-2 Diabetes attending at outpatient department of Endocrinology in Sir Salimullah Medical College and Mitford Hospital, Dhaka. The study period was carried out for twelve months from January to December 2022.

Pretesting:
Pretesting was done by face to face interview among the respondents, using a semi-structured questionnaire in Bangla in outpatient department of Medicine, Khulna Medical College Hospital. Total 15 interviews were carried out. According to the finding of pretesting necessary modifications were made in the questionnaire.

Data Collection Instruments:
The Data was collected by using a pretested semi-structured validated Bangla version scale of Eurocol-5 dimensions-5-Level (EQ-5D-5L)[7].

Quality Control:
The study protocol development was followed under standard format of SSMC. Data were kept confidential and its security was maintained strictly. During data analysis, appropriate statistical tools and techniques were used.

Statistical Analysis:
The data were analyzed by statistical package for the social sciences software latest version. Descriptive analysis of the study was done by frequency, mean, SD and percentage which were used to describe the socio-demographic characteristics. Inferential statistics was done by Independent student' t test, ANOVA test and Pearson's correlation test. Result was presented in tables, graphs and charts.

Ethical Implications:
After reviewing research protocol, ethical approval was obtained for this study from Institutional Review Board (IRB) of Sir Salimullah Medical College, Dhaka (Ref 59.14.1100.031.18.001.23.337). Written informed consent was obtained from all the respondents.

Results

Table 1: Distribution of Respondents by Age Group (n=356)

Age Group (Years)	Frequency	Percent
26-29	7	2.0
30-59	266	74.7
60-82	83	23.3
Total	**356**	**100.0**

A total number of 356 respondents were recruited for this study after fulfilling the inclusion and exclusion criteria.

Table 1 shows the distribution of respondents according to age group. Most of the respondents were in the age group of 30-59 years which was 266 (74.7%) respondents followed by 60-82 years and 26-29 years which were 83(23.3%) respondents and 7(2.0%) respondents respectively. The mean age with the SD of the respondents were 50.69±11.325 years with the range of 26 to 82 years.

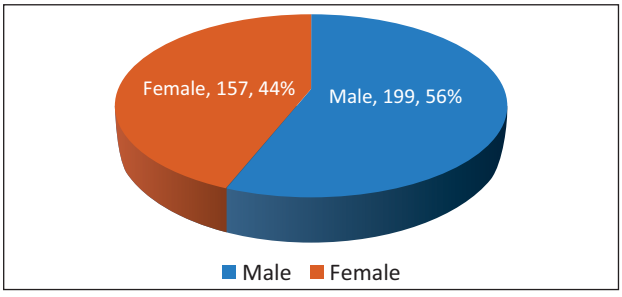

Figure 1: Pie diagram showing the distribution of Respondents by Gender (n=356)

Figure 1 shows the distribution of respondentsaccording to gender. In this study male was predominant than female which was 199(55.9%) respondents and 157(44.1%) respondents respectively. The male and female ratio was 1.27:1.

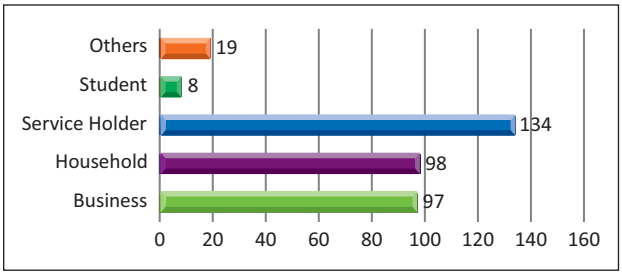

Figure 2: Bar diagram showing distribution of Respondents by Occupation (n=356)

Figure 2 shows the distribution of respondents according to occupation. The most common occupation among the respondents was service holder which was 134(37.6%) respondents followed by household, business and others which were 98(27.5%), 97(27.2%) and 19(5.3%) respondents respectively. Only 8(2.2%) respondents were students.

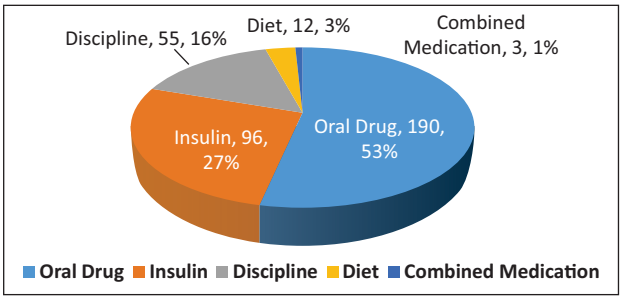

Figure 3: Pie diagram showing the distribution of Respondents by Treatment History (n=356)

Figure 3 shows the distribution of respondents according to treatment history. Regarding the treatment history oral drug was used in the majority of the respondents which was 190(53.4%) respondents. Insulin user was second most common which was 96(27.0%) respondents. However, the discipline, diet and combined medication were also reported in this study which was 55(15.4%), 12(3.4%) and 3(0.8%) respondents respectively.

Table 2: Distribution of Respondents by HbA1c Level (n=356)

HbA1c Level	Frequency	Percent
< 7.0%	246	69.1
≥ 7.0%	110	30.9
Total	**356**	**100.0**

Table 2 shows the distribution of respondents according to HbA1c Level. Majority of the respondents were 246(69.1%) in less than 7.0% HbA1c level and the rest of 110(30.9%) respondents were more than or equal to 7.0% level.

Table 3: Distribution of Respondents by Pain/Discomfort Dimension of EQ-5D-5L (n=356)

Pain/Discomfort	Frequence	Percent
No pain or discomfort	40	11.2
Slight pain or discomfort	129	36.2
Moderate pain or discomfort	100	28.1
Severe pain or discomfort	77	21.6
Extreme pain or discomfort	10	2.8
Total	**356**	**100.0**

Table 3 shows the distribution of respondents according to pain/discomfortdimension of EQ-5D-5L. Slight pain was given by most of the respondents which was 129(36.2%). However, Moderate pain/discomfort was the second most common usual activities dimension which was given by 100(28.1%) respondents. Severe pain or discomfortwas also reported among 77(21.6%) respondents. No pain/discomfort and Extreme pain/discomfort were responded by 40(11.2%) respondents and 10(2.8%) respondents respectively.

Table 4: Distribution of Respondents by Anxiety/ Depression Dimension of EQ-5D-5L (n=356}

Anxiety/Depression	Frequency	Percent
Not anxious or depresses	48	13.5
Slightly anxious or depressed	181	50.8
Moderately anxious or depressed	93	26.1
Severely anxious or depresses	29	8.1
Extremely anxious or depressed	5	1.4
Total	356	100.0

Table 4 shows the distribution of respondents according to anxiety/ depression dimension of EQ-5D-5L). Slightly anxious or depressed was given by most of the study population which was 181(50.8%) respondents. However, moderately anxious or depressed was the second most common anxiety/ depression dimension which was given by 93(26.1%) respondents. Not anxious or depresses was also given by 48(13.5%) respondents. Severely anxious or depresses and extremely anxious or depressed answers were possessed were responded by 29(8.1%) respondents and 5(1.4%) respondents respectively.

Table 5: Comparison of Physical Activity in Total Score of EQ-5D-5L and EQ VAS

Variables	N	Mean± SD	95% CI for Mean		f value	p value
			Lower	Upper		
Total EQOL						
Heavy work	26	9.12±2.776	7.99	10.24	8.984	0.000
Moderate work	113	9.74±3.335	9.12	10.36		
Sedentary work	217	11.40±4.287	10.83	11.97		
Total	356	10.71±4.001	10.29	11.12		
VAS Score						
Heavy work	26	66.35±13.383	60.94	71.75	8.740	0.000
Moderate work	113	62.79±13.345	60.30	65.28		
Sedentary work	217	55.67±19.800	53.02	58.32		
Total	356	58.71±17.960	56.84	60.58		

Table 5 compares physical activity in the total score of EQ VAS of Health Questionnaire Scale, with heavy work, moderate work, and sedentary work having significantly higher mean scores. The difference in physical activity in the 5-Level Eurocol-5 dimensions (EQ-5D-5L) was also statistically significant, with the mean scores of heavy work, moderate work, and sedentary work being significantly higher.

Discussion

Out of 356 participants in the study, 41.6% reported having no trouble in walking, while the remaining 58.4% reported having trouble. Concerning the self-care dimension, respondents divided themselves between 44.1% who reported no issues and 55.9% who reported issues. In terms of usual activities, just 35.4% of respondents reported no difficulty, while 64.6% reported problems. Only 11.2% of respondents in the pain/discomfort dimension reported no pain/discomfort, while 88.8% of them reported some form of pain/discomfort. In terms of anxiety/depression, just 13.5% of respondents reported having no problems, while 86.5 % reported having issues.

In this study, more than three quarters of the respondents of type 2 diabetic patients had problems in pain/discomfort (88.8%) and anxiety/depression (86.5%) dimensions individually. These findings were higher than the study of where anxiety/depression was (74%) and pain/discomfort was (73%) and anxiety/depression was (80%) and pain/discomfort was (78%) respectively[8,9]. Both studies reflected a higher problem in the psychological aspect (anxiety/depression) than other dimensions. However, this study reflected a higher problem in the pain/discomfort dimension. The findings of this study was also inconsistent and contradictory to some extend with the results of other Asian countries, including Japan[10], Korea[11], Singapore[12].The percentage of Japanese patients in pain/discomfort was (35.7%) and in anxiety/depression was (19.7%)[10].SinceHRQoLis a time-dependent variable, it should be measured repeatedly to produce an accurate estimate. Variations in HRQoL among type 2 diabetes patients may be caused by patient discontinuation of follow-up, the standard of diabetes care, and accessibility to support services.

According to the education level, the mean of total score of EQ VASwith the SD was found in the below higher secondary and higher secondary and above were 52.29±16.744 and 62.97±17.501 respectively. The difference of total score was statistically significant (p=0.000). The mean of total EQ-5D-5L with the SD was found in the below higher secondary and higher secondary and above were 12.11±4.281 and 9.78±3.516 respectively. There is similarities to many other studies[1]. Literate patients had a significantly better quality of life compared to illiterate patients[13,14]. Education gives power to the patients for self-management and has become a cornerstone of quality-oriented diabetes care.

Regarding physical activity, the mean with SD of EQ VAS of heavy work, moderate work and sedentary work were 66.35±13.38, 62.79±13.34 and 55.67±19.80 respectively. The difference of total score of EQ VAS in physical activities was statistically significant (F value = 8.740; p=0.000). The mean with SD of EQ-5D-5L of heavy work, moderate work and sedentary workwere 9.12±2.776, 9.74±3.335 and 11.40±4.287respectively.The difference of total score of EQ-5D-5Lin physical activity was statistically significant (F value=8.984; p=0.000). Physical activities had great influences on HRQoL in diabetic patients. Quality of life of heavy working patients was better than sedentary workers.

Conclusion

Patients in poorer nations like Bangladesh still have a low level of awareness of diabetes. Pain/discomfort was the most prevalent issue among the five dimensions, followed by depression/anxiety and usual activities. Little is known about the HRQoL of diabetic patients in Bangladesh, despite the high prevalence of the disease and the significance of HRQoL in diabetes care. The measurement of the quality of life (QoL) of diabetic patients requires more focus and future studies are recommended to explore the effectiveness of patient tailored interventions to decrease the negative impact of these dimensions on patients' quality of life.

Conflict of Interest:

No conflict of interest.

Data Availability:

Any inquiries regarding supporting data availability of this study should be directed to the corresponding author and are available from the corresponding author upon reasonable request.

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