

Quality of Life of Patients with Diabetes Mellitus Attending a Tertiary Hospital in Uyo, South–South Nigeria

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Abstract

Background: Diabetes mellitus (DM) is one of the noncommunicable diseases that influence the quality of life (QoL) of people living with the disease. It is a known metabolic condition with a feature of excessive blood glucose levels due to defects in insulin production, insulin action, or both. Assessment of QoL is useful in the measurement of outcomes during the management of chronic diseases. **Aim:** This study aims at determining the QoL of patients with DM that presented at the general outpatient clinic (GOPC) of a tertiary hospital in South–South Nigeria. **Patients, Materials and Methods:** A cross-sectional study of 134 patients suffering from DM who attended either the GOPCs or diabetic clinics of the University of Uyo Teaching Hospital was done between January and March 2018. A semi-structured questionnaire was used to obtain information from the respondents on sociodemographic characteristics, duration of DM, and presence or absence of hypertension. The following assessments were done on the respondents: blood pressure, body mass index, and glycated hemoglobin levels. The assessment of the QoL of patients was done using WHOQoL-Bref instrument. Descriptive statistics of the data was done. Mean and standard deviation (SD) were computed from the continuous variables, while frequency and percentages of categorical variables were also determined. Odds ratio was employed to compare differences in proportions or groups. The level of statistical significance was set at $P < 0.05$. Data analysis was done using Epi Info version 3.5.4. **Results:** The respondents consisted of 82 females and 52 males (M: F = 1:1.6) with a mean age of 54.79 (\pm SD 10.53) years. The overall QoL was good (91%). Poor monthly income was associated with poor QoL. **Conclusion:** The study finding indicated that poor income adversely affects the QoL of persons with DM. Chronic medical conditions such as DM require long-term care with financial/economic implications. Consequently, support systems (financial support inclusive) need to be strengthened for a better QoL.

Keywords: Diabetes mellitus, quality of life, South–South Nigeria

INTRODUCTION

Diabetes mellitus (DM) is a known metabolic problem with a feature of excessive blood glucose levels due to defects in insulin production, insulin action, or both.^[1] It is a rising global burden that requires a prolonged medical attention to reduce the complications associated with the disease.^[2] The assessment of quality of life (QoL) has been identified as a useful approach in measuring the outcome after the management of a long-term illness like DM.^[3] It is a very important and powerful method used in predicting a person's capacity to handle the disease as well as maintain long-term health and well-being.^[3]

Therefore, in every aspect, the primary objective in the care of any chronic disease, DM inclusive, is the improvement of the patients' health-related QoL (HRQoL).^[4] QoL is a complex concept that takes into account individuals' physical

health, social relationship, psychological state, level of independence, and their interaction with the environment.^[5] It is a crucial aspect of diabetes care because poor QoL leads to reduced self-care which, in turn, results in worsening glycemic control and its related complication in both short term and long term.^[6]

Hence, QoL predicts how well an individual would be able to handle his/her disease and maintain long-term health and well-being.

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How to cite this article: Morgan UM, Etiobong E. Quality of life of patients with diabetes mellitus attending a tertiary hospital in Uyo, South–South Nigeria. *Niger J Med* 2022;31:163-7.

Submitted: 20-May-2021

Revised: 03-Feb-2022

Accepted: 03-Feb-2022

Published: 29-Apr-2022

Access this article online

Quick Response Code:



Website:
www.njmonline.org

DOI:
10.4103/NJM.NJM_94_21

Numerous researches have shown the strong impact of DM on HRQoL, with several of such studies reporting poor QoL in association with the disease.^[7-11]

Different factors such as gender (especially women), older age, low socioeconomic status, concomitant diseases, and presence of diabetic complications have been identified as predictors of QoL in individuals with DM.^[9-14] Abedini *et al.* in their research found that the QoL of type 2 DM patients was affected by several factors, including occupation, female sex, and duration of the disease as well as the presence of complications.^[9] Papadopoulos *et al.* in their research on type 2 DM patients in Greece also noted that female gender, presence of a nondiabetic comorbidity, diabetic complications, and number of years suffering from DM were the most important predictors of impaired HRQoL in patients with DM.^[12]

Socioeconomic conditions have also been shown to affect the QoL of people living with DM.^[13,14] Alshalban in his research findings reported high QoL scores in patients who had high monthly incomes.^[13] Studies done in a Nigerian teaching hospital and Swaziland also reported that poor QoL was linked with low education achievement, low economic status, and low-rated employment.^[10,14]

The level of glycemic control has also been observed to impact the QoL of people with DM.^[15-17] In a research carried out by Shim *et al.* in Singapore, poorer health-related QoL was found to be associated with glycated hemoglobin (HbA1C) values $>6.5\%$, reflecting the essence of achieving better disease management to improve the HRQoL of patients with DM.^[15] Other studies have shown poor correlations between HRQoL scores and levels of glycemic control in some domains, while certain studies have not shown any association at all.^[16,17] In a research by Issa and Baiyewu, it was demonstrated that there was a positive correlation between coexistent hypertension to poor QoL. The author also observed that weight loss was significantly associated with health satisfaction and physical health domain QoL components.^[10]

Only a few studies have examined factors that may impact the QoL of persons with DM in the study environment. This study will contribute to the body of knowledge on the subject.

PATIENTS, MATERIALS AND METHODS

Both general outpatient clinics and diabetes clinics of the University of Uyo Teaching Hospital (UUTH) were used to carry out this study. This tertiary health institution is located in Uyo, Akwa-Ibom State, South-South, Nigeria. The study design was a cross-sectional descriptive study aimed at determining the QoL of persons with DM who presented for medical treatment at the hospital clinics. One hundred and thirty-four (134) adult patients with diabetes who presented at these clinics for care and who gave consent were included in the study. Patients who were critically ill were not included in the study. Consenting persons with DM who met the inclusion criteria, and seen within the study period, were consecutively recruited until the sample size was obtained. Patients who participated were recruited

daily from Monday to Friday, and the questionnaires were administered to each respondent in English or the local dialect. Information obtained using a semi-structured questionnaire included sociodemographic characteristics such as age, sex, and marital status. The socioeconomic status of the respondents was assessed using the Oyediji social classification.^[18] The WHOQoL-BREF^[19] was used to assess the QoL of respondents. HbA1C levels of respondents were measured using the MEDMESS SDA1 Care HbA1C analyzer, and a value of $\leq 6.5\%$ was considered normal. A Hanna-Calibrated Bathroom Scale, model BR9011, was used for weight measurements and a stadiometer for height measurements. From these, the body mass index (BMI) of the respondents was calculated using the Quetelet index formula/equation. An Accoson® manual mercury sphygmomanometer was used for blood pressure measurements. Two standard measurements were obtained and the average of these measurements was taken. Ethical clearance was sought and obtained from the UUTH Research and Ethical Committee before commencement of the study. Data entry and analysis were done using Epi Info version 3.5.4. Epi Info is a statistical software for epidemiology developed by centers for disease control and prevention (CDC) in Atlanta, Georgia in USA. Frequencies and percentages were calculated for categorical variables, while mean and standard deviation (SD) were calculated for continuous variables. The level of statistical significance was set at $P < 0.05$.

RESULTS

Sociodemographic characteristics of patients with diabetes mellitus attending the general outpatient and diabetes mellitus clinics of the University of Uyo Teaching Hospital, Uyo

The demographic characteristics of the respondents are shown in Table 1. Majority of the respondents were women (61.2%). The female-to-male ratio was 1.6:1. The age range of the respondents was 22–78 years. The mean age (\pm SD) was 54.8 (\pm 10.5) years. Majority of the respondents had at least attained a primary level of education (98.5%) and most were married (76.9%).

Quality of life of patients with diabetes mellitus attending the GOP and diabetes mellitus clinics of the University of Uyo Teaching Hospital, Uyo

The QoL of the respondents is shown in Table 2. Of the 134 respondents recruited for the study, 122 (91.0%) reported good QoL, while 12 (9.0%) reported poor QoL.

Table 3 shows the relationship between the sociodemographic factors and QoL of the respondents in the study. The results showed that older age, unemployment, and having a monthly income of $<18,000$ were factors associated with poor QoL among these cohort.

Table 4 shows the relationship between certain clinical factors and the QoL of respondents. Parameters that were assessed, such as BMI, presence of hypertension, level of glycemic

Table 1: Sociodemographic characteristics of respondents

Variable	Frequency (%)	CI
Sex		
Female	82 (61.2)	52.2-69.5
Male	52 (38.8)	30.5-47.6
Age group		
21-30	3 (2.2)	0.5-6.4
31-40	9 (6.7)	3.1-12.4
41-50	33 (24.6)	17.6-32.8
51-60	52 (38.8)	30.5-47.6
>60	37 (27.6)	20.2-36.0
Occupation		
Business	5 (37.3)	29.1-46.1
Civil servant	44 (32.8)	25.0-41.5
Retired	17 (12.7)	7.6-19.5
Unemployed	23 (17.2)	11.2-24.6
Level of education		
No formal	2 (1.5)	0.2-5.3
Primary	24 (17.0)	11.8-25.5
Secondary	39 (29.1)	21.6-37.6
College/university	69 (51.5)	42.7-60.2
Marital status		
Single	4 (3.0)	0.8-7.5
Married	103 (76.9)	68.8-83.7
Divorced	3 (2.2)	0.5-6.4
Widow	24 (17.9)	11.8-25.5
Monthly income		
<18,000	47 (35.1)	27.0-43.8
>18,000	87 (64.9)	56.2-73.0
Religion		
Christianity	13 (99.3)	95.9-100.0
Others	1 (0.7)	0.0-4.1
Settlement		
Rural	40 (29.0)	22.3-38.4
Urban	94 (70.1)	61.6-77.7
Social class		
1	68 (50.7)	42.0-59.5
2	8 (6.0)	2.6-11.4
3	32 (23.9)	16.9-32.0
4	24 (17.9)	11.8-25.5
5	2 (1.5)	0.2-5.3
Tribe		
Ibibio/Anang/Oro	122 (91.0)	84.9-95.3
Ibo	5 (3.7)	1.2-8.5
Others		2.1-10.5

control as well as the duration of disease in years, showed no association with the QoL of respondents.

DISCUSSION

As the global burden of DM continues to increase, the QoL remains one of the important outcomes used to evaluate the effect of its management. The WHO has defined QoL 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

Table 2: Quality-of-life characteristics of respondents

Variable	Frequency (%)	CI
Overall QoL		
Good	122 (91.0)	84.9-95.3
Poor	12 (9.0)	4.7-15.1
General health satisfaction		
Good	77 (57.5)	48.6-66.0
Poor	57 (42.5)	34.0-51.4
Domain 1 (physical health)		
Good	96 (71.6)	63.2-79.1
Poor	38 (28.4)	20.9-36.8
Domain 2 (psychological)		
Good	83 (61.9)	53.2-70.2
Poor	51 (38.1)	29.8-46.8
Domain 3 (social relationship)		
Good	113 (84.3)	77.0-90.0
Poor	21 (15.7)	10.0-23.0
Domain 4 (environment)		
Good	106 (79.1)	71.2-85.6
Poor	28 (20.9)	14.4-28.8

QoL: Quality of life, CI: Confidence interval

concern.”^[5] QoL is a broad concept that takes into account individuals’ physical health, social relationship, psychological state, level of independence, and their interaction with the environment.^[5] Our study showed a good overall QoL score among respondents, and this finding is similar to a previous study which showed that patients with DM experienced a good QoL in comparison to other disease groups and even to healthy populations.^[18] However, our finding is in contrast with several studies that reported a moderate-to-poor QoL in associated with the disease.^[7-11,20] Interestingly, this study did not show any association with age, sex, occupation, and social class. These findings are similar to the study done by Daya *et al.*^[16] but contrary to the studies by Abedini *et al.* and Papadopoulos *et al.* who reported poorer QoL in older persons with DM and the female sex.^[9,12] Aging and being a female should not necessarily translate to incapacitation. People with DM can sustain normal lives even into old age, irrespective of their gender if they are well equipped with the knowledge and resources to handle their disease conditions. In this research, there was a significant association between the level of income and QoL of respondents. Our study supports other studies done by Alshayban and Joseph, and Issa and Baiyewu,^[10,13] which demonstrated that poor socioeconomic conditions such as low income and low educational status (which may affect occupational and economic outcomes) are a significant risk factor for poor QoL in persons with chronic medical illnesses such as DM, especially in developing countries like ours where most individual pay for their health needs out of their pockets. The cost of managing DM can be overwhelming in the light of meager resources.

The duration of DM has been reported to be associated with poor QoL in some studies.^[11,21] This may be explained by the fact that the longer the duration of illness, the more likely it is to develop

Table 3: Relationship between the sociodemographic factors and quality of life of the respondents

Variable	QoL		OR (CI)	P
	Good	Poor		
Age group				
<40	9	3	0.23 (0.05-1.04)	0.07
>40	113	9		
Occupation				
Unemployed	36	4	1.19 (0.33-4.21)	0.75
Employed	86			
Level of education				
No formal	2	0	-1 (-1-1)	1.00
Formal	120	12		
Marital status				
Single	30	1	3.59 (0.44-28.94)	0.29
Married	92	11		
Monthly income				
<18,000	39 (83.0)	8 (17.0)	0.23 (0.06-0.82)	0.02*
>18,000	83 (95.4)	4 (4.6)		
Settlement				
Rural	36 (90.0)	4 (10.0)	0.8 (0.23-2.95)	0.75
Urban	86 (91.5)	8 (8.5)		
Social class				
Lower	51	7	0.51 (0.15-1.70)	0.36
Upper	71	5		

*Significant *P* value at *P*<0.05. CI: Confidence interval, OR: Odds ratio, QoL: Quality of life

Table 4: Relationship between some clinical factors and quality of life of respondents

Variables	QoL		OR (CI)	P
	Good	Poor		
Presence of HTN				
No	54 (93.1)	4 (6.9)	0.62 (0.18-2.20)	0.46
Yes	68 (89.5)	8 (10.5)		
HbA1C				
Controlled (≤6.5%)	28 (90.3)	3 (9.7)	0.89 (0.22-3.52)	0.87
Uncontrolled (>6.5%)	94 (91.3)	9 (8.7)		
BMI				
Normal	37 (84.1)	7 (15.9)	0.31 (0.09-1.04)	0.06
Abnormal	85 (94.4)	5 (5.6)		
Duration of disease (years)				
<5	45 (90.0)	5 (10.0)	0.82 (0.24-2.7)	0.6
≥5	77 (91.7)	7 (8.3)		

Significant *P* value at *P*<0.05. HTN: Hypertension, BMI: Body mass index, HbA1c: Glycated hemoglobin, CI: Confidence interval, OR: Odds ratio

complications resulting in a reduction of the QoL, as the presence of one or more complications has been reported to reduce the QoL in patients with DM.^[11] This study, however, did not find any association between the duration of disease and HR QoL, and this is supported by other studies.^[16] The possible explanation for this could be the fact that patients receiving care in the study center are informed, educated, and counseled about the disease at

each clinic visit. This is likely to play a role in the improvement of self-care measures adopted by these patients making them able to have a QoL comparable with nondiabetic populations irrespective of how long they have lived with the disease.

There was no association between certain clinical factors such as presence of hypertension, BMI, and glycemic control of study participants. However, this finding is contrast to other studies which support such an association, as illustrated by Issa and Baiyewu. and Daya *et al.* who found a positive correlation between the co-existence of hypertension and poor QoL in people with DM.^[10,16] They, with others, also observed that BMI was significantly associated with health satisfaction and physical health domain QoL components.^[10,16,22] In addition, studies done by Mohammadi *et al.* and Al-Maskari *et al.* have also shown a significant association between good glycemic control and good QoL.^[23,24] Variations in severity of these clinical parameters as well as the presence (or absence) of other comorbidities may explain the differences observed in our study.

CONCLUSION

In conclusion, persons with chronic medical conditions such as DM can achieve a good QoL even when a complete cure of these diseases may not be achieved. Although clinical measures provide a good estimate of disease control, the ultimate aim of diabetes care is to prevent a decline in the patients' QoL. Hence, clinicians and everyone involved in diabetes care should identify risk factors for poor QoL with a view to preventing them. Economic effects of long-term care of chronic medical conditions on patients as seen in diabetic patients can be ameliorated by enrolment into government and community health insurance schemes.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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