https://doi.org/10.48047/AFJBS.6.13.2024.5128-5144

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

Quality of life among people living with type II diabetes mellitus in the selected rural community of Kamrup district, Assam

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Volume 6, Issue 13, july 2024

Received: 09 May 2024

Accepted: 19 June 2024

Published: 08 July 2024

doi: 10.48047/AFJBS.6.13.2024.5128-5144

Abstract

Introduction: Among noncommunicable diseases, diabetes is one of the major causes of avoidable death and morbidity worldwide. QoL is a measure of an individual's perceived quality of life. **Methodology:** This cross-sectional study involved 300 individuals with type 2 diabetes who resided in the Sarpara, Kochpara, and Shantipur villages of Kamrup, Assam. The data were collected between January and March 2024. Results: The mean total QOL was 63.70 ± 15.26. At the domain level, 53.7% of the participants had good physical QoL, 13.7% had poor physical QoL, 55% had good psychological QoL, 13.7% had poor psychological QoL, 67.7% had good social QoL, 1% had poor social QoL, 46.3% had good environmental QoL, and 22.4% had poor environmental QoL. **Conclusion:** Diabetes significantly impacts the multifaceted perception of quality of life (QOL), which includes concerns about the future, emotional stability, physical and role functioning, and social interactions.

Keywords: Diabetes mellitus, Quality of life, Type II diabetic people.

Introduction

Among the most prevalent metabolic diseases worldwide, diabetes mellitus (DM) is more common in adults.(1)

Among noncommunicable diseases, diabetes is one of the major global causes of avoidable death and morbidity, according to the World Health Organization (WHO). The global trend of diabetes is becoming more prevalent, and behavioral and lifestyle changes have a stronger influence.(2)

The majority of people with diabetes (90–95%) have type 2 diabetes, which is the most prevalent type of disease. It is considered a significant public health issue because of its correlation with morbidity and mortality, which impacts patients' overall health and well-being.(3)

The risk factors for type 2 diabetes, hypertension, and obesity have increased as a result of the rapid changes in lifestyle caused by urbanization (T2DM). Resources allocated, health-promoting policies, and disease prevention are all greatly impacted by the burden of the increasing incidence of T2DM.(1,4)

QoL is the measure of an individual's perceived quality of life. This point of view highlights the crucial aspect of assessing quality of life (QoL), which is to record the person's subjective assessment of their QoL rather than what other people think it should be. (5,6)

Mohammadi. S. et al. conducted a study to assess the quality of life among 100 individuals who were diagnosed with type 2 diabetes and who were attending the outpatient diabetes clinic at Golestan Hospital in Ahvaz, Iran. The quality of life of diabetic individuals was assessed using the Diabetes Quality of Life (DQoL) questionnaire. The results showed that adherence to treatment and care for diabetes patients was associated with a mean total DQOL of 54.6±2.4, which is an acceptable quality of life. The average awareness of diabetes was 77.5 ±7.05(7)

Manjunath. K. et al. conducted a cross-sectional study in rural South India to evaluate the quality of life of a patient with type 2 diabetes. This study used the World Health Organization (WHO) QoL BREF instrument in Tamil Nadu to evaluate the quality of life (QoL) of patients attending a diabetic clinic. According to the findings, the mean overall QoL score was 58.05 (95% CI, 22.18–93.88). According to domain, 63% of respondents had good physical, 69% good psychological, 27% good social, and 85% good environmental QoL ratings.(8)

Examining and improving the quality of life of diabetic patients has long been seen as a crucial health outcome and is recognized as a key concern in the treatment of diabetic patients.(9)

Physical inactivity, diet, and lifestyle choices are strongly associated with this condition. Since the condition has no known cure, prevention is the best course of treatment. Patients can enjoy an improved quality of life and lower expenditures as a result of screening and diagnostic procedures.(10,11)

Although the quality of life (QOL) of individuals with diabetes is one of the most significant outcome measures, research on this topic is limited in the northeastern region. To close this gap, this study was conducted in Assam to evaluate the quality of life (QOL) of people with type 2 diabetes.

Objectives:

The study objectives are **as follows:**

1. To assess the quality of life of people living with type II diabetes mellitus in selected rural communities of the Kamrup district, Assam
2. To determine the associations between quality of life and demographic characteristics among people living with type II diabetes mellitus

Methodology:

A cross-sectional, descriptive study was carried out in a selected rural community in Kamrup district to evaluate the quality of life of those with type II diabetes mellitus. This study involved 270 individuals with type 2 diabetes who resided in Sarpara, Kochpara, and Shantipur villages of Kamrup, Assam. The data were collected between January and March 2024. This study recruited participants who were willing to participate, who were at least 18 years old and who had a confirmed diagnosis of type 2 diabetes. Individuals with a history of mental illness, psychiatric issues or any serious health issues were excluded from the study. Informed consent was obtained from the subjects prior to data collection. The study employed a pretested semistructured questionnaire to gather data on sociodemographic features. The World Health Organization (WHO) QoL-BREF questionnaire, a self-report tool, was used to measure quality of life among people with type 2 diabetes. This tool

consists of 24 items divided into four domains related to physical health, psychological health, social relationships, and the environment—as well as two items measuring overall QoL and general health. To ensure uniformity, the questionnaire was translated into Assamese and then back into English.

The Statistical Package for Social Sciences (SPSS) software version 20.0 was used to analyze the data. The descriptive statistics are presented as percentages, means, standard deviations, and frequencies. The associations between demographic characteristics and quality of life (QOL) were examined using the chi-square test.

Results

The data presented in Table 1 show that most (69.6%) of the participants were 41-60 years old. The majority (68.9%) of the participants were females. The majority (45.5%) of the participants were married. The majority (48.9%) of the participants had completed high school. The majority (32.1%) of the participants were unemployed. Most (50.6%) of the participants worked 2-6 hours per day. Most (37.4%) of the participants had a confirmed history of diabetes for 5-10 years, and the majority (62.8%) of the participants did not have a family history of diabetes mellitus. The majority (63.4%) of the participants had a moderate lifestyle, and the majority (43.5%) of the participants were nonvegetarians. The majority (47.6%) of participants had FBS levels between 137 and 223 mg/dl. Most (41.7%) had comorbidities. Most (35.95%) were taking oral hypoglycemic medicine.

The data presented in Table 2 show that the mean physical QoL was 63.55 ± 13.69, the mean psychological QoL was 68.55±15.4, the mean social QoL was 72.75±11.65, the mean environmental QoL was 49.14± 15.26, and the mean total score was 63.70 ± 15.26.

The data presented in Table 3 show that 53.7% of the participants had good QoL, 13.7% had poor QoL, 55% had good QoL, 13.7% had poor QoL, 67.7% had good QoL, 1% had poor QoL, 46.3% had good QoL, and 22.4% had poor QoL.

The data presented in Table 4 reveal that there was no significant association between physical quality of life and demographic characteristics such as age (p=.425), sex (p=.454), marital status (p=.733), education qualification (p=.460), occupational status (p=.495), physical activity per day (p=.456), duration of confirmed diabetes mellitus (p=.536), family history of

illness (p=.298), lifestyle (p=.382), dietary pattern (p=.847), FBS level (p=.557), presence of comorbidities (p=.580), or type of treatment (p=.145).

The data presented in Table 5 reveal that there was no significant association between psychological quality of life and demographic characteristics such as age (p=.780), sex (p=.357), marital status (p=.802), educational qualification (p=.104), occupational status (p=.081), physical activity per day (p=.723), duration of confirmed diabetes mellitus (p=.583), family history of illness (p=.744), lifestyle (p=.495), dietary pattern (p=.950), FBS level (p=.963), presence of comorbidities (p=.191), or type of treatment (p=.687).

The data presented in Table 6 reveal that the social quality of life score is significantly associated with educational qualifications (p=.000), and no significant associations were found between the social quality of life score and demographic characteristics such as age (p=.912), sex (p=.790), marital status (p=.559), occupational status (p=.542), physical activity per day (p=.485), duration of confirmed diabetes mellitus (p=.869), FBS level (p=.195), family history of illness (p=.234), lifestyle (p=.558), dietary pattern (p=.577), FBS level p=.195), presence of comorbidities (p=.658), or types of treatment (p=.480).

The data presented in Table 7 reveal that there was no significant association between the environmental quality of life score and demographic characteristics, such as age (p=.643), sex (p=.195), marital status (p=.536), educational qualifications (p=.951), occupational status (p=.921), physical activity per day (p=.635), duration of confirmed diabetes mellitus (p=.501), fetal bovine serum glucose (FBS) level (p=.691), family history of illness (p=.244), lifestyle (p=.126), dietary pattern (p=.461), presence of comorbidities (p=.498), or type of treatment (p=.742).

Discussion

A high quality of life is crucial for managing people with type 2 diabetes. According to several reports, "persons who feel good about their life despite having diabetes mellitus, they have

more energy to take good care of themselves, feel better day-to-day," and maintain their health.(12)

This study evaluated the quality of life of individuals with type 2 diabetes. The results showed that diabetic patients had different quality of life domains. The social domain (67.7%) had the highest quality of life score. This finding suggests that society is providing adequate support for those with diabetes.

In the present study, 53.7% of the participants had good QoL, 13.7% had poor QoL, 55% had good QoL, and 13.7% had poor QoL. A total of 67.7% had good and 1% had poor social QoL, 46.3% had good and 22.4% had poor environmental QoL. This finding is comparable to that of the study conducted by Manjunath K et al., in which 63% had good physical, 69% had good psychological, 27% had good social and 85% had good environmental QoL scores.(6)

The present study revealed that there was no significant association between physical quality of life and demographic characteristics such as age (p=.425), sex (p=.454), marital status (p=.733), education qualification (p=.460), occupational status (p=.495), physical activity per day (p=.456), duration of confirmed diabetes mellitus (p=.536), family history of illness (p=.298), lifestyle (p=.382), dietary pattern (p=.847), FBS level (p=.557), presence of comorbidities (p=.580), or type of treatment (p=.145). The results of this study contradict those of Panahi N. et al., who reported that PCS scores were negatively correlated with living alone, BMI, depression, cognitive impairment, comorbidities, and hypertension and that the physical component score was positively correlated with male sex, Medicare supplement insurance, years of education, good physical activity, and smoking.(13) In the present study, compared with male patients, females with diabetes had better QOL. This finding contradicts the results of a previous study.(14)

Conclusion

In conclusion, patients with type 2 diabetes reported good overall quality of life (QOL). Compared to male patients, female diabetes patients reported a greater quality of life. Individuals with an FBS level between 137 and 223 mg/dl have a high quality of life (QOL). Diabetes significantly impacts the multifaceted perception of quality of life (QOL), which includes concerns about the future, emotional stability, physical and role functioning, and social interactions.

Limitations and future research directions

There were a few limitations facing the current study. This study used a purposive sampling technique and collected samples from only a few rural communities in the Kamrup District of Assam. Therefore, the generalization of the findings is not possible. In the future, such studies can be replicated in large samples.

Declaration

Ethics approval and consent to participate

This study was approved by the institutional ethical committee, NEMCARE Group of Institutions, Mirza, Guwahati, Assam, India. Informed consent was obtained from all participants.

Consent for publication

Not applicable.

Availability of data and materials

All data relevant to the study are included in the article.

Competing interests

There are no conflicts of interest.

Funding

No funding received

Authors' contributions

All authors reviewed the manuscript and contributed to and approved the final submitted version.

Acknowledgements

The authors sincerely acknowledge the NEMCARE Group of Institution for providing necessary support.

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Table1: Frequency and percentage distribution of demographic characteristics

n=270

Demographic characteristics	(f)	(%)
Age		
a)30-40	11	4.1
b)41-50	188	69.6
c)51-60	71	26.3
Gender		
a) Male	84	31.1
b) Female	186	68.9
Marital Status		
a) Single	73	18.6
b) Married	179	45.5
c)Widowed	13	3.3
d)Divorced	5	1.3
Educational qualification		
a) No formal education	15	3.8
b) Primary school	3	8
c)Middle school	51	13
d)High school	192	48.9
e) Higher secondary	9	2.3
f) Graduation and above	0	0

Occupational status		
a) Unemployed	126	32.1
b) Unskilled workers	18	4.6
c)Skilled workers	53	13.5
d)Clerical/shop/farm	55	14
e) Professional	18	4.6
Physical activity per day		
a)≤1hour	27	6.9
b)2-6hours	199	50.6
c)7-11hours	44	11.2
d)≥12hours		
Duration of confirmed Diabetes Mellitus		
a)<5 years	124	31.6
b)5-10 years	146	37.4
c)>10years	0	0
Family history of illness		
a)Yes	23	6.9
b)No	247	62.8
Life style		
a) Sedentary	21	6.3
b) Moderate	249	63.4
c)Heavy	0	0
Dietary pattern		
a) Vegetarian	99	25.2
b) Nonvegetarian	171	43.5
FBS level		
a)137-223mg/dl	187	47.6
b)224-310mg/dl	66	16.8

c)311-397mg/dl	17	4.3
Presence of comorbidities		
a) Yes	164	41.7
b) No	106	27
Types of treatment		
a) Diet only	58	14.8
b) Oral hypoglycemic medicine	141	35.9
c)Insulin therapy	71 `	18.1
d)Both Oral and insulin therapy	0	0

Table 2: Mean and standard deviation score of Quality of life (QOL)

n=270

DOMAINS	Mean	SD
Physical QOL	63.55	13.69
Psychological QOL	68.55	15.4
Social QOL	72.75	11.65
Environmental QOL	49.14	7.10
Total Score	63.70	15.26.

Table 3: Frequency and percentage distribution of Quality of life (QOL) score

n=270

DOMAINS	GOOD SCORE (≥50)		POOR SCORE (<50)	
	(f)	(%)	(f)	(%)
Physical QOL	211	53.7	54	13.7
Psychological QOL	216	55	54	13.7
Social QOL	266	67.7	4	1
Environmental QOL	182	46.3	s88	22.4

Table 4: Association between physical quality of life and demographic characteristics

n=270

Demographic characteristics	Good	Poor	df	χ^2value	p value
Age					
a)30-40	8	3	2	1.710	.425
b)41-50	151	37			
c)51-60	52	19			
Gender					
a) Male	68	16	1	.562	.454

b) Female	143	43			
Marital Status					
a) Single	57	16	3	1.283	.733
b) Married	140	39			
c)Widowed	11	2			
d)Divorced	3	2			
Educational qualification					
a) No formal education	13	2	4	3.618	.460
b) Primary school	2	1			
c)Middle school	44	7			
d)High school	145	47			
e) Higher secondary	7	2			
f) Graduation and above					
Occupational status					
a) Unemployed	102	24	4	3.390	.495
b) Unskilled workers	14	4			
c)Skilled workers	39	14			
d)Clerical/shop/farm	40	15			
e) Professional	16	2			
Physical activity per day					
a)≤1hour	19	8	2	1.569	.456
b)2-6hours	159	40			
c)7-11hours	33	11			
d)≥12hours					
Duration of confirmed Diabetes Mellitus					
a)<5 years	99	25	1	.384	.536
b)5-10 years	112	34			
c)>10years	0	0			
Family history of illness					
a)Yes	16	7	1	1.085	.298

b)No	195	52			
Life style					
a) Sedentary	18	3	1	.763	.382
b) Moderate	193	56			
c)Heavy	0	0			
Dietary pattern					
a) Vegetarian	78	21	1	.037	.847
b) Nonvegetarian	133	38			
FBS level					
a)137-223mg/dl	144	43	2	1.172	.557
b)224-310mg/dl	52	14			
c)311-397mg/dl	15	2			
Presence of comorbidities					
a) Yes	130	34	1	.307	.580
b) No	81	25			
Types of treatment					
a) Diet only	50	8	2	3.866	.145
b)Oral hypoglycemic medicine	110	31			
c)Insulin therapy	51	20			
d)Both Oral and insulin therapy					

Significant at $p<0.05$

Table 5: Association between psychological quality of life and demographic characteristics

n=270

Demographic characteristics	Good	Poor	df	χ^2value	p value
Age					
a)30-40	8	3	2	.496	.780
b)41-50	150	38			
c)51-60	58	13			
Gender					
a) Male	70	14	1	.847	.357
b) Female	146	40			
Marital Status					
a) Single	59	14	3	.995	.802
b) Married	144	35			
c)Widowed	9	4			
d)Divorced	4	1			

Educational qualification					
a) No formal education	9	6	4	7.67	.104
b) Primary school	2	1			
c)Middle school	44	7			
d)High school	152	40			
e) Higher secondary	9	0			
f) Graduation and above					
Occupational status					
a) Unemployed	99	27	4	8.319	.081
b) Unskilled workers	14	4			
c)Skilled workers	49	4			
d)Clerical/shop/farm	39	16			
e) Professional	15	3			
Physical activity per day					
a)≤1hour	22	5	2	.649	.723
b)2-6hurs	157	42			
c)7-11hours	37	7			
d)≥12hours					
Duration of confirmed Diabetes Mellitus					
a)<5 years	101	23	1	.302	.583
b)5-10 years	115	31			
c)>10years					
Family history of illness					
a)Yes	19	4	1	.107	.744
b)No	197	50			
Life style					
a) Sedentary	18	3	1	.465	.495
b) Moderate	198	51			
c)Heavy					
Dietary pattern					
a) Vegetarian	79	20	1	.004	.950
b) Nonvegetarian	137	34			
FBS level					
a)137-223mg/dl	149	38	2	0.75	.963
b)224-310mg/dl	53	13			
c)311-397mg/dl	14	3			
Presence of comorbidities					
a) Yes	127	37	1	1.712	.191
b)No	89	17			
Types of treatment					
a) Diet only	48	10	2	.750	.687
b)Oral hypoglycemic medicine	110	31			
c)Insulin therapy	58	13			
d)Both Oral and insulin therapy					

Significant at $p<0.05$

Table 6: Association between social quality of life and demographic characteristics

n=270

Demographic characteristics	Good	Poor	df	χ^2value	p value
Age					
a)30-40	11	0	2	.185	.912
b)41-50	185	3			
c)51-60	70	1			
Gender					
a) Male	83	1	1	.071	.790
b) Female	183	3			
Marital Status					
a) Single	73	0	3	2.064	.559
b) Married	175	4			
c)Widowed	13	0			
d)Divorced	5	0			
Educational qualification					
a) No formal education	15	0	4	28.091	.000
b) Primary school	2	1			
c)Middle school	50	1			
d)High school	191	1			
e) Higher secondary	8	1			
f) Graduation and above	0	0			
Occupational status					
a) Unemployed	124	2	4	3.098	.542
b) Unskilled workers	18	0			
c)Skilled workers	53	0			
d)Clerical/shop/farm	53	2			
e) Professional	18	0			
Physical activity per day					
a)≤1hour	27	0	2	1.499	.485
b)2-6hours	195	4			
c)7-11hours	44	0			
d)≥12hours					
Duration of confirmed Diabetes Mellitus					
a)<5 years	122	2	1	.027	.869
b)5-10 years	144	2			
c)>10years					
Family history of illness					
a)Yes	22	1	1	1.415	.234
b)No	244	3			
Life style					
a) Sedentary	21	0	1	.342	.558
b) Moderate	245	4			
c)Heavy					
Dietary pattern					
a) Vegetarian	97	2	1	.311	.577
b) Nonvegetarian	169	2			

FBS level					
a)137-223mg/dl	184	3	2	3.268	.195
b)224-310mg/dl	66	0			
c)311-397mg/dl	16	4			
Presence of comorbidities					
a) Yes	162	2	1	.196	.658
b)No	104	2			
Types of treatment					
a) Diet only	57	1	2	1.467	.480
b)Oral hypoglycemic medicine	140	1			
c)Insulin therapy	69	2			
d)Both Oral and insulin therapy					

Significant at $p<0.05$

Table 7: Association between environmental quality of life and demographic characteristics

n=270

Demographic characteristics	Good	Poor	df	χ^2value	p value
Age					
a)30-40	7	4	2	.883	.643
b)41-50	124	64			
c)51-60	51	20			
Gender					
a) Male	52	32	1	1.681	.195
b) Female	130	56			
Marital Status					
a) Single	53	20	3	2.180	.536
b) Married	113	60			
c)Widowed	7	6			
d)Divorced	3	2			
Educational qualification					
a) No formal education	9	6	4	.705	.951
b) Primary school	2	1			
c)Middle school	33	18			
d)High school	132	60			
e) Higher secondary	6	3			
f) Graduation and above					
Occupational status					
a) Unemployed	88	38	4	.925	.921
b) Unskilled workers	12	6			
c)Skilled workers	34	19			
d)Clerical/shop/farm	37	18			

e) Professional	11	7			
Physical activity per day					
a)≤1hour	16	11	2	.907	.635
b)2-6hours	136	63			
c)7-11hours	30	14			
d)≥12hours					
Duration of confirmed Diabetes Mellitus					
a)<5 years	81	43	1	.454	.501
b)5-10 years	101	45			
c)>10years					
Family history of illness					
a) Yes	13	10	1	1.356	.244
b) No	169	78			
Lifestyle					
a) Sedentary	11	10	1	2.340	.126
b) Moderate	171	78			
c)Heavy					
Dietary pattern					
a) Vegetarian	64	35	1	.542	.461
b) Nonvegetarian	118	53			
FBS level					
a)137-223mg/dl	123	64	2	.740	.691
b)224-310mg/dl	47	19			
c)311-397mg/dl	12	5			
Presence of comorbidities					
a) Yes	108	56	1	.459	.498
b) No	74	32			
Types of treatment					
a) Diet only	38	20	2	.598	.742
b) Oral hypoglycemic medicine	98	43			
c)Insulin therapy	46	25			
d)Both Oral and insulin therapy					

Significant at $p<0.05$