

A Retrospective Study to Assess the Level of Self-Care Activities and Quality of Life among Individuals with Type 2 Diabetes Mellitus (T2DM)

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Abstract

Aim: The aim of the present was to assess the level of self-care activities and quality of life among individuals with type 2 diabetes mellitus (T2DM) in rural areas of Bihar.

Methods: A community-based cross-sectional survey was conducted by the Department of Community Medicine, Nalanda Medical College and Hospital, Patna, Bihar, India in the rural area for individuals clinically diagnosed with T2DM for more than 6 months. A total of 200 participants were analyzed who were clinically diagnosed with diabetes for more than 6 months. We excluded people who had co-morbidities like cancers, mental illness, or any diseases that were debilitating in nature, as we expected those conditions to affect our outcome variables. The study period from Feb 2021 to Nov 2021.

Results: The participants were almost equal with respect to gender, the majority of the participants 66% belonged to the age group between 41-60 years, 31% of them had education up to high school level and the majority 52.6% of the participants reported their diabetes duration as more than 5 years. But 55% of the participants were living with hypertension as a comorbidity. On analysis of the BMI, one-third of the participants were either overweight or obese, majority of the participants had stage 2 hypertension. Of the study population, almost half (47%) of the participants had glycemic levels well above 125 mg/dl. The WHO quality of life BREF scale responses were analyzed. The mean score of overall quality of life was calculated to 62.68±15.45, and it was also observed that the mean score of physical quality of life was lowest among all the domains of quality of life, at 56.04±7.73. On analyzing the total quality of life 17% of participants reported having poor overall quality of life.

Conclusion: In conclusion, this survey study sheds light on the practices and quality of life among individuals with T2DM. The findings reveal that while there are areas of concern, such as poor physical activity, foot care, and blood glucose monitoring practices, participants demonstrated better adherence to diet and medications. Importantly, despite these challenges, the quality of life among the participants was reported as good. These results emphasize the need for targeted interventions and education programs to promote healthy lifestyle practices and further enhance the overall well-being of individuals living with T2DM.

Keywords: Self-care activities, Quality of life, T2DM, rural areas

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Introduction

Quality of life is an individual perception of their position in life in the context of the culture and values systems in which they live and about their goals, expectations, standards, and concerns. [1] The quality of life of T2DM patients is an essential outcome used to evaluate the impact of the disease, treatment, and health care costs. Continuous daily treatment requirements affect the quality of life; a positive association between high perceived quality of life and good glycemic control has been reported. Self-care management is a treatment carried out independently by patients to observe their own

needs without depending on the surrounding environment. Self-care management of T2DM patients consists of adhering to a diet program, physical exercise, controlling blood sugar levels, medication, and foot care to prevent further complications and control blood glucose. [2]

Inadequate control of blood sugar can result in adverse complications of the diseases. [3] Complications from DM involving the eyes account for 2.6% cases who are blind. Regarding the effects of complications of kidney function related to DM, a study of 54 countries found that 80% of chronic

kidney disease cases were attributed to DM. DM cases with foot lesions are at high risk of amputation. There is a 20-fold increased risk of amputation of an infected for DM cases. [4] Therefore, DM is a major cause of death and disability causing significant harm to a nation’s economy and a person’s quality of life (QoL). [3] Previous research confirmed that DM with complications significantly reduced QoL [5] while other studies found QoL in patients with type II DM were moderate and low. [6-8]

Diabetes has the potential to cause numerous debilitating health complications that can lower the quality of life and lead to an early death. Most often, complications are the results of unmanaged or poorly managed diabetes. [9] Therefore, a healthy diet, regular physical activity, medicines, and blood sugar control are needed to prevent the complications accompanied by diabetes mellitus. [10,11] The quality of life (QoL) is a highly subjective measure of happiness and shows how much an individual is healthy, comfortable, and can participate in or enjoy life events. [12] Type 2 diabetes can be managed with diabetes self-management skills. Self-care is the ability of the patient with the family, and the community to promote health, prevent illness, maintain health, and deal with the disease and disability with or without the help of health care providers. [13] Diabetic patients have to change their behaviors and perform self-care activities. The aspects of life with diabetes that may affect the quality of life include the never-ending demands of diabetes care, such as eating carefully, exercising, monitoring blood glucose, and scheduling and planning. [14,15]

The aim of the present was to assess the level of self-care activities and quality of life among individuals with type 2 diabetes mellitus (T2DM) in rural areas of Bihar.

Materials and Methods

A community-based cross-sectional survey was conducted by the department of Community Medicine, Nalanda Medical College and Hospital, Patna, Bihar, India in the rural area of Bihar for

individuals clinically diagnosed with T2DM for more than 6 months. A total of 200 participants were analyzed who were clinically diagnosed with diabetes for more than 6 months. We excluded people who had co-morbidities like cancers, mental illness, or any diseases that were debilitating in nature, as we expected those conditions to affect our outcome variables. The study period from Feb 2021 to Nov 2021.

Non-communicable disease (NCD) clinics are operational in almost all villages under NCD programs which require ASHA workers to enable a list of all individuals diagnosed with different NCDs. We utilized this list for filtering all the people with diabetes visited them at their homes to explain the objectives and expectations of the individuals. Individuals who gave consent for the study were informed to fast the next day for the fasting blood sugar (FBS) collection in the early hours of the morning, following which all the outcome measures were collected through interview schedules.

A total of 200 people with diabetes were interviewed for the socio-demographic variable with a self-structured socio-demographic Performa, self-care activities with summary of diabetes self-care activities (SDSCA) scale, and quality of life with the WHO quality of life-BREF scale. Blood Pressure, FBS, and waist circumference of all the participants were also recorded.

The data were analyzed using IBM SPSS statistics version 26.0 and Microsoft excel sheets. Demographic and physiological measurements were categorized and reported with frequency and percentage distribution. The quality of life raw scores was transformed as per the WHO quality of life manual into 0-100 scores. The mean score was taken as 50, and a score below 50 was considered a poor quality of life and vice versa. The SDCSCA scores were divided according to the number of days the individual performed a particular self-care activity and categorized into 0 days, 1-3 days, and 4-7 days.

Results

Table 1: Frequency and Percentage distribution of sociodemographic characteristics of people with T2DM

Socio-demographic variables	Categories	N (%)
Age (in years)	≤40	16 (8)
	41-50	50 (25)
	51-60	82 (41)
	61-70	44 (22)
	71-80	4 (2)
Gender	Male	96 (48)
	Female	104 (52)
	Illiterate	34 (17)
Education	Primary school	38 (19)
	Middle school	20 (10)
	High school	62 (31)

	Graduation and above	46 (23)
Marital status	Unmarried	6 (3)
	Married	180 (90)
	Widow	14 (7)
	Unemployed	12 (6)
Occupation	Business/farmer	64 (32)
	Skilled worker	6 (3)
	Service Job	30 (15)
	Housewife	88 (44)
Diabetic complication	Retinopathy	1 (0.5)
	Diabetic foot	3 (1.5)
	No complications	196 (98)
	Hypertension	110 (55)
Co-morbidities	Arthritis	24 (12)
	Gastritis	8 (4)
	Asthma	2 (1)
	No co-morbidities	56 (28)
BMI (kg/m²)	Underweight (≤ 18.5)	20 (10)
	Normal (18.6-24.9)	110 (55)
	Overweight (25-30)	54 (27)
	Obesity (>30)	16 (8)
Men		
	Normal (<90 cm)	52 (26)
	Disease risk (>90 cm)	46 (23)
Waist circumference		
Women		
	Normal (<80 cm)	52 (26)
	Disease risk (>80 cm)	50 (25)
FBS	Up to 110 mg/dl	56 (28)
	$\geq 111-140$ mg/dl	50 (25)
	≥ 141 mg/dl	94 (47)

The participants were almost equal with respect to gender, the majority of the participants 66% belonged to the age group between 41-60 years, 31% of them had education up to high school level and the majority 52.6% of the participants reported their diabetes duration as more than 5 years. But 55% of the participants were living with hypertension as a

comorbidity. On analysis of the BMI, one-third of the participants were either overweight or obese, majority of the participants had stage 2 hypertension. Of the study population, almost half (47%) of the participants had glycemic levels well above 125 mg/dl.

Table 2: Mean and standard deviation of quality of life of people with T2DM

Domains	N	Mean	SD
Physical quality of life	200	56.04	7.73
Psychological quality of life	200	68.42	15.30
Social quality of life	200	65.45	18.72
Environmental quality of life	200	58.82	18.74
Overall quality of life	200	62.68	15.45

The WHO quality of life BREF scale responses were analyzed. The mean score of overall quality of life was calculated to 62.68 ± 15.45 , and it was also observed that the mean score of physical quality of life was lowest among all the domains of quality of life, at 56.04 ± 7.73 .

Table 3: Frequency and percentage of quality of life of people with T2DM

Domains	Good score (≥ 50), N	Poor score (<50), N
Physical quality of life	170	30
Psychological quality of life	168	32
Social quality of life	104	96
Environmental quality of life	184	16
Overall quality of life	166	34

On analyzing the total quality of life 17% of participants reported having poor overall quality of life.

Table 4: Frequency and percentage distribution of self-care activities of people with T2DM

Self-care activities in last seven days, how many:	N		
	0 days	≤3 days	≤4-7 days
General diet: days have you followed your eating plan?	20	48	132
Specific diet: times did you eat, 5 or more fruits/Vegetables?	20	44	136
times, did you eat high-fat foods?	16	72	110
times, did you space carbohydrates evenly?	16	36	148
Exercise: times, did you do physical activity for at least 30 minutes?	130	26	44
Times, did you do specific exercises, in the last seven days?	130	22	48
Blood sugar testing: times, did you test blood sugar?	170	26	4
Foot care: times, did you check your feet?	84	48	68
Times, did you inspect your shoes?	160	24	16
Times, did you soak your feet?	86	48	66
Times, did you wash your feet?	60	44	96
Times, did you dry your toes after washing?	68	40	92
Medicine: Times, did you take your diabetic medication?	48	4	148

The majority of the participants adhered to a healthy eating plan (spacing carbohydrates evenly, eating 5 or more fruits/vegetables) except for the consumption of fatty food. The majority of the participants were not engaged in any kind of exercise in the last week. Another finding was that 85% of individuals hadn't checked their blood sugar in the previous week. In regard to foot care, 30% and 43% of the participants washed their feet regularly and dry them after washing respectively, whereas 80% did not check their shoes regularly. The highest adherence was found in medication with 74%.

Discussion

Diabetes is monopolizing the health system over the world and spiraling out of control. As per IDF (2021), approximately 537 million people, aged 20-79 years are living with diabetes currently across the globe and it also forecasts that the current number of diabetic people will outreach 643 million by 2030, and 783 million by 2045. Currently, India is home to the second-largest diabetic population in the world with 74.2 million and expected to reach 124.9 million by 2045. Currently, 53.1% of diabetics living in India are unaware of their condition. Globally, one in every seven diabetic patients belongs to India and one diabetic patient lives in every third household. [16,17] When diabetes is unattended or uncontrolled, poses a greater risk for diabetic complications, premature death, and a lower quality of life. The seven self-care practices are the best-proven defense against the abrupt glycemic index and diabetic complications. [18,19]

Karthik et al [20] reported on self-care practices among rural diabetic patients of Tamil Nādu. Merely 5.6% of participants engaged in good self-care activities, while 52.4% engaged in extremely poor self-care. The majority of participants exhibit high

adherence to blood sugar testing and medication, but they had very low adherence to other domains like exercise, diet, and foot care. Neglected and poorly managed diabetes, not only has awful consequences for health but also has a creepy effect on well-being and other spectrum of life. One such spectrum is quality of life. [21] Diabetes has its own psychological and social impacts on individuals in addition to these physical ones. Thus, many diabetic patients feel overburdened due to the continuous demand for their disease and its management, and this persistent physical misery associated with diabetes may make these psychological and social obligations even more severe. Therefore, diabetes alone may cause a person's quality of life to decline. [22,23] The participants were almost equal with respect to gender, the majority of the participants 66% belonged to the age group between 41-60 years, 31% of them had education up to high school level and the majority 52.6% of the participants reported their diabetes duration as more than 5 years. But 55% of the participants were living with hypertension as a comorbidity. On analysis of the BMI, one-third of the participants were either overweight or obese, majority of the participants had stage 2 hypertension. Of the study population, almost half (47%) of the participants had glycemic levels well above 125 mg/dl. The WHO quality of life BREF scale responses were analyzed. The mean score of overall quality of life was calculated to 62.68±15.45, and it was also observed that the mean score of physical quality of life was lowest among all the domains of quality of life, at 56.04±7.73 which was similar to the studies from Odisha and Vellore, where it was reported that 64% and 68% respectively. [23,24] Mostly these barriers to self-management are reported to be poor knowledge, prevailing misconceptions and lack of culturally specific management. [25]

On analyzing the total quality of life 17% of participants reported having poor overall quality of life. The majority of the participants adhered to a healthy eating plan (spacing carbohydrates evenly, eating 5 or more fruits/vegetables) except for the consumption of fatty food. The majority of the participants were not engaged in any kind of exercise in the last week. Another finding was that 85% of individuals hadn't checked their blood sugar in the previous week. In regard to foot care, 30% and 43% of the participants washed their feet regularly and dry them after washing respectively, whereas 80% did not check their shoes regularly. The highest adherence was found in medication with 74%. Contrasting findings were found in a study done in Maharashtra where high satisfactory results were seen in physical activity (61.91%), foot care (54.28%), and high unsatisfactory result in diet (51.43%). The use of medications seems to be similar with our findings, with higher percentage (93.83%) of individuals consuming medications satisfactorily, which may be due to the urban sample group. [26] Yet similar findings to our study were seen in a survey conducted in a tertiary care hospital in Vijayawada which caters to rural population with results showing inadequate physical activity (63%), foot care (69%) as well as adequate use of medication (61%). [27]

Conclusion

In conclusion, this survey study sheds light on the practices and quality of life among individuals with T2DM. The findings reveal that while there are areas of concern, such as poor physical activity, foot care, and blood glucose monitoring practices, participants demonstrated better adherence to diet and medications. Importantly, despite these challenges, the quality of life among the participants was reported as good. These results emphasize the need for targeted interventions and education programs to promote healthy lifestyle practices and further enhance the overall well-being of individuals living with T2DM.

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