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EVALUATION OF QUALITY OF LIFE IN TYPE 2 DIABETES MELLITUS PATIENTS USING D-39 QUESTIONNAIRE: A CROSS-SECTIONAL STUDY

Shashi Sharma Rijal[1]*

[1]Assistant Professor of Internal Medicine, Purbanchal University Teaching Hospital.

***Corresponding Author: Dr. Shashi Sharma Rijal**

Assistant Professor of Internal Medicine, Purbanchal University Teaching Hospital.

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ABSTRACT

Background: Diabetes is a growing public health concern globally, with a significant rise in prevalence, particularly in low- and middle-income countries. In Nepal, the prevalence of diabetes has increased dramatically, leading to various physical, psychological, and social complications that directly impact the quality of life (QOL) of individuals. **Objective**: This study aims to assess the quality of life of diabetic individuals in Morang, Nepal, focusing on the physical, psychological, and social domains. It also seeks to identify factors associated with QOL, such as age, gender, and illness duration. **Methods**: A cross-sectional study was conducted, with respondents selected through random sampling. The D-39 questionnaires were used to measure QOL across physical, psychological, and social domains. Statistical analysis was performed to determine significant associations between demographic factors and QOL scores. **Results**: The majority of respondents were male (58.7%), with age group mean.56.95 A significant association was found between age, duration of diabetes, presence of complication with quality of life ($p<0.001$). Only 47.7% of respondents reported a good quality of life with the highest mean score was observed in the energy and mobility domain (59.16±21.54). **Conclusion**: The study highlights the need for gender-specific interventions, improved healthcare access, and educational programs to address the gaps in knowledge and management of diabetes. Further research is needed to explore geographic and demographic variations in QOL among diabetic patients in Nepal.

KEYWORDS: diabetic, patients visiting in OPD, quality of life.

Background of the study

The World Health Organization (WHO) defines quality of life (QOL) as an individual's perception of their position in life, shaped by cultural context, values, goals, and concerns. Globally, diabetes impacts over 537 million people, with more than three-quarters of cases in low- and middle-income countries.[1] In Nepal, the prevalence of diabetes has steadily increased from 19.04% in 2002 to 25.9% in 2009, with experts predicting it will reach 10% of the population.[2]

Studies show that diabetes significantly affects various aspects of life, leading to chronic physical, psychological, and social complications. Research from Gondar, Ethiopia, found that individuals with diabetes had lower HRQOL scores across physical, social, and environmental domains, though the psychological domain was less.[3] In Nepal, research indicates that diabetic patients often have poor knowledge of their condition, which is linked to factors such as age, education, and family history, highlighting the need for educational interventions.[4]

Overall, diabetes has been shown to negatively impact QOL, with significant variations across domains such as self-care, pain, and emotional well-being. Research from Nepal and other countries shows a consistent decline in QOL among diabetic individuals, with some domains, like physical and social, being more affected than others. There is a pressing need for more research and education to improve QOL for diabetic populations. This study aims to assess the quality of life (QOL) of diabetic individuals in Morang, focusing on physical, psychological, and social aspects. Diabetes often leads to chronic complications that negatively impact QOL.[5] In Nepal, diabetic patients often have poor disease knowledge, influenced by factors like age, education, and family history, highlighting the need for educational programs. Studies show that diabetes lowers QOL, with gender, marital status, education, and disease duration affecting various QOL aspects. Research in Pokhara found lower total QOL, with higher scores in social and physical domains but lower in environmental domains. More research is needed to understand the full impact of diabetes on QOL.[6]

Methods

Study site: This study was conducted on patients with type 2 diabetes mellitus in a Purbanchal University Teaching hospital of eastern part of Nepal, Morang district.

Study design: This is a descriptive cross sectional study.

Sample size: 155 different type 2 diabetic patients were enrolled in this study by taking the previous study prevalence of 90.75% and 5allowable error.[7]

Study variables: Socio demographic [hic variables (age, gender, education, occupation), duration of diabetes mellitus, chronic illness duration of illness, presence of complications, rest and sleep, psychological aspects.

Study method: Quality of life was assessed by D-39 standard questionnaire compromised of 39 items grouped into five domains of quality of life: energy and mobility, diabetes control, anxiety and worry, social overload and sexual functioning.[8]

These domains were rated on a 7-point Likert scale in which 1 points denotes not at all affected whereas 7 point denotes extremely affected. However reverse coding was done during data entry as such in this study point 1 denoted extremely affected likewise point 7 point denoted not at all affected. (thapa s et al., 2019) which include.

Study criteria

Inclusion Criteria

People who was present at the time of data collection with type 2 diabetes mellitus since 5 years and who can communicate well.

Exclusion Criteria

Severely ill (cancer, chronic kidney disease), mentally ill and those who are unable to communicate properly are not included.

Statistical Analysis

Using SPSS v.22.0, statistical analysis was carried out (SPSS, Inc, Chicogo, IL). Using chi square test for non-parametric test were used to assess the association of quality of life with selected variables.

Good quality of life (>50% of total D-39 scoring)

Poor quality of life (<57% of total D-39 scoring)[9]

RESULTS

Table 1

Variables	Number	Percentage (%)
Age in years		
30-59	94	60.6
>60	61	39.4
		56.95 ±2
Sex		
Male	91	58.7
Female	64	41.3
Marital Status		
Married	142	91.6
Single	13	8.4
Religion		
Hinduism	126	81.3
Buddhism	12	7.7
Christianity	10	6.5
Islam	7	4.5

Table 1: Shows the characteristics of respondents where 60.6% were age group 30-49yrs with mean age of 56.95 ± . 58.7% of respondents are male married and 81.3% belongs to hindu religion.

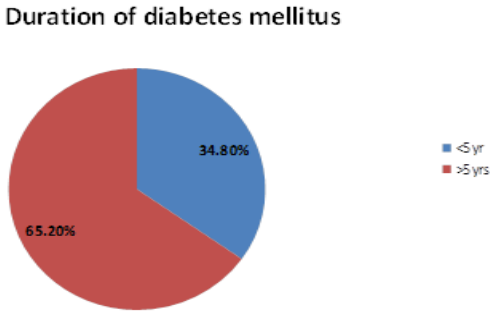

Figure 1: shows that 65.2% of respondents had more than 5 years history of diabetes.

Table 2

Comorbidities	Number	Percentage (%)
Yes	87	56.1
No	68	43.9
Types of co morbidities		
Hypertension	76	87.4
Thyroid disorder	14	16.1
Cardiovascular disease	21	24.1

Table 2: show the history and types of co morbidities where 56.1% are living with comorbidities and among them 87.4 % had hypertension.

Fig. 2: Presence of complications.

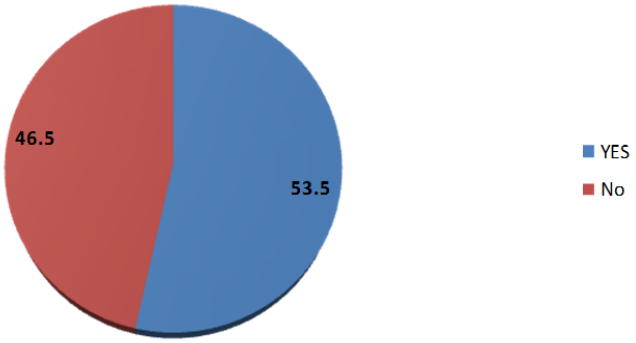

Fig. 2: Shows The Presence Of Complication With Type 2 Diabetes Mellitus Where 53.5%.

Table 3: Types of Complication of Diabetic Patient.

Complication	Frequency	Percentage
Cardiovascular	34	41
Neurological	71	85.54
Renal	18	18
Retinopathy	68	81.9
Depression	2	2.4
Diabetic Foot	2	2.4

Table 3: shows the different types of complication present in diabetic patients where most of the participants (81.9%) had neurological complication.

Table 4: Mean Distribution of Domain of Quality of Life.

Domain	Mean value SD
Energy and Mobility	59.16 ±21.54
Diabetes control	45.09 ±17.65
Social overload	22.44 ±16.24
Anxiety and worry	16.09 ±6.08
Sexual functioning	13.92 ± 5.78

Table 4 shows that Energy and mobility has high mean value (59.16 ±21.54) than other domain

Fig 3 Quality of life of Respondents

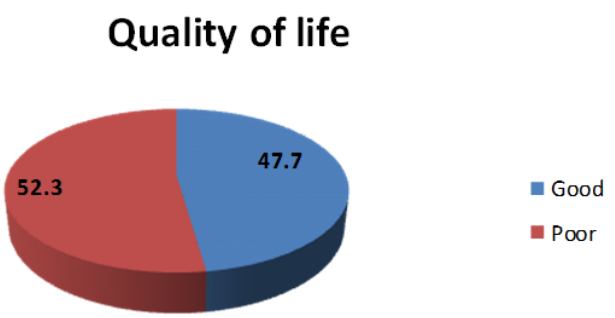

Fig. 3: Shows the overall quality of life of diabetic patients where 52.3% had poor quality of life.

Table 5

Variables	Quality of life		p value	OR (95%CI)
	Good	Poor		
Age				
Adult	66	28	0.001*	15(6.57 - 37.08)
Elderly	8	53		
Gender				
Male	47	44	0.246	1.46(.7-2.78)
Female	27	37		
Duration of illness				
≤5yrs	46	8	0.00*	14.9(6.2-35.7)
>5yrs	28	73		
Chronic illness				
Yes	20	67	0.001	0.07(0.035-0.16)
No	54	14		
Presence of complication				
Yes	10	73	0.001	0.017(0.006-0.04)
No	64	8		

Table 5 shows the association between quality of life of diabetic patient with selected variables where increasing age, duration of illness and presence of complication is significantly associated with poor quality of life.

DISCUSSION

- In this study, 58.7% of respondents were male, similar to a study by Tiwari S et al. in Bhopal, India, where 58.13% were male, likely due to similar study settings11. This evidence can serve as basis to predict the gender wise distribution of diabetic patient in similar setting.

- A significant association was found between age and quality of life (p=0.00), as well as illness duration and quality of life (p=0.00), consistent with Prajapati VB et al.'s study in Brazil.[10-11] However, 47.7% of respondents had a good quality of life, contradicting Neupane HR and Bhandari TR's findings in Pokhara, Nepal, where it was 69%, likely due to demographic and geographic differences.[12-14] The contradiction is found due to difference in sociodemographic variables and geographical variation.

- Additionally, the highest mean in the energy and mobility domain (59.16±21.54) contrasts with Thapa S et al.'s study in Jhapa, which showed the highest in the social burden domain, likely due to differences in sample size and methods.[15]

CONCLUSION

- This study on Quality of life among Diabetic people attending OPD of Purbanchal University Teaching Hospital, Morang, Nepal concluded that majority of respondents had poor quality of life in which elderly were more vulnerable to comorbidities and complications that had substantial impact in determinants of quality of life.

Recommendations

- **Education Programs**: Implement targeted diabetes education to improve self-management and lifestyle changes, enhancing quality of life.
- **Healthcare Access**: Improve healthcare access in rural areas for timely support and preventive care.
- **Psychosocial Support**: Integrate mental health services to address psychological and social complications.

Conflict of interest

The author declares no conflict of interest.

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