Health Related Quality of Life in Diabetic Patients in Pokhara Metropolitan City

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Article received: 1st November, 2021

Article accepted: 29th Dec, 2021

ABSTRACT

Introduction: Diabetes Mellitus is a common and serious global health problem and is associated with the complications such as cardiovascular disease, nephropathy, retinopathy and neuropathy, which can lead to severe mortality and morbidity. The purpose of this study was to find out the health-related quality of life patients with diabetes mellitus. Descriptive cross-sectional research design was used among 116 patients with diabetes mellitus in Diabetes, Thyroid and Endocrinology Care Center, Pokhara via Systematic sampling.

Materials and Methods: Data was collected using structured World Health Organization Quality of Life Instrument- Short form: WHOQOL-BREF tool and analyzed by using computer package with Statistical Package for Social Science software version 16. In inferential statistics t- test and ANOVA test was used to measure the association between selected demographic variables and overall HRQOL as well as all the domains at 5 percent level of significance.

Results: The significant association was observed between physical, psychological, social and environment domain with presence of comorbid illness and complications. The study found that patients with diabetes mellitus had higher health related quality of life in environment domain but lower in social domain. Age below 54 years, male, duration of disease less than 10 years, living in a nuclear family and employed respondent had higher quality of life.

Conclusion: The study concluded the overall HRQOL is good in patient less than 54 years, male, married, patient having family history of diabetes, duration of diabetes less than 10 years, absence of comorbidity and complications.

Keywords: diabetes mellitus; domains; health related quality of life.

INTRODUCTION

In 2015, around 415 million people are living with diabetes worldwide and it is predicted that by 2040, 642 million people, or one in ten people will be living with this condition. Type 2 diabetes accounts for 90.0% of all diabetes cases. Approximately 4.9 million deaths are caused by diabetes.[1] Quality of life assessment is considered as important measure of outcome in chronic disease management.[2]

People with diabetes often feel challenged by their disease and its day to day management demands. Most studies report that quality of life among people with diabetes is worse than quality of life in general population. Factors related to lower quality of life includes; less education, lower income, older age, being female, duration of disease, number of co-morbid illness and lower level of physical activity.[3] Diabetes affects the health-related quality of life through macro vascular complications, associated non-vascular co-morbidity and also by total burden of disease.[4]

Therefore the study gives light on the existing gap of the different domains of the diabetic patients that are dependent to their health condition. It studies the health related quality of life among the type 2 diabetic patients including the physical, psychological, social and environmental domain.

MATERIALS AND METHODS

Descriptive cross sectional study was done. Ethical approval was obtained from the Institutional Review Committee of Tribhuwan University; Institute of Medicine (reference no. 901). Informed written consent from each respondent was obtained before data collection. The study was conducted from 4th March 2018 to 6th April 2018. There was a flow of 15-16 diabetic patients/ day in an average. Study included every 3rd patients registered at the time of the study in centre and 4-5 patients were interviewed in each day. The total respondents were 116 (using systematic method of sampling). Exclusion criteria for the study were those patients who have been diagnosed as diabetes mellitus for less than six months.

The instrument for data collection consisted of two parts. Part I included question related to socio-demographic information and disease related factor developed by researcher herself through literature review and consultation with peer and subject experts among academicians.

Part II included structured question related to HRQOL measure by standard WHOQOL-BREF tool. WHOQOL-BREF is an abbreviated version of the WHOQOL-100.WHOQOL-BREF instrument comprises 26 items to assess the quality of life and divided in to 4 domains physical health (7items), psychological health (6items), social relationship (3items) and environmental (8items).

The four domain scores denote an individual's perception of quality of life in each particular domain. The first two items were examined separately. Question 1 asks about an individual overall perception of quality of life and question 2 asks about an individual overall perception of their health. Each item measure in a 5 point likert scale, higher scores denote higher quality of life and lower scores denote lower quality of life. But Q3, Q24, Q26 are the three items that reverse in negative form i.e. (1=5) (2=4) (3=3) (4=2) (5=1). In this study, the Nepali Version of WHOQOL-BREF questionnaire was used after getting permission from the division of Mental Health, WHO Geneva, Switzerland.

Validity of the Part I of the instrument was maintained by extensive review of literature on similar subject matter, making consultation with peer, and subject experts. Reliability test was done and the overall observed Cronbach's alpha coefficient for WHOQoL-BREF was 0.89.

The data was analyzed on the basis of research objectives and research questions. Collected data was checked daily for its completeness and accuracy. Data was edited, coded and entered in SPSS software (Statistical Package for Social Science) version 16. Descriptive statistics such as frequency, percentage, mean, standard deviation and inferential statistics such as independent sample t test and ANOVA test were used. The level of significance was set at $p < 0.05$.

RESULT

Mean age of the participants was 56.04±10.93. Almost half of the respondents were male comprising 51.7% and majority of patients with diabetes mellitus were from urban area (79.3%) and majority were living with the spouses (87.9%). Around forty seven percent of patients with diabetes mellitus were janajati, the least (2.6%) is others which includes Muslim and the most (78.4%) of them were Hindu. Eighty five percent of them were literate and 31.9% of them were home maker. More than half (53.4%) of the patients shared joint family. (Table 1)

TABLE 1. Socio-demographic Variables of Patients with Diabetes Mellitus n=116

Socio-demographic Variables	Number	Percent
Age (in years)		
40-59	75	64.7
≥60	41	35.3
Mean age in years ±SD (56.04±10.93)		
Gender		
Male	60	51.7
Female	56	48.3
Place of residence		
Rural	24	20.7
Urban	92	79.3
Ethnicity		
Dalit	12	10.3
Janajati	54	46.6
Brahmin /Chhetri	47	40.5
Others	3	2.6
Religion		
Hindu	91	78.4
Buddhist	20	17.2
Christian	4	3.4
Muslim	1	0.9
Marital status		
Married	102	87.9
Unmarried/ Never married/ Widowed	14	12.1
Education		
Illiterate	17	14.7
Read/write	19	16.4
Primary education(1-8)	23	19.8
Secondary(9-12)	44	37.9
Higher education	13	11.2
Occupation		
Agriculture	13	11.2
Daily wages	2	1.7
Business	26	22.4
Service	17	14.6
Home maker	37	31.9
No work	6	5.2
Retired	15	12.9
Types of family		
Nuclear	54	46.6
Joint	62	53.4

Forty eight percent had family history of diabetes and 56.9% had comorbid illness among which 39.7% had hypertension and 11.2% had co-morbidity. Majority (81.0%) respondent had less than ten years of disease duration. Regarding the presence of complications, 42.2% of the respondents were found to have complications among 42.2% of the patients. Majority of them (94.0%) use oral hypoglycemic drugs treatment and almost all (99.9%) were found to get family support for their illness. (Table 2)

TABLE 2

Variables	Number	Percent
Family history of diabetes		
Yes	56	48.3
No	60	51.7
Duration of disease		
6- 10 years	94	81.0
> 10 years	22	19.0
Presence of complication		
Yes	49	42.2
No	67	57.8
Types of treatment		
Oral hypoglycaemic drugs	109	94.0
Injectable drugs (insulin)	5	4.3
Both	2	1.7
Comorbid illness		
Yes	66	56.9
No	50	43.1
Family support		
Yes	115	99.9
No	1	0.9

Disease related Variables of Patients with Diabetes Mellitus

n=116

Highest mean value 64.5 in environmental domain followed by physical domain accounting 64.3. Similarly, the lowest mean value was noted in social domain with 62.8. The overall quality of life mean score was 63.8. (Table 3)

Table 3. Health Related Quality of Life in different Domain

Domains	Mean Score	Standard Deviation	Mini-mum	Maxi-mum
Physical	64.3	13.8	31	94
Psychological	63.6	10.8	25	100
Social	62.8	12.7	31	100
Environmental	64.5	10.4	44	94
Overall QOL	63.8	9.4	42.2	87.7

Significant association between overall quality of life of diabetic patient and educational level, type of family, presence of comorbid illness and complications. No any significant association of the overall quality of life of the patients with diabetes was found with the age, gender, family history of diabetes, duration of disease, type of treatment they are getting and the level of HbA1c. (Table 4)

TABLE 4. Association of Overall Health Related Quality of Life with Socio-Demographic and Disease related variables n=116

Variables	Num ber	Mean score	SE	Confidence Interval	Statistic Value	*p*-Value
Age in years						
≤54	83	65.1	1.0	(0.8, 8.3)	2.4	0.180
>54	33	60.5	1.4			
Gender						
Male	60	65.9	1.1	(0.9, 7.7)	2.5	0.131
Female	56	61.5	1.2			
Education						
Below primary	40	60.4	1.4	(-8.7, -1.6)	-2.9	0.041*
Above primary	76	65.6	1.0			
Economic Activities						
Employed	73	64.4	1.1	(-2.0, -5.1)	0.8	0.380
Unemployed	43	62.8	1.3			
Marital status						
Married	102	64.6	0.9	(2.0, 12.3)	2.7	0.070
Unmarried/ widow	14	57.5	2.1			
Types of family						
Nuclear	54	66.7	1.3	(2.2, 8.8)	3.2	0.001*
Joint	62	61.2	1.0			
Family History						
Yes	56	64.3	1.1	(-2.5, 4.3)	0.5	0.596
No	60	63.3	1.3			
Co morbidity						
Yes	66	61.5	1.0	(-8.6, -1.9)	-3.0	0.002*
No	50	66.8	1.3			
Duration of disease						
≤10 years	94	63.8	0.9	(-4.2, 4.6)	0.1	0.916
>10 years	22	63.6	1.8			
Complication						
Yes	48	59.9	1.2	(-10.0, -3.3)	-3.9	0.000*
No	67	66.6	1.0			
Types of treatment						
Oral	109	63.7	0.9	(61.8, 65.5)	0.3	0.720#
Insulin	5	67.0	2.2	(60.6, 73.3)		
Both	2	61.8	0.8	(62.0, 65.5)		
HbA1c						
≤6.5	30	63.9	1.7	(-3.8, 4.1)	0.06	0.948
>6.5	86	63.7	1.0			

* significantly associated (p>0.05) # ANOVA test

The association of each domain with socio demographic and disease related variables. It can be interpreted that there was significant association between physical domain with age, gender, education, economic activities, marital status, type of family, co-morbid illness and the presence of complications in the patient. There was significant association of psychological domain with gender, marital status, type of family and the presence of complications. The presence of co morbid illness and complications are seen with the social domain and regarding the environmental domain, there was significant association with gender, type of family and complications. (Table 5)

TABLE 5. Association of Domains with Socio-Demographic and Disease related variables

n=116

Variables	Physical	Psycho logical	Social	Environ mental
Age in years				
≤54	0.000*	0.083	0.650	0.349
>54				
Gender				
Male	0.001*	0.041*	0.780	0.030*
Female				
Education				
Below primary level	0.000*	0.067	0.446	0.139
Above primary level				
Economic Activities				
Employed	0.043*	0.469	0.649	0.800
Unemployed				

Marital status				
Married	0.002*	0.015*	0.106	0.301
Unmarried/ widow				
Types of family				
Nuclear	0.002*	0.003*	0.275	0.003*
Joint				
Family History				
Yes	0.855	0.895	0.357	0.246
No				
Co morbidity				
Yes	0.001*	0.195	0.014*	0.051
No				
Duration of disease				
≤10 years	0.190	0.849	0.808	0.413
>10 years				
Complication				
Yes	0.000*	0.011*	0.001*	0.025*
No				
Types of treatment				
Oral	0.516#	0.777#	0.405#	0.280#
Insulin				
Both				

* significantly associated (p>0.05) # annova test

DISCUSSION

In present study twenty one percent of the patient with diabetes mellitus belongs to age group 45-49 years with mean age and standard deviation is 56.04±10.93. Regarding gender fifty one percent were male. The study aims to identify HRQOL of patients with diabetes mellitus in physical, psychological, social relationship and environmental domain and difference in socio-demographic and disease related variables with HRQOL of patients with diabetes mellitus. The study reveals that mean scores is highest in environmental domain followed by physical domain.

The mean score of quality of life with respect to physical, psychological, social and environmental domains were significantly higher among females. The finding is supported by the study of Somappa, Venkatesha, Prasad, 2014 whereas the contrary finding is found in the study in Iran which depicts that the mean scores in three domains of QoL (Physical Health, Psychological Health and Social relationship) were significantly higher in men in comparison to women.[5,9]

The score is lowest in social domain with mean score of 62.82 in this study. Similar score was found to be lowest in social domain in the study conducted in India.[10]

It is found that the highest mean (SD) score is in environment domain (64.50 ± 10.45) followed by physical domain (64.37 ± 13.80), psychological domain (63.60 ± 10.80) and the lowest is in social domain (62.82 ± 12.77). The finding of the study done in Kathmandu found the highest mean (SD) score in social relationship domain (57.32 ± 8.94), followed by environment domain (54.71 ± 7.74), psychological health (53.25 ± 10.32) and physical health (50.74 ± 11.83).[8]

This study shows that there is significant association exist in diabetic complication and overall quality of life. Similarly, the study conducted in Kathmandu also shows that comorbidity affects overall quality of life.[11]

Strongly significant association is observed in presence of complication (p<0.000) with physical, (p<0.011) with psychological domain, (p<0.005) with social domain and (p<0.025) with environment domain in present study. Similar finding is concluded by a study conducted in diabetic clinic of general hospital Tehran which reveals that presence of complication influences HRQOL for diabetic patient at different dimensions. This may due to fact that with complication patients decrease the overall quality of life.[12, 13]

Even though there is no significant association found in duration of disease with all the domains in present study, it is found that the patient having duration of diabetes for less than 10 years have higher quality of life. Alike it, another study also concluded that as the duration of disease increases, the quality of life decreases. So, the disease becomes highly advanced with increasing the duration of disease which caused poor quality of life (Javanbakht et al., 2012; Sepulveda et al., 2015).

The finding of the present study shows that there is no significant association between gender (<p=0.131) and age (<p=0.181) with overall quality of life. This finding is supported by a study conducted in Nepal (Sharma et al., 2016). In contrast, patient's age and gender were significantly associated with HRQOL.[3, 14]

The finding of the study demonstrates that there is significant association in education (<p=0.041) with overall quality of life. Similarly, education was

found to have lower HRQOL in study conducted in Iran and India. This concluded that education helps to maintaining the standard of life.[10, 12, 15] This study demonstrates no significant association between economic activities (<p=0.388) and overall quality of life. However significant association is observed with economic activities and overall quality of life.[15]

The current study reveals no significant association exist in family history of diabetes (<p=0.596) and overall QOL. In contrast, contradictory finding was revealed by the study.[13]

Significant association is found between comorbid condition and overall quality of life along with all the domains. It is found that the patient not having comorbid illness had better quality of life. Finding is supported by another study where, it is found that the patients without comorbid condition had a better QoL than the patients with comorbidity.[16] The patient having comorbid illness may have poor quality of life because of the burden of several illness.

The study was conducted in only one setting in small sample size, so the finding might not be generalized in other setting. The study does not reveal the economic interpretation. Since the study design used is cross sectional in nature, causal relationship between the variables could not be established.

CONCLUSION

This study concluded that the overall HRQOL is good in patient less than 54 years, male, married, patient having family history of diabetes, duration of diabetes less than 10 years, absence of comorbidity and complications and the patients taking insulin. Higher score is found in environment domain. Similarly, the lowest scores is found in social domain. Significant statistical association was found in overall quality of life with level of education, type of family, presence of comorbid illness and complications. The social support such as safety, security, quality health care, counseling family and family support are needed to help to improve the quality of life of diabetic patients.

Acknowledgement

Researcher is truly grateful to authority of Diabetes, Thyroid and Endocrinology Care Center for granting permission to carry out this study, Mental Health Division, WHO, Switzerland for providing the permission to use research tool, WHOQOL-BREF and University of Grant Commission for funding the study.

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