

Health Related Quality of Life of Diabetic Patients

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ABSTRACT

Background

Diabetes mellitus is a common and serious global health problem. In Nepal, it is a major expanding non communicable disease that has a number of chronic effects, accompanied by marked reduction in the health related quality of life (HRQOL). Assessment of health related quality of life mainly focuses on the effect of illness and impact of treatment on health.

Objective

The objective of this study was to identify the health related quality of life of diabetic patients.

Method

A descriptive cross sectional study was conducted among 116 diabetic patients attending Diabetes, Thyroid and Endocrinology Care Center, Pokhara. Non probability purposive sampling technique was used. Data was collected using World Health Organization Quality Of Life - BREF tool and analysed using descriptive and inferential statistics such as frequency, percentage, mean, standard deviation, median, interquartile range, Mann Whitney U test, Kruskal Wallis test and Spearman's correlation coefficient test.

Result

The median score of HRQOL was 244 (225-275). Statistically significant difference was observed in age ($p<0.001$), sex ($p=0.043$), living status ($p=0.012$), education ($p=0.001$), duration of illness ($p=0.038$) and co-morbidity ($p<0.001$) with overall health related quality of life. Physical domain had strongest correlation ($p<0.000$) with overall quality of life.

Conclusion

Diabetic patients have higher health related quality of life in the physical and social domain. Young adults, male, literate, living with spouse, duration of diabetes for less than 10 years and those without comorbidity have higher health related quality of life. Integration of routine counselling programme will be helpful in promoting health related quality of life of diabetic patients.

KEY WORDS

Diabetes, Diabetic patients, Health related quality of life

INTRODUCTION

Diabetes is a chronic disease with a considerable impact on the health status and quality of life. It has increased in association with rapid socio-cultural changes, ageing populations, increasing urbanization, dietary changes, reduced physical activity and other unhealthy lifestyle and behavioural patterns. Globally, an estimated 422 million adults were living with diabetes in 2014. It is ranked as the 4th leading cause of death.¹ Asian countries contribute to more than 60% of the world's diabetic population. In Nepal it has become a disease that is found in almost each and every urban household.² According to the International Diabetes Federation, there were 5,26,000 cases of diabetes in Nepal in 2015.³

Diabetes requires lifelong self care management with fundamental change in the lifestyle. Most people often feel challenged by its day to day management demands. Moreover diabetes has a number of chronic effects accompanied by marked reduction in the health related quality of life (HRQOL).⁴ In a study conducted in Kathmandu; HRQOL was found to be strongly reduced in diabetic patients.⁵ Similarly 42% of the diabetic patients were found to have poor quality of life (QOL) in Biratnagar, Nepal.⁶ However very few research studies are being reported regarding this from Pokhara.

Quality of life is an important aspect in diabetes because poor QOL leads to diminished self-care and increased risks for complications.⁷ Thus, improving HRQOL has been an important aspect of health care management in the diabetic population. Therefore the purpose of this study was to find out the HRQOL of diabetic patients.

METHODS

A descriptive cross sectional study was conducted among 116 diabetic patients attending Diabetes, Thyroid and Endocrinology Care Center, Pokhara. Data was collected for a period of four weeks. Based on previous study, sample size of 108 was determined by taking, mean score (54) and standard deviation (7.4) of overall quality of life score at 95% confidence interval.⁸ Respondents older than 21 years of age being diagnosed as type II diabetes for more than six months were selected by non probability purposive sampling technique. World Health Organization Quality Of Life – BREF (WHOQOL-BREF) tool in Nepali version was used to assess HRQOL after obtaining permission from the WHO.⁹ It is an abbreviated 26 item version of the original WHOQOL-100 with four domains: physical, psychological, social and environment domain. Each item measures in a 5 point likert scale, with higher scores denoting a higher QOL and lower score indicating a lower QOL. The raw scores of each domain were transformed into 0-100 scale as per guideline. Reliability in terms of internal consistency of the tool was tested with Cronbach's α (0.762).

Data was collected using semi structured interview schedule and entered into IBM SPSS version 20. Descriptive statistics

such as frequency, percentage and median were used to find out the HRQOL. Mann Whitney U test and Kruskal wallis test were used to find out the difference in socio-demographic and disease related variables with HRQOL. Spearman's Rank correlation coefficient was used to find out the correlation between four domains and overall HRQOL. The level of significance was considered at 5% with p value < .05. Ethical clearance was obtained from the Institutional Review Board of TU, IOM. Informed written consent was taken from each respondent. Confidentiality and privacy was maintained. After data collection, necessary health information (for 5-10 minutes) to each respondent was given based on their queries.

Table 1. Socio-demographic characteristics (n=116)

Socio-demographic Variables	Number	Percentage
Age in years		
21-39	15	15
40-59	64	64
60 and above	37	37
Mean age in years \pm SD	53.84 \pm 11.52	
Sex		
Male	60	51.7
Female	56	48.3
Ethnicity		
Relatively Advantaged Janajati	58	50.0
Upper Caste Group	45	38.8
Dalit	8	6.9
Others	5	4.3
Place of residence		
Urban	103	88.8
Rural	13	11.2
Living status		
With spouse	104	89.7
Without spouse	12	10.4
Education		
Illiterate	26	22.4
Literate	90	77.6
Informal education		
Primary	11	12.2
Secondary	30	33.3
Higher secondary	16	17.8
Bachelor and above	19	21.1
Occupation		
Homemaker	39	33.6
Business	29	25.0
Retired	17	14.7
Service	16	13.8
Agriculture	13	11.2
Unemployed	2	1.7
Type of family		
Nuclear	48	41.4
Joint	68	58.6

RESULTS

A total of 116 diabetic patients were enrolled in the study. Their socio-demographic and characteristics are shown in table 1. More than half (55.2%) of the diabetic patients were between the age group 40-59 years with mean age 53.84 ± 11.52 years. Regarding disease related characteristics, 47.4% had family history of diabetes and the duration was less than five years in 46% of patients. Majority of them (86.2%) were on oral hypoglycemic drug therapy and comorbidity was present in 46.6% of patients (Table 2). Hypertension (81.48%) was the most common comorbid illness followed by hypothyroidism (27.77%).

Table 2. Distribution of Disease Related Characteristics of Diabetic Patients (n=116)

Characteristics	Number	Percentage
Family history of diabetes		
Yes	55	47.4
No	61	52.6
Duration of diabetes		
6 month to 5 years	54	46.6
5-10 years	28	24.1
≥ 10 years	34	29.3
Type of treatment		
Oral hypoglycaemic drugs	100	86.2
Injectable drugs (insulin)	10	8.6
Both	6	5.2
Comorbid illness		
Yes	54	46.6
No	62	53.4

Table 3. Perception of QOL and Health Status of Diabetic Patients (n=116)

Response	Number	Percentage
Perception of QOL		
Poor	16	13.8
Neither poor / nor good	78	67.3
Good	22	18.9
Perception of Health Status		
Dissatisfied	27	23.2
Neither satisfied nor dissatisfied	54	46.6
Satisfied	35	30.2

The WHOQOL-BREF instrument was used to assess HRQOL. Whereby 18.9% perceived their quality of life to be good and 30.2% were satisfied with their health status (Table 3). The overall quality of life median score was 244 (225 to 275). However highest median score was observed in physical and social domain; 69 (56-73.5) and 69 (56-75) respectively and lowest in environmental domain 59.5 (56-

63). All the domains were positively correlated with the overall QOL (Table 4).

Table 4. Median Scores of QOL in Different Domains and their Correlation with Overall QOL (n=116)

Domains	Median (Inter-quartile Range)	Correlation with overall QOL	p-value
Physical	69.0 (56.0-73.5)	0.784	.000
Psychological	63.0 (56.0-69.0)	0.778	.000
Social	69.0 (56.0-75.0)	0.683	.000
Environmental	59.5 (56.0-63.0)	0.643	.000
Overall QOL	244.0 (225.0-275.0)	-	-

In domain wise analysis, statistically significant difference was observed in age ($p < 0.001$), sex ($p = 0.002$), occupational status ($p = 0.009$), educational status ($p < 0.001$), duration of diabetes ($p = 0.007$), comorbidity ($p < 0.001$) with physical domain; in place of residence ($p = 0.037$), educational status ($p = 0.014$), comorbidity ($p = 0.006$) with psychological domain; in age ($p = 0.002$), and living status ($p < 0.001$) with social domain and in comorbidity ($p = 0.046$) with environmental domain of quality of life (Table 5).

Similarly statistically significant difference was observed in age ($p < 0.001$), sex ($p = 0.043$), living status ($p = 0.012$), education ($p = 0.001$), duration of illness ($p = 0.038$), comorbidity ($p < 0.001$) and overall quality of life score. Young adults (21-39 yrs), male, literate, those living with spouse, duration of diabetes for less than ten years with no history of comorbidity were found to have comparatively higher quality of life (Table 6).

DISCUSSION

Diabetes mellitus is a chronic disease with a number of chronic effects, including disability, cardiovascular disease, kidney disease and blindness accompanied by marked reduction in the HRQOL.⁴ In this study we found hypertension (81.48%) as the most common comorbidity among diabetic patients which is in accordance with the previous study in Serbia (75.96%).¹⁰ This might be due to the atherosclerotic changes caused by high blood glucose in blood. Our study found that only 18.9% of diabetic patients perceived to have good quality of life whereas in a study conducted in India, 72% perceived to have good quality of life, which is higher than our results.¹¹ This difference might be due to poor knowledge, attitude and practices among diabetic patients in Nepal.¹²

Our study reveals that the median score is highest in the physical and social domain. In physical domain the score is 69 (56-74), which is higher than 58.05 reported from Tamil Nadu, India and 53.84 ± 17.09 reported from Iran.^{11,13} The differences might be due to variation in characteristics of sample. Similarly the median score in social domain is 69 (56-75). This finding is supported by the previous study done in Iran (65.08 ± 14.87) and by Gholami et

Table 5. Difference in Socio-Demographic and Disease related Variables with Social Domain Score of Diabetic Patients (n=116)

Socio-demographic Variables	N (%)	Median score			
		Physical domain	Psychological domain	Social domain	Environmental domain
Age in years					
21-39	15(12.9)	69	63	75	63
40-59	64(55.2)	69	63	69	56
60 and above	37(31.9)	56	56	56	63
		p<0.001*	p=0.081	p=0.002*	p=0.241
Sex					
Male	60(51.7)	69	63	69	59.5
Female	56(48.3)	63	56	56	59.5
		p=0.002*	p=0.194	p=0.815	p=0.835
Place of residence					
Urban	103(88.8)	69	63	69	63
Rural	13(11.2)	63	56	56	56
		p=0.597	p=0.037*	p=0.820	p=0.071
Living status					
With spouse	104(89.7)	69	63	69	69
Without spouse	12(10.3)	56	63	44	44
		p=0.161	p=0.561	p<0.001*	p=0.562
Occupational status					
Employed	58(50.0)	69	63	69	56
Unemployed	58(50.0)	63	56	56	63
		p=0.009*	p=0.244	p=0.302	p=0.058
Education status					
Literate	90(77.6)	69	69	69	63
Illiterate	26(22.4)	56	56	56	56
		p<0.001*	p=0.014*	p=0.153	p=0.057
Family history of diabetes					
Yes	55(47.4)	69	63	69	63
No	61(52.6)	63	56	56	56
		p=0.564	p=0.329	p=0.263	p=0.086
Duration of illness					
<10 years	82(70.7)	69	63	69	63
>10 years	34(29.3)	63	59.5	56	56
		p=0.007*	p=0.489	p=0.057	p=0.682
Comorbidity					
Yes	54 (46.6)	56	56	56	56
No	62 (53.4)	69	69	69	63
		p<0.001*	p=0.006*	p=0.245	p=0.046*

*p value significant at < .05

Table 6. Difference in Socio-Demographic and Disease related Variables with Overall QOL Score of Diabetic Patients (n=116)

Socio-demographic Variables	Number	(%)	Median score	Statistical value	p value
Age in years					
21-39*	15	12.9	269.0	16.30^	<.001*
40-59	64	55.2	253.5		
60 and above	37	31.9	237.0		
Sex					
Male	60	51.7	254.0	1314.0#	.043*
Female	56	48.3	244.0		
Place of residence					
Urban	13	11.2	237.0	507.5#	0.156
Rural	103	88.8	250.0		
Living status					
With spouse	104	89.7	250.0	348.0#	.012*
Without spouse	12	10.3	235.5		
Occupational status					
Employed	58	50.0	254.0	1380.0#	.096
Unemployed	58	50.0	244.0		
Education status					
Literate	90	77.6	250.0	660.0#	.001*
Illiterate	26	22.4	228.0		
Family history of diabetes					
Yes	55	47.4	250.0	1499.0#	0.323
No	61	52.6	244.0		
Duration of illness					
<10 years	82	70.7	257.0	1051.5#	.038*
>10 years	34	29.3	239.0		
Comorbidity					
Yes	54	46.6	234.5	963.5#	<.001*
No	62	53.4	263.0		

^Kruskal Wallis test, #Mann Whitney U test, *p value significant at < .05.

al.^{13,14} However similar study done in Tamil Nadu, India reported lowest quality of life in social domain (45.25).¹¹ The differences may be due to sociocultural variations and the highest score in social domain in this study could be explained by the high proportion (89.7%) of the diabetic patient living with spouses and in joint family (58.6%).

Study conducted in Iran by Gholami et al. found lowest mean score in psychological domain.¹⁴ However the score is 63 (56-69) in our study which is comparable with previous study in India with the score of 62.21.¹¹ The score is lowest in environmental domain 59.5 (56-63) in this study. In contrast the score is reported to be highest (66.03) in Tamil Nadu, India.¹¹ The facets measured in the WHOQOL BREF instrument pertaining to environmental QOL are condition of living place, access to health care and transport facilities. The fact regarding poor transportation facilities, poor public health infrastructure and access in our context might have influence this result.

In this study we found a significant difference in age with; physical domain ($p < 0.001$), social domain ($p = 0.002$) and overall QOL ($p < 0.001$). Those who belong to age group 21-39 yrs have higher quality of life. This finding is consistent with the study conducted in Biratnagar, Nepal, Iran and Uganda.^{6,14,15} Older the age, higher the complication may be the possible reason for this result.¹⁶ The overall QOL is higher in male in the present study. Various studies also found significant difference in gender suggesting better QOL in male.^{11,17} This may be due to the fact of biological differences as females undergo through various hormonal changes during reproductive age, causing hormonal fluctuation further impairing HRQOL.¹⁸

In this study, we found a significant differences in living status with; social domain ($p < 0.001$) and overall QOL ($p = 0.012$). QOL is higher in those living with spouses. This finding is in accordance with the findings of previous study conducted among Pakistani and Swedish populations.^{19,20} Further our study reveal that employed group have higher QOL in regard to physical domain. Similar type of result was found in a study conducted in Pakistan.¹⁹ This can be attributed to the fact that those who are working are physically active than those who are unemployed. However a slightly higher number of employed respondents (21.4%) reported poor QOL in Nigeria.²¹ The disparity might be due to variation in nature of the job and working environment of respondents.

Overall QOL is found to be higher among literate groups especially in regard to physical and psychological domain in our study. This finding is consistent with the findings of previous studies.^{17,19} Furthermore patients diagnosed with diabetes for less than 10 years have higher QOL. The findings of the current study is in accordance with previous studies.^{8,22} It is due to the fact that diabetes complication rises with the increase in the disease duration, that negatively affects the patients QOL.¹³

In this study, we found that the patients with comorbidity have lower QOL in all domains which is in accordance with previous studies in Serbia and India, whereby QOL was

assessed low in patients with comorbidity.^{10,22} This can be due to the fact that diabetes along with comorbidity have 2-3 fold increased risk of complications that impairs HRQOL.²

Our study was carried out at a single centre in Nepal using purposive sampling hence the findings may not be generalized for Nepali patients. Factor such as socioeconomic status may have confounded the outcome of the study. To evaluate impact of therapeutic interventions on QOL of diabetics, a prospective study with follow up visits can be undertaken.

CONCLUSION

This study concludes that the overall QOL is decreased in diabetic patients. However, higher QOL is observed in social and physical domain and lowest in environmental domain. Statistically significant difference is observed in age, sex, living status, education, duration of illness and comorbidity with overall QOL. Young adult, male, literate, living with spouse, duration of diabetes for less than 10 years and those without comorbidity had higher HRQOL. Therefore the study concludes the need of conducting counselling session routinely and special attention to be provided to vulnerable group; older and female population with lower HRQOL.

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