Original Article

Factors Associated with Health-Related Quality of Life among Nepalese Patients with Type 2 Diabetes Mellitus: A Cross-Sectional Study

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Abstract

Introduction: Diabetes is a chronic disease with a considerable impact on the health status and quality of life. Studies have shown that health-related quality of life (HR-QoL) among diabetics is much lower than those reported among non-diabetics. The aim of this study was to find out factors influencing the HR-QoL among diabetic people.

Methods: A descriptive, cross-sectional study was done in Tribhuvan University Teaching Hospital, Kathmandu. A total of 108 adult diabetic clients were selected using non-probability purposive sampling and information on quality of life (QoL) collected by using World Health Organization Quality of Life Questionnaire through interview method. Descriptive and inferential statistics [independent sample t test, one way ANOVA and Post hoc analysis (LSD)] were done to describe the respondent's QoL scores.

Results: According to scoring manual of QoL scores, higher the score better the QoL. The study revealed client of young age group had scored significantly higher score (65.9±8.9, 62.9±12.6, 69.9±11.7) in three domains i.e. physical, psychological, and social domain respectively. Educated clients with higher secondary and above level scored significantly higher score (61.7±16.5, 57.0±16.7, and 61.8±11.8) in three domains i.e. physical, psychological, and environmental domain respectively. Unmarried clients scored significantly higher score (65.7±10.8) in social domain only. Clients with duration for 6 months to one year of diagnosis of diabetes and higher economic class scored significantly higher score (61.4±10.1, 57.0±13.2, 64.5±16.2, 60.4±11.2 & 59.5±16.2, 57.9±16.2, 68.2±18.4, 56.8±13.5 &) in entire four domains respectively. Equally, clients with none of diabetes related complications scored higher (58.7±12.3, 55.5±15.0, 63.3±16.9 & 56.1±10.3) in all four domains.

Conclusion: Study concludes that factors related to lower quality of life among diabetic clients included: older age, less educated, lower economic class, longer duration of diagnosis, type of complications, and counseling on diabetes. Thus, diabetes management should not only focus mainly on clinical outcomes but also on patients' perceived outcomes, which reflect a person's quality of life and a better compliance with the diabetes management.

Key words: DM, health-related quality of life (HR-QoL), QoL scores

Introduction

Diabetes mellitus is one of the chronic diseases which cause a considerable morbidity and mortality worldwide[1]. Globally, the majority of the 382 million people with diabetes are aged 40–59 years; 80% of them live in low- and middle-income countries[2]. It is estimated that the number of diabetic patients would increase from171 million in 2000 to 366 million in 2030[3]. In particular, the diabetes prevalence among Asian populations is increasing rapidly, driven largely by economic development, nutrition transition, and

sedentary lifestyles affecting young and middle aged population disproportionately[4].

Like all other developed and developing countries, the prevalence and the incidence of type 2 diabetes mellitus (DM) are also increasing in Nepal[5,6]. There exists a rural-urban divide in diabetes prevalence: while 2.5% of the rural populations are living with diabetes, the prevalence is as high as 14.6% among the urban population. Kathmandu, the largest metropolitan city in Nepal has diabetes prevalence of 25.9%[6].

Health-related quality of life (HR-QoL) is an important outcome used in a wide variety of medical research to ascertain aspects of well-being in settings of health and disease. HR-QoL focuses on the aspects of an individual's life that is impinged on by health, disease and its treatment[7]. Since type 2 DM has been known to have altered self-esteem, challenged present existence and increased uncertainty about the future[8], change in life style and fear of long term consequences may lead to reduced HR-QoL[9]. Although clinical measures provide a good estimate of disease control, the ultimate objective of diabetes care is to improve the patient's HR-QoL. Several studies have identified several factors that influence the HR-QoL in patients with diabetes[10,11]. Despite its high prevalence and the importance of HR-QoL in the management of diabetes, little is known about the HR-QoL of patients with diabetes in Nepal. Against this background, the present study was conducted to assess factors influencing the HR-QoL of Nepalese patients with type 2 diabetes.

Methods

A descriptive, cross-sectional research design was used. The study was conducted at Tribhuvan University Teaching Hospital among adult diabetic clients to find out factors influencing the HR-QoL. A total of 108 diabetic clients who attended endocrine outpatient department were purposively selected and information on QoL was collected by using World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) through face to face interview method. Data were collected after obtaining permission from the Institutional Review Board (IRB) of Tribhuvan University, Institute of Medicine (TU, IOM) and concerned authorities. All the participants were requested for voluntary participation, and obtained the informed consent before collecting data. Data were analyzed using SPSS version 16. Descriptive and inferential statistics [independent sample t test, one way ANOVA and Post hoc analysis (LSD)] were done to describe the respondent's QoL scores.

Findings

The mean age of the respondents was 53.50 years. Most of them (82.4%) were married. 52.8% were of Brahman/Chhetri ethnic group. More than half of them (57.4%) had education level below or equal to SLC. Almost one third (29.6%) were engaged in household work. 61.8% were urban dwellers and nearly half (45.4%) belonged to lower economic class. 42% were living with diagnosed diabetes for one to five years and 14.8% of them had a diagnostic duration of more than 10 years. About one third of the respondents (31.5%) had cardiovascular complications (i.e. mainly hypertension) whereas very few (4.6%) had nerve related complications. Furthermore, 60.2% of the respondents had received health education or counseling on DM. Nurses was the main source of counseling in about 38.0% of them.

Findings of the study revealed that among total diabetic clients, age group 20-40 years reported significantly higher ($p=0.05$) QOL scores in the physical, psychological and social health compared to other age groups as tested by ANOVA and Post hoc. Though female diabetic clients had a lower score in the entire domain compared to male, there was no significant difference observed in overall QOL. Though ethnicity did not show any significant influence on quality of life score, however, Brahman/Chhetri group scored higher in all the four domain of WHOQOL score. Likewise, unmarried clients reported significantly higher QOL scores in the social health compared to married, separated and widow/widower (table 1).

Table 1: Age, Gender, Marital Status, Ethnicity and Quality of life of Diabetic Clients

n=108

Variables	No.	QOL scores of WHOQOL-BREF domains Mean ± SD			
		Physical	Psychological	Social	Environmental
Age					
20-40	21	65.9 ± 8.9	62.9 ± 12.6	69.9 ± 11.7	59.9 ± 11.2
41 -60	56	53.6 ± 15.1	48.7 ± 17.6	56.0 ± 18.6	53.7 ± 12.5
61 and above	31	44.0 ± 13.3	43.6 ± 16.0	53.6 ± 19.1	50.0 ± 14.8
		p = .000*	*p* =.000*	*p* =.003*	*p* =.031
Gender					
Female	47	51.2 ± 15.8	48.3 ± 19.1	56.2 ± 17.1	50.5 ± 14.0
Male	61	54.8 ± 15.0	51.3 ± 16.2	59.4 ± 19.5	56.4 ± 12.2
		p =.369	*p* =.186	*p* =.190	*p* =.210
Marital status					
Married	89	54.1 ± 14.8	51.8 ± 17.3	60.5 ± 17.7	55.5 ± 12.7
Unmarried	4	62.7 ± 5.3	58.0 ± 13.8	65.7 ± 10.8	51.5 ± 3.0
Separated	4	54.7 ± 6.1	47.0 ± 14.9	39.0 ± 12.9	51.5 ± 3.0
Widow/Widower	11	42.1 ± 20.3	33.4 ± 12.8	42.0 ± 17.3	42.1 ± 17.0
		p =.055	*p* =.007	*p* =.001*	*p* =.016
Ethnic group					
Brahaman/Chhetri	57	55.5 ±14.6	51.1±16.7	60.7±19.5	56.5±12.4
Janajati	40	50.6±17.2	48.2±19.4	54.2±18.3	51.4±14.4
Dalits	7	52.8±12.8	50.8±16.1	56.1±9.4	48.2±12.8
Others	4	48.5±7.5	50.0±13.7	61.0±12.9	50.0±8.4
		p =.439	*p* =.879	*p* =.384	*p* =.152

Respondents with higher secondary and above educational level had the highest score in the entire domain. Significant influence (p=0.01) of education on quality of life was seen in all three domains except social domain as tested by ANOVA. Regarding occupation, though others group which constitute students and social worker had the highest score in three domains i.e. psychological, social and environmental, service only had shown significant influence (p=.009) on physical domain of QOL score. Likewise, regarding residence, urban dwellers had the highest scores in all the four domains but significantly only for social domain (p=.009). As regards to the economic status, higher class had the highest score in the entire domains (table 2).

Table 2: Education, Occupation, Residence, Family Type and Quality of life of Diabetic Clients
n=108

Socio-demographic Variables	No.	QOL scores of WHOQOL-BREF domains Mean ± SD			
		Physical	Psychological	Social	Environmental
Education					
Illiterate	24	45.1 ± 13.8	39.5 ± 16.1	52.6 ± 16.9	44.9 ± 11.6
Up to SLC	62	53.4 ± 14.0	51.5 ± 16.7	57.9 ± 17.7	54.5 ± 12.4
Higher secondary & above	22	61.7 ± 16.5	57.0 ± 16.7	64.2 ± 21.0	61.8 ± 11.8
		p = .001*	*p* =.001*	*p* =.104	*p* =.000*
Occupation					
Home maker	32	48.0 ± 15.7	46.5 ± 18.7	57.2 ± 17.3	50.3 ± 14.6
Business	22	58.9 ± 14.8	55.2 ± 16.3	60.7 ± 18.3	58.3 ± 12.6
Agriculture	15	51.0 ±12.0	52.6 ± 17.4	57.1 ±16.2	51.2 ±10.8
Service	15	62.8 ±13.1	54.7 ± 17.9	62.5 ± 20.8	56.8 ±11.4
Retired	10	44.0 ± 19.9	43.4 ± 17.8	50.7 ± 21.9	52.0 ± 18.9
Daily wedges	9	54.7 ± 10.4	40.8 ± 13.2	47.8 ± 19.0	52.7 ± 5.5
Others	5	57.6 ± 9.3	57.4 ± 10.2	73.8 ± 5.0	61.2 ± 11.9
		p =.009*	*p* =.148	*p* =.152	*p* =.248
Residence					
Rural	42	49.0 ± 12.4	48.1 ± 16.8	56.1 ± 15.3	52.1 ± 11.9
Urban	66	55.9 ± 16.6	51.2 ± 17.9	59.2 ± 20.2	54.9 ± 14.0
		p =.076	*p* =.333	*p* =.009*	*p* =.092
Family type					
Joint	70	50.2 ± 14.3	47.3 ± 17.5	56.3 ± 17.5	51.6 ± 13.6
Nuclear	38	58.8 ± 15.8	54.8 ± 16.6	61.2 ± 20.0	58.0 ± 11.7
		p =.760	*p* =.684	*p* =.372	*p* =.491
Economic status					
Lower class	49	46.0 ± 13.2	42.8 ± 17.3	50.4 ± 17.1	47.7 ± 11.7
Middle class	47	59.2 ± 14.2	55.4 ± 15.3	63.4 ± 16.9	59.5 ± 12.2
Higher class	12	59.5 ± 16.2	57.9 ± 16.2	68.2 ± 18.4	56.8 ± 13.5
		p =.000*	*p* =.000*	*p* =.005*	*p* =.000*

* *p* significant at ≤ 0.05 level

Respondents having diagnosis for six months to one year and five years compare to more than five years and above had the highest score in the entire domains. Those having none of complications had the highest score in all four domains but significant only for physical domain (*p*=.007). As regards to the counseling on DM, those who had received counseling had higher score in the entire domain with a significant influence on Qol score in physical domain (*p*=.000) [table 3].

Table 3: Duration of Diagnosis, Complication of DM, Counseling, Sources of Counseling and Quality of life of Diabetic Clients

n=108

Variables	No.	QOL scores of WHOQOL-BREF domains Mean ± SD			
		Physical	Psychological	Social	Environmental
Duration of Diagnosis					
6mth-1year	27	61.4 ± 10.1	57.0 ± 13.2	64.5 ± 16.2	56.4 ± 8.5
1-5year	46	59.0 ± 12.4	57.2 ± 14.7	65.7 ± 14.6	60.4 ± 11.2
5-10year	19	44.6 ± 12.2	39.2 ± 11.2	44.7 ± 13.7	46.0 ± 12.2
>10year	16	32.2 ± 11.5	30.1 ± 16.3	40.6 ± 17.4	39.9 ± 12.1
		p =.000*	*p* =.005*	*p* =.000*	*p* =.000*
Complication of DM					
CV disease	34	49.9 ± 16.4	45.1 ± 18.5	53.6 ± 19.0	52.7 ± 15.2
Kidney disease	6	44.8 ± 22.2	45.8 ± 10.0	51.0 ± 18.8	44.8 ± 12.9
Nerve disease	5	42.8 ± 17.2	41.4 ± 17.0	57.4 ± 13.4	55.0 ± 16.3
Others	12	48.0 ± 13.9	45.9 ± 22.1	51.5 ± 21.0	51.1 ± 17.0
None	51	58.7 ± 12.3	55.5 ± 15.0	63.3 ± 16.9	56.1 ± 10.3
		p =.007*	*p* =.037	*p* =.072	*p* =.280
Counseling on DM					
Yes	65	54.4 ± 17.6	50.3 ± 18.0	59.6 ± 18.8	54.5 ± 14.0
No	43	51.5 ± 11.3	49.4 ± 16.8	55.6 ± 17.9	52.8 ± 12.1
		p =.000*	*p* =.311	*p* =.450	*p* =.319
Sources of counseling among received					
Nurse	41	53.8 ± 17.7	49 .0 ± 20.0	58.9 ± 19.0	53.3 ± 14.9
Doctor	22	55.2 ± 17.6	52.3 ± 14.2	60.5 ± 18.7	56.0 ± 12.2
Others	2	56.5 ± 26.1	56.5 ± 17.6	62.5 ± 26.1	62.5 ± 17.6
		p =.799	*p* =.849	*p* =.729	*p* =.633

* *p* significant at ≤ 0.05 level

Discussion

In this study, an attempt was made to assess the influence of demographic and clinical variables duration of diagnosis, complications of diabetes, and sources of health education or counseling among the diabetic clients.

This study revealed good quality of life among young age group (20-40 years) since they had scored significantly higher (p=0.05) score in three domains i.e. physical, psychological, and social health. Similar finding was reported by Al Hayek[12]which reported that respondents who were more than 50 years old had poor HR-QoL than less than 50 years age group. Likewise, a study done in Uganda reported that younger patients with diabetes have a better QOL than the aged people ones[13]. Though female diabetic clients had lower score in the entire domain compared to male, there was no significant difference observed in overall QOL. This finding is contradicted by the findings of Lindsay, Inverarity &

McDowell[14] which reported that males had significant deterioration in certain domains of their HR-QoL. This is probably because female clients felt that they were a burden to their families and were apprehensive about their condition.

Demographic characteristics like ethnicity did not show any significant influence on QOL score. Even though findings showed that unmarried clients reported significantly higher QOL scores in the social health and marital status had no significant influence on overall QOL score. Those educated at higher secondary and above level had a good QOL. Similar finding is reported by Liu[15] in China which showed that education level has a significant impact upon quality of life. Furthermore, the study findings of Glasgow et al.[16] in USA concluded less education and older age as significant factors for poor quality of life. Regarding occupation, service only had shown significant influence (p=.009) on physical domain of QOL score. Regarding residence, urban dwellers had the highest scores in all the four domains but significantly only for social domain (p=.009). Nevertheless, the study conducted by Mishra et al.[6] showed significant difference by residence status in physical health domain (p= 0.055). The study findings showed the good quality of life among the clients with higher economic status. This finding is supported by the study of Al Hayek[12] which reported that poor economic status was significantly associated with poor HR-QoL. Moreover, study by Lindsay, Inverarity & McDowell[14]also confirmed that people from low socioeconomic groups had significant deterioration in certain domains of their HRQOL.

Regarding clinical related variables, those having diagnosis for six months to one year and five years compare to more than five years and above had the highest score in the entire domains. This is also supported by the findings of Al Hayek[12]which reported that longer duration of diabetes was significantly associated with poor HR-QoL. Nevertheless, the study findings of Mishra et al.[6] found significant difference by years since diabetes diagnosis in physical health domain only (p-value = 0.068). Those having none of complications had the highest score in all four domains but significant only for physical domain (p =.007). This result is in line with the study findings which showed that individuals with diabetes-related complications had reduced HR-QoL. Stroke and neuropathy had a negative impact on overall HR-QoL in both types of diabetes[9]. Similar finding was reported by Wasem et al.[17]. Clients who had received counseling had higher score in the entire domain with a significant influence on Qol score in physical domain (p= .000). Ethnicity, family type did not show any significant influence on quality of life score. Likewise, source of counseling also showed no significant influence on quality of life score.

Conclusion

Clients of young age group had scored significantly higher score in three domains i.e. physical, psychological, and social domain. Educated client of higher secondary and above scored significantly higher score on three domains i.e. physical, psychological, and environmental domain. Unmarried clients scored significantly higher score in social domain. In addition, other group comprising of students and social workers scored significantly higher score in physical domain. Clients with duration for six months to one year of diagnosis of Diabetes and higher economic class scored significantly higher score in entire four domains. Equally, clients with none of diabetes related complications scored higher in all four domains. Hence, it can be concluded that counseling is foremost necessary to each clients with diabetes mellitus to understand the nature of disease, prevent complications and to develop individualized strategies to improve the quality of life.

Acknowledgements

This study was made possible by a grant from the Research Division, Tribhuvan University, Kirtipur, Kathmandu, Nepal. I acknowledge the support and cooperation of the staffs of the TUTH and equally thankful to all the respondents for valuable information.

Conflict of interest: None declared

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