Original Investigation

Assessment of Self-care practices, Treatment satisfaction and Quality of Life among Diabetes Type2 Patients in Pokhara, Nepal

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ABSTRACT

INTRODUCTION: Treatment satisfaction and health-related quality of life are related and important for successful treatment of diabetes patients. The main objective of this research is to assess the self-care practices, treatment satisfaction and quality of life among diabetes type2 patient in Pokhara. **MATERIALS AND METHODS:** A cross-sectional study was conducted among the diabetes type2 patients from June 2019 to December 2019 in Pokhara Metropolitan. The sample size for this study was 248. Consecutive sampling technique was used for the selection of participants. Interview schedule was used for doing face to face interview. A collection of questions adapted from Diabetes-39 and it was used as a tool for assessing the quality of life of the participants. The Nepali version of the D-39 instrument was pre-tested among 10% (25) of total sample in Metrocity hospital to check its simplicity before data collection. Likert scale of 5 points was used to assess treatment satisfaction. Chi-square test was obtained to find out the association between dependent and independent variables and crude odd ratio was calculated to measure the strength of association. **RESULTS:** Two-fourth (41.9%) of the participants were engaged in physical activity. Two-fifth (39.9%) of the participants test blood sugar monthly. About four-sixth (68.5%) of the participants had good quality of life and rest had poor quality of life. Almost all 98.0% were satisfied with the treatment. Factors such as age, sex, marital status, physical activity and duration of diabetes mellitus were associated with quality of life. **CONCLUSIONS:** The study showed that physical activities should be focused to promote healthier life. One should focus on promoting a self-care practices in order to prevent the complication of disease. Quality of life can be achieved through adequate self-care practice, proper treatment and counselling.

Keywords: Diabetes, satisfaction, self-care, quality of life.

INTRODUCTION

Diabetes mellitus (DM) is characterized by an increase in blood glucose levels due to insulin deficiency and/or resistance. It is regarded as one of the major threats to public health. There are 2 main types of DM: type1 diabetes mellitus (T1DM), and type2 diabetes mellitus (T2DM) in which type1 TIDM is caused by the destruction of pancreatic β-cells; and type2 diabetes mellitus (T2DM) caused by insulin resistance or impaired insulin secretion. T2DM is the most prevalent form of diabetes, patients are more likely to develop damage occur to tiny blood vessels and nerves [1]. It is a chronic disease that requires a regular medical care along with patient education, self-care, lifestyle modifications and support by the individual to prevent the risk of associated co-morbidities. It has also considerable impact on health status, quality of life and limit's patient's routine activities in terms of physical, social and psychological well-being [2].

Self-care practices for healthy lifestyle consisting of regular exercise, limited alcohol and no tobacco use and a healthy diet consisting of fruit and vegetables, less sugar, salt and saturated fats can contribute to the prevention of NCDs such as diabetes [3]. Knowledge of diabetes mellitus assist in early detection of the disease and reduce the incidence of complications. Levels of knowledge about diabetes among the at-risk population and among those who suffer from the disease are

unknown, but more knowledge is associated with better self-care practices [4].

The Diabetes Treatment Satisfaction assess patient satisfaction with the diabetes treatment such as insulin analogs, incretion-based therapy etc. Treatment satisfaction not only used for comparisons between treatment strategies, but also can be used to assess the quality of diabetes care in clinical settings. This is important as an improvement in treatment satisfaction may increase patients' self-efficacy and adherence to therapy, leading to the achievement of reduced risk of diabetic complications [5].

Quality of life represents the effects of an illness on a patient and helps to provide information to medical or epidemiological data. It can predict individual's capacity to manage his disease and maintain long term health and wellbeing [2]. Quality of life is analyzed in terms of their relationships with the following factors: basic attributes, physical factors (glaciated hemoglobin level, complications, comorbidities, and symptoms), social factors (support, education, and financial status), and cognitive factors (knowledge, attitude, self-efficacy, and self-management behavior) [6]. The prevalence of NCDs including type 2 diabetes is rapidly increasing in Nepal. Globally, diabetes is ranked as the 4th leading cause of death in terms of disease also people with diabetes feel challenged by their disease and its day to day management demands [13]. There is a need to prioritize diabetes on the public health care agenda in Nepal through the promotion of preventive measures such as dietary pattern, exercises, and regular check-up [8]. Self-management for people with diabetes is widely recognized as a necessary part of treatment. The patient is responsible for the day-to-day management of their disease [10]. Treatment satisfaction and health-related quality of life are related and important for successful treatment of diabetes. It has been reported that improved quality of life leads to improved adherence with medication and poor adherence contributes to poor glycemic control [11]. The QOL of patients diagnosed with type 2 DM is affected by their educational status, marital status, occupation and presence of DM complication [12]. Treatment and management of diabetes is a major challenge in Nepal, for reasons such as low disease awareness and unhealthy behaviors among the population [9]. Therefore this study aims to assess the self-care

practices, treatment satisfaction and quality of life among diabetes type2 patients in Pokhara.

MATERIALS AND METHODS

Study design and setting
A cross-sectional study was conducted among the diabetes type2 patients from June 2019 to December 2019 in Pokhara Metropolitan, Gandaki Province, Nepal. Pokhara is a metropolitan city in Nepal. It is the capital of the province of Gandaki. After Kathmandu, it has the second most people in Nepal, with 518,452 people living in 101,669 homes in 2021. It has the most land area of any big city in the country.

Participants, sample size and sampling technique
Two hundred forty-eight type 2 diabetic patients were selected using consecutive sampling. The minimum required sample size of 236 was calculated using the formula n = Z2 pq/d2 (Where, z = 1.96, p = 19.0% [8], q = 1-p, and d = allowable error of known prevalence, i.e., 5%). Non- response rate of 5% [14] was added and then sample size of 248 was obtained. Patients who were > 20 years and diagnosed for at least 1 year were included. The steps of sampling was performed as: Step 1: Listing all the hospitals and diabetic centers in Pokhara. Step 2: Selection of 1/3rd centers and hospitals as per the simple random sampling. Step 3: Sample was selected depending upon the proportion of patients flow. Step 4: Data were collected after the opening of diabetes centers and hospitals using consecutive sampling.

Data collection procedure and study variables
Face to face interview was used for the gathering of information with an interview schedule. Reliability and validity were maintained by applying different methods together with pretest 10% i.e. 10 of the estimated sample. D-39 questionnaire was used to assess quality of life. Total 11 questions for treatment satisfaction was used. Likert scale of 5-point was used to calculate treatment satisfaction. The quality of life was measured on the basis of scale which was adopted from Global Quality of Life Scale. Responses were scored on a seven-point scale that ranged from ''not affected at all'' (score = 1) to ''extremely affected'' (score = 7). The domain scores were computed by summing the responses and then applying a linear transformation to a 0–100 scale. On a transformed scale of 0 - 100, a score closer to 0 indicated a poor QOL and a score closer

to 100 a good QOL. Score above 70 was considered to be good quality of life and below 70 was considered to be poor quality of life.

Statistical analysis and data management

EPI DATA and SPSS were used for the data entry; management and analysis were done as per my data analysis plan. Descriptive statistics (frequency/percentage/mean/SD) was calculated to study the characteristics of the participants where Chi-square test was used to find the association between dependent and independent variables.

Ethical considerations

Ethical approval for the conductivity of the study was taken from the Institutional Review Committee (IRC) [Ref. number 58/076/077], Pokhara University. Written informed consent was obtained from each participant. Withdrawal from the study was accepted anytime throughout the study. To maintain confidentiality, no personal name of the participant's was taken and unique identity number was used. Collected information was used only for the purpose of this study. Native language Nepali was used for the information assortment to the participant. The participant was counselled to continue self-care activities and related queries.

RESULTS

Table 1	Sociodemographic characteristics of participants	
Variables	**Frequency**	**Percentage**
Age		
31-40	10	4
41-50	79	31.9
51-60	73	29.4
61-70	63	25.4
71-80	22	8.9
>80	1	0.4
Mean (years) =55.76±10.625, Min=32, Max=85		
Sex		
Male	111	44.8
Female	137	55.2
Family type		
Nuclear	153	61.7
Joint	95	38.3
Education		
Illiterate	53	21.4
Literate	195	78.6
Individual income (NRs)		
≤13000	125	50.4
13000-30000	83	33.5
>30000	40	16.1
Median NRS.13000, Min=0 and Max=90000		

Socio-Demographic Characteristics: Out of 248 participants, more than one third of the participants 31.9% fall in the age group 41-50, 4% (10), 29.4% (73), 25.4%(63),8.9%(22) and 1% (1) fall in the age group 31-40, 51-60,61-70, 71-80,and >80 respectively. The mean age of the participants was 55.76±10.625 years. Similarly, more than half 55.2% were female and rest were male. Majority 61.7 % (153) of the participants had nuclear family and 38.3% (95) had joint family. Likewise, majority of the participants were literate (78.6%) and about half of the 50.4% of the participant's income was less than and equals to NRs 13000 (Table 1).

Table 2	Self-care practice characteristics of participants (n = 248)	
Variables	**Frequency**	**Percentage**
Current consumption of any tobacco products		
Yes	59	23.8
No	189	76.2
Consumption of drink that contains alcohol		
Yes	17	6.9
No	231	93.1
Do vigorous or moderate activities		
Yes	104	41.9
No	144	58.1
Inspect inside shoes every day		
Yes	116	46.8
No	132	53.2
Test blood sugar monthly		
Yes	99	39.9
No	149	60.1

Table 3	Health related characteristics of participants	
Variables	**Frequency**	**Percentage (%)**
Duration of DM in years		
≤10	227	91.5
>10	21	8.5
Median=4.00, Min=1,		
Presence of any co-morbidities		
Yes	102	41.1
No	146	58.9
Presence of diabetes in family		
Yes	60	24.2
No	188	75.8

Health related factors of participants: Most 91.5% of the participants had been suffering from diabetes for less than 10 or 10 years and rest had been suffering

for more than 10 years. 58.9% of the participants did not have any co-morbidity and rest had co-morbidities. Two third 75.8% of them did not have diabetes in their family and rest had genetical history of diabetes (Table 3). Anthropometric measurements: According to the BMI classification by WHO, majority 56.9% (141) of the participants had overweight, 25.8% (64), 16.5% (41) and 0.8% (2) were normal, obese class-I and underweight respectively (Table 4).

Table 1| Status of anthropometric measurements of participants (n = 248)

Variables	Frequency	Percentage
BMI classification by WHO		
Underweight (<18.5)	2	0.8
Normal (18.5-24.9)	64	25.8
Overweight (25.0-29.9)	141	56.9
Obese class-I (30.0-34.9)	41	16.5

Table 5| Treatment satisfaction and quality of life of participants (n = 248)

Variables	Frequency	Percentage
Overall treatment satisfaction		
Not satisfied	5	2.0
Satisfied	243	98.0
Quality of life		
Good QL	170	68.5
Poor QL	78	31.5
Mean=72.61		

Status of Treatment satisfaction and quality of life: Majority 98% of the participants were satisfied with the treatment and rest were not satisfied. More than half 68.5% of the participants had good quality of life and rest had poor quality of life (Table 5).

Table 6| Factors associated with quality of life among diabetes type2 patients (n = 248)

Variables	Quality of Life		Test of Significance	p- value	OR	95%CI
	Good QL	Poor QL				
Age						
<55	109(85.8%)	18 (14.2%)	x^2_1=36.044	<0.001	5.956	3.227-
≥55	61 (50.4%)	60(49.6%)				10.994
Sex						
Male	85 (76.6%)	26 (23.4%)	x^2_1 =6.007	0.014	2.000	1.144-
Female	85 (62.0%)	52 (38.0%)				3.496
Marital status						
Married	161(75.2%)	53 (24.8%)	x^2_1=32.358	<0.001	8.438	3.706-
Others	9(26.5%)	25(73.5%)				19.211
Family number						
≤4	116(68.6%)	53 (31.4%)	x^2_1=0.002	0.964	1.013	0.570
≥5	54(68.4%)	25(31.6%)				1.800
Education						
Illiterate	18(34.0%)	35(66.0%)	x^2_1=37.399	<0.001	0.145	0.075-
Literate	152(77.9%)	43(22.1%)				0.282
Employment status						
Employed	13(31.7%)	28(68.3%)	x^2_1=30.924	<0.001	0.148	0.071-
Unemployed	157(75.8%)	50(24.2%)				0.307
Individual income						
≤13000	64(51.2%)	61(48.8%)	x^2_1=35.183	<0.001	0.168	0.090-
>13000	106(86.2%)	17(13.8%)				0.313

Table 6| Continued						
Family income						
≤30000	82(59.4%)	56(40.6%)	$x^2{}_1$=12.024	<0.001	0.366	0.205-
>30000	88(80.0%)	22(20.0%)				0.652
Oil or fat mostly used for preparing food						
Mustard oil	9(36.0%)	16(64.0%)	$x^2{}_1$=15.885	<0.001	5.887	2.258-
Refined oil	161(72.2%)	62(27.8%)				15.347
Consumption of tobacco products						
Yes	29(49.2%)	30(50.8%)	$x^2{}_1$=15.597	<0.001	3.248	1.793-
No	141(74.6%)	48(25.4%)				6.018
Consumption of alcohol						
Yes	15(88.2%)	2(11.8%)	$x^2{}_1$=13.509	<0.001	0.329	0.179-
No	155(67.1%)	76(32.9%)				0.604
Physical activities						
Yes	84(80.8%)	20(19.2%)	$x^2{}_1$=12.408	<0.001	2.833	1.569-
No	86(59.7%)	58(40.3%)				5.113
Duration of Diabetes Mellitus						
≤5	126(72.4%)	48(27.6%)	$x^2{}_1$=4.041	0.044	1.790	1.011-
>5	44(59.5%)	30(40.5%)				3.167

Factors associated with quality of life: Out of 25 independent variables tested, 13 variables were found significantly associated with quality of life among diabetes type2 patients in Person's chi-square test (Table 6).

DISCUSSION

The present study aimed to assess the status of self-care practices, treatment satisfaction and quality of life among diabetes type2 patients in Pokhara. The study further assessed socio- demographic profile, self-care practices, anthropometric measurements, health related information and treatment satisfaction of participant. This chapter presents all the findings in comparison with those of the other studies. Quality of life represents the effects of an illness on a patient as perceived by the patient which yields complementary information to medical or epidemiological data [2]. Most of the studies reported that diabetes significantly affects the health-related quality of life of patients [2, 22]. In this study majority of the participants had good QOL.

In this study, majority 31.9% of the participants were in the age group 41-50 and the mean age of the participants was 55.76±10.625. Among the participants, majority 55.2% were female and rest were male. A study conducted in shows that majority 28.8% of the participants were 61–70 years of age and majority 71.9% of the participants were

female [15]. A study conducted in Ethiopia found that (29.4%) of respondents were in the age range of 40–49 and 50–59 years and the average age of the respondents was 51.1±10.6 years, and 56.6% of participants were female [22]. A study found that age strongly affected the QOL of diabetic patients [6]. A study conducted in Saudi Arabia found that there was no significant association between sex and quality of life [19]. But this study found that there was association between sex and quality of life. This study shows that majority 79.8% of the participants were Hindu and rest were Buddhist. In the study conducted in Nepal found that 80.86% were Hindu, 17.28% were Buddhist and 1.85% were Christian among the diabetes type 2 patients [21]. This study shows that majority 86.31% of the participants were married. Other studies also revealed that mostly married people were suffering from diabetes mellitus [17, 18, 19]. This study shows that marital status was not associated with quality of life also other study found that being married had negative effect on QOL [19].

According to this study, majority 76.2% of the participants did not consume tobacco products and rest 23.8% consumed tobacco products. A strong association was found between QOL in patients who consumed tobacco products and who did not consume tobacco products. In this study, majority 93.1% did not consume alcohol and 6.9% consumed

alcohol. In the study conducted in Nepal found that 94.3% did not smoke and 91.7% did not drink alcohol among the diabetes type 2 patients [20]. Majority 58.1% (144) of the participants did not do physical activity which is vigorous or moderate and rest 41.9% (104) did. Majority 53.8% (56) of the participants among 104 did physical activity for less or equals to 3 days and rest did for more than 3 days. Majority 87.5% (91) of the participants among 104 spent 60 or less than 60 minutes by doing physical activity. A study conducted in China found that 21.62% did not do exercise, 22.07% did exercise less than 3 hours per week, 20.7% did exercise from 3 to 6 hours per week, 36.14% did exercise more than 6 hour per week [18]. In this study association was found between physical activity and quality of life. Patients who did more physical exercise had a better QOL than those who did less physical exercise [7]. In this study no association was found between testing blood sugar monthly and quality of life. In the study conducted in China found that glucose check frequently did not associated with QOL [7].

This study found that majority 91.5% of the participants had been suffering from diabetes for less than 10 or 10 years and rest had been suffering for more than 10 years. A similar study from Saudi Arabia found that 48.8% people had been suffering from diabetes for less than 10 or 10 years [19]. In this study duration of diabetes was associated with QOL.

This study shows that majority 75.8% of the participants did not have any genetical history of diabetes and rest had genetical history of diabetes. A study from Saudi Arabia found that 22% had a family history of diabetes [19]. In the study among diabetes patients in Nepal participants with history of diabetes were 40.1% [20] where as another study conducted in Nepal found that 82.8% of patients had no family history of diabetes [21].

Majority 98.0% of the participants were satisfied with the overall treatment. Majority 82.3% of the participants were satisfied with the doctor's service rest were not satisfied. Majority 97.6% of the participants were satisfied with the pharmacist's service and rest were not satisfied. Majority 85.1% of the participants were satisfied with the counseling and rest were not satisfied. A study done in Germany noted that higher treatment satisfaction scores were associated with having received diabetes education [16]. A study done in Nepal found, 59.3% patients were 'neutral' in response to treatment for diabetes care and 46.3% were neutral in counselling related to treatment. Also 42.6% were 'slightly dissatisfied' to information related to medicine side-effects [17]. According to this study overall satisfaction, satisfaction with the doctor's service, satisfaction with the pharmacist's service and satisfaction with the counseling were not associated with quality of life. Another study found that treatment satisfaction was associated with quality of life [23].

CONCLUSIONS

The study assessed self-care practices, treatment satisfaction and quality of life among diabetes type2 patient in Pokhara. Almost all of the participants were satisfied with the treatment. About four-sixth of the participants had good quality of life. Emphasis should be given on promoting a quality of life of diabetic patients through self-care practices such as healthy diet, regular physical activity, and avoiding tobacco and alcohol use. Quality of life of patients diagnosed with type2 diabetes mellitus is affected by age, sex, marital status, education, ethnicity of the participant, employment status, income, consumption of tobacco and alcohol, physical activity and duration of diabetes mellitus. These data could be used in developing fruitful intervention program for our patients and in improving their quality of life.

manuscript. All of the above authors read and approved the final manuscript.

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