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Diabetes Self-Management Practices among Diabetic Patients Attending Chitwan Medical College Teaching Hospital

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ABSTRACT

Introduction: Diabetes is 'an age old common health issue that affects many people around the world. The majority of the diabetic population lives in low-and middle-income countries. Diabetes has badly affected individuals, families, and countries. This problem can be minimized and managed through effective self-management practices.

Objective: The present study aims to identify the level of self-management practices among type 2 diabetes mellitus patients.

Methods: A descriptive and analytical cross-sectional study design was used to assess diabetes self-management practices. A standard 'Summary of Diabetes Self-Care Activity' tool was adopted with few modifications after pretesting. This study was carried out among 191 samples with diabetes type-2 patients attending the outpatient department of Chitwan Medical College Teaching Hospital. The non-probability consecutive sampling method was adopted for data collection. Ethical principles were addressed during the study.

Results: Among the total participants, 51.8% had unsatisfactory diabetes self-management practices. Age, education, place of residence, religion, occupation, family history, comorbidity, duration of diagnosis, alcohol drinking, and smoking were associated with diabetes self-management practice. There were 55.5% male participants. The majority, 42.4% belonged to the age group 60 and above. The minimum age was 30, the maximum age was 94, and the mean age was 56.9 years. The majority (77%) of participants were literate.

Conclusions: This study revealed an unsatisfactory level of diabetes self-management practices. This finding implies that diabetes self-management practice-related education programs should be created and implemented for people who are impacted, as well as for those who provide care at home.

Keywords: Comorbidity; diabetes; practice; self-care; self-management.

INTRODUCTION

Diabetes is a serious, lifetime disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively utilize the insulin it produces. It is a non-communicable metabolic disorder caused as a result of increased blood glucose levels.[1] It is a global public health problem having high prevalence.[2] About 9% of individuals suffer from diabetes globally.[3] The prevalence of diabetes was found to be 8.5% in Nepal.[4] Diabetes is a preventable disease that causes disabilities, and

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deaths.[5] To decrease the burden of type 2 diabetes mellitus (T2DM), prevention is crucial.[6]

Diabetes self-management practices (DSMPs) are recommended according to many social determinants and health conditions.[7] There is a high occurrence of T2DM in South Asia.[8] Four main groups of non-communicable diseases (NCDs) are responsible for NCDs-related deaths in Nepal among which diabetes explicates approximately 4% of deaths annually.[9]

There are very limited studies that have been conducted regarding the existing practices of DSMPs among T2DM patients in Chitwan and Nepal. It is important to assess the level of DSMPs to adopt preventive measures according to existing levels. This study aimed to assess the existing DSMPs among T2DM patients attending Chitwan Medical College, Chitwan, Nepal.

METHODS

A descriptive and analytical cross-sectional study design was used. Chitwan Medical College Teaching Hospital (CMCTH), Chitwan was the place of study. The study was carried out from January to March 2021. The time of data collection was 8 a.m. to 4 p.m. A non-probability consecutive sampling method was used for data collection. Data were collected from the outpatient department of CMCTH till the sample size reached the limit. The sample size was calculated through Cochran's formula for the infinite population as below.

Sample size (n) = $(z^2pq)/e^2$.

Where,

Confidence interval (z) = constant which was 1.96 at 95% confidence interval (CI).

Estimated proportion in population (p) = 0.42. It was taken from a previous study.[10] q = 1-p= 0.58;

Allowable error/margin of error (e) was = 7% = 0.07

By extrapolation,

$= (1.96)^2*0.42*0.58/ (0.07)^2$

$= 191$

Hence, the sample size determined was 191 individuals with T2DM. All patients diagnosed with diabetes type -2 aged 30 years and above visiting CMCTH with a history of more than six months of duration were included in the study. Patients with gestational diabetes and those unable to communicate i.e., having hearing problems, problems with speech, and being mentally unstable were excluded. All T2DM patients attending CMCTH for treatment and follow-up during the study period were considered as the study population.

The data gathered was edited. Then the data were coded, entered, classified, tabulated, and analyzed

with the help of the IBM SPSS 20.0 version. The data were collected by a questionnaire which included a modified 'Summary of Diabetic Self-Care Activities' (SDSCA), the socio-demographic variables, and the diabetes profile. The instrument, SDSCA had 82% sensitivity and 77.0% specificity[11]. The semi-constructed questionnaire was checked for reliability. The reliability was revealed as 0.735 with the help of Cronbach's alpha by using the IBM SPSS 20 version. The instrument was developed as part of an extensive literature review, and a reverse translation was done to establish its validity. Internal validity was ensured by constructing a tool as per the research objective with necessary improvement on self-made questions. Consultation with experts was carried out for validation of the tools. Pretesting was done in CMCTH with 10% of the participants.

In the modified SDSCA, we studied four responses from the diet, two responses from exercise, two responses from foot care, and one from medication. Thus, to measure the level of practice, nine questions were asked. There was a scoring scale ranging from 0 to 7. Each participant had the possibility of scoring 0 which represents never practicing, and 63 representing the highest level of practice. A score equal to or above the median was considered satisfactory practice.

Ethical approval was obtained from the Institutional Ethical Review Committee of CMCTH (CMC-IRC/077/078-180). Informed written consent was obtained from the participants. Participants were assured about the privacy and confidentiality of their responses.

RESULTS

Socio-demographic characteristics

Out of 191 participants, 42.4% belonged to the age group 60 years and above. The mean age of the participants was 56.9 years, and the mean ±SD was 56.99±12.37. The minimum age was 30 years, and the maximum was 94 years. There were 55.5% males and 44.5% females. There were 77% literate and 23% illiterate participants. More than half, 59.2% of the participants were from urban areas. The percentage of married was 89.5%, and 90.6% followed the Hindu religion. Similarly, 57.6% were Khas, 55% were living in a nuclear family, 35.1% were housewives/househusbands, and 44.5% had a monthly household income of less than Rs. 50,000 per month (Table 1).

Table 1: Socio-demographic characteristics of diabetic patients attending CMCTH, 2020 (n=191).

Variables	Frequency	Percentage
Age (years)		
30-39	9	4.7

40-49	47	24.6
50-59	54	28.3
60 and above	81	42.4
Mean± SD= 56.99±12.37, Max=94, Min=30		
Sex		
Male	106	55.5
Female	85	44.5
Education		
Illiterate	52	27.2
Just literate	44	23
Primary (1-8)	28	14.7
Secondary (9-12)	37	19.4
Higher education	30	15.7
Residence		
Urban	113	59.2
Rural	78	40.8
Marital status		
Married	171	89.6
Divorced	1	0.5
Widow/widower	17	8.9
Unmarried	2	1
Religion		
Hinduism	173	90.6
Buddhism	10	5.2
Islam	3	1.6
Christianity	3	1.6
Others	2	1
Ethnicity		
Khas	110	57.6
Janajati	51	26.7
Dalit	13	6.8
Madeshi	17	8.9
Type of family	105	55
Nuclear	86	45
Joint/extended		
Occupation		
Agriculture	43	22.5
Business	29	15.2
Household works	67	35.1
Office jobs	13	6.8
Retired	21	11
Others	18	9.4
Monthly household income (Rs.)		
Less than 50,000	85	44.5
50,000	26	13.6
More than 50,000	80	41.9

Diabetes self-management practices

Out of the total participants, 48.2% had satisfactory, and 51.8% had an unsatisfactory level of diabetes self-management practices (Table 2).

Table 2: Level of diabetes self-management practices among participants in CMCTH, 2021 (n=191).

Level of practice	Frequency	Percentage
Satisfactory level: > = 42 median value	92	48.2
Unsatisfactory level: < 42 median value	99	51.8
Total	191	100

Median= 42, IQR= 20, Max score= 63, Min score= 9

Diabetes profile of the participants

Out of the total, 62.8% of the participants were diagnosed with diabetes for the first time between the age of 40-59 years with a median age of 48 years. The duration of diagnosis of 39.8% of participants was less than 4 years. There was no family history of diabetes in 58.6% of the participants. Out of 191 participants, only 4.7% had diabetes complications, 93.2% were non-smokers, and 86.9% did not consume alcohol (Table 3).

Table 3: Diabetes profile of diabetic patients attending CMCTH, 2021 (n=191).

Variables	Frequency	Percentage
Age at diagnosis		
20-39 years	30	15.7
40-59 years	120	62.8
60 and above years	41	21.5
Median age= 48, IQR=17, Max=88, Min=22		
Duration of diagnosis		
0-4 years	76	39.8
5-9 years	52	27.2
10 and above years	63	33
Median age=5, IQR=7, Max=30, Min=5.6 years		
Family history of diabetes		
Yes	79	41.4
No	112	58.6
Preference of health services*		

Traditional	12	6.3
Ayurveda	7	3.7
Homeopathy	5	2.6
Allopathy	190	99.5
Attitude toward health personnel		
Good	185	96.9
Bad	6	3.1
Source of information*		
Health personnel	191	100
Radio/TV/Newspaper	69	36.1
Mass Media	30	15.7
Family/relatives/friends	103	53.9
Comorbidity		
Yes	122	53.9
No	69	36.1
Diabetic complications (n=190, missing 1)		
Yes	9	4.7
No	181	95.3
Smoking habit		
Yes	13	6.8
No	178	93.2
Drinking habit		
Yes	25	13.1
No	166	86.9

* Multiple response

Association between the level of DSMPs and selected independent variables

There is an association between the level of diabetes self-management practices and independent variables such as age, religion, education, place of residence, occupation, family history, and presence of comorbidity, duration of diagnosis, drinking habit, and smoking habit of the participants. Some of the variables are dichotomized to facilitate the analysis i.e., literacy, religion, and occupation (Table 4).

Table 4: Association between the level of diabetes self-management practices and selected independent variables in CMCTH, 2021 (n=191).

Variables	Level of practices		Chi-square value	P-value
	Good (%)	Poor (%)		
Age				
Less than 60	48 (43.6)	62 (56.4)	6.98	0.008*
60 and above	51 (63)	30 (37)		

Sex				
Male	55 (51.9)	51 (48.1)	0.001	0.99
Female	44 (51.8)	41 (48.2)		
Literacy				
Illiterate	20 (38.5)	32 (61.5)	5.117	0.024*
Literate	79 (56.8)	60 (43.2)		
Residency				
Urban	69 (61.1)	44 (38.9)	9.441	0.002*
Rural	30 (38.5)	48 (61.5)		
Religion				
Hindu	93 (53.8)	80 (46.2)	4.848	0.028*
Other than Hindu	4 (25)	12 (75)		
Monthly income (Rs.)				
Less than 50,000	41 (48.2)	44 (51.8)	0.794	0.373
50,000 and more	58 (54.7)	48 (45.3)		
Occupation				
Housewife/househusband	56 (63.6)	32 (36.4)	9.107	0.003*
Outdoor works	43 (41.7)	60 (58.3)		
Family history of diabetes				
Yes	50 (63.3)	29 (36.7)	7.085	0.008*
No	49 (43.8)	63 (56.2)		
Drinking habit				
Yes	7 (28%)	18 (72)	6.544	0.011*
No	92 (55.4)	74 (44.6)		
Smoking habit				
Yes	3 (23.1)	10 (76.9)	4.620	0.032*
No	96 (53.9)	82 (46.1)		
Comorbidity				
Present	73 (59.8)	49 (40.2)	8.665	0.003*
Absent	26 (37.7)	43 (62.3)		
Duration of diagnosis				
0-4 years	29 (38.2)	47 (61.8)	9.514	0.009*
5-9 years	31 (59.6)	21 (40.4)		
10 and above years	39 (61.9)	24 (38.1)		

*Level of significance was 5%.

DISCUSSION

Diabetes creates a huge financial burden on individuals, families, and countries.[12] Diabetic people are prone to have a high risk of diseases including heart, peripheral artery, cardiovascular disease, obesity, cataracts, erectile dysfunction, non-alcoholic fatty liver, and some infections which can be easily minimized and managed

through diabetes self-management practices. Though it is not practiced by many, it is critical for the control of diabetes and its complications.[13] In our case, prevention is a behaviour undertaken by people who have developed diabetes to manage their health and quality of life.[14] One part of prevention is self-care for diabetes. How much impetus of education should be imparted to diabetic patients is determined by knowing the level of existing self-care practices of diabetic patients.

This study revealed that the majority of the participants had unsatisfactory diabetes self-management practices. The result entails the urgency to impart intensive health education on diabetes self-management practices to diabetic patients and their carers of the family. The present study revealed that 51.8% of participants had unsatisfactory practices. A previous study conducted in Nepal found that 25.16% of patients knew about all aspects of self-care but not the exact practices.[15] This finding was only the knowledge of diabetes self-management. A study conducted in Egypt identified that 49.91% of participants failed to adhere to self-care practices which is consistent with the result of our study.[16] The study conducted in Patan, Nepal found that 81% of the participants had good self-care practices.[17] It contradicts our finding which may be due to a higher literacy level in Patan as compared to Chitwan and adjacent areas from where patients visited the hospital. A previous study conducted in Nepal found that 46% of the participants had desirable self-care practices for diabetes management[18] which indicate that there were 54% of participants with undesirable practices. It is consistent with our study findings. Another study found that unsatisfactory self-care was associated with place of residence, duration of diabetes, and patients with comorbidities.[19] This is consistent with our study.

A study conducted in India found that 52.4% of the study population had poor self-care practices.[20] This finding is similar to our study which may be due to the common feature of rural participants. Similarly, a previous study found that among study participants, 43.45% had poor self-care practice scores.[21] This finding is dissimilar from our study which may be due to different levels of literacy. Whereas the participants in the previously described study had a relatively low degree of illiteracy (20.2%), our study had a high level of illiteracy (27.2%). This study might have a social desirability bias, concealing the respondents' true opinions or experiences. Furthermore, it was carried out in a single healthcare facility using non-probability consecutive sampling.

CONCLUSIONS

This study found that more than half of the participants had problems in managing their

diabetes through diabetes self-management practices. However, the result of the single study cannot be considered a strong foundation for making decisions.

The results suggest that intensive diabetes self-management practice-related education packages should be developed and implemented for those affected, and caregivers at home are indispensable. By using larger, more representative samples to enable the conclusions to be more broadly applied, this study serves as a foundation for future research.

Conflict of interest: None

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