Original Article

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Self-Care Practice Among Individuals with Diabetes Attending Selected Hospitals in Kathmandu, Nepal

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ABSTRACT

Introduction: Self-care is a cost-effective and essential practice that plays a vital role in preventing complications and enhancing the quality of life for individuals with diabetes. By improving self-care, it helps reduce the burden on healthcare systems and lowers overall healthcare costs. As self-care practices are highly individualized, this study aims to assess self-care behaviors among diabetic patients.

Methods: A cross-sectional descriptive study was conducted among 205 adult clients with diabetics attending the outpatient departments at two public university hospitals located at Kathmandu . Data were collected through structured interviews using a five-point Likert scale. Descriptive and inferential statistics were used for analysis. The self-care was assessed in terms of diet, physical exercise, medication adherence and self-monitoring of blood glucose level.

Results: In this study, nearly half (47.3%) of participants followed a calorie-counting diet, 64.4% ate meals on time, and 64.9% consumed dairy products. Over half of them regularly consumed cereals (53.2%) and green vegetables (52.7%). 76.1% ate lentils and 65.4% sometimes consumed beans. A majority of the respondents avoided high salt (68.3%), sugar (68.8%), and cold drinks (85.4%). Regarding physical activity, 66.8% engaged in 20–30 minutes of daily exercise; but, 83.9% did not perform brisk walking. Medication adherence was high, 99.5% taking prescribed doses and 92.6% did not change their medication without physician advice. Only 31.8% regularly monitored blood glucose, and 67.0% checked when needed without keeping records. Overall, 82.5% exhibited average self-care practices, with good medication adherence (92.7%) and an average dietary pattern (94.6%). A significant association was observed between age and self-care practices ($p<0.028$).

Conclusion: This study shows high medication adherence but highlights gaps in diet, exercise, and blood glucose monitoring practices. Regular structured education program for diabetes people in these areas could improve overall diabetes self-care thus potentially enhancing outcomes.

Keywords: Individual with diabetic, self-care, self-care practice.

INTRODUCTION

Diabetes is a major global health problem and up to 90% of cases attributed to type 2 diabetes[1]. According to the International Diabetes Federation (IDF), 463 million adults currently living with diabetes, projected number to reach 700 million by 2045, while 374 million are at high risk of developing type 2 diabetes. In the South-East Asian Region (SEAR), 88 million people are affected[2]. According to the World Health Organization (WHO), diabetes is the 7th leading cause of death among non-communicable

diseases globally, ranking 10th in high-income countries, 9th in lower-middle-income countries, and 6th in upper-middle-income countries[3]. In 2017, diabetes was the 11th most common cause of disability-adjusted life years (DALYs), with 1,226 DALYs per 10,000 people in Nepal.[4]

Several studies highlight poor self-care among diabetic patients. In India, one study found that 53.75% of diabetic patients had average self-care scores, 46% had poor scores, and only 0.25% had good scores, with significant positive correlations to socio-demographic factors such as age, income, and education.[5] Another study reported only 5.6% of patients exhibited good self-care, with the best adherence in glucose monitoring and the lowest in physical activity.[6] A study in Tamil Nadu found that 50% of participants engaged in regular exercise and 70% regularly monitored blood glucose. The overall self-care activity score was 47.9%, with age significantly associated with self-care activities ($p<0.05$).[7]

Diabetes is often considered a "whole life disease," requiring continuous self-care for optimal glycemic control.[8] Effective self-care includes daily physical activity, a healthy diet, smoking cessation, foot care, dental and eye care, stress management, and adequate fiber intake [9,10,11]. Improved adherence can be achieved through diabetes education and self-management support programs.[12] A study in Ethiopia showed that combining medication with a diabetic diet significantly reduced HbA1c levels.[13]

In Nepal, studies on diabetes self-care are limited. A study in Biratnagar reported that 50.4% of patients had poor self-care, with significant associations to demographic factors.[14] Similarly, a study in Kathmandu found inadequate self-care practices linked to low disease knowledge.[15] The prevalence of diabetes in Nepal increased from 7.75% (CI: 3.67–15.61) in 2010–2015 to 11.24% (CI: 7.89–15.77) in 2015–2020.[16] Improving self-care is a cost-effective and sustainable approach to addressing this growing burden, but remaining barriers are limited knowledge, cultural practice, inadequate counseling, financial constraints, low motivation, and limited support from families and healthcare providers [10,16,17]. Therefore, this study aims to assess the level of self-care practices and their association with selected variables.

METHODS

A cross-sectional descriptive study was conducted among 205 individuals with type 2 diabetes at the outpatient departments of Tribhuvan University Teaching Hospital (TUTH) and Manmohan Cardiothoracic Vascular and Transplant Centre (MCVTC). Participants were selected using purposive sampling based on the following criteria: aged 20 years or older, diagnosed with type 2 diabetes for at least six months, able to communicate in Nepali, and willing to participate.

Data were collected from February 3 to March 5, 2021, through face-to-face interviews using a structured Nepali-language questionnaire. The instrument consisted of two parts:

Part I covered 23 items on socio-demographic, behavioral, and disease-related characteristics.

Part II assessed self-care practices over the past 30 days across four domains—dietary pattern (14 items), physical activity (5 items), medication adherence (5 items), and self-monitoring of blood glucose (5 items)—using a five-point Likert scale (Always to Never). Responses were scored from 5 to 1 for positive items and reverse for negative ones.

Ethical approval was obtained from the Institutional Review Committee of the Institute of Medicine, Tribhuvan University. Informed consent was obtained, and confidentiality was maintained using coded identifiers. Only the Nepali version of the questionnaire was used.

Self-care scores were categorized as good (≥75%), average (50–74%), or poor (≤50%). Data were analyzed using SPSS version 20 with descriptive and inferential statistics; associations were tested using the chi-square test, with significance set at $p < 0.05$.

RESULTS

The demographic data shows that 33.7% of respondents were aged 51-60, with a mean age of 56.68 ± 11.4 years. The gender ratio was nearly equal, with 50.2% male and 49.8% female. Most respondents (86.8%) were married, and 54.1% belonged to the Brahmin/Chhetri caste. Regarding religion, 80.5% followed Hinduism. The majority (86.8%) lived in municipalities, and 64.4% were in joint families. Over half (50.7%) had a family history of diabetes, with 58.7% having a diabetic sibling. Nearly all (93.2%) received family support during treatment. Smoking/tobacco and alcohol use were low, at 13.2% and 11.7% respectively. Most respondents (83.9%) were literate, with 41.9% having a high school education. In terms of employment, 60.5% were employed, and 33.0% worked in agriculture.

The disease related information shows that 52.7% of respondents had diabetes for up to 5 years. Most (82.0%) had a comorbidity, with 72.6% having hypertension. A history of hospitalization was reported by 21.5%, and 42.9% had a glucometer at home. Nearly all (97.6%) received counseling, mostly from doctors (96.0%). The majority (79.5%) used oral hypoglycemic agents (OHA), and 58.5% visited the hospital for follow-up within three months.

Tables 1 to 4 present descriptive data on respondents' self-care practices across four domains: dietary pattern, physical activity, medication adherence, and self-monitoring of blood glucose. Tables 5 to 9 detail the overall levels of self-care practice and their associations with selected socio-demographic and disease-related variables.

Table 1: Response on Dietary Pattern among Diabetic Patients (n=205)

Items	Responses				
	5 No. (%)	4 No. (%)	3 No. (%)	2 No. (%)	1 No. (%)
Calorie count diet recommended by dietitian	39 (19.0)	97 (47.3)	53 (25.9)	12 (5.9)	4 (2.0)
Meals/Snacks on time	132 (64.4)	42 (20.5)	19 (9.3)	6 (2.9)	6 (2.9)
Cereal diet: wheat, barley, millet, maize, buck wheat	109 (53.2)	38 (18.5)	41 (20.0)	14 (6.8)	3 (1.5)
Protein diet beans and lentils	160 (78.0)	36 (17.6)	154 (75..2)	43 (20.6)	17 (8.3)
Protein diet meat and eggs	6 (2.9)	31 (15.1)	78 (38.0)	45 (22.0)	45 (22.0)
Fried foods*	1 (0.5)	-	4 (2.0)	83 (40.5)	117 (57.1)
Eating green vegetables	108 (52.7)	90 (43.9)	6 (2.9)	1 (0.5)	-
Eating select fruits as advice	90 (43.9)	43 (21.0)	57 (27.8)	10 (4.9)	5 (2.4)
Milk and milk product	133 (64.9)	15 (7.3)	24 (11.7)	13 (6.3)	20 (9.8)
High and added salt*	-	4 (2.0)	12 (5.9)	49 (23.9)	140 (68.3)
Using cold drinks*	-	-	1 (0.5)	29 (14.1)	175 (85.4)
Sugar, cake, chocolate, jam, honey*	4 (2.0)	2 (1.0)	6 (2.9)	52 (25.4)	141 (68.8)
Remember count calorie during festive/travelling	22 (10.7)	84 (41.0)	56 (27.3)	15 (7.3)	28 (13.7)

*Negative statement * Always=5, Often=4, Sometimes=3, rarely=2, Never=1*

Table 1 represents that less than half (47.3%) of the respondents often followed calorie count diet as recommended by dietitian. They always took meal and snacks on time, used milk and milk product, ate cereals diet took green vegetable, used lentils (64.4% always 64.9 %, 53.2%, 52.7%, 76.1%) respectively and 65.4% sometimes used beans. They never used fried foods, high and added salt, sugar, cold drinks (51 .7%, 68.3%, 68.8%, 85.4%) respectively.

Table 2: Response on Physical Activity among Diabetic Patients (n=205)

	Responses				
Items	**5 No. (%)**	**4 No. (%)**	**3 No. (%)**	**2 No. (%)**	**1 No. (%)**
Performed 20-30 minutes yoga/ meditation, walk daily	137 (66.8)	12 (5.9)	22 (10.7)	3 (1.5)	31 (15.1)
Performed 20-30 minutes brisk walk daily	8 (3.9)	4 (2.0)	8 (3.9)	13 (6.3)	172 (83.9)
Performed varieties types of exercise.	85 (41.5)	20(9.8)	42 (20.5)	9(4.4)	49 (23.9)
Took light breakfast before exercising	43 (21.0)	6 (2.9)	23 (11.2)	6 (2.9)	127(62.0)
Carried sweet or candy while walking/exercising	17(8.3)	1 (0.5)	7 (3.4)	4 (2.0)	176 85.9)

Always=5, Often=4, Sometimes=3, rarely=2, Never=1

Table 2 shows that majority (66.8%) of the respondents always performed 20 to 30 minutes' exercise. Most (83.9%) of the respondents never performed brisk walks. 41.5 % of the respondents always performed varieties types of exercise (e.g. labor work, carry luggage, household work etc.). 62.0% of the respondents never took breakfast before exercising. Most (85.9%) of the respondents never carried sweets or candy while walking/exercising.

Table 3: Response on Medication Adherence among Diabetic Patients (n=190)

	Responses				
Items	**5 No. (%)**	**4 No. (%)**	**3 No. (%)**	**2 No. (%)**	**1 No. (%)**
Took recommended prescribed dose of medications.	189(99.51)	1(0.5)	-	-	-
Changed the dose of medicine without advise by physician.*	-	-	1(0.5)	13 (6.3)	176 (92.6)
Stopped medicine without advised by physician.*	-	-	-	8 (3.9)	182 (95.8)
Remembered difficult to take medicine.*	-	-	1(0.5)	55 28.9)	134 (70.5)
Forgot to carry medicine while travelling.*	-	-	-	17 (8.9)	173(91.1)

*Negative statement * Always=5, Often=4, Sometimes=3, rarely=2, Never=1 for positive response and in vice versa there is negative response*

Table 3 depicts that almost all of the respondents always took recommended prescribed dose of medicine (99.5%), never changed the dose of medicine without advised by physician (92.6%) of the respondents, never stopped medicine without advised by physician (95.8%) and never forgot to carry medicine while travelling (91.1%). Majority (70.5%) of the respondents never difficulty remembered to take medicine.

Table 4: Response on Self-Monitoring Blood Glucose among Diabetic Patients (n=88)

	Responses				
Items	**5 No. (%)**	**4 No. (%)**	**3 No. (%)**	**2 No. (%)**	**1 No. (%)**
Measured blood glucose level	6(6.8)	6(6.8)	28 (31.8)	30 (34.1)	18(20.5)
Remembered to measure blood glucose level when necessary	59(67.0)	3(3.4)	3(3.4)	2(2.3)	21(23.9)
Kept record blood glucose results	28 28(31.8)	-	2 (2.3)	-	58(65.9)
Report to the health personnel if blood glucose level changed	25(28.4)	1(1.1)	4 (4.5)	-	58(65.9)

Always=5, Often=4, Sometimes=3, rarely=2, Never=1

Table 4 represents that around one third (31.8%) of the respondents sometimes measured blood glucose level. Around two third of the respondents always remembered to measure blood glucose level when necessary, never kept record of blood glucose level, and never reported to doctor if blood glucose level changed respectively 67.0%, 65.9% and 65.9%.

Table 5: Overall Level of Self-Care Practice among Respondents

Level	**Number**	**Percent**	**CI (95%)**	
			Lower Limit	**Upper Limit**
Good (≥75%)	13	6.3	2.98	9.62
Average (50-75%)	169	82.5	77.29	87.71
Poor (≤50%)	23	11.2	6.88	15.52
Total	205	100		

Table 5 showed that 82.5 % respondents had average level of self-care practices.

Table 6: Level of Self-Care Practice among Respondents (n=205)

Variables	**Level of Self-Care Practice**		
	Good No. %	**Average No. %**	**Poor No. %**
Dietary Pattern	-	194 (94.6)	11 (5.4)
Physical Activities	4 (2.0)	41 (20.0)	160 (78.0)
Medication Adherence	190 (92.7)	-	15 (7.3)
SMBG	8 (3.9)	24 (11.7)	173 (84.4)

Table 6 Shows that most (92.7%) of the respondents had good in medication adherence and 94. 6% had average dietary pattern.

Table 7: Association between Level of Self-Care Practice and selected Socio-demographic Variables (n=205)

Variables	Level of Self-Care Practice				
	Good No. (%)	Average No. (%)	Poor No. (%)	χ^2 value	P value
Age in Years					
≤20-50	8(13.3)	45(75)	7(11.7)	7.124	0.028
≥51	5(3.4)	124(85.5)	16(11)		
Sex					
Male	7(6.8)	84(81.6)	12(11.7)	0.121	0.941
Female	6(5.9)	85(83.3)	11(10.8)		
Type of Family					
Nuclear	5(6.8)	58(79.5)	10(13.7)	0.790	0.674
Joint	8(6.1)	111(84.1)	13(9.8)		
Employment Status					
Unemployment	4(4.9)	68(84.0)	9(11.1)	0.454	0.797
Employment	9(7.3)	101(81.5)	14(11.3)		

Others =Janajati, Madeshi, Dalit and Muslim*

Table 7 shows there is only association between age and level of self-care practice (<0.028)

DISCUSSION

Result of this study displayed that dietary adherence was average among 94.6%, and poor 5.4%. The adherence in this study was higher in among people of Ethiopia where only 24% had adherence to the diet.[18] On the contrary 45.9% respondents were found adhere to diet management in Mangalore, India.[19] Similarly, a study among Nepalese population in Nepalgunj in 2014 showed poor adherence to the dietary pattern of 12.5%.[20] Similar finding manifested in same setting in 2020 with 16.1 % respondents were good adherence and 66.8% were average adherence.[14]

In the context of physical activity, 20% respondents had average adhered to the physical activity and only 2% respondents had well adherence. Alike, 15.2% were found to be adhered to physical activity among respondents from Yeman.[18] In different to this, there was 67.7% respondents adherence in physical activity. [8] 74.0% respondents found adherence in physical activity in Mekelle Hospital and Ayder Referral Hospital.[21] A study conducted in Delhi, India result found 67.7% adherence in physical activity. [8] The similar study conducted in same setting TUTH result found that 86.4% respondent's adherent in physical activities.[22] The study conducted in Tanahu, Nepal revealed 89.9% of respondents adhere to physical activity.[23] These study result were contradicting in present study . The difference in result may be due to difference in residential area of respondents in terms of being rural and urban.

The most of the respondents were adhered to medication adherence. Similar finding in study conducted in Ethiopia with the adherence of 95.7%.[18] Another study conducted in Gauteng, South Africa showed 67% in medication adherence.[24] This result was consistent with other study conducted in secondary hospital,

Karnataka, India which found medication adherence of 92.75%. [5] Another study conducted on Ethiopia result found medication adherence 95.7 %.[18] Similar study conducted in Gujarat, India found 88.10% in medication adherence.[11] A study conducted in same setting >98.0% adherence in oral hypoglycemic agent and cent percent in insulin.[22] A study conducted in Kanchanpuran, India result found 70.4% respondents in medication adherence.[6] Another study conducted in, South Africa resulted 67% in medication adherence .[24]

Self-Monitoring Blood Glucose (SMBG) is important domain of diabetes self-care practice. In this study SMBG adherence was good 9.1%, average 27.3%, and poor 63.6% respondents. This findings was opposing to finding in Africa which showed 92% adherence to SMBG. [24]

Study showed that average score of self-care practice were average 82.5%, poor 11.2%, and good 6.3%. Findings were contradictory from study in India where scored were average 53.75%, poor 46%, and good 0.25%. [5] Study conducted at diabetic clinic of South West Ethiopia revealed that 50.8% had poor self-care practice.[25] Another study conducted in Tanahu, Nepal result found 46% self-care practice.[23] Study carried out in Northwest Iran result found 15.1% good in self-care practice.[26] In contradictory, good self-care practice was 46.7 % in Ethiopia. [27] This study revealed significant association between self-care practice with age ($p<0.028$) among the respondents between the age 20 to 50 years. This association was similar with that of study conducted in Tamil-Nadu, India. [7]

CONCLUSION

This study highlights high medication adherence and average level of dietary adherence however, physical activity, and blood glucose monitoring remains inadequate. But, overall self- care practice was average and significant association was observed between self-care and age. So, age-specific educational interventions regarding lifestyle modification are recommended to improve self-care practice in all dimension.

CONFLICT OF INTEREST: None

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