

Factors Influencing Health Seeking Behaviour among Persons with Diabetes Attending Urban Health Care Settings

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ABSTRACT

Background: Health seeking behaviour can influence outcomes in chronic diseases such as diabetes. As diabetes burden is higher in urban areas and under half receive adequate diabetes care and support in Nepal, this study aimed to assess factors influencing health behaviour among persons with diabetes attending urban health care settings.

Methods: A cross-sectional study was conducted at two private healthcare settings with a pretested semi-structured questionnaire to assess health behaviour in particular with gender and regular diabetes follow-up. Bivariate analysis along with univariate and multivariate logistic regression was used to assess factors that influence HSB ($P < 0.05$). Adjusted odds were reported within 95% confidence intervals.

Results: Among 385 PWDs (42.3% women) with a median diabetes duration of 7 years (IQR: 3 to 14 years), three fourths (75.1%, 95% CI: 70.5 to 79.1%) reported regular follow-up for diabetes care. After adjusting for confounders, the odds of regular follow-up were higher for those with a family history of diabetes (AOR: 1.82, 95% CI: 1.11 to 3.00) and non-smokers (AOR: 2.08, 95% CI: 1.34 to 3.61). The odds of follow-up were lower among the elderly (≥ 60 years) (AOR: 0.59, 95% CI: 0.35 to 0.97) and those with a family income below 35,000 Nepali rupees (AOR: 0.39, 95% CI: 0.23 to 0.67).

Conclusions: A plurality of health seeking behaviours such as regular follow-up care, taking glucose lowering medications and diabetes information seeking was observed among persons with diabetes attending private urban health care settings during the COVID-19 pandemic period. Older age, family history of diabetes, non-smoking status and low family income were found to influence regular follow-up. In particular, psychosocial mechanisms that influence behavior among persons who smoke may need exploration.

Keywords: Diabetes Mellitus; health behaviour; Nepal

INTRODUCTION

The burden of diabetes is higher in urban areas of Nepal. Recent evidence suggests that about half of persons with diabetes (PWDs) remain unaware, and less than half were taking glucose lowering medications.¹

Health seeking behaviour (HSB) can be defined as, “any activity undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy”.² A plurality of health behaviours have been observed in the context of culture. They can vary from ‘self-medication within the family’ to consulting persons operating through

divination to cultural healing systems and culminates with modern medicine.^{3,4}

The type of illness, and access to health care services can influence HSB.⁵⁻⁸ This research has explored the factors that influence HSB among persons with diabetes attending urban health care settings during a time of social restrictions due to the Covid-19 pandemic.⁹

METHODS

A cross-sectional study was conducted in a tertiary hospital and polyclinic in Kathmandu, Nepal from February 2021 to September 2021. Ethical committee

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clearance was obtained from NMC-IRC (Ref no. 039-077/078). Administrative permission was obtained from the health care facilities. Persons aged 18 years and above who were diagnosed with diabetes for more than a year by a registered clinician or those who were on anti-diabetic medication were eligible to participate in the study. Pregnant women were excluded from the study. An estimated sample size of 384 was calculated assuming 50% adherence to regular follow-up among PWDs within 95% confidence limits and a 5% margin of error. After obtaining due written consent from the study participants, health seeking behavior was assessed through a face-to-face interview using a semi-structured pretested questionnaire by the investigators. Pretesting was carried out among PWDs at the tertiary hospital. Information regarding sociodemographic data, age at onset of diabetes, symptoms at the time of diagnosis, any co-morbidities at the time of diagnosis, diabetes related treatment, and follow-up over the last year, any complications developing after the diagnosis, role of family and friends in diabetes care and support was elicited in the local Nepali language.

The data was entered in a Microsoft Excel spreadsheet. After cleaning, the data was analyzed using Epi Info version 7.2.4 software. Socio-demographic data and diabetes related data was reported in relation to gender. Health seeking behaviour was reported in relation to gender and self-reported regular diabetes follow-up care. Variables that were significant in bivariate analysis (Pearson's Chi-square P value <0.05) in relation to regular follow-up were included in univariate logistic regression analysis to yield crude odds ratios. All of the significant variables were then included as covariates in multi-variate logistic regression analysis to yield adjusted odds ratios which were reported within 95% confidence intervals.

RESULTS

A total of 385 persons with diabetes were interviewed, among whom 182 (42.3%) were women. Hypertension was the most common comorbidity amongst more than a half of women (52.8%) and men (58.6%). Persons with diabetes reported similar comorbidities irrespective of gender (Figure 1).

Diabetes information seeking behaviour was reported by over three-fourths (84.4%). Three fourths of the PWDs (75.1%, 95% CL: 70.0 to 79.0%) reported that they visited a health clinic regularly for a diabetes follow-up care. No gender difference was seen in health seeking behaviours (Figure 2). About two thirds (67%) had previously visited a health clinic about three months ago, and about one fifth had visited six months ago. About 95% had

visited a health clinic in the last one year (Table 1b). Age categories (P=0.013), educational status (P=0.02), family income (P= 0.004), smoking status(P=0.001) and family history of diabetes (P= 0.001) were found to be significantly associated with appropriate health care seeking behavior (regular follow-up) among persons with diabetes (Table 2a and Table 2b).

Table 1a. Diabetes related information categorized by gender (n=385).

Variables	Male n (%)	Female n (%)	All n (%)	Chi-square	P-value
Age at diagnosis					
<30	48 (23.6)	53 (29.1)	101 (26.2)	1.5	0.47
30-49	82 (40.4)	67 (36.8)	149 (38.7)		
>50	73 (36)	62 (34.1)	135 (35.1)		
Place of diagnosis					
Hospital	161 (79.2)	154 (84.6)	315 (81.8)	5.2	0.16
Pharmacy	24 (11.8)	22 (12.1)	46 (12)		
PHC	14 (7)	5 (2.8)	19 (5)		
Others	4 (2)	1 (1)	5 (1.3)		
Main symptom leading to diagnosis					
Polyuria	64 (31.5)	48 (26.4)	112 (29.1)	8.08	0.2
Weight loss	27 (13.2)	17 (9.3)	44 (11.4)		
Ocular symptoms	7 (3.5)	9 (5)	16 (4.2)		
Incidental findings	74 (36.4)	75 (41.2)	149 (38.6)		
Abdominal pain	3 (1.5)	10 (5.5)	13 (3.4)		
Fatigue	16 (7.9)	12 (6.6)	28 (7.3)		
Others	12 (6)	11 (6)	23 (6)		
Duration of diabetes (years)					
Median duration (IQR)	8.0 (4-15)	6.5 (3-12)	7 (3-14)	----	---
<5 years	63 (31)	65 (35.7)	128 (33.3)	3.8	0.15
5-10 years	63 (31)	65 (35.7)	128 (33.3)		
>10 years	77 (38)	52 (28.6)	129 (33.5)		
TOTAL	203 (100)	182 (100)	385 (100)		

Table 1b. Diabetes related information categorized by gender (n=385).

Diagnosed at young age (<45 years)					
Yes	93 (45.5)	89 (48.9)	181 (47.1)	0.3	0.58
No	110 (54.5)	93 (51.1)	203 (52.9)		
Diabetes related complications					
Absent	109 (53.7)	111 (61)	220 (57.1)	7.3	0.12
Ocular	32 (15.8)	36 (19.8)	68 (17.7)		
Renal	42 (20.7)	23 (12.6)	65 (16.9)		
Diabetic foot	13 (6.4)	6 (3.3)	19 (4.9)		
Others	7 (3.5)	6 (3.3)	13 (3.4)		
Previous check-up					
3 months	138 (68)	120 (65.9)	258 (67)	1.77	0.77
6 months	34 (16.8)	32 (17.6)	66 (17.1)		
1 year	21 (10.3)	24 (13.2)	45 (11.7)		
2 years	5 (2.5)	4 (2.2)	9 (2.3)		
>2 years	5 (2.5)	2 (1.1)	7 (1.8)		
Family history of diabetes					
No	94 (46.3)	81 (44.5)	175 (45.5)	0.06	0.8
Yes	109 (53.7)	101 (55.5)	210 (54.6)		
Friends with diabetes					
No	68 (33.5)	92 (50.1)	160 (41.6)	10.79	0.001
Yes	135 (66.5)	90 (49.5)	225 (58.4)		
Support from family and friends for diabetes care					
No	55 (27.1)	66 (36.3)	121 (31.4)	3.33	0.06
Yes	148 (72.9)	116 (63.7)	264 (68.6)		
TOTAL	203 (100)	182 (100)	385 (100)		

For univariate logistic regression, we categorized age as below 60 years and above 60 years, education as primary level and below and secondary level and above, monthly family income as below 35,000 and above 35,000 Nepali rupees, smoking status as non-smoker and ever smoker and family history of diabetes as yes and no to yield

CORs. All of these variables were then included as co-variates in a multivariate logistic regression analysis. After adjusting for confounding factors, the odds of regular follow-up were significantly higher for those with a family history (AOR: 1.82, 95% CI 1.11 to 3.00, P 0.01) and non-smokers (AOR: 2.08, 95% CI 1.34 to 3.61, P 0.003). The odds of regular follow-up were lower among those aged sixty years and above (AOR: 0.59, 95% CI 0.35 to 0.97, P 0.04) and those with a family income below 35,000 Nepali rupees (AOR:0.39, 95% CI 0.23 to 0.67, P 0.0005) (Table 3).

Table 2a. Factors influencing health seeking behaviour among the study respondents (n=385).

Regular Follow-up					
Social and diabetes related variables	No (n=98)	Yes (n=289)	Total	Chi-square	P-value
Age categories (years)					
<50	28 (29.1)	97 (33.6)	125 (32.5)	8.68	0.013
50-60	21 (21.9)	97 (33.6)	118 (30.7)		
>60	47 (49)	95 (32.8)	142 (36.8)		
Gender					
Male	48 (50.0)	155 (53.6)	203 (52.8)	0.38	0.53
Female	48 (50.0)	134 (46.3)	182 (47.2)		
Educational level					
Below Primary	54 (56.2)	127 (43.9)	181 (47.0)	7.26	0.02
Secondary	25 (26.0)	71 (24.6)	96 (24.9)		
Graduate and above	17 (17.7)	91 (31.4)	108 (28.0)		
Monthly family income (NRs)					
<20000	37 (38.5)	61 (21.1)	98 (25.5)	18.18	0.0004
20000-35000	30 (31.3)	72 (24.9)	102 (26.5)		
35000-50000	13 (13.5)	68 (23.5)	81 (21)		
>50000	16 (16.7)	88 (30.5)	104 (27)		
Duration of diabetes					
<5	37 (38.5)	91 (31.5)	128 (33.3)	1.63	0.44
5-10	29 (30.2)	99 (34.3)	128 (33.3)		
>10	30 (31.3)	99 (34.2)	129 (33.4)		

TOTAL	96 (100)	289 (100)	385 (100)		
Table 2b. Factors influencing health seeking behaviour among the study respondents (n=385).					
Complications					
Absent	47 (48.9)	173 (59.8)	220 (57.1)	3.49	0.06
Present	49 (51.1)	116 (40.2)	165 (42.9)		
Family history of diabetes					
Absent	58 (60.4)	117 (40.5)	175 (45.5)	10.75	0.001
Present	38 (39.6)	172 (59.5)	210 (54.6)		
Diabetes information seeking					
No	28 (29.2)	32 (11.1)	60 (15.6)	16.54	4.65
Yes	68 (70.8)	257 (88.9)	325 (84.4)		
Smoking status					
Current smoker	23 (24)	37 (12.8)	60 (15.6)	13.29	0.001
Non-smoker	47 (49)	200 (69.2)	247 (64.2)		
Past-smoker	26 (27)	52 (18)	78 (20.3)		
Alcohol status					
Drinks regularly(>4 times/week)	13 (13.5)	22 (7.6)	35 (9.1)	6.08	0.11
Drinks occasionally	30 (31.3)	74 (25.6)	104 (27)		
Does not drink	41 (42.7)	161 (55.7)	202 (52.5)		
Past user	12 (12.5)	32 (11.1)	44 (11.4)		
TOTAL	96 (100)	289 (100)	385 (100)		

More than a third of women (36.8%) and men (40.4%) were first diagnosed with diabetes between the age of 30 to 40 years. We categorized people who were diagnosed below 45 years of age as young age at diagnosis; just under a half (47.1%) of the study participants people were diagnosed at a young age. (Table 1b). Eighty one percent of the total PWDs interviewed were diagnosed at a hospital. Over a third were asymptomatic and were found to have diabetes after a routine screening (36.4%). Polyuria (29.1%) was the most common symptom reported at the time of diagnosis followed by weight loss (11.4%), fatigue (7.3%) and ocular symptoms (4.2%). The duration of diabetes was similar among women and men. However, more men had diabetes for over 10 years (38% vs 28.6%, P>0.05) (Table 1a).

Regarding treatment modalities, a majority (73.8%) of the PWDs were on oral hypoglycemic medication while 20.5% were on insulin therapy. Apart from physical activity (58.6% vs 42.9%, P=0.002), there was no significant difference between the treatment modalities among women and men with diabetes (Figure 3).

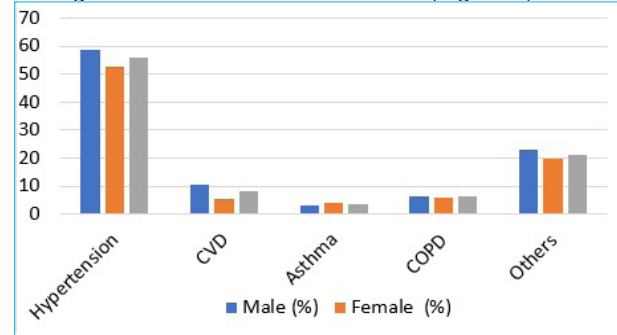


Figure 1. Comorbidities reported by the study participants (n=385, male 203, female 182).

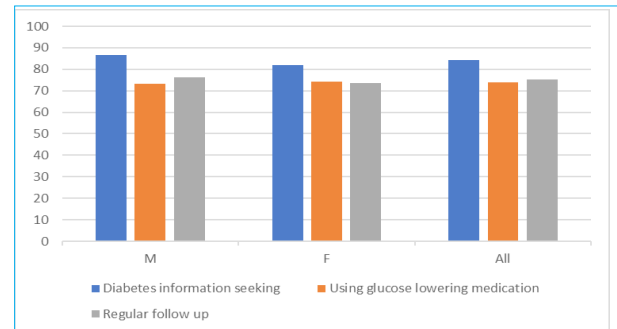


Figure 2. Pattern of health seeking behaviours among the study respondents (n=385).

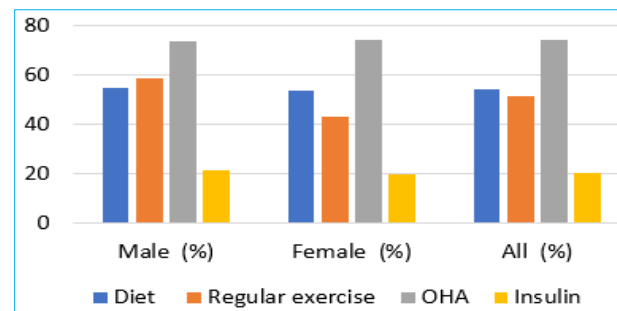


Figure 3. Reported diabetes related treatment modalities categorized by gender (n=384, male 203, female 182).

More than a half of women (55.5%) and men (53.7%) reported a family history of diabetes. Men reported a higher prevalence of diabetes among friends in comparison to women (66.5% vs 49.5%, P=0.001). Overall, more than two thirds of women (68.6%) and men (72.9%) reported that they received support from family and friends for diabetes care (Table 1b).

Table 3: Univariate and multivariate logistic regression analysis of factors influencing regular follow-up among PWDs (n=385).

Term	COR	AOR	95% CI	CE	SE	Z	P-Value	LRT
Age (Sixty and above/Below sixty)	0.51	0.59	0.35 to 0.97	-0.523	0.26	-2.049	0.040	
Education (Secondary and above/Primary and below)	1.64	0.54	0.60 to 1.69	-0.074	0.27	-0.277	0.781	
Income (<35,000/Above 35000)	0.37	0.39	0.23 to 0.66	-0.950	0.27	-3.429	0.0005	<0.001
Family history of diabetes (Yes/No)	2.24	1.82	1.11 to 3.00	0.602	0.25	2.378	0.017	
Smoking (Nonsmoker/Eversmoker)	2.34	2.08	1.26 to 3.43	0.735	0.25	2.896	0.003	
CONSTANT		*	*	1.173	0.34	3.406	0.0007	

(COR Crude Odds Ratio, AOR Adjusted Odds Ratio, CI Confidence interval, CE Coefficient, SE Standard error, Z Z-statistic, LRT Likelihood ratio test)

DISCUSSION

The study findings reflect a plurality of appropriate health seeking behaviours such as regular follow-up care, taking glucose lowering medications and diabetes information seeking among persons with diabetes attending private urban health care settings. In a gender representative sample with a 1:1.1 ratio of women and men, nine out of ten persons with diabetes had sought diabetes care at least once in the past year. Most persons had last visited a health care facility about three months (67%) to six months (17%) ago. Health behaviour did not appear to differ among women and men with diabetes. During a time of social restrictions, this meets the International Diabetes Federation recommendations that PWDs may need at least an annual review of diabetes control and complications.¹⁰

Over three-fourths (80%) of those interviewed were diagnosed at a tertiary health care setting. The health belief paradigm suggests that the perception of threat due to the disease and the extent to which a particular health behaviour is believed to reduce the threat influences HSB.^{11,12} The strong adherence to blood glucose lowering medications among those interviewed can be inferred as a favorable perception towards its efficacy in diabetes care. Qualitative research in Uganda, Africa has shown that preference for professional health care providers and modern health care settings was related to the severity of diabetes and treatment related symptoms.⁹

The study findings reveal that over a third of those interviewed were asymptomatic and found to have diabetes during routine testing (36.4%). Studies in Nepal and India have reported that between 37% to 60% of persons were asymptomatic at the time of diagnosis.¹³⁻¹⁵ Being asymptomatic can lead to a lack of felt or perceived need, denial of the disease and delayed diagnosis.^{5,6,16}

Delayed health care seeking behaviour can be related to poor awareness about diabetes as well.¹⁷ Given the insidious onset of diabetes, opportunistic screening at health care facilities among high-risk persons remains crucial. At the community level, risk perception may need to be augmented through appropriate public health messaging.¹⁶

Diabetes information seeking is a well-documented behaviour and diabetes related knowledge is known to improve after diagnosis. PWDs often consult family members, friends and healthcare professionals for information related to diabetes care and support. Younger persons and those with higher education seek information more often through the internet. However, most PWDs continue to perceive physicians as an important source of information regarding diabetes related complications and therapy.^{17,18,19}

The study findings suggest that after adjusting for age, educational status, and family income, the factors that positively influenced health seeking behavior were having a family member with diabetes and being a non-smoker. More than half of the PWDs reported a positive family history of diabetes which was associated with about 82% higher odds of regular follow-up. As diabetes is a familial condition, family dynamics are known to influence diabetes care. Persons with diabetes are receptive to support from family members and friends as seen in our study.^{7,19-21}

Non-smokers had about 108% higher odds of regular checkup in comparison to smokers. Smoking is known to be associated with delay in health seeking behavior even among persons with lung cancer. Smokers were less likely to seek help either due to failure to recognize symptoms or because they felt 'unworthy' of medical care. This suggests that HSB may be more complex among smokers and needs to be explored further.^{22,23}

The study findings also suggest that after adjusting for confounders, the odds of regular check-up were about 40% lower among those who were older and about 60% lower among those with a family income below 35,000 Nepali rupees. Elderly persons are known to have an increased need for health care services. However, they are more likely to either overuse or underuse health care services.^{24,26} A systematic review carried out in Singapore, an urban area with modern health care facilities used a surrogate measure for low economic status which was persons living in state provided rental housing. Such persons preferred alternative therapies instead of modern medicine due to the cost of health care.²⁷ Cost of health care, lack of financial resources and low to moderate income are the most commonly identified barriers to health care access.^{7,9,14,15,21} Health insurance for persons with chronic disease may play a pivotal role in improving access to health care. It is worthwhile to note that in Nepal, a low proportion of the population have any form of health insurance.²⁸

Study Limitations: Health seeking behaviour is best studied in a community setting. Hence, a recruitment of study participants at health facilities may introduce a selection bias, as those who are more health care conscious are more likely to visit the health facilities. About two thirds of those interviewed were living with diabetes for over 5 years; they were asked about their symptoms at the time of diagnosis which may have an element of recall bias. We have only looked at diabetes care and follow-up and did not elicit Covid-19 related illness or hospitalization information. The cross-sectional nature of the study precludes any causal association.

CONCLUSIONS

A plurality of appropriate health seeking behaviours such as regular follow-up care, taking glucose lowering medications and diabetes information seeking was observed among persons with diabetes. Older age, family history of diabetes, non-smoking status and low monthly family income were found to significantly influence health behaviour. Individual and social factors may continue to influence diabetes care and follow-up in urban health care settings. It would be worthwhile to explore the psychological and social mechanisms that influence the health seeking behavior among persons who smoke and families that are economically vulnerable in Nepal.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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