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Original Research Article

Treatment-seeking behaviour and healthcare utilisation among patients with type 2 diabetes mellitus in urban Etawah, Uttar Pradesh: a community-based cross-sectional study

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ABSTRACT

Background: Type 2 diabetes mellitus requires continuous treatment, follow-up and periodic assessment to reduce the risk of complications. The continuity of care may be influenced by treatment-seeking behaviour and access to appropriate healthcare. Objective: To assess treatment-seeking behaviour and healthcare utilisation among patients with type 2 diabetes mellitus in urban Etawah, Uttar Pradesh and to identify factors associated with regular treatment and regular check-ups for diabetes.

Methods: A community-based cross-sectional study was conducted among 400 patients with known type 2 diabetes mellitus in urban Etawah, Uttar Pradesh. Data were collected using a pretested, predesigned questionnaire. Descriptive statistics were used to summarise treatment-seeking patterns. Associations were assessed using the chi-square test. A multivariable logistic regression model was fitted with no regular diabetes check-up as the dependent variable.

Results: Allopathic treatment was reported by 381 (95.2%) participants. The majority of the study subjects went to government practitioners 52.7% and 47.3% to the private setups. Regular treatment was reported by 305 (76.2%), whereas only 184 (46.0%) reported regular check-ups for diabetes. Regular treatment was significantly associated with education, occupation, family type, socioeconomic status, type of practitioner and source of medicines. Regular check-up was significantly associated with duration of diabetes, duration of treatment, type of practitioner and medicine source. In multivariable analysis, diabetes duration >10 years was associated with higher odds of no regular check-up (AOR 2.24, 95% CI 1.20–4.16), while use of a private practitioner was associated with lower odds (AOR 0.21, 95% CI 0.11–0.40).

Conclusions: Most of the participants reported regular treatment, while less than half reported regular check-ups for diabetes. Longer duration of diabetes and patterns of healthcare utilisation were associated with inadequate follow-up. Strengthening counselling, continuity of care and community-based follow-up may improve diabetes monitoring.

Keywords: Healthcare utilisation, Regular treatment, Regular check-up, Type 2 diabetes mellitus, Treatment-seeking behaviour, Urban community

INTRODUCTION

Type 2 diabetes mellitus is a chronic disease requiring sustained engagement with healthcare services, adherence to treatment and periodic assessment. Contemporary diabetes care emphasises timely, evidence-based treatment and attention to social and financial determinants of health, with shared decision-making and coordinated population-health approaches.[1] Inadequate continuity of care may contribute to delayed recognition of risk factors and complications. It is seen that healthcare-seeking behaviour in diabetes is influenced by the availability, accessibility and perceived quality of services, as well as financial and social barriers. Studies

from India have reported variation in provider choice, treatment practices and follow-up, with patients using both government and private services.[2-4] In a community-based study from Central India, switching healthcare providers and perceived lack of relief were among the reported reasons affecting healthcare-seeking behaviour.[2] A study from Mangaluru also identified treatment and medication costs, diet-related difficulties and transportation as important obstacles to diabetes management.[3] The majority of the studies are hospital-based, but we conducted a field-based study. So, the present study was designed to assess the treatment-seeking behaviour and healthcare utilisation among patients with type 2 diabetes mellitus.

Aim and objectives

To assess treatment-seeking behaviour and healthcare utilisation among patients with type 2 diabetes mellitus in urban Etawah, Uttar Pradesh. To describe the pattern of treatment, healthcare provider utilisation and source of medicines. To determine the factors associated with regular treatment and regular check-ups.

METHODS

A community-based cross-sectional study was conducted in urban Etawah, Uttar Pradesh. There was selection of 10 municipal wards from the 36 urban municipal wards using cluster sampling. Forty participants were selected from each selected ward, giving a total sample size of 400 participants.[5] The participants who were known diabetics aged more than 18 years and above who were residents of urban Etawah were included in the study. Recently diagnosed diabetics and those who were severely ill, mentally challenged or unable to communicate were excluded.

Study tool

Diabetes complications index (DCI).

Diabetes complications index (DCI) is a 17 items questionnaire to identify prior diagnoses and current symptoms of 6 common complications of type 2 diabetes.[6]

Each complication is ascertained by 2 or more questions. For example, coronary artery disease is present if the patient reports having had a myocardial infarction, symptoms of angina pectoris or having been given the diagnosis by a physician. The specific questions, structure and scoring of the DCI was done. It is calculated as the simple unweighted sum of any of the 6 complications that are present, resulting in scores ranging from 0 to 6.

Data analysis

The data thus collected were entered in Microsoft Excel work sheet which was analysed using SPSS V- 24.0, IBM Inc., Chicago, USA software. Chi-square test and univariate logistic regression analysis were applied for analysis and interpretation of data.

Ethical approval

Ethical clearance was obtained from the Institutional Ethical Committee, Uttar Pradesh University of Medical Sciences, Saifai, Etawah.

Study participants and data collection

A pretested, predesigned questionnaire was administered during house-to-house visits. When more than one eligible person was available in a household, the participant with the longest history of type 2 diabetes was included, provided consent was obtained. For the present secondary analysis, variables related to treatment type, healthcare provider, source of medicines, regular treatment, regular check-ups, sociodemographic characteristics and duration of diabetes/treatment were used.

Study variables

The primary outcomes for this analysis were regular treatment and regular diabetes check-up. Treatment-related variables included type of treatment (allopathic, homeopathic or ayurvedic), type of practitioner (government or private) and source of medicines (government supply, private purchase or both). Duration of diabetes and duration of treatment were categorised as <5 years, 5–10 years and >10 years for analysis.

Statistical analysis

Data were analysed using descriptive statistics. Categorical variables were summarised as frequencies and percentages. Associations between categorical variables were assessed using the chi-square test; $p<0.05$ was considered statistically significant. A multivariable binary logistic regression model was fitted with no regular diabetes check-up as the dependent variable (1=no regular check-up; 0=regular check-up). The model included age, sex, duration of diabetes, type of practitioner and source of medicines. Adjusted odds ratios (AORs), 95% confidence intervals and p-values were calculated. Government practitioner, government medicine supply and diabetes duration <5 years were used as reference categories.

RESULTS

A total of 400 participants were included. Allopathic treatment was the predominant treatment modality (381, 95.2%), while 10 (2.5%) used homeopathic treatment and 9 (2.3%) used ayurvedic treatment. 211 (52.7%) participants took treatment from Government practitioners and 189 (47.3%) from private practitioners. 141 (35.2%) took medicines from government supply, 194 (48.5%) purchased from private and 65 (16.3%) obtained through both sources. 305 (76.2%) participants

were taking regular treatment, whereas 95 (23.8%) reported no regular treatment. 184 (46.0%) were on regular diabetes check-ups, while 216 (54.0%) did not report regular check-ups of diabetes (Table 1). Regular treatment was reported at a maximum by 85.0% of participants aged ≤39 years, followed by 78.4% in the 50–59 years of age group, 76.7% in 60–69 years, 71.7% among those aged 40–49 years and a minimum of 60.0% among participants aged ≥70 years. However, the association between age and regular treatment was not statistically significant (χ^2=6.03, p=0.194). The majority of males (77.7%) were taking regular treatment, while 73.9% of females were. The difference between males and females was not found to be statistically significant (χ^2=0.58, p=0.445). Regular treatment was seen in 71.1% of illiterate participants, 60.9% in having primary level education, 63.5% in middle school education, 80.9% in high school education, 83.3% among those with intermediate education and 89.7% among graduates and above. Thus, it was seen that the proportion of participants receiving regular treatment generally increased with higher levels of education. A statistically significant association was observed between the educational status and regular treatment (χ^2=22.95, p<0.001). Among the sociodemographic variables studied, only educational status showed a statistically significant association with the regular treatment of diabetes (Table 2).

Among study subjects receiving regular treatment, the highest proportion had diabetes for 5–10 years (42.6%), followed by <5 years (34.1%) and >10 years (23.3%). Similarly, among those not receiving regular treatment, 38.9% had diabetes for 5–10 years, while 30.5% each had diabetes for <5 years and >10 years. The association between duration of diabetes and regular treatment was not statistically significant (χ^2=2.03, df=2, p=0.362) (Table 3). Regarding the healthcare provider, 149 (70.6%) participants receiving treatment from the government practitioner were on regular treatment, whereas 156 (82.5%) participants consulting a private practitioner were receiving regular treatment. The association between the type of healthcare provider and regular treatment was found to be statistically significant (χ^2=7.18, p=0.007). Participants consulting private practitioners had a higher proportion of regular treatment as compared to those consulting with government practitioners. It was found that 101 (71.6%) participants obtaining medicines through government medicine supply were taking regular treatment, while 160 (82.5%) participants who purchased medicines privately were on regular treatment. Among participants obtaining medicines from both sources, 44 (67.7%) were receiving regular treatment. The association between the source of medicines and regular treatment was found to be statistically significant (χ^2=8.44, p=0.015) (Table 4).

Regular diabetes check-ups were reported by only 184 (46.0%), while 216 (54.0%) did not undergo regular check-ups. Among subjects undergoing regular check-ups, the highest proportion had diabetes for 5–10 years (42.4%), followed by <5 years (41.3%) and >10 years (16.3%). Among subjects not undergoing regular check-ups, the highest proportion had diabetes for 5–10 years (41.2%), followed by >10 years (32.4%) and <5 years (26.4%). Thus, participants with a longer duration of diabetes (>10 years) did not have regular check-ups, whereas those with diabetes duration <5 years were more likely to have regular check-ups. The association between duration of diabetes and regular check-ups was found to be statistically significant (χ^2=16.98, df=2, p=0.001). This indicates that the pattern of regular check-ups differed significantly according to the duration of diabetes (Table 5). In multivariable logistic regression, participants with diabetes duration >10 years had approximately twice the odds of having no regular check-up compared with those with diabetes duration <5 years (AOR 2.24, 95% CI 1.20–4.16, p=0.012). Use of a private practitioner was associated with lower odds of no regular check-up compared with use of a government practitioner (AOR 0.21, 95% CI 0.11–0.40, p=0.002). Participants obtaining medicines from both government supply and other sources had higher odds of no regular check-up than those using government supply alone (AOR 2.33, 95% CI 1.12–4.83, p=0.023). Age and sex were not found to be statistically significant in the adjusted model (Table 6).

Table 1: Overall treatment-seeking behaviour and healthcare utilization.

Indicator	N	%
Allopathic treatment	381	95.2
Homeopathic treatment	10	2.5
Ayurvedic treatment	9	2.3
Government practitioner	211	52.7
Private practitioner	189	47.3
Government medicine supply	141	35.2
Private medicine purchase	194	48.5
Both sources	65	16.3
Regular treatment	305	76.2
No regular treatment	95	23.8
Regular diabetes check-up	184	46.0
No regular check-up	216	54.0

Table 2: Sociodemographic factors associated with regular treatment.

Variable	Regular treatment Yes N (%)	No N (%)	χ^2	P value
Age ≤39 years	34 (85.0)	6 (15.0)	6.03	0.194
Age 40–49 years	66 (71.7)	26 (28.3)		
Age 50–59 years	127 (78.4)	35 (21.6)		
Age 60–69 years	66 (76.7)	20 (23.3)		
Age ≥70 years	12 (60.0)	8 (40.0)		
Male	192 (77.7)	55 (22.3)	0.58	0.445
Female	113 (73.9)	40 (26.1)		
Illiterate	32 (71.1)	13 (28.9)	22.95	<0.001
Primary	39 (60.9)	25 (39.1)		
Middle	40 (63.5)	23 (36.5)		
High school	55 (80.9)	13 (19.1)		
Intermediate	60 (83.3)	12 (16.7)		
Graduate and above	78 (89.7)	9 (10.3)		

P<0.05 is considered statistically significant.

Table 3: Association of duration of diabetes and regular treatment among participants.

Duration of DM	Number of participants	Regular treatment		Chi square
	N (%)	Yes N (%)	No N (%)	
< 5 years	134 (33.5)	104 (34.1)	29 (30.5)	χ^2=2.03 df= 2 p value= 0.362
5-10 years	167 (41.8)	130 (42.6)	37 (38.9)	
>10 years	99 (24.7)	71 (23.3)	29 (30.5)	
Total	400 (100.0)	305 (100.0)	95 (100.0)	

Table 4: Healthcare provider and medicine source according to regular treatment.

Factor	Regular treatment Yes n (%)	No n (%)	χ^2	P value
Government practitioner	149 (70.6)	62 (29.4)	7.18	0.007
Private practitioner	156 (82.5)	33 (17.5)		
Government medicine supply	101 (71.6)	40 (28.4)	8.44	0.015
Private purchase	160 (82.5)	34 (17.5)		
Both	44 (67.7)	21 (32.3)		

Table 5: Association of duration of diabetes and regular check-ups among participants.

Duration of DM	Number of participants	Regular check-ups		Chi square
	N (%)	Yes N (%)	No N (%)	
<5 years	134 (33.5)	76 (41.3)	57 (26.4)	χ^2=16.98 df= 2 p value= 0.001
5-10 years	167 (41.8)	78 (42.4)	89 (41.2)	
>10 years	99 (24.7)	30 (16.3)	70 (32.4)	
Total	400 (100.0)	184 (100.0)	216 (100.0)	

Table 6: Multivariable logistic regression for no regular diabetes check-up.

Predictor	Reference category	AOR	95% CI	P value
Diabetes duration 5–10 years	<5 years	1.37	0.85–2.20	0.217
Diabetes duration >10 years	<5 years	2.24	1.20–4.16	0.012
Private practitioner	Government practitioner	0.21	0.11–0.40	0.002
Medicine source: both	Government supply	2.33	1.12–4.83	0.023
Medicine source: private purchase	Government supply	1.54	0.59–4.03	0.409
Age (per year increase)	—	1.02	0.99–1.05	0.084
Female sex	Male	1.22	0.76–1.48	0.390

DISCUSSION

The present study demonstrates an important gap between treatment continuity and follow-up care. 76.2% of participants were taking regular treatment, only 46.0% reported regular check-ups of diabetes. The predominance of allopathic treatment in this study (95.2%) is consistent with the importance of formal medical care reported in Indian studies of diabetes. A community-based Delhi study examined treatment-seeking practices and expenditure among people with diabetes, while a Central Indian study highlighted switching of providers and other healthcare-seeking considerations.[2,4] The present findings add a field-based perspective from urban Uttar Pradesh. The significant association between longer duration of diabetes and poorer regular follow-up is noteworthy. It was seen that the participants with >10 years of diabetes had the lowest proportion of regular check-ups.

This association should not be interpreted as evidence that private care is intrinsically better; differences in accessibility, appointment patterns, continuity, patient characteristics and referral practices may contribute. The literature indicates that provider choice and healthcare-seeking behaviour in diabetes are shaped by multiple patient and system-level factors.[2,3] Patients moving between sources may have less continuity with a single provider or may seek care according to availability. This interpretation requires confirmation in prospective studies.

Regular counselling, reminders for periodic assessment, linkage with primary care and systematic identification of patients with long disease duration may help address the gap between medication use and monitoring. Current diabetes standards emphasise coordinated population health approaches, evidence-based care and attention to social determinants.[1] Sekhar et al found in their study that around 21.3% of patients had complications related to diabetes mellitus, with peripheral neuropathy being the most common. As many as 45% of patients seeking care from govt. facility and 60% of patients seeking care from private facility had poor health-seeking behaviour. A significantly higher number of patients seeking health care from private facility (77.8%) had poor health-seeking behaviour and had complications than patients seeking health care from govt. facility (33.3%).[7]

Limitations

Treatment-seeking and check-up behaviour were self-reported and may be affected by recall or reporting bias. The sample size was small, so results may vary.

CONCLUSION

In this urban community sample of patients with type 2 diabetes mellitus, allopathic treatment was predominant and most participants reported regular treatment, but fewer than half reported regular diabetes check-ups. Longer duration of diabetes was independently associated with absence of regular check-up, while use of a private practitioner was associated with lower odds of no regular check-up. Strengthening continuity of care, counselling and systematic follow-up particularly among patients with long-standing diabetes may improve diabetes monitoring.

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