A PREVALENCE STUDY ON SELF-CARE PRACTICES AMONG DIABETICS RESIDING IN URBAN SLUMS OF GAUTAM BUDH NAGAR: A COMMUNITY-BASED, CROSS-SECTIONAL STUDY

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Abstract

Introduction: Diabetes mellitus, a metabolic disease known for its chronic nature and multiple aetiologies, has risen to a level of a significant public health problem in the past few years. Although Glycaemic control is the mainstay of managing the disease, self-care habits like a healthy diet, active exercise, periodic monitoring of blood glucose, and medication play an essential role in managing Diabetes. **Methodology:** A cross-sectional study based in the community was conducted in the catchment areas of a medical college in the district of Gautam Buddha Nagar. Data was collected by using a structured questionnaire from diabetic patients residing in the urban catchment area of Bhangel. The study was conducted with the following objectives: determining the prevalence of self-care practices among known cases of Diabetes residing in the urban slum population and assessing sociodemographic risk factors. **Results:** Data was collected from 190 study participants by conducting a door-to-door survey. Most study participants (59.5%) have unsatisfactory self-care practices except in Adherence to medication and periodic blood sugar checks 61.2% and 68.4%, respectively. The lowest (18.9%) adherence was observed for foot care among study participants. **Conclusion:** The study was conducted among 190 people with Diabetes residing in urban slums, and their self-care practices were variable. While most study participants adhered well to medication and periodic blood sugar monitoring, less than half had control over their lifestyle (diet, exercise, and foot care).

Keywords: Diabetes Mellitus, Self-Care, Practices, Urban Slums.

INTRODUCTION

Diabetes, better known as Diabetes Mellitus, is a chronic, metabolic disease characterized by persistently high blood sugar levels. The primary reason for the disease to develop is either insufficient insulin production by the pancreas or the body's incapability to use the insulin produced.[1] It is now a widespread non-communicable disease in India and the rest of the world. It has recently become a significant public health issue, primarily affecting low- and middle-income nations.[2] India is the country with the second-highest percentage of adults aged 20 to 79 who have Diabetes as of 2019, trailing only China.[3]

Diabetes is a chronic lifestyle condition requiring the integration of a variety of strategies in its management. Medication and lifestyle changes are essential components of its direction. In addition to ensuring proper glucose control, diabetic patients also have demands related to rehabilitation, preventing complications, and limiting their level of handicap.[4]

Diabetes self-care is a process of developing knowledge and awareness to manage the complications of Diabetes in a social environment.[5] These behaviors include practicing daily foot care, adhering to the treatment plan, engaging in regular physical activity, eating sensibly, and managing problems, including hypoglycemia episodes.[6] The patients must follow these self-care procedures to maintain sufficient glycaemic control, avoid long-term problems, and decrease their risk of morbidity and mortality

The cornerstone of managing Diabetes is self-care, as the patient or their relatives carry out most of the management. Although Adherence to self-care practices has been linked to a striking decrease in the occurrence and progression of diabetes complications.[6] Still, most research has revealed that it is not practiced widely in our country. [4] With this background, the study was conducted in the urban slums of Gautam Budh Nagar district to assess the self-care practices among people with known Diabetes and associated sociodemographic factors.

MATERIALS & METHODS

This study was conducted in the urban field practice area, Bhangel, of the medical college and hospital in the Gautam Buddha Nagar district for four months (March to June 2023). It was a community-based cross-sectional study. The study population included people above 18 years of age, self-reported as Diabetic, and residing in the urban area of Bhnagel, Gautam Buddha Nagar district.

Exclusion criteria

Bedridden individuals, pregnant females, and those unwilling to participate were excluded from the study.

Sample size and sampling Procedure

Calculation of sample size was done by using the formula $N = 4PQ/L^2$

Here, the P (Prevalence of Adherence to Diet self-care practice) was taken from a study conducted in urban slums of Bengaluru[4] (12.25%). So, the sample size thus calculated was 186, which was rounded off to 190.

Patients were enrolled in the study using the convenience sampling method. A list of people with self-reported Diabetes was prepared by conducting a door-to-door survey in the study area. Information was collected from all the individuals above 18 years of age with self-reported Diabetes and willing to participate in the study till the sample size was achieved.

METHODOLOGY

The study was conducted in the urban areas of Gautam Buddha Nagar district. The study participants included adults above 18 years of age with self-reported Diabetes. After obtaining informed consent from the participants, a face-to-face interview was done. Sociodemographic details included questions regarding the demographic details and diabetic profile, including duration of Diabetes and presence of complications. Modified Kuppuswamy scale 2023 was used to assess the socioeconomic status. Information regarding the clinical and medication profile of the study participants, like family history of Diabetes, Alcohol and smoking addiction, and treatment, were also included in the questionnaire. Patients' level of self-care activities was evaluated using items from The Summary of Diabetes Self-care Activities (SDSCA) Measure[7,] which included information regarding their Dietary practices, physical exercise, frequency of blood sugar testing, foot care, and smoking. The study participants were enquired about how many days they had engaged in a particular self-care behavior the previous week. The following components received a score of "1" when present and a value of "0" when absent.[6]

The Morisky Green Levine Medication Adherence Scale 4 (MGLS- 4 scale), a 4-item questionnaire, was used to assess Adherence to the medication prescribed.[8] Each "No" response was given a score of "1," and the "Yes" response was given a score of "0".The range of total MGLS-4 score was from 0–4, with 0–1 being classified as low Adherence, score 2–3 moderate adherence, and score 4 being classified as having high Adherence The purpose of the study was explained in detail, and data was collected after obtaining informed consent from the study participants.

DATA ANALYSIS

The data thus collected was entered, coded, and analyzed using SPSS version 20 software. The prevalence of various self-care practices and Adherence to medication was expressed as percentages.

RESULTS

Data was collected from 190 study participants by conducting a door-to-door survey. **Table 1** describes the demographic details of the study participants. Among the 190 total study subjects, 121 (63.7%) were males and 69 (36.3%) were females. Nearly three-fourths of the study subjects were in the 40-59 age group (69.4%), followed by 60-79 years (17.4%). The education status of the participants was high school level in 42% of the participants, and the majority belonged to the lower middle class of Socioeconomic class according to the Modified Kuppuswamy scale.

Table 1: Distribution of study participants according to Sociodemographic characteristics

	Characteristics	Frequency (N=190)	(%)
Gender	Male	121	63.7
	Female	69	36.3
Age	20-39	25	13.2
	40-59	132	69.4
	60-79	33	17.4
Religion	Hindu	168	88
	Muslim	22	12
Education	Illiterate	21	11
	Primary school	2	1
	High School	79	42
	Intermediate	27	14
	Graduate and above	61	32
Socioeconomic status	Upper Class	3	2
(Modified Kuppuswamy scale)	Upper Middle class	66	35
	Upper Lower class	20	11
	Lower middle Class	101	53

The clinical attributes of the study subjects are shown in **Table -2**. It was seen that in the majority (60%) of the study participants, the duration of Diabetes was less than five years, and 42.1% of participants had a family history of Diabetes. Associated co-morbid conditions were reported by (44.2%) of the study participants, and a few (8.4%) of the participants gave a history of alcohol intake.

Table 2: Characteristics of study participants

		(N=190)	(%)
Duration of Diabetes	< 5 years	114	60
	5-10 years	61	32.1
	> 10 years	15	7.9
Family History of Diabetes Mellitus	Yes	80	42.1
	No	110	57.9
Associated Co-morbid conditions	Yes	84	44.2
	No	106	55.8
Alcohol drinking	Yes	16	8.4
	No	174	91.6

Table -3 shows the level of self-care practices among study subjects. It was observed that the majority (62.1%) and (58%) of participants consumed carbohydrates and fats, respectively, for more than two days a week. Intake of Fruits and raw vegetables was less than four days in around half (58.4%) of participants. Foot examination for five or more days a week was observed only in 18.9 % of study participants, and the majority (76.8%) did not follow the exercise regimen for five or more days a week. History of smoking was observed in 10.6%, and periodic blood sugar assessment within three months was observed in most (68.4%) of them.

Medication adherence was calculated using the (MGLS-4) scale. Most (72.8%) showed high Adherence (score one or score two) to anti-diabetic medication. In comparison, One-fourth of (27.2%) study participants had low medication adherence, i.e. (score three or four).

Table 3: Distribution of Self-Care practices among study subjects

	Frequency (N=190)	Percentage%
Intake of carbohydrates/week		
0-2 days	72	37.9
> 2days	118	62.1
Consumption of fats/week		
0-2 days	80	42
> 2days	110	58
Fruits and raw vegetables intake/week		
1-4 days	111	58.4
5-7 days	79	41.6
Foot examination/week		
1-4 days	154	81.1
5-7 days	36	18.9
Weekly exercise regimen		
1-4 days	146	76.8
5-7 days	44	23.2
H/O Smoking		
Present	20	10.6
Absent	170	89.4
Regular blood sugar testing once every 3 months	130	68.4
Level Adherence to Anti-Diabetes medications (MGLS-4 scale)		
High Adherence (score 4)		
Moderate Adherence (score 2-3)	138	72.8
Low Adherence (score 0-1)	52	27.2

As depicted in Table 4, regarding the distribution of self-care practices as per domain, more than half (59.5%) of the study participants have unsatisfactory practices except in Adherence to medication and periodic blood sugar check, which is 61.2% and 68.4%, respectively. The lowest (18.9%) adherence was observed for foot care among study participants.

Table 4: Distribution of Diabetes Self-care practices among subjects domain wise

	Satisfactory N(%)	Unsatisfactory N(%)
Adherence to Diet	77(40.5%)	113(59.5%)
Adherence to Foot Care	36(18.9%)	154(81%)
Adherence to Exercise regimen	44(23.2%)	146(76.8%)
Adherence to Blood Sugar Check-ups	130(68.4%)	60(31.6%)
Adherence to Medication	138(72.8%)	52(27.2%)

DISCUSSION

Diabetes is a chronic disease that compels a patient to become dependent on lifelong medication. Moreover, its tendency to progress and affect multiple organs results in complications, exacerbating the situation. Therefore comes the role of self-care practices, which allow patients to regain control of their lives and empower them to manage their condition. The American Diabetes Association (ADA) has emphasized the significance of self-management skills in treating Diabetes.[2] This study was conducted to assess the self-care activities and Adherence among known diabetic patients residing in the urban slums of the Gautam Budha Nagar district.

The present study included 190 known diabetic patients as study participants, with the majority (63.7%) being males and belonging to the age group of 40-59 years (69.4%), which was slightly higher than the age group as reported in a study by Kushwaha AS et al. in urban settings in Pune (53.7%).[9]

In our study, most (60%) of the study subjects had Diabetes of 1-5 years duration, which was almost similar to the findings reported in the study conducted in urban slums of Bengaluru by Dasappa et al. (65.4%)[4]. The results were slightly higher when compared with the results reported by the study done in Pune (53.6%).[9] In terms of the literacy status of the study participants, it was found that only 21(11%) were illiterates as opposed to 36.64% in the study done by Shah et al.[10] The reason for the lesser percentage of illiterates in our study could be the inclusion of study participants from urban area only whereas the study conducted by Shah et al. included participants from both urban and rural areas.

In our study, we observed that 42.1% of study participants had a positive family history of Diabetes, and nearly half of the population (44.2%) of study participants had associated co-morbid conditions. It is less than the result of a similar study conducted in an urban setting in Pune.[9] The difference can be attributed to the difference in the study settings, as this study was conducted in urban slums. Similar findings were reported by a muti-centric study conducted in Ethiopia.[11]

Our study revealed that among the several facets of self-care behaviors, consuming carbohydrates was found to be high among the majority (62.1%) of the study participants, in comparison to the study conducted in rural Tamil Nadu.[6]. Adherence to a satisfactory

diet was reported only 40.5% of study subjects, comparatively low when compared with studies (45.9%,[12] 41%[13]) conducted in South India.

The majority of study subjects showed satisfactory Adherence to medication (72.8 %) and periodic blood sugar assessment (68.4%), which was comparable to the results of a study by Ray SK et al.[2] (75.4%) and Goyal et al.[14](71.4%) and were comparable with the findings reported by Selvaraj et al.[15]In our study, the practice of doing regular exercise was found to be low, only 43(23.2%) were doing regular exercises and three-fourth (76.8%) participants were not. It is less than the results reported from studies done in Mangalore (43.4%)[12] and West Bengal (37.4%).[16] Gopichandran et al.[17] found similar results in their study. Only 18.9% of the study participants routinely checked their feet when seen in the inferior foot care area. The findings of our study on foot care are similar to those conducted in Tamil Nadu (17.2%).[6]

CONCLUSION

In the study, we found that the Self-care practices among people with Diabetes residing in urban slums were variable. While most study participants adhered well to medication and periodic blood sugar monitoring, less than half had control over their lifestyle (diet, exercise, and foot care). Health education and medication adherence, primarily related to self-care practices, should be given due importance to increase patients' knowledge and competency in Diabetes self-care procedures so they can better support the management of their condition.

Conflict of Interest: The authors declare no conflict of interest

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