Prevalence of self-care practices and assessment of their sociodemographic risk factors among diabetes in the urban slums of Bengaluru

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Abstract

Objective: The objective of this study was to determine the prevalence of self-care practices in the urban slums of Bengaluru among diabetes and also to assess their sociodemographic risk factors. **Materials and Methods:** A cross-sectional study was done in the two slums of Bengaluru comprising 163 diabetes patients. The prevalence of self-care practices and their sociodemographic risk was analyzed. **Results:** Maximum adherence was seen for blood sugar testing (77.91%), and least adherence was seen for diet (12.26%). Adherence to exercise was 30.67%, adherence to foot care was 48.46%, and adherence to medication was 60.73%. Some of the sociodemographic factors associated with good self-care practices are young age, gender, formal education, occupation, and religion. Good adherence to medication is associated with better control of blood sugars. **Conclusion:** A clinician should be able to identify these risk factors and give special attention to these groups of patients and make realistic recommendations for self-care activities.

Keywords: Diabetes, prevalence, self-care practices

Introduction

Diabetes mellitus (DM) is a major disease that is becoming more prevalent, affecting more than 171 million people worldwide. The number of people affected by DM is expected to rise to 366 million by 2030.[1] Management of diabetes involves medication and lifestyle modification. The needs of diabetic patients are not only limited to adequate glycemic control but also correspond with preventing complications, disability limitation, and rehabilitation.[2,3]

There are seven essential self-care behaviors in people with diabetes which predict good outcomes. These are healthy eating, being physically active, monitoring of blood sugar, compliant with medications, good problem-solving skills, healthy coping skills, and risk-reduction behaviors.[4] Although multiple demographic, socioeconomic, and social support factors can be considered as positive contributors in facilitating self-care activities in diabetic patients; the role of clinicians in promoting self-care is vital and has to be emphasized.[5] Some of the Indian studies revealed very poor adherence to treatment regimens due to poor attitude toward the disease and poor health literacy among the general public.[2,3]

The objective of this study was to determine the prevalence of self-care practices in the urban slums of Bengaluru among diabetes and also to assess their sociodemographic risk factors.

Materials and Methods

This cross-sectional study was conducted for 4 months in 2015 from March to June. The study population was all diabetic

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patients in the LR Nagar and Ambedkar Nagar, which is the field area of the Koramangala Urban Health Center adopted by St. Philomena hospital. A person who is above 18 years and self-reported as diabetes and in-depended in his daily routine activity was included in the study. The study was done through door-to-door survey by nursing students of the St. Philomena's hospital.

The house-to-house survey in these two areas yielded 164 diabetes patients of the 6000 total population.

The information was collected using a pro forma which had data on sociodemographic profile, measurement of blood sugar using freeStyle Optium Glucometer, (Glucometer was standardized by cross checking laboratory result) and patients' self-care practices measured using Summary of Diabetes Self-care Activities[6] self-report scale, after minor changes were made to it to suit the Indian context since self-monitoring of blood sugar was uncommon, the questionnaire referred to venous blood glucose testing. The questionnaire includes items on the following aspects of the diabetes regimen: general diet (2 items), specific diet (2 items), exercise (2 items), blood glucose testing (2 items), foot care (2 items), medications (2 items), and smoking (1 item).

Informed consent was taken from the participants in the local language, and the study was approved by the St. Philomena's Ethics Committee.

Inclusion criteria

All diabetes patients aged more than 18 years.

Exclusion criteria

Bedridden patients, disabled, acute illness, children and age <18, pregnant women,

Definitions

Good adherence to diet if patient following a healthy diabetic diet on most of the days, average of 7 days in a week, and consumed at least 2cups of vegetables every day and reduced red meat consumption to once a week or less than a week. Good adherence to exercise if the patient exercised for 30 min in a day for at least 5 days in week or continuous work-related activity for 30 min at least 5 days a week. Good adherence to blood sugar testing if patient checked sugars at least once in 3 months. Good adherence to foot care if patient checked feet and between the toes at least once in a week. Good adherence to the drug if the patient consumed all the prescribed medicines and recommended number of times all the days in a week. Nonsmokers if they did not smoke last week.[7-9]

The collected data were numerically coded and entered in Microsoft Excel 2007, and statistical analysis was done in SSPS version 19.0 (STJ01stjohnslibrary, Bangalore, India). Sociodemographic variables and risk factor data were analyzed using descriptive statistics such as frequencies, mean, and standard deviation. Chi-square test of association or Fisher's exact probability test was used as applicable to assess the association between self-care practices and associated variables.

Results

Table 1 describes the sociodemographic profile. The study group had 69.9% of females and 30.1% male. Most of them were <55 years of age (54.6%). Hindus were 56.44%, Muslims were 6.13%, and Christians were 37.42%). No formal education in 43.55%. The majority of the people did not work (62.57%). Family income was more than 5000 Rs in 65.03% of people. Financial independence was seen in 60.73% of people. The majority of people lived in nuclear family (74.84%). Most of the people were diagnosed diabetics <5 years (65.64%).

Table 2 describes the prevalence of self-care practices. Maximum adherence was seen for blood sugar testing (77.91%), and least adherence was seen for diet (12.26%). Adherence to exercise was

Table 1: Sociodemographic profile

Variables	Female, *n* (%)	Male, *n* (%)	Total
Sex	114 (69.9)	49 (30.1)	163
Age			
<55	60 (67.41)	29 (32.58)	89 (54.60)
>55	54 (72.97)	20 (27.02)	74 (45.39)
Religion			
Hindu	65 (70.65)	27 (29.34)	92 (56.44)
Muslim	8 (80)	2 (20)	10 (6.13)
Christian	41 (67.21)	20 (32.78)	61 (37.42)
Education			
No formal education	59 (83.09)	12 (16.90)	71 (43.55)
Formal education	55 (59.78)	37 (40.21)	92 (56.44)
Occupation			
Not working	89 (87.25)	13 (12.74)	102 (62.57)
Heavy labor work	21 (55.26)	17 (44.73)	38 (23.31)
Sedentary	4 (17.39)	19 (82.60)	23 (14.11)
Family income			
<5000	40 (71.42)	16 (28.57)	56 (34.35)
≥5000	73 (68.86)	33 (31.13)	106 (65.03)
Financial			
Independent	83 (83.83)	16 (16.16)	99 (60.73)
Dependent	19 (79.16)	5 (20.83)	24 (14.72)
Family type			
Nuclear family	83 (68.03)	39 (31.96)	122 (74.84)
Joint family	31 (75.60)	10 (24.39)	41 (25.15)
Duration of diabetes (years)			
<5	74 (69.15)	33 (30.84)	107 (65.64)
>5	40 (71.42)	16 (28.57)	56 (34.35)

Table 2: Adherence to practices

Practice	Female	Male	Total (%)
Adherence to diet	14	6	20 (12.26)
Adherence to exercise	31	19	50 (30.67)
Adherence to blood test	85	42	127 (77.91)
Adherence to foot care	53	26	79 (48.46)
Adherence to medication	69	30	99 (60.73)

30.67%, adherence to foot care was 48.46%, and adherence to medication was 60.73%.

Table 3 describes the association of variables with the self-care practices. Region was associated with good diet adherence (χ^2 for trend = 15.08, P = 0.001). Christians were least adherent to diet followed by Hindus and Muslims. Age was associated with good blood sugar testing (χ^2 for trend = 4.602, P = 0.03). People <55 years did blood sugar test regularly than the older people. Good adherence to exercise was associated with age (χ^2 for trend = 5.224, P = 0.02) and formal education (χ^2 for trend = 5.39, P = 0.02). People <55 years exercised regularly and people who had formal education exercised regularly. Adherence to medication was associated with occupation (χ^2 for trend = 6.243, P = 0.04). People who were working had better adherence. Adherence to foot care was not associated with any variables. Nonsmoking behavior was associated with gender (χ^2 for trend = 10.316, P = 0.003) and occupation (χ^2 for trend = 7.519, P = 0.023).

Table 4 describes association of self-care practices with glycemic control. Good adherence to medication was associated with better glycemic control (χ^2 for trend = 3.957, P = 0.04).

Review of literature

The present study was done with the objective of estimating the prevalence of self-care practices among diabetes patients and to assess their sociodemographic risk factors in the community. In this study, majority of the patients were comfortable checking the blood sugars regularly (77.91%), and medication (60.73%) and only 12.26% were adherent to the diet recommendations, 30.67% were doing exercise regularly, and 48.46% were checking their feet regularly. Maximum adherence was seen for blood sugar testing (77.91%) and least adherence was seen for diet (12.26%). These findings were similar to a study done in an urban southern Indian community. Good diet and exercise were followed by only 29% and 19.5% of the patients with diabetes, respectively, blood sugar monitoring and drug adherence were better with the prevalence of 70% and 79.8%, respectively.[7]

In the present study, region was a strong determinant of good adherence to diet. Christians (7%) were the least adherent to diet regime compared to Hindus (12%) and Muslims (50%). We did not find similar association in any other studies. In some studies, the determinant of good adherence to diet was sex, age, marital status, and occupation.[10,11] Nutrition-related cultural variations among the ethnic populations demonstrate that the crucial importance of asking patients about their specific food habits to have any hope of providing culturally appropriate advice for modifying traditional eating patterns to prevent and treat type 2 diabetes. Involving family members in nutrition counseling sessions is also effective in promoting interest in following the recommendations.[12]

Age was a strong determinant of good adherence to blood sugar testing in our study. People <55 years did blood sugar test regularly than the older people. Similar relation with age is seen in a study conducted on type 1 diabetes patients.[13]

Younger patients and patients who had formal education practiced regular exercise in our study. In other studies done in Pakistan[14] and Saudi Arabia,[14] gender, marital status, age, and education were the strong determinant factors for adherence to exercise.

Patients who did not work such as homemakers, retired people were nonadheherent to medication than the working patients may be because they could not afford the medicines. A similar association was seen in many studies.[15,16] In another study done in Uganda, gender and education were associated with adherence to medication.[17]

Nonsmoking behavior was associated with gender and occupation in our study, and similar relation is found in other studies. Males and working group smoked more.[18] Foot care practice was not associated with any variables in our study.

In our study, adherence to medication was a strong determinant for good glycemic control. In other studies, good adherence to diet, exercise, and medication was associated with good glycemic control.[17]

Table 3: Association of variables with good adherence to practices					
Variable	*n (P)*				
	Good adherence diet	Good adherence blood test	Good adherence to exercise	Good adherence to medication	Nonsmoking behavior
Age <55	12 (0.605)	75 (0.032)	34 (0.022)	54 (0.986)	83 (0.348)*
Male	6 (0.995)	42 (0.116)	19 (0.141)	30 (0.933)	42 (0.003)*
Formal education	74 (0.377)	8 (0.113)	35 (0.02)	99 (0.352)	68 (0.392)*
Working	12 (0.708)	77 (0.625)	25 (0.085)	61 (0.044)	55 (0.023)*
Family income >5000	11 (0.295)	82 (0.860)	32 (0.798)	62 (0.473)	53 (0.622)*
Financial independence	4 (0.732)	33 (0.711)	15 (0.067)	24 (0.237)	36 (0.361)
Nuclear family	18 (0.095)	99 (0.086)	36 (0.577)	72 (0.438)	114 (0.289)*
Religion	4 (0.001)	72 (0.971)	27 (0.114)	53 (0.607)	84 (0.127)
>5 years of diabetes	5 (0.347)	42 (0.516)	12 (0.064)	34 (0.997)	100 (0.347)*

*Fisher exact test

Table 4: Glycemic control with the self-care practices

	GRBS^		P
	<180	>180	
Good adherence to diet	7	13	0.800
Good adherence to blood testing	39	88	0.358
Good adherence to exercise	20	30	0.175
Good adherence to medication	38	61	0.047
Good adherence to foot care	26	53	0.917
Nonsmoking behavior	49	105	0.327*

*Fisher exact test; ^Glucometer random blood sugar

Conclusion

The prevalence of good self-care practice among diabetes patients is high with respect to blood sugar testing and medication compared to adherence to diet, exercise, and foot care. Some of the sociodemographic factors associated with good self-care practices are young age, gender, formal education, occupation, and religion. Good adherence to medication is associated with better control of blood sugars. A clinician should be able to identify these risk factors and give a special attention to these groups of patients and make realistic recommendations for self-care activities.

Conflicts of interest

There are no conflicts of interest.

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