



## A Study to Know Self-Care Practice among Diabetic Patients Residing At Urban Slum Area of Asarwa, Ahmedabad

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## ABSTRACT

**Background:** Self-care of diabetes is essential for control of disease and improvement of quality of patient's life. The study was conducted to explore self-care practice of diabetic patients.

**Objectives:** The Present study was conducted to determine the self-care practice and related factors among diabetes patients and to find out association between Glycaemic control and self-care practice.

**Methods:** A Community based cross-sectional study was conducted by doing house to house survey. Total 120 samples who were already diagnosed taken from urban slum of asarwa, Ahmedabad. A Pre-tested structured questionnaire was adopted from Summary of Diabetes Self-Care Activities (SDSCA) and Morisky Medication Adherence Scale. Data was entered and analysed in Microsoft Excel.

**Results:** Out of 120 patients, 63 were male and 57 were female. Majority of respondent between the age group of 45-60 years (49.17%). Half of the patients consulting from civil hospital. 68 (56.7%) of respondents had good glycaemic control. Self-care practice were positively associated with achieved glycaemic control.

**Conclusion:** As evidenced by the study, patients who were regularly involved in self-care practices have achieved better glycaemic control.

**Key words:** Diabetes, Self-care practice, Urban slum

## INTRODUCTION

Diabetes is characterised by a state of chronic hyperglycaemia, which is due to many environmental and genetic factor acting combinely.<sup>1</sup> Diabetes is the one of the most common disease whose incidence is raised so rapidly over years to become a public health problem.

A worldwide study in 2015 shows that totally 415 million people have diabetes among, that India harbours 69.1 million cases with the prevalence of 8.7 % among the adult population.<sup>2</sup> India ranks among the top three countries with diabetic population.<sup>3</sup> Increased prevalence in India is attributed

to the lifestyle transition coupled with urbanization, industrialization and lifestyle changes.<sup>4</sup>

Diabetes is a chronic disease, requiring a multi-pronged approach for its management, wherein the patient has an important role to play. The patients are required to follow certain self-care practices in order to achieve an optimal glycaemic control and prevent complications such as neuropathy, nephropathy, and retinopathy. These practices include regular physical activity, appropriate dietary practices, daily foot care practice, compliance with the treatment regimen, and tackling complications such as hypoglycaemic episodes.<sup>5-7</sup> Patients with good knowledge and good self-care practice have high chance to attain a good glycaemic control and

reduced CVS risk and vice versa.<sup>8-11</sup> Thus, it is essential to have an awareness and proper self-care practising among the diabetic population for better life. The study aimed to evaluate the self-care practices and their role in achieving glycaemic control and disease management.

## METHODS

A community based cross sectional study was conducted during October-November 2018 in urban slum of asarwa, Ahmedabad. These urban slum population was around five thousands. Prevalence of diabetes was taken 7.8%, the sample size was calculated using the formula,  $4pq/d^2$ . Thus the study was conducted among 120 diabetic patients. In this study diabetic patients who were from 18 years and above and willing to participate were included and those diabetic patients that were too ill to participate, pregnant women and newly diagnosed (less than six months) were excluded. The purpose of the study was explained and informed consent was obtained from the participants.

Pre-tested structured questionnaire was administered which consisted of the following parts: A) Socio-demographic information B) Diabetes specific information C) Self-care practices followed by the patients. Socio-demographic information including patients age, gender, and educational status. Socio-economic status of the patient was calculated by using Modified Prasad classification. Diabetes specific information including the duration of the disease, family history, glycaemic control, mode of treatment and medical care personnel.

Self-care practices includes domains of eating habits, physical activity, Adherence to medications, foot care, eye care and investigations like blood sugar, blood pressure monitoring. The domains of eating habits include avoids high sugar containing food, follow healthful diet plan and eat more vegetables & fruits. Adherence to medication was assessed using Morisky Medication Adherence Scale (MMAS-4).<sup>12</sup> Every domains of self-care was assessed and given score of 0 or 1, except Adherence to medication which is given score 0 - 4, which gives total score of 12. A score of 9-12 was considered as good self-care, 5-8 as moderate and 1-4 as poor self-care practice.

Patients were classified into those who had achieved glycaemia control and those who did not, based on the fasting blood sugar levels < than 110 mg/dl based on Consensus Statement on Guidelines for Glycaemic Control provided by American College of Endocrinology.<sup>13</sup> In this two groups, self-care practices were compared and significant

associations evaluated. Statistical methods used included frequencies, proportions and chi square test.

## RESULTS

### Socio-demographic Details:

Out of 120 patients, 63 were male and 57 were female. Majority of respondent between the age group of 45-60 years (49.2%). Around 24% of the diabetic population were illiterate, 44% studied up to class 8<sup>th</sup> standard and 24% studied up to secondary & higher secondary and only 8% studied up to graduation. One-fourth of the study population were currently working, 16 % subjects were unemployed, and 16% were retired, and 42 % were working as house wife.

Most of the study population were Hindus (94.2%), Muslims and Jain Swere 3.33% and 2.5% respectively. Around half of the study population were in class IV according to Modified BG Prasad's social Classification 2018, Only 8% were in class V and around one fifth were in class II (17.5%) & class III (20%) and only 6.6% were in class I.

**Table 1: Self-care practice of diabetic patients among study population (n=120)**

Domains /Variables	Participants (%)
<b>Diet-Avoid sugar</b>	
Followed	92 (78.67)
Not followed	28 (23.3)
<b>Follow diet plan (avoid fat-oil)</b>	
Followed	90 (75)
Not followed	30 (25)
<b>Ate fruits &amp; Vegetables regularly</b>	
< 5 times	28 (23.3)
> 5 times	92 (78.67)
<b>Doing Exercise</b>	
Yes	48 (40)
No	72 (60)
<b>Check blood sugar regularly</b>	
Yes	88 (73.3)
No	32 (26.67)
<b>Adherence to Medication (MMAS-4)</b>	
1	22 (18.3)
2	24 (20)
3	6 (5)
4	68 (56.67)
<b>Foot care</b>	
Followed	80 (66.67)
Not followed	40 (33.3)
<b>Eye check-up</b>	
Done	28 (23.3)
Not Done	92 (78.67)
<b>Body check-up regularly</b>	
Done	77 (64.2)
Not Done	43 (35.8)

**Table 2: Association between self-care practice and glycaemic control**

Variables	Response	Glycaemic Control		Total (n=116)	$\chi^2$ value	P value	Odds ratio (95% CI)
		Achieved (n=68) (%)	Not achieved (n=43) (%)				
Avoid sugar	Yes	59 (65.5)	31(34.4)	90	7.96	0.004	3.59
	No	9 (34.6)	17(65.3)	26			
Follow healthful diet plan	Yes	57 (65.5)	30(34.5)	87	6.82	0.008	3.11
	No	11 (37.9)	18(62.1)	29			
Participate in exercise	Yes	31 (67.4)	15(32.6)	46	2.42	0.12	1.84
	No	37 (52.9)	33(47.1)	70			
Drug Adherence	Yes	45 (61.6)	28(38.4)	73	0.74	0.38	1.39
	No	23 (53.5)	20(46.5)	43			
Test blood sugar regularly	Yes	56 (65.9)	29(34.1)	85	6.91	0.008	3.05
	No	12 (38.7)	19(61.3)	31			
Foot care	Yes	48 (62.3)	29(37.7)	77	1.30	0.25	1.59
	No	20 (51.3)	19(48.7)	39			
Eye check-up	Yes	16(57.1)	12(42.9)	28	0.03	0.85	0.92
	No	52(59.1)	36(40.9)	88			

**Table 3: Association between Self-care activity and demographic variables**

Domains / Variables	Self-care practices				$\chi^2$ value	P Value
	Good	Moderate	Poor	Total		
<b>Age Group</b>						
< 45 years	3	2	1	6	2.15	0.71
45-60 years	24	27	8	59		
> 60 years	28	23	4	55		
<b>Gender</b>						
Male	27	25	11	63	6.04	0.48
Female	28	27	2	57		
<b>Education</b>						
No formal education	16	10	3	29	3.45	0.486
Primary	19	27	6	52		
Above Primary	20	15	4	39		
<b>Occupation</b>						
Unemployed	4	13	3	20	17.4	0.007
Currently working	15	8	7	30		
Retired	13	6	1	20		
House wife	23	25	2	50		
<b>Socio-economic class</b>						
Class I	3	4	1	8	2.52	0.87
Class II	11	9	1	21		
Class II	13	9	2	24		
Class IV & ClassV	28	30	9	67		
<b>Financial dependency</b>						
Yes	28	35	5	68	4.89	0.08
No	27	17	8	52		
<b>Family history</b>						
Yes	14	18	4	36	1.07	0.58
No	41	34	9	84		
<b>Duration of DM</b>						
< 2 years	5	12	2	19	4.82	0.31

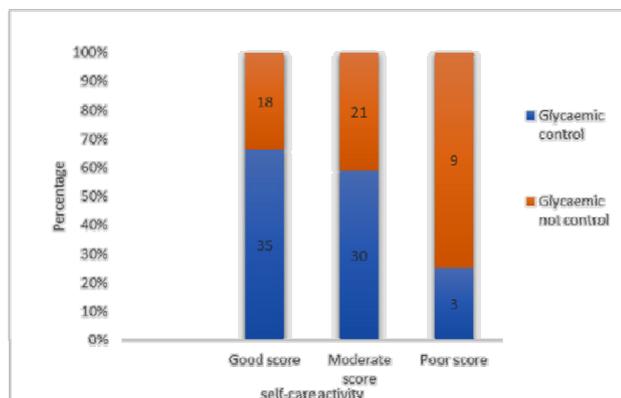
**Diabetic profile of the Study Subjects:**

More than one-fourth (30%) of the study population have family history of Diabetes. Around one-fifth of the population were current smokers (15%) and current tobacco chewing( 21.7%) and 3.33% were alcoholics. Around half (46.7%) of study subjects were having diabetes more than five years in duration, 37.5% were having diabetes two years to five years in duration and the rest were six months to two years in duration of diabetes. Out of 120

diabetic subjects, 96 (80%) were being treated with Oral Hypoglycaemic agents (OHA's) and 15% were taking insulin therapy, with oral drugs and insulin therapy 10.8% subjects were taking ayurvedic medicine. Around half of the study subjects had hypertension as co-existing illness.

**Self-care practice of diabetes:** In the domain of Diet, around 80% of the study population were following avoid sweets and sugar in hot drinks like coffee, tea and three fourth (75%) were following

avoid high fat like mutton and oil foods. Around 80% were regularly ate vegetables and fruits in their diet. Only 40 % of the study population were involved in moderate level of activity in daily or doing exercise regularly.



**Graph 1: Self care activity score in context of Glycaemic control**

According to Morisky scale, around 61.7% of the study subjects were got higher level of medication adherence (score of 3 or 4) and 38.3% were got lower level of medication adherence (score of 1 or 2). Around 70% of subjects were taking care of their foot. Only 23% of the study subjects doing fundus examination yearly. The overall median score of self-care activity was 8 with Interquartile range was 6-10 and range was 1-12. Good self-care practice (score 9-12) was found in 45.8%, moderate was 43.3 and poor practice was found in 10.8% study subjects.(Table 1)

#### Self-care activity and Glycaemic Control:

A significant association was found between self-care practices and good glycaemic control,  $\chi^2$  value= 6.79,  $p=0.03$ . (Fig 1) In varies domain of self-care practice was positively associated with glycaemic control. (Table 2)

#### Association between Self-care activity and demographic variables:

There were no significant association found between Age group, Gender, Education, socio-economic status, financial dependency, family history and Duration of diabetes among the study population with self-care practices of Diabetes. But Occupation was significantly associated with self-care practices of Diabetes. (Table 3)

## DISCUSSION

This study is a community based cross-sectional study which is conducted among participants who have taken the treatment of diabetes since 1

months, the study is mainly focused about the level of self-care practice and glycemic control among them. In the study, level of self-care practices was: 45% good, 44% moderate and 11% poor. 42% of diabetics were having adequate self-care activity found in study done in Tamilnadu by Veerakumar A M.<sup>14</sup> In our study, around 75% of the diabetic patients followed the diet plan according to their respective doctors/ health care workers. This was similar to the study done in Andhra Pradesh, Padma K et al<sup>15</sup> found 76% were followed healthful diet plan and 70% in study done in Tamilnadu by Veerakumar A M<sup>14</sup>. Similarly, in our study, 40% of the study population were involved in regular physical activity. Veerakumar A M<sup>14</sup> found around 65% and Padma K et al<sup>16</sup> found in 39%. This difference was may be due to the difference in Socio-demographic patterns and busy life-style of the study population covered in it. Present study was done in urban slum area surrounding hospital. But Veerakumar A M<sup>14</sup> was done in remote rural areas of Tamilnadu and Padma K et al<sup>15</sup> found in a teaching hospital of Andhra Pradesh.

Around 62% adherence to medications was found in the study. This was quite comparable to Padma K et al<sup>15</sup> (68%), study done by SugunaA et al<sup>16</sup> (73%) and Veerakumar A M<sup>14</sup>(77%). In the domain of foot care, S Padma K et al<sup>15</sup> found only 13% and Veerakumar A M<sup>14</sup> found 48% , whereas the present study found around 65% of the diabetic foot care. This may due to difference about knowledge of diabetic self-care practices. Moreover the regular advice from the doctors and health workers regarding self-care activity was changed in the recent years and awareness of foot care examination was quietly improved in the recent years. This could be the reason for increased foot care by the participants in this study.

In the domain of regular blood sugar testing, in the current study found 73% of the diabetic participants regularly checking their blood sugar. Study done by Padma K et al<sup>15</sup> 90.6% of study subjects and Veerakumar A M<sup>14</sup> found 95% of study subjects testing blood sugar regularly. Other domains like Fundus examination was found only 23%.This was quite comparable in study done in Tamilnadu by Veerakumar A M<sup>14</sup> found 18% of the study population. Regular blood pressure monitoring was found in 73% and study done in Tamilnadu by Veerakumar A M<sup>14</sup> found 95%.

In the present study, there was positive association found between self-care practices score and Glycaemic control. This was similar to various studies done on diabetic patients. In this study, 56.7% of the diabetic patients were having glycaemic control. Study done by Veerakumar A M<sup>14</sup> where they found 22% of the diabetic patients were having

good glycaemic control. This difference in glycaemic control between the participants may be due to distance from health facility was less in our study so they can easily reach for blood sugar monitoring.

In the present study, it is found that there was no significant association between self-care practices and age, gender, education status, financial dependency and duration of diabetes. Study done by SugunaA et al<sup>16</sup> have found that Higher educational status were associated with better self-care. A significant association has been found between the occupation of diabetes and self-care practice.

### Limitation

There were some limitations of this study. Fasting blood sugar values was used to decide the level of glycaemic control. The correct parameter for glycaemic control is HbA1c. but if we use that, the affordability of the test might be questionable. Data regarding self-care practices was mainly on verbal responses.

### CONCLUSION

Better self-care practices were found to be associated with good glycaemic control in this study. Eye check-up was the self-care practice that was least adhered to among self-care practices. So that we can say that it is important to create awareness about self-care, with emphasis on regular fundus examination.

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