

COMPARISON OF SELF-CARE PRACTICES AMONG DIABETIC PATIENTS BETWEEN A SELECTED RURAL AND SEMI URBAN AREA IN SALEM DISTRICT**Priyadarsini.S.P¹ Mohammed Ibrahim.R¹ Shankar.R² Abdul Nayeem.R³**

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Abstract

Background: Type 2 Diabetes Mellitus is a chronic progressive disease with an increasing trend of epidemic proportions throughout the world. There have been very few studies addressing self-care practices among diabetic patients, far fewer in rural areas. **Objectives:** To evaluate self-care practices among diabetic patients in urban and rural areas and to study the difference in them. **Materials & Methods:** The study was a cross sectional study, done in known diabetic patients in Urban field practice area, Annapoorana Medical college and Hospital and rural field practicing area of Vinayaka Missions KirupanandaVaariyar Medical College and Hospital. A total of 200 patients 100 from each area were interviewed. Data was collected by utilizing a demographic questionnaire and the Summary of Diabetes Self-Care Activities questionnaire (SDSCA), which evaluates the status of patients' self-care during last eight weeks and it was compared. **Results:** Of the 100 rural diabetic patients who participated in the study, low levels of self-care were recorded in the domains of foot care (3%), physical activity (39%), regular follow up (31%) and medication adherence (38.4). Urban diabetic patients who were with a higher per capita income were largely found to have better self-care practices. (Chi square-33.31, p-0.001) **Conclusions:** It is usually found that appropriate patients knowledge of self-care is the key to achieving therapeutic goals in ambulatory care. Because the vast majority of day-to-day care in diabetes is handled by patients and/or families, there is an important need for reliable and valid measures for self-management of diabetes.

Key-words: Self-care practices, Diabetics, Field practice area, Domains, SDSCA Questionnaire.

Introduction

Learning Diabetes is one of the most common chronic diseases, and because of its growing trend, is considered to be one of the most important public health problems in the world. The disease has led to 9% of all deaths worldwide, and it is the fifth leading cause of death in Western societies, also the fourth reason for going to a doctor. (1)The prevalence of diabetes mellitus (DM) has been increasing all over the world in past 30 years, and particularly higher prevalence is seen in the Indian Subcontinent. India leads the world with largest number of diabetics subjects earning the dubious distinction of being termed the "diabetes capital world" The prevalence rates have been estimated to be 12% in urban areas and 4% in rural areas. More concerning is the fact the diabetes prevalence over the past four decades has increased fourfold.(2) Diabetes is characterized by a state of chronic hyperglycaemia resulting from several environmental and genetic aetiologies acting jointly.(3)

Increased prevalence in India is attributed to the lifestyle transition coupled with urbanization, industrialization. (4) Diabetic patients are required to follow certain self-care practices to achieve an optimal glycaemic control and prevent complications. These practices include regular physical activity, appropriate dietary practices, daily foot care practice, compliance with treatment regimen, and tackling complications such as hypoglycaemic episodes.(5)Self-care in diabetes is defined as behaviours undertaken by people with or at risk of diabetes in order to successfully manage the disease on their own. These self-care practices are found to be highly beneficial in helping out in preventing them from complications of diabetes mellitus.

There have been very few studies addressing self-care practices in diabetics, far fewer in rural areas where people lack knowledge about the disease. We, therefore, planned to conduct a study in the urban field practice area of Annapoorana Medical College & rural field practicing area of Vinayaka Missions KirupanandaVariyar Medical College and Hospital to document the patterns of self-care

practice among diabetic patients and study the factors associated with self-care practices in these diabetic patients.

Material and Methods

Patients with Type 2 Diabetes Mellitus seeking care at the urban health centre of Annapoorna Medical College, Karungalapatty, Salem and rural health centre of Vinayaka Missions KirupanandaVaariyar Medical College and Hospital, Attayampatty, Salem were interviewed in this cross sectional study. Prior to the onset of the study, ethical approval was obtained from Institutional Ethics Committee (IEC) of AMCH, Salem. A written informed consent was obtained from all the study participants. All the collected information was kept confidential, and it is being used for research purpose only. Total participants of the study were 200 patients 100 from each centre. Known diabetics with more than one year duration had been included in this study. Those diabetics who were seriously ill and unable to practice self-care were excluded from the study.

A sample size of 92 was calculated using reported prevalence of 60% (6) of adequate self-care practices, with 5% level of significance and 95% confidence interval with 10% of true estimate. Data had been collected from April 2017 to Dec 2017. Convenience sampling was used to recruit patients for this study.

The questionnaire was being administered to each patient by one of the investigators. The study questionnaire was adapted from The Summary of Diabetes Self-care Activities (SDSCA) Measure.(7) The questionnaire had captured the socio demographic details, the medical history of the patient, the diabetic history in particular. Prior to the onset of the study, the questionnaire was translated into local language (Tamil) and pre-tested among small group of patients with diabetes and necessary modifications were made in terms of content of the questionnaire and of comprehensibility.

A score of 8-10 is considered as good self care, 5-7 as moderate and 0-4 as poor self care practice. Adherence to medication was being assessed using the Morisky, Green, and Levine (MGL) Adherence Scale. (8) Apart from the self-care aspects, information also been collected in relation to socio-demographic characteristics of the participants such as age, gender, literacy level, occupation, family type and financial dependence etc., Data had been coded and analyzed using Epi info software. Association between categorical variables were analyzed by chi-square test and Fisher's exact test and $p < 0.05$ was considered as significant association.

Results

Study found that 46% of the respondents from the rural area were females and 54% of the respondents were males. Majority of the male respondents were in 56-65 years (47.9%). Majority of the female respondents was in 46-65 years (58.8%). With respect to urban respondents, 60% were males and 40% of the respondents were

females. Majority of the male respondents were in 46-55 years. (72.2%) Majority of the female respondents were in 65-75 years (56.3%). (Table.1)

Table 1. Socio demographic variables of participants

Socio- demographic variables	Area				Total		
	Urban		Rural				
	N	%	N	%			
Age group	26-35	1	20	4	80	5	
		2		2			
	36-45	4	50	4	50	48	
		3	51.	3	48.		
	46-55	6	4	4	6	70	
		2	47.	2	52.		
	56-65	1	7	3	3	44	
		1	53.	1	46.		
	65-75	6	3	4	7	30	
			66.		33.		
>75	2	7	1	3	3		
Education	Illiterate	0	0	5	100	5	
	Up to High School	6	42.	8	57.		
		5	2	9	8	154	
	PUC and above	3	85.		14.		
		5	4	6	6	41	
		1					
	Skilled	5	75	5	25	20	
	Semiskilled	2	44.	2	55.		
		3	2	9	8	52	
		2	44.	3	55.		
Occupation	Unskilled	4	4	0	6	54	
		2	83.		16.		
	Retired	0	3	4	7	24	
		1		3			
	Housewife	8	36	2	64	50	
	3 generation	8	7	4	3	12	
		6	53.	5	46.		
	Nuclear	0	6	2	4	112	
		2	39.	3	60.		
Family type	Joint	3	7	5	3	58	
	Extended	9	50	9	50	18	
	Complete	2	20	8	80	10	
			53.		46.		
	Partial	8	3	7	7	15	
		9	51.	8	48.		
	Financial dependence	None	0	4	5	6	175
			4	64.	2	35.	
		≥5570	7	4	6	6	73
		4	47.	4	52.		
2785-5569		0	6	4	4	84	
		1	42.	1	57.		
1671-2784		1	3	5	7	26	
			13.	1	86.		
835-1670		2	3	3	7	15	
<835		0	0	2	100	2	
	1	32.	3	67.			
Habits	Smoking	8	7	7	3	55	
	Non-smokers	8	56.	6	43.		
		2	6	3	4	145	
		3	42.	4	57.		
	Alcohol	5	7	7	3	82	
	Non-alcoholic	6	55.	5	44.		
		5	1	3	9	118	

In our study, we found that urban respondents who were better educated, and those with a higher per capita income

were largely found to have better self-care practices in most aspects (Table2-3).

Table.2.Comparison of socio- economic status of Urban and Rural respondents with Total self care score

Socioeconomic status (monthly Income in Rs)	Total self care score							
	Good		Medium		Low		Total	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
5570	11	7	29	15	7	4	47	26
2785-5569	4	1	20	12	16	31	40	44
1671-2784	1	1	4	5	6	9	11	15
835-1670	0	0	0	7	2	6	2	13
<835	0	0	0	0	0	2	0	2
Total	16	9	53	39	31	52	100	100

Fisher’s exact test -Calculated value-15.5 , P value -0.016 – Urban, df=6
Fisher’s exact test - Calculated value-29.2, P value -0.0001- Rural, df=8

Table.3 Comparison of educational status of Urban and rural respondents with Total self care score

Education	Total self care score							
	Good		Medium		Low		Total	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Illiterate	0	0	0	2	0	3	0	5
Up to high school	2	4	33	36	30	49	65	89
PUC and above	14	5	20	1	1	0	35	6
Total	16	9	53	39	31	52	100	100

Fisher exact test - Calculated value-33.31 P value -0.0001 – Urban, df=2
Fisher’s exact test - Calculated value-43.42 P value -0.0001- Rural, df=4

Table 4.Assessment of six domains to identify the levels of self-care in the respondents

Domain assessed	Area				Chi square	P value
	Urban		Rural			
	No.	%	No.	%		
Followed advise on diet	61	61	33	33	15.7	0.0001
Physical activity	58	58	48	48	2.01	0.157
Regular blood sugar testing	81	81	39	39	36.8	0.0001
Adequate Foot care	14	14	3	3	7.78	0.005
Regular follow up	78	78	43	43	25.6	0.0001
Adherence to medications						
3&4 (low)	19	19	63	63		
1&2 (medium)	64	64	22	22		
0 (good)	17	17	15	15	44.2	0.0001

Six domains were assessed to identify the levels of self-care in the respondents. (Table.4) Better reception of advice regarding food modification and practice of diabetic diet was observed in urban respondents (61%) when compared with the rural respondents (33 %) and

the difference was found to be statistically significant (p=0.0001). Considering the physical activity component, of the urban participants (58%) practiced a physical activity of at least 30 min on at least 5 days in a week whereas rural respondents were lagging behind in their routine physical activities (48%) and the p value not found to be significant(p=0.157).Urban respondents were far better in regular blood glucose monitoring (88%) when compared with rural respondents in which only 39% were regularly monitoring their blood sugar levels which was statistically significant(p=0.0001). Regarding the foot care, both rural and urban areas were found be poor with urban respondents practicing adequate foot care for only 14% whereas rural response was as low as 3% and the observation was found to be statistically significant(p=0.005). Adherence to medication was found to be medium (score1&2) in urban respondents (64%) when majority of rural respondents scored poorly (63%) and it was statistically significant (p=0.0001). (Table.5)

Table 5. Total Self-care Score

Score	Area				Chi square	P value
	Urban		Rural			
	No.	%	No.	%		
0-4 (low)	31	31	52	52		
5-7 (medium)	53	53	39	39		
8-11 (good)	16	16	9	9	9.4	0.009

Discussion

The present study was done to assess the practice of diabetes self-care activities among patients attending rural health and urban health training centres’ of two tertiary care institutions. The authors found that urban respondents who were better educated, and those with a higher per capita income were largely found to have better self-care practices in most aspects and it was found to be statistically significant also. Chiou et al also found that high income was correlated with high self-care ability.(9) Tang et al also found that higher educational attainment were associated with high level of physical activity, and regular glucose monitoring which was similar to our study.(10)

The importance of following a regular dietary plan in terms of both quality and quantity lies in the fact that proper weight management and adequate blood sugar control are linked to it. Present study found that better reception of advice regarding food modification and practice of diabetic diet was observed in urban respondents (61%) when compared with the rural respondents (33 %) which was in contrast to the study done by Dinesh et al(11) at rural Karnataka reported that good dietary behavior was present only in 24% of the study participants. In contrast to the present urban study results, a study done by Rajasekharan *et al* (12) and Padma et al (13) reported that 46% of the urban participants followed a diet plan regularly. It is important

to stress upon this aspect of dietary self-care behaviors for all the patients with diabetes.

Exercising regularly will have many benefits ranging from reduced insulin resistance, blood pressure control, and cardio-protective role. The present study found that of the urban participants (58%) practiced a physical activity of at least 30 min on at least 5 days in a week whereas rural respondents were lagging behind in their routine physical activities (48%). In contrast to this, the physical activity component of self-care activities appeared to be practiced poorly, as only 43.4% were doing a 30 min exercise every day (Rajasekaran et al (12)), and a study done by Dinesh et al(11) reported that only 19% of the study participants followed the recommended 20–30 min exercise per day for at least 5 days a week which is similar to a study done by Hailu *et al.*(14) Regular exercises are recommended for people with diabetes as they have got many beneficial effects like better blood sugar control, reduction in insulin resistance, better control of blood pressure levels and cardio-protective action.(15) More stress should be placed on the physical activity component of diabetes self-care education.

Regular monitoring of blood sugar levels is vital in the management of diabetes, as it helps in assessing the effectiveness of the ongoing treatment regimen of the patient. In the present study, urban respondents were far better in regular blood glucose monitoring (88%) when compared with rural respondents in which only 39% were regularly monitoring their blood sugar levels. Similar observation has been made by Rajasekaran et al(12) that more than three-fourth of the study participants checked blood sugar levels at least once in 3 months. Similar results were also observed in studies conducted elsewhere(16,17,18). Emphasis should be laid on checking blood sugars as the effectiveness of the treatment regimen can be ascertained only by checking their blood sugars.

The practice of foot care components is essential for the prevention of foot ulcers and subsequent development of a gangrenous lesion that can lead to limb amputations thus resulting in increased disability and handicap. The present study observed that both rural and urban areas were found to be poor, with urban respondents practicing adequate foot care for only 14% whereas rural response was as low as 3%. Similar to this, Dinesh et al(11) found a very low percentage (0.5%) of the study population checked their feet. In contrast to these two studies, in the Chandigarh study, foot care was done by 63.3% of the participants through regular washing (19). In another study by Raithatha et al(20) also showed a higher percentage (82%) washing their feet with soap and water on a daily basis. Present study reported a lower percentage when compared to other studies may be due to the different socio-cultural background. Hence a great deal of improvement in the practices of foot care is required. The fact of poor adherence to medications coupled with poor foot care puts additional risk for the

study population. Hence, awareness must be generated in this regard.

Adherence to medication was found to be medium (score 1&2) in urban respondents (64%) when majority of rural respondents scored poorly (63%). Similar observation has also been reported by Rajasekaran et al(12) that adherence to oral hypoglycemic drugs (60.5%) and insulin injections (66.9%) was found to be high among the study participants. The adherence rates to pharmacotherapy in the present study was less compared with the study conducted by *Gopichandran et al*(16) in which an adherence rate of 79% was identified.

Conclusion

It is usually found that appropriate patients knowledge of self-care is the key to achieving therapeutic goals in ambulatory care. Because the vast majority of day-to-day care in diabetes is handled by patients and/or families, there is an important need for reliable and valid measures for self-management of diabetes. So enhanced health education activities are to be planned in rural areas to improve the self-care practices in diabetic patients.

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