ORIGINAL RESEARCH PAPER

Community Medicine

SUMMARY DIABETES SELF-CARE ACTIVITIES (SDSCA) AMONG ELDERLY POPULATION

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ABSTRACT

Back ground: Diabetes mellitus (DM) is a chronic progressive metabolic disorder, most common non-communicable disease globally. The global prevalence of diabetes among adults over 18 years of age rose from 4.7% in 1980 to 8.5% in 2014. In 2016, diabetes was the direct cause of 1.6 million deaths. **Objectives:** To assess the self-care practices among elderly with type 2 diabetes mellitus and to know the factors influencing it. **Methodology:** A community based cross-sectional study was conducted by selecting elderly through systematic random sampling; socio-demographic details and self-care practices were assessed by Summary Diabetes Self-Care Activities questionnaire (SDSCA). Data were entered in excel, descriptive statistics and chi-square were calculated. **Results:** 177 elderly diabetics participated in the study. A majority of 49.71% were in the age group of 69-70years. 58.76% were females, 40.11% were literates, and 55.93% resided in joint families. The self-care practices were computed based on Summary Diabetes Self-Care Activities questionnaire (SDSCA) 72.88% had good and poor self-care practices. Significant factors were 60-69 years age group, male gender, literates and duration of diabetes (1-5years) (p<0.05). **Conclusion:** Diabetes and related complications impose a high-burden of catastrophic economic costs by increasing out of pocket expenditure. Self-care in diabetes plays a pivotal role in managing the disease, which has to be practiced more efficiently at individual level with the support from family and community so as to promote healthy ageing amid co-morbidities.

INTRODUCTION

Diabetes is on the upsurge, no longer a disease of predominantly wealthy nations; the prevalence of diabetes is steadily increasing everywhere, most markedly in the middle-income countries globally. In an effort to address this growing health challenge, since early this decade world leaders have committed to reduce the burden of diabetes as one of four priority non-communicable diseases (NCDs). As part of the 2030 Agenda for Sustainable Development, member states have set an ambitious target to reduce premature mortality from NCDs – including diabetes – by one third; achieve universal health coverage; and provide access to affordable essential medicines – all by 2030.[1]

Globally, the number of people with diabetes rose from 108 million in 1980 to 422 million in 2014. The global prevalence of diabetes among adults over 18 years of age rose from 4.7% in 1980 to 8.5% in 2014. Between 2000 and 2016, there was a 5% increase in premature mortality from diabetes, with an estimated 1.6 million deaths.[2]

Around 80% of the world's diabetic population resides in developing countries. Currently, India is contemplated as the diabetes capital of world and there are approximately 72.9 million people suffering from diabetes in India.[3] As per Indian Diabetic Federation (IDF) data for the year 2013, there were 65.1 million people with diabetes in India, which is predicted to rise up to 109 million by the year 2035.[4]

The prevalence of diabetes is highest in older adults, a population that is increasing due to extended human life span. The elderly population with diabetes are more at risk of developing hypoglycaemia than the adult population because of high co-morbidities, polypharmacy, cognitive impairment and the use of agents that interfere with glucose metabolism.[5,6]

Basically diabetes is a lifestyle disease, requiring multipronged approach for its management, wherein patient has an important role to play in terms of self-care practices, which can be taught to them by educational programs.[7] Self-care is multidimensional and includes healthy diet, regular exercise, blood glucose monitoring, foot care and smoking which have be practiced in order to achieve an optimal glycemic control and avoid possible complications such as heart attack, stroke, leg amputation, neuropathy, nephropathy, and retinopathy.[8,9] Considering the above background, this study was designed to explore the self-care practices among the elderly type 2 diabetics and to know the factors influencing it.

MATERIALS AND METHODS

Study design

A community based, cross-sectional study was conducted from June-August 2018 among elderly (≥60years) type 2 diabetics residing in rural area, which is the field practice area of Rural Health Training Centre attached to a tertiary care hospital in Hyderabad, Telangana, India.

Sampling size:

The sample size was calculated by using the formula $n = 4pq/L^2$, the anticipated proportion of self-care practices as 50%, with relative precision of 15% and 95% confidence interval. Final sample size was estimated to be 177.

Sampling procedure:

Identification of the elderly with type 2 diabetes was done in a systematic random sampling method. Each house was visited and elderly person with diabetes were identified and included in the survey. Consecutive houses were contacted till the required sample size was achieved. Only one person from each family was included in the study and was considered to be representative of the selected family so as to avoid duplication of data and recall bias, covering the entire population.

Inclusion and exclusion criteria:

Elderly suffering from type 2 diabetics who were physically and mentally fit, residing in the study area for more than one year and gave consent on a voluntary basis to participate in the study were included. People who denied to consent for participating in the study, history of having additional co-morbidities like hypertension, renal diseases etc. and those who could not be contacted after three visits were excluded from taking part in the study.

Data collection:

Data were collected by interviewing all 177 study participants by conducting house-to-house survey using a pre-designed and pre-tested semi structured proforma, in which, part I included socio-demographic profile like age, gender, occupation, religion and socioeconomic status. Part II comprised of questions relating to details of Summary of Diabetes Self-Care Activities (SDSCA).[9,10,11,12] SDSCA questionnaire contains items related to five different domains of self-care including diet, exercise, blood glucose monitoring, foot care and smoking. The responses for different items were recorded by interviewer according to number of days in previous week a particular self-care activity of a domain was followed on a scale of 0-7. More number of days reflected the better self-care practices and to allow for comparison in terms of percentages the given self-care activity was considered good if it was followed on most of days (≥5 days) in a week. Number of items in five domains included for calculating scores were diet (4 items), exercise (2 items), blood glucose monitoring (2 item), foot care (2 items) and non-smoking behaviour (1 item). Total number of days recorded as response for each item in a domain/subscale was designated as score itself for diet, exercise, foot care and for blood glucose monitoring and non-smoking behaviour scores were either 0 or 7, and then total score was obtained by adding all scores divided by total number of items giving equal weightage to each. Finally total scores ranged from 0 to 7 for each patient and scores less than 5 were considered poor self-care practices.

The questionnaire used in the study was translated to vernacular language and validated by the investigators. Data was collected after signing a written informed consent form on voluntary basis and assuring the confidentiality face to face interview was conducted. Data analysis was done using SPSS software version 22.0. Descriptive statistics and frequencies were calculated. Study was conducted after taking Institutional Ethical Committee approval.

RESULTS

A total of 177 elderly diabetics participated in the study. The socio-demographic characteristics of the study participants are shown in Table.1, where majority of 49.71% were in the age group of 69-70years. A maximum of 58.76% were females, 40.11% were literates, and 55.93% resided in joint families. A majority of 47.46% belonged to upper middle and middle class of socioeconomic status [(SES), Modified B. G. Prasad's Classification 2019- India][13]

TABLES

Table 1. Sociodemographic profile of the Study Participants (n=177).

Variables	Number	Percentage (%)
Age (In Years)		
60-69	51	28.81
70-79	88	49.71
≥80	38	21.48
Gender		
Males	73	41.24
Females	104	58.76
Religion		
Hindu	118	66.67
Muslim	48	27.12
Others (Christian, Sikh)	11	6.21
Education		
Literates	71	40.11
Illiterates	106	59.89
Occupation		
Working	94	53.11
Not working	83	46.89
Type of Family		
Nuclear	32	18.07
Joint	99	55.93
Three Generation	46	26.00
Socioeconomic status*		
Upper class	11	6.21
Upper middle class	23	13.00
Middle class	61	34.46
Lower middle class	59	33.33
Lower class	23	13.00

*As per Modified B G Prasad Classification 2019.[13]

Table 2. Details of Summary Diabetes Self-Care Activities questionnaire (SDSCA) (n=177)

Summary Diabetes Self-Care Activities questionnaire (SDSCA) (n=177)	Number	Percentage (%)
Diet		
Followed specific healthful eating plan in last seven days	52	29.38
Consumed five or more servings of fruits and vegetables in last seven days	114	64.41
Avoided high calorie foods (such as red meat/full-fat dairy products) in last seven days.	71	40.11
Exercise		
Participated in at least 30 minutes of physical activity (Total minutes of continuous activity, including walking) in last seven days.	129	72.88
Participated in a specific exercise session (such as swimming, walking, biking) other than what you do around the house or as part of your work in last seven days.	55	31.07
Blood Sugar Testing		
Tested your blood sugar in the last seven days	21	11.86
Tested blood glucose as per the number of times recommended by health care provider	69	38.98
Foot care		
Examined feet in last seven days	17	9.60
Inspected the inside of your shoes in last seven days	12	6.78
Smoking		
Smoked a cigarette—even one Puff during the past seven days	73	41.24

*Summary Diabetes Self-Care Activities questionnaire (SDSCA)[9]

Table 2 depicts the details of SDSCA.[9]Diet, Exercise, Blood Sugar Testing, Foot care and Smoking were the five domains studied. In the diet domain, 64.41% consumed five or more servings of fruits and vegetables in last seven days which was mainly vegetables in the routine diet. A maximum of 72.88% participated in at least 30 minutes of physical activity (Total minutes of continuous activity, including walking) in last seven days, mainly household activities. The least practiced domain was self-care about feet(<10%).

The self-care practices were computed based on Summary Diabetes Self-Care Activities questionnaire (SDSCA). 27.12% and a majority of 72.88%% had good and poor self-care practices respectively. Association of parameters of the Study Participants and SDSCA is illustrated in Table 3.

Table 3: Association of parameters of the Study Participants and SDSCA

Variables	SDSCA				
	Good Self-care (n=48, 27.12%)		Poor Self-care (n=129, 72.88%)		Significance
	Number	Percentage	Number	Percentage	
Age (In Years)					$\chi2$=46.2711 p=0.00001 df=2 Significant
60-69(51)	32	62.75	19	37.25	
70-79 (88)	10	11.36	78	88.64	
≥80(38)	06	15.79	32	84.21	
Gender					$\chi2$=4.5393 p=0.033125 df=1 Significant
Males (73)	26	35.61	47	64.39	
Females (104)	22	21.15	82	78.85	
Education					$\chi2$=46.3951 p<0.0001 df=1 Significant
Literates (71)	39	54.93	32	45.07	
Illiterates (106)	09	8.49	97	91.51	
Type of Family					$\chi2$=2.986 p= 0.2246 df= 2 Not Significant
Nuclear (32)	10	31.25	22	68.75	
Joint (99)	30	30.30	69	69.70	
Three Generation (46)	8	17.39	38	82.61	
Socioeconomic Status*					$\chi2$=0.516 p= 0.7727 df= 2 Not Significant
I (11)	4	36.36	7	63.64	
II+III (84)	22	26.19	62	73.81	
IV+V (82)	22	26.19	60	73.81	
Family history of Diabetes					$\chi2$=1.3419 p=0.246695 df=1 Not Significant
Yes (56)	12	21.43	44	78.57	
No (121)	36	29.75	85	70.25	
Duration of Diabetes					$\chi2$=68.0472 p=0.00001 df=1 Significant
1-5years (59)	39	66.10	20	33.90	
>5years (118)	09	7.62	109	92.38	

*As per modified BG Prasad Classification-2019[13]

Good self-care activities were seen in study participants aged 60-69 years of age; younger age group had better practices which was statistically significant. ($\chi2$=46.2711, p=0.00001) A majority of 35.61% males and 21.15% females had a good self-care practice which was statistically significant ($\chi2$=4.5393, p=0.033125). Literates had good self-care practices in comparison to illiterates. ($\chi2$=46.3951, p<0.0001). 66.10% of the study participants who had diabetes duration of 1-5years had better self-care practices which was statistically significant ($\chi2$=68.0472, p=0. 0.00001). Other factors influencing the self-care practices were nuclear family and class I socioeconomic status (As per Modified BG Prasad Classification 2019)[13]

DISCUSSION
This study was done to assess the prevalence of good diabetes self-care behaviour in an urban south Indian community. The present study sheds new light on the avenues of self-care of elderly diabetics and factors influencing it among rural population. The study recognized many factors that impacted significantly on self-care practices of elderly diabetics.

In the present study, it was found that 72.88% of elderly diabetics had poor self-care practices.

A study done by V. Gopichandra et al.,[14] department of Community Health, Christian Medical College, Vellore, India in 2012 showed that 20.5% belonged to 61-70yearsand 59% females whereas in the present study 49.71% belonged to 70-79years of age group and 58.76% were females.

In the present study 40.11% were literates and which was in contrast to a study done by Rajasekharan D et al.,[4] in Mangalore, Karnataka in 2015 wherein 80% of the study participants were literates. This can be reason for high poor self care practice in our study.

In a study done by Goyal N et al.,[3] in Moradabad, UP, India in 2019 found that 43.45% respondents have poor self-care practices, 50% diabetic patients in present study followed specific healthful eating plan, 47.6%consumption of five or more servings of fruits and vegetables, 52.3% responded that they had participated in at least 30 minutes of continuous physical activity on most days of past week, 14.2%) inspected their footwear on most days of past week, 80.9% had not smoked during the past seven days of week whereas in the present study 72.88% of elderly diabetics had poor self-care practices in the present study, 29.38 followed specific healthful eating plan in last seven days.

In the present study 64.41 consumed five or more servings of fruits and vegetables in last seven days, which were mainly vegetables because as the study area was rural population vegetables were grown in own lands and consumed frequently. Only 31.07% study participants did specific exercise session which was on a lesser note because as they were from rural sector routine agriculture work was considered as exercise to them. 38.98% tested blood glucose as per the number of times recommended by health care provider, because as many of them considered blood glucose testing mandatory only if complications occurred. Caring of the foot was the least (<10%) self-care practices, using foot ware was also on lesser note, which shows that many of our study participants were not aware of the multi organ and micro vascular complications of diabetes. 41.24% of the study participants continued smoking habits even though they were advised to quit the habits. Many of the study participants did not know about the hypoglycaemic symptoms and none of the study participants had health card with details of disease treating doctor and emergency contact number.

CONCLUSION
Self-care activities practiced rightly and routinely among diabetics can have a dramatic impact in maintaining the

health.If diabetes goes uncontrolled, it creates consequences for health and well-being which has an effect on finances of individuals and their families, and the economy of nation. From the present study analysis it is clear that, self-care activities are poor among elderly diabetics, stronger responses from the government, civil society and people with diabetes themselves must all act together in combating the complications of diabetes and participate in Self care training sessions, and thereby reduce the morbidity and mortality and thus help in healthy ageing of the population.

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