

## Study on Assessment of Self-Care Practices in Patients of Non Communicable Diseases in Aligarh

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### Abstract

Self care involves all decisions which individuals, families, take for their own health particularly their own physical and mental well being. Staying fit, exercising, avoiding hazardous behavior etc. will all compound to self care. The aim of this study is to find the prevalence of self care practices in patients of Diabetes. A cross sectional study was done in registered villages of Rural Health Training Centre and 316 population was covered. All patients of the selected non communicable diseases above 18 years of age were selected who gave their consent. Self care practice assessment was done by including: Diabetes specific section including SDSCA measure - Summary of Diabetes Self-Care Activities Questionnaire. The findings showed that the prevalence of self-care practices in patients of diabetes was not very high. Slightly more than 50% diabetics were following good levels of self-care practices. Individual levels of self-care practices like medication, physical activity/ exercise, adequate diet, risky behaviours of tobacco intake and alcohol consumption, monitoring blood pressure/ blood sugar/ symptoms of COPD, weight management etc. showed varied prevalence. Mostly the patients with any non-communicable disease were found adherent to their medications. In patients of diabetes; age group, presently attending any health facility for disease management and receiving health care provider's advice for lifestyle modifications were associated significantly with self-care practices.

**Key words:** self care practices, non communicable diseases, monitoring, maintenance

### Introduction

What is Self Care?

Self care involves all decisions which individuals, families, take for their own health particularly their own physical and mental well being. Staying fit, exercising, avoiding hazardous behavior etc. will all compound to self care.<sup>1</sup> Self care can be performed in illness as well as the good health of an individual. Non communicable diseases include cardiovascular

diseases, renal, nervous and mental diseases, musculoskeletal conditions, chronic non specific respiratory diseases (COPD), blindness, permanent results of accidents, diabetes, senility, various other metabolic, degenerative diseases and chronic results of communicable diseases.<sup>2</sup> All the above, four NCDs make the largest contribution to the countries. Some of these are, namely, cardiovascular diseases, cancer, diabetes and chronic respiratory diseases.<sup>1</sup> Non communicable diseases kill 41 million people

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each year, equivalent to 71% of all deaths globally as stated under the key facts by the World Health Organisation<sup>3</sup>. The major four diseases account for over 80% premature NCD deaths. As the NCDs are of longer duration, people spend a large part of their lives under the umbrella of these diseases. Spending such a long part of their life, taking proper treatment, looking after themselves, getting into their disease, knowing it, being aware of it and learning how to take care of it becomes very important. Adhering to disease management, adhering to what needs to be done without fail, avoiding hazardous behaviours, taking medication on time, avoiding risky behaviours, looking after one's physical monitoring features all become a part of life. **Self-care** is not a new concept. About 50-60% of all care persons do for themselves is actually self care as said by the Director General of WHO. Self care should be followed on a routine basis, it should be considered an integral part of care. Although it should not be used as a replacement to the basic component of essential health care. The aim of this study is to find the **prevalence of self care practices in patients of Diabetes**. The study focuses on the prevalence of various self care practices, secondly the pattern of self care i.e., it's components, namely-

- Self care maintenance
- Self care monitoring

### Materials and Methods

A cross sectional study was conducted in Rural field practice areas of Department of Community Medicine, Jawaharlal Nehru Medical College, AMU, Aligarh. It included all the cases of *diabetes, hypertension and chronic respiratory diseases* in the study area. The study period was one year (December 2020-December 2021).

### Sample Size

The sample size was determined by the formula,

$$n = Z_{1-\alpha/2}^2 PQ/L^2$$

Where, n = Sample Size

$Z_{1-\alpha/2}$ : Statistic corresponding to level of significance. (1.96 for 95% CI)

P = Prevalence of health problems taken(26%)

Q = (1-P)

L = Absolute error (15%)

The final sample after rounding off came out to be **486** chronic disease patients.

**Inclusion Criteria:** All patients of the selected non communicable diseases above 18 years of age. All the patients who were residing in the rural areas of the field practice areas of the Department of Community Medicine, J.N.M.C, A.M.U, Aligarh. All those patients who gave their consent for the study.

**Exclusion Criteria:** The patients who did not give consent. Terminally ill patients and those who were bedridden.

*Written informed consent was taken before starting the interview.*

### Operational Definition of Diabetic Patient:

Any patient who was a resident of the field practice areas of RHTC, Department of Community Medicine who was above 18 years of age and was already diagnosed to be a patient of diabetes mellitus (Type I or type II ) either at RHTC or at any other health facility. The patients who at their time of diagnosis had fasting plasma glucose of  $\geq 126$ mg/dl or postprandial blood glucose 2h-PG 200mg/dl at the time of diagnosis were enrolled.<sup>4</sup>

Self care practice assessment was done by including: **Diabetes specific section including SDSCA measure - Summary of Diabetes Self- Care Activities Questionnaire**<sup>5</sup>.

The data collected was tabulated and analyzed using the IBM SPSS 20.0. Appropriate statistical tests were applied based on the type of variables. Ethical approval was taken for conducting the study from the Institutional Ethics Committee (Regd.) J.N. Medical College, AMU, Aligarh. (D.No. 176/FM/IEC, 3-11-2020). The designated period was one year but during the study duration, the government had to impose a lockdown from April 2021 to July 2021. So only **316** population was covered.

## Results

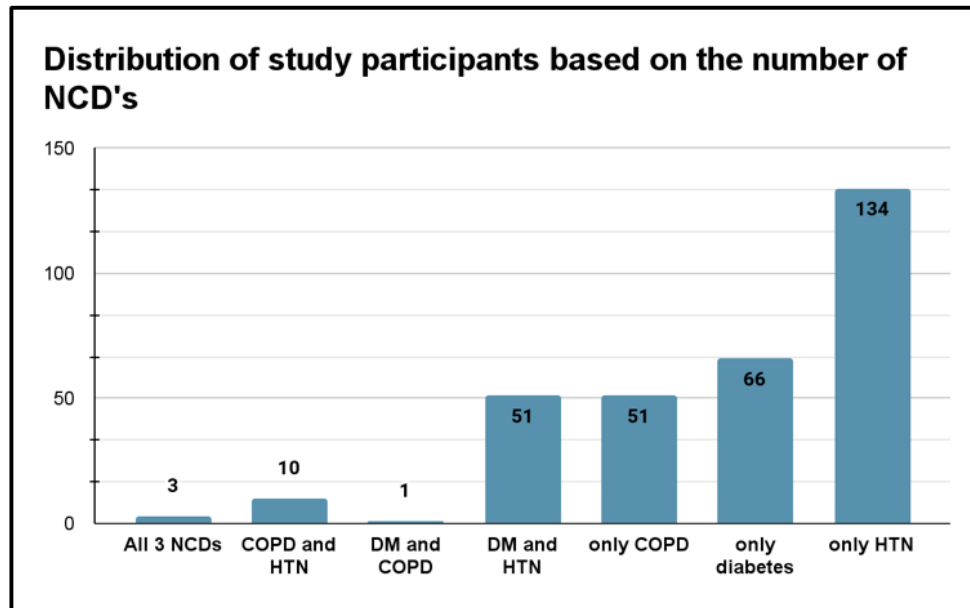


Figure 1: Distribution of the study participants based on the number of NCDs

According to the disease condition per se, 121 out of 316 participants (38.3%) had diabetes mellitus in this study.

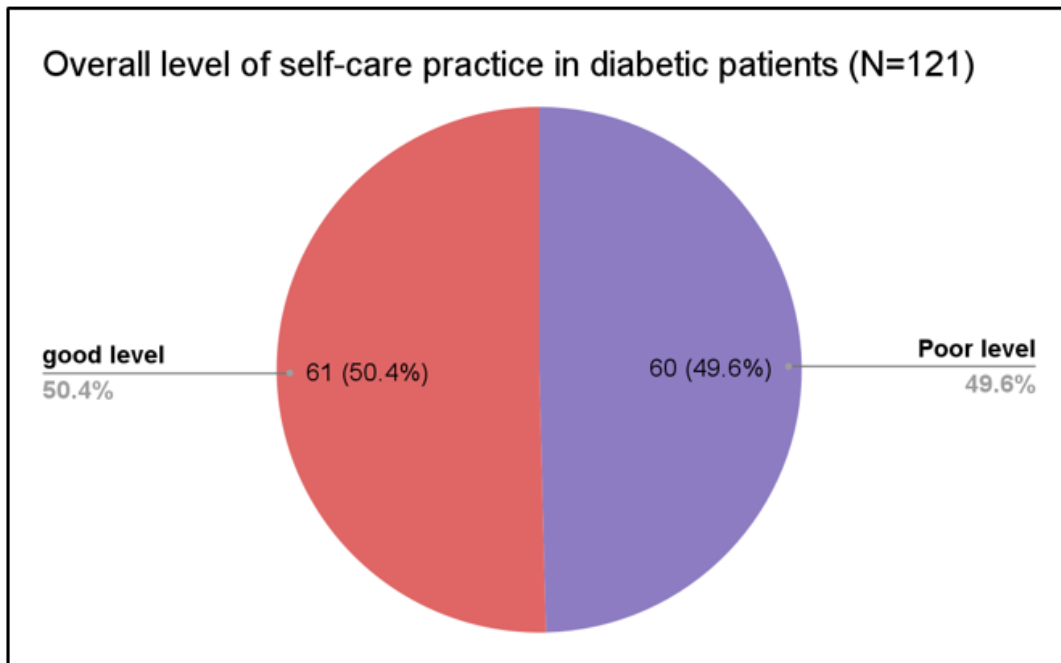


Figure 2: Prevalence of overall level of self-care practice

It was found that 50.4% diabetic patients were performing a **good level** of self-care practices in this study.

**Table 1: Distribution of participants based on the individual subscales of the SDSCA self-care Measure (N=121)**

Serial no.	Individual subscales of self-care practice	Level of self-care practice performance			
		Good (days per week)	N(%)	Poor(days per week)	N(%)
1.	General diet	>=3	72(59.5)	<3	49(40.5)
2.	Physical Activity and Exercise	>=2	52(43.0)	<2	69(57.0)
3.	Blood Sugar Testing	1-7	36(29.8)	0	85(70.2)
4.	Medication usage days	7	101(83.5)	<7	20(16.5)
5.	Foot care days	>=2.8	112(92.6)	<2.8	9(7.4)
6.	Specific diet	>=3.25	76(62.8)	<3.25	45(37.2)
Specific diet: questions	On how many of the last 7 days did you eat five or more servings of fruits and vegetables?	>=4	61(50.4)	<4	60(49.6)
	On how many of the last 7 days did you eat high fat foods such as red meat or full fat dairy products?	<3	55(45.5)	>=3	66(54.5)
	On how many of the last 7 days did you space carbohydrates evenly throughout the day?	>1	24(19.8)	<1	97(80.2)

The above table shows the good as well as poor levels of self-care practices.

**Table 2: Pattern of self-care maintenance and monitoring seen in diabetic patients (N=121)**

Self-care component		
Self-care maintenance		
Physical Activity self-care practice	(mean±SD)	3.56± 4.28
Medication usage self-care practice	(mean days per week)	5.47± 2.42
Foot care self-care practice		3.02± 0.84
General diet self-care practice		3.41± 2.11
Current smoker <sup>1</sup>	Yes	4 (3.3%)
	No	117 (96.7%)
Any smokeless form of tobacco intake in the patient <sup>1</sup>	Yes	17 (14%)
	No	104 (86%)
Presently an alcohol drinker <sup>1</sup>	Yes	4 (3.3%)
	No	117 (96.7)
Total duration of alcohol intake	(mean±SD) (years)	0.71± 4.44
Self-care Monitoring		
Blood sugar testing self-care practice	(mean±SD) (mean days per week)	0.46± 1.07
Does the patient have any previous records? <sup>1</sup>	Yes	76 (62.8)
	No	45 (37.2)
Median duration of record made last time (days)	Median days	30.00
	(Range)	(1 to 180)

Note: 1. N(%). The other values are depicted as mean ±standard deviation(S.D) Self-care maintenance

## Discussion

**Age:** The mean age of the participants was 58.56 years $\pm$ 11.26 years. Most of the study participants belonged to the age group 54-71 years (58.2%), followed by 36-53 years(27.2%), 11.4% of patients were above 72 years and finally only 3.2% persons were from 18-35 years age group. **Gender:** Our study showed that the majority were females (200, 63.3%). The rest were males. **Educational Level (upto the highest):** Most of the participants were illiterate (103, 32.6%), 23.1% patients could read and write, similar number was of those who had completed upto either secondary or senior secondary education (22.2%), There were very few patients who had done undergraduation or above. A similar percentage was found for primary/ upper primary education. **Current working status and the occupation of the participants:** Most of them were having a non income generating occupation. These were 76.9% patients, out of whom maximum were unemployed or retired persons (42.2%) followed by being a homemaker (32.2%). Amongst those who possessed an income generating occupation (23.1%), most were working in occupations categorized as semi or unskilled (12.3%), followed by semiprofessional or skilled occupations (6.6%), waged (1.9%) and lastly employed at a professional (3.2%) post. Most ( 91.1%) of the study sample participants were not pensioners. **Religion, Marital status:** A small number of the study population was the Muslims (25.3%) and the majority of the study population was married (77.2%). 69 patients were widowed females or males whereas only 2 (0.6%) were unmarried. **Socio economic status (Modified BG Prasad 2020):** Most of the participants were falling under the class 4 category (37.3%) of modified BG Prasad classification. Mean per capita income of all the 316 participants was found to be 3130.04 $\pm$  4756.83 rupees. Median number of family members was found to be 5 (1-17).

As shown in table 1, Good overall level of self-care practice was seen in half (50.4%) of the diabetic patients. Amongst the individual subscales, the best level of self-care was seen for foot care (92.6%) and medication usage(83.5%). Next, both the diet subscales showed good levels in more than half of the patients (specific diet= 62.8% and general diet= 59.5%). Good level of physical activity and

exercise was seen in 43% of diabetics. Least (29.8%) percentage of diabetics showed a good level of blood sugar testing behaviour.

In a recent study<sup>6</sup>, it was found good overall self care practice where a majority (62.1%) practiced recommended foot care. The overall level seen here is similar to the present study whereas foot self-care seems better in this study. This might be due to different methodology of categorizing good levels of foot care.

The good overall level of self care assessed by the same scale was seen in 54.5% diabetics in another study by<sup>7</sup>. The study in conjunction with ours also recorded lowest self care in blood sugar testing.

SDSCA was also used in another Indian study conducted<sup>8</sup> wherein separate self care practice prevalences were as follows; foot care in 37.4%, drug compliance in higher percentage (around 72%), 61.5% responding yes to blood sugar testing, 62.6% exercising for more than 5 days a week, more than one third individuals were eating more than 5 servings of fruits, avoiding sweets each. General diet's good level was seen in 40% of individuals. Most of these findings are different from ours, except medication adherence and eating more than 5 servings of fruits being somewhat similar in pattern.

Another study from the southern part of India<sup>9</sup> reported good levels of self care for all subscales separately. 86% respondents had fats/fried foods consuming less than 25% of the meal over last week, contrary to 45.5% consuming these for less than 3 days in a week in the present study. Similar results were 44% eating fresh fruits/ vegetables ( 50.4% in the present study), 79.8% adherent to medications. Contrasting results were lower levels of (20.5%) exercising and greater percentage (70%) of testing blood sugar regularly. Our study showed that 43% of patients were exercising for more than 1 day in a week. The difference in exercising levels might be due to the lack of awareness about exercising in the patients residing in Aligarh. Blood sugar testing in our study was considered good if done once a day throughout the week whereas in this study it was considered to be done once in 3 months.

An Indian study from rural Tamil Nadu<sup>10</sup> showed

a similar prevalence to the present study; reported as moderate overall self care adherence in 42%. Blood sugar testing (75.2%) and medication (70.4%) (similar to present study) were high in the study population while foot care adherence was poor (17.6%). The present study showed lesser blood sugar testing as the population in rural Aligarh might be unaware about the importance of regular blood sugar testing.

A study<sup>11</sup> showed that prevalence of good level of medication self-care was seen in 48%, exercising for 5 days in a week in 20.5%, blood sugar testing once in 3 months done by 65% and inspecting the inside of footwear daily was seen in 0.5% patients. These findings were different from those in the present study. The weekly assessment criteria are considered in the present study, therefore the results may have differed.

Another study<sup>12</sup> showed almost similar results for a good level of self care practices; general diet seen in 45.9%, good level of exercise seen in 43.4%. Dissimilar results were medication adherence seen in lower percentages (60.5%) and blood sugar monitoring seen in 76.6% which was much more than the present study. The difference seen might be mainly because of greater contacts with healthcare providers which might have improved drug compliance whereas unavailability of glucometers at homes might have led to decreased levels of sugar monitoring in the patients in the present study.

As shown in Table 2

#### Self-Care Maintenance

The above table shows that people having diabetes were maintaining their health in the shown pattern. Among all the self-care practices, general diet, physical activity, medication usage and foot care were part of maintaining health in a diabetic. Out of these, medication usage was found to be having the best of all levels of self-care, which was  $5.47 \pm 2.42$  mean days per week. A good level (7 days/wk) was performed by 83.5% of patients with diabetes. The other three showed a similar level,  $3.02 \pm 0.84$  mean days per week, persons took care of their feet on a routine basis.

General diet subscale is scored to know the mean number of days in a week a person follows his/her

eating plan and also on an average in a month. In our study population, around 60% of patients were found to be following the eating plan for  $3.41 \pm 2.11$  mean days per week. Physical activity and exercise had a level of  $3.56 \pm 4.28$  days per week.

On account of addiction we found that out of 121 persons with diabetes as a chronic condition, only 3.3% were smokers, but 14% of them did chew other smokeless forms of tobacco whereas a similar percentage (3.3%) of persons were alcohol drinkers.

**Self-Care Monitoring** In the study population of 121 persons with diabetes, we found that people performed very low level of blood sugar testing as a measure of self-care that is  $0.46 \pm 1.07$  mean days per week.

On asking about the availability of any past records of blood sugar monitoring reports, either fasting, post prandial or HbA1c we found that around two third (62.8%) were having these records. The mean duration of the record made last time was 30 days.

Most patients were not smoking currently (96.7%) whereas lesser (86%) were taking smokeless forms of tobacco. The patients were maintaining their health in the present study by having a general diet for  $3.41 (\pm 2.11)$ , doing physical activity for  $3.56 (\pm 4.28)$ , caring for the feet for  $3.02 (\pm 0.84)$  and taking medicines for  $5.47 (\pm 2.42)$  mean days per week.

The participants of a study<sup>13</sup> quoted a study showing a similar medication adherence as that of ours,  $6.6 (\pm 1.5)$  mean days per week, an exercise level of  $1.6 (\pm 0.8)$  hours) and foot care being performed on  $4.8 \pm 2.4$  days per week ( results of our study were almost alike). This study assessed the general diet by mean scores in a different manner hence cannot be compared. A study<sup>14</sup> showed complementary results. They reported that medication compliance was done on  $5.66 (\pm 2.66)$  mean days /week, exercise on  $1.64 (\pm 1.00)$  days/week. Dissimilar level of foot care was seen ( $1.92 \pm 1.5$  mean days/week). A study<sup>15</sup> found that participants were taking medicines on  $6.61 \pm 1.22$  days /week, recommended physical activity on  $2.44 \pm 2.56$  days/week and checking foot for  $2.62 \pm 3.27$  days/week. These findings were nearly like our findings.

The patients were testing their blood sugar for 0.46( $\pm$ 1.07) mean days per week in our study.

The participants of study<sup>13</sup> showed blood sugar testing being done on a greater mean number of days per week (3.8 $\pm$ 2.7) than the present study. The possible reason may be the participants were more aware of their condition and had better access to healthcare. A study<sup>14</sup> reported blood sugar testing on 1.92 $\pm$ 1.5 days /week. This finding was dissimilar to ours may be because only elderly individuals were considered in this study.

**There is association of sociodemographic variables with the overall self-care level in diabetes.** Among all, we saw that 61.9% diabetic patients in the 36-53 years age group were having a poor level of self-care whereas those in the 54-71 years group had a higher proportion performing at a good level of self-care. Those below 36 years or above 72 years also have a higher proportion of patients in the poor level of diabetes self-care. (**p= 0.03**)

Gender, marital status, educational level, occupation, socioeconomic status, being a head of household, family history of disease, living alone *were not found to be associated* with the overall self-care practices of diabetic patients.

Resembling results were shown by a randomized controlled trial done by a study<sup>16</sup>. They reported that medication review, face to face counseling of the study participant done by the healthcare provider was found useful and was associated with the number of times chronic care clinics were attended.

### Conclusion

Self care knowledge during each contact with the health personnels must be imparted to the patients suffering from NCDs. Making a chronic disease patient a part of his/ her disease management depends largely on the healthcare provider. The healthcare providers across all tiers of the health system must be trained routinely for adequate evidence based lifestyle modification advice. At the level of the family; caregivers, spouses, children of the patients, neighbors - all have a very important role in the patients health and adherence to self-care behaviors. Hence, caregivers should also be educated

routinely. In Uttar Pradesh, particularly in Aligarh the state should be strengthening the health systems and the health workforce should be trained for routine monitoring and management of non-communicable diseases.

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