Research Article

# Self-care practices among type 2 diabetic patients in a tertiary care hospital in Bengaluru

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## ABSTRACT

**Background:** Diabetes mellitus (DM) is a leading non-communicable disease in India and contributes to 34% of mortality. Optimal management of DM involves a multipronged approach due to diverse factors including lifestyles, culture, myths, and socioeconomic condition. Self-care practices go a long way in the prevention of complications and improving quality of life. **Objectives:** The objectives of this study were to assess the self-care practices among type 2 adult diabetic populations in a tertiary health-care setting. **Materials and Methods:** A cross-sectional descriptive study was conducted on type II adult diabetic subjects in a tertiary care hospital. A pre-tested, structured pro forma was used to collect the baseline data and self-care practices including knowledge of the disease, dietary practices, exercise, habits, health-seeking practices, complications, and prevention of complications. Chi-square test and descriptive statistics were analyzed using SPSS (17.0). **Results:** A total of 101 patients were studied where 60% of them were males; 57% had diabetes history of >5 years, 44% overweight, and 16% obese. Knowledge about the disease such as risk factors (59%), complications (67%), and dietary practices (92%) was good. Self-care practices were poor with 17% following strict diet, 7% exercised regularly, and 52% of them got their blood glucose monitored periodically. 21% of them never took care of their feet, and up to 96% of them never carried diabetes identification card. The self-care practices were significantly better among literates as compared to illiterates. **Conclusion:** Although the awareness of the disease and complications is good, self-care practice is poor among the study population.

**KEY WORDS:** Self-care Practice; Diabetic Mellitus; Tertiary Care Hospital; Knowledge

## INTRODUCTION

The burden of non-communicable diseases in India is rising in exponential proportions. The India Global Burden of Disease Study found that ischemic heart disease and stroke made the largest contribution of 28.1% to the total burden of mortality in India in 2016 and the trend in increase was by 34.3% from 1990 to 2016. Diabetes contributes to 3.1% of the total mortality. The age-standardized diabetes prevalence rose by 29.7% between 1990 and 2016. In absolute terms, cardiovascular diseases, respiratory diseases, and diabetes kill around 4 million Indians annually.[1] Diabetes mellitus (DM) is one of the leading modifiable risk factors for cardiovascular diseases.[2] Studies across the globe have proven that good glycemic control goes a long way in preventing the complications of the disease including both micro- and macro-vascular complications.[3] Optimal management of DM involves a multipronged approach due to diverse factors including lifestyles, culture, myths, and socioeconomic conditions besides medical services. Self-care in diabetes has been defined as an evolutionary process of the development of knowledge or awareness by learning to survive with the complex nature of diabetes in

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a social context.[4] Understanding the sociocultural milieu and the self-care practices helps the health-care providers to better design programs which will have long-lasting impact on the disease control. This study has been designed as an attempt to assess the self-care practices among diabetics in a tertiary health-care setting which would help in designing appropriate intervention measures.

## MATERIALS AND METHODS

The Institutional Ethics Committee clearance and written informed consent from participants were obtained before the commencement of the study.

A cross-sectional descriptive study was conducted at a teaching hospital in Bengaluru. The study subjects included diagnosed patients of type II DM visiting the medicine outpatient department. The study was conducted for 3 months between September and November 2018.

### Inclusion Criteria

Adult patients of both sex/gender aged >18 years with type II DM of at least 1 year duration were included in the study.

### Exclusion Criteria

Patients with gestational DM, subjects diagnosed with or on medication for psychiatric illness, and those not giving written informed consent were excluded from the study.

A pre-tested, structured pro forma was used to collect the baseline data and self-care practices. Details regarding the knowledge of the disease, dietary practices, exercise, habits, health-seeking practices, complications, and prevention of complications were collected. Each of the practices was scaled between absolute adherence and non-adherence.

### Statistical Analysis

The data collected were tabulated in SPSS. The Chi-square test was used for the association of practices with some of the demographic variables. $P < 0.05$ was considered to be statistically significant. Descriptive statistics such as proportions and percentages were used. All statistical analyses were performed using the SPSS statistical package, version 17.0 (SPSS).

## RESULTS

The study was conducted on a total of 101 patients with DM of minimum 1 year duration. 60% of them were males. Majority (51.4%) of them were >60 years of age. Around 60% of them came from middle to lower middle socioeconomic status. Around 29% of them were graduates and 22% of them were illiterates. Diabetes duration was >5 years in 57.3% and 70% of them were on oral hypoglycemic agents. Around 2% of them did not take any treatment. 50% did not have any family history of diabetes and 37.6% of them had either one or both parents being diabetic. Only 36.6% of them were of normal weight and 60.5% were overweight or obese; 40% of them suffered from peripheral neuritis followed by retinopathy in around 10% of them. One subject has suffered from stroke, 11 of them had diabetic retinopathy, 5% of them had undergone amputation, and 2 of them suffered from gangrenous foot. Hypertension was the most common comorbidity seen in 51.5% of them [Table 1].

Assessment of dietary habits revealed that only 17% of the individuals strictly followed a regular pattern in daily diet

**Table 1:** Baseline demographic characteristics of the study population

| Variables | Category | *n* (%) |
|---|---|---|
| Age (years) | 30–40 | 2 (1.98) |
| | 40–50 | 20 (19.8) |
| | 50–60 | 27 (26.7) |
| | 60–70 | 35 (34.6) |
| | >70 | 17 (16.8) |
| Gender | Male | 60 (60) |
| | Female | 41 (40) |
| Education | Illiterate | 22 (21.7) |
| | Primary school | 13 (12.8) |
| | Middle school | 8 (7.9) |
| | High school | 15 (14.8) |
| | Intermediate/PUC | 8 (7.9) |
| | Graduate | 29 (28.7) |
| | Postgraduate | 6 (5.9) |
| Duration of DM (years) | 1–5 | 43 (42.5) |
| | 6–10 | 31 (30.6) |
| | >10 | 27 (26.7) |
| Treatment | Nil | 2 (1.9) |
| | Only dietary control | 1 (0.9) |
| | OHA | 71 (70.2) |
| | OHA+Insulin | 21 (20.7) |
| | Only insulin | 5 (4.9) |
| | Alternative medicine | 1 (0.9) |
| Family history of DM | None | 55 (54.4) |
| | Single parent | 18 (17.8) |
| | Both parents | 4 (3.9) |
| | Parents and siblings | 16 (15.8) |
| | Only siblings | 8 (7.9) |
| BMI | Underweight | 3 (2.9) |
| | Normal | 37 (36.6) |
| | Overweight | 45 (44.5) |
| | Obese | 16 (15.7) |

BMI: Body mass index, DM: Diabetes mellitus, PUC: Pre-university course, OHA: Oral hypoglycemic agents

and around 33% of them said that they rarely or never follow a pattern. Around 50% of them have the habit of eating junk or fried snacks in-between the meals and more than 50% of them miss their dietary restrictions during social gatherings. Only 7% of them exercise regularly, and as many as 57% of them never do any form of exercise. Majority of them mostly get their blood sugar levels checked in the laboratory (52%) and only 28% of them have the habit of home-based glucose monitoring. 25% of them never maintained record of their blood glucose levels. Most of them who were on insulin followed the prescription; however, around 9% of them frequently missed their oral hypoglycemic agents. Only 14% of them kept a glucose supplement to combat hypoglycemia. Majority of them (73%) met their physician on a regular basis [Table 2].

On enquiring about lifestyle practices to prevent complications, we observed that around 21% of them never did any foot care and around 10% of them did not use footwears. Almost nobody (96%) carried a diabetes identification card with them. Majority of them did not make any active attempt to understand the disease and its care. Only 9% of them discussed their issues with other diabetics, and practically, nobody attended diabetes support group.

The knowledge regarding the disease was, however, fairly good with 68% of them being aware of complications and 73% of them mentioned that there is a hereditary risk of the disease. 70% of them mentioned that diabetes is a preventable disease [Table 3].

**Table 2:** Self-care practices among the study subjects

| Practices | Never | Sometimes | Frequently | Always | NA | Total |
|---|---|---|---|---|---|---|
| Dietary Practices | | | | | | |
| Do you eat your meals at the same time every day? | 13 | 20 | 51 | 17 | 0 | 101 |
| Do you have junk snacks in between meals? | 25 | 24 | 48 | 4 | 0 | 101 |
| Do you keep bound to your diet when you go to the restaurant/ invitations (to others, friends, meetings, etc.)? | 26 | 33 | 34 | 8 | 0 | 101 |
| Do you eat excessively? | 58 | 31 | 7 | 5 | 0 | 101 |
| Exercise habits | | | | | | |
| Do you exercise regularly? | 57 | 15 | 22 | 7 | 0 | 101 |
| Health-care-seeking behavior | | | | | | |
| Do you get your blood sugar levels checked in the laboratory? | 14 | 28 | 45 | 14 | 0 | 101 |
| Do you check your blood sugar levels at home? | 65 | 8 | 24 | 4 | 0 | 101 |
| Do you keep records of your blood sugar measurements? | 25 | 17 | 34 | 25 | 0 | 101 |
| Do you take your insulin injections as recommended? | 0 | 0 | 2 | 25 | 74 | 101 |
| Do you adjust your insulin according to your blood sugar measurements? | 16 | 6 | 0 | 5 | 74 | 101 |
| Do you take your oral antidiabetic agents as recommended? | 6 | 3 | 32 | 57 | - | 101 |
| Do you keep a glucose/toffee/hypo-tab with you when you are out/away from home? | 68 | 6 | 13 | 14 | - | 101 |
| Do you regularly go and see a doctor? | 10 | 18 | 55 | 18 | - | 101 |
| Do you consult your doctor when your blood sugar level rises/drops extremely? | 21 | 16 | 38 | 26 | - | 101 |
| Behavior directed to prevent complications | | | | | | |
| Do you regularly check your feet? | 21 | 8 | 49 | 23 | - | 101 |
| Do you wear shoes when outside the house? | 6 | 4 | 21 | 70 | - | 101 |
| Do you wear slippers or house shoes when inside the house? | 56 | 10 | 17 | 18 | - | 101 |
| Do you keep your toenails short and straight? | 9 | 10 | 51 | 31 | - | 101 |
| Do you carry a diabetes identification card? | 96 | 1 | 1 | 3 | - | 101 |
| Do you talk with the other diabetic patients about how they care for themselves? | 56 | 12 | 24 | 9 | - | 101 |
| Do you read the handouts or brochures about diabetes when given? | 57 | 13 | 24 | 7 | - | 101 |
| Do you attend to a diabetes support group? | 97 | 4 | 0 | 0 | - | 101 |
| Do you consult a doctor, nurse, or any other health-care providers/specialist about how to prevent complications? | 24 | 21 | 46 | 10 | - | 101 |
| Do you use the things you learn to avoid any complications that can occur due to diabetes? | 35 | 27 | 32 | 7 | - | 101 |

The health-seeking behavior in terms of visiting the physician on regular basis, foot care, and active attempts to gain knowledge of the disease was significantly better among literates as compared to illiterates [Table 4].

## DISCUSSION

The study was conducted to determine the self-care practices of the patients attending a tertiary care center. They were assessed for their dietary practices, exercise habits, health-seeking behavior, practices for preventing complications, and those directed toward active attempts directed toward gaining knowledge of the disease. There was a high prevalence of obesity (44%) and poor dietary practices (83%). With regard to self-care, the treatment adherence was good (89%), but measures to prevent complications and knowledge-seeking behavior were poor in the study subjects.

**Table 3:** Awareness regarding the disease

| Awareness | Aware/Yes | Not aware/No | Total |
|---|---|---|---|
| | *n* (%) | *n* (%) | *n* (%) |
| Are you a member of a diabetes journal? | 0 (0) | 101 (100) | 101 (100) |
| Do you research on internet to find out about diabetes? | 79 (78.2) | 22 (21.7) | 101 (100) |
| Are you aware of the risk factors for DM? | 60 (59.4) | 41 (40.5) | 101 (100) |
| Is DM hereditary? | 73 (72.2) | 28 (27.7) | 101 (100) |
| Are you aware of what are the complications of DM? | 68 (67.3) | 33 (32.6) | 101 (100) |
| Are you aware of what kind of foods are to be avoided in DM? | 92 (91.08) | 9 (8.9) | 101 (100) |
| Can diabetes be prevented? | 70 (69.3) | 31 (30.7) | 101 (100) |

DM: Diabetes mellitus

Around 44% of the study population was overweight and 16% of them were obese. Similar findings have been observed in a study in Uttarakhand with 53% being overweight and 17% being obese, and obesity was up to the rate of 60% in rural Tiruchirappalli.[5,6] The dietary practices were poor among the current study population with only 17% of them adhering to prescribed diet. Around half of them missed on their dietary restrictions during social gatherings and half of them ate junk food. On contrary in a similar study in Chennai, they found that 76% of them followed healthy eating schedule and only 1.6% of them ate oily foods on all days of the week.[7] Another study in Kancheepuram also observed that 78% of the cases controlled their diet.[8] In a study done in Gujarat, 48% and 63% of participants reported controlling their intake fat-containing foods and sweets, "most of the times" or "always."[9] In the current population, only 7% of them exercised regularly as compared to 29.3% in rural Tamil Nadu[9] and 40.7% in Bijapur.[10] Almost 52% of the study subjects got their blood sugar checked regularly and 28% of them did it at home. In a study in Uttarakhand, they found that 36% of the patients got the regular blood tests done[6] and it was 49% in Bijapur.[10] Adherence to treatment was up to 89% in the current study, a little higher than 72% seen in rural Tamil Nadu.[11] 73% of the study population checked their feet regularly as compared to only 48% and 17.5% in other studies.[5,11] With regard to precautions during traveling, only 14% of them carried a sugar supplement and 3% of them carried diabetes identification card. This is in contrary to 40% in Bijapur population.[10]

On assessing the knowledge and the knowledge-seeking behaviors, 72.2% of them said that it was hereditary disease similar to 79.8% in rural Tamil Nadu.[11] Knowledge regarding dietary restrictions was good (92%) in line with Bijapur study with 90.8%.[10] Majority of them were aware of the risk factors

**Table 4:** Association between literacy and health-care-seeking behavior

| | | | Visiting the physician regularly | | | Chi-square | *P* |
|---|---|---|---|---|---|---|---|
| **Education** | Never | Sometimes | Frequently | Always | Total | 10.312 | 0.01 |
| Illiterate | 20 | 2 | 0 | 0 | 22 | | |
| Literate | 48 | 4 | 13 | 14 | 79 | | |
| Total | 68 | 6 | 13 | 14 | 101 | | |
| **Care of feet** | | | | | | | |
| **Education** | Never | Sometimes | Frequently | Always | Total | 8.129 | 0.043 |
| Illiterate | 7 | 3 | 9 | 3 | 22 | | |
| Literate | 14 | 5 | 40 | 20 | 79 | | |
| Total | 21 | 8 | 49 | 23 | 101 | | |
| **Read handouts and brochures** | | | | | | | |
| **Education** | Sometimes | Always | Total | | | 8.877 | 0.003 |
| Illiterate | 7 | 3 | 22 | | | | |
| Literate | 53 | 20 | 79 | | | | |
| Total | 60 | 23 | 101 | | | | |

(60%), complications (68%), and disease prevention (70%). The present study showed a positive correlation between literacy and health-seeking behavior. Similar findings were observed in rural Tamil Nadu and rural Tiruchirappalli.[5,11]

### Strengths

The study has provided extensive details regarding the self-care practices, health-seeking behaviors, and knowledge regarding complications and its prevention. These data provide us guidelines for further intervention in the prevention and management of diabetes.

### Limitations

The study was done in a tertiary care hospital; therefore, the practices of the diabetics not reaching the health-care system could not be determined.

## CONCLUSION

The current study reveals that, despite good awareness regarding the risk factors, prevention, and control of the disease, there is a gap in self-care practices among the diabetic population. The practices were significantly better in literates as compared to illiterates. There is a need to fill this gap by improving the overall education status and reinforcing the importance of self-care among the diabetic population.

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