

Original Research Article

SELF-CARE PRACTICES AND ITS CORRELATES AMONG ELDERLY PEOPLE WITH TYPE II DIABETES MELLITUS IN A RURAL BLOCK OF MURSHIDABAD, WEST BENGAL

Debayan Dey¹, Mrinmoy Adhikary², Kaushik Ishore³

¹Senior Resident, Department of Community Medicine, MJN Medical College & Hospital, Cooch Behar, India.

²Assistant Professor, Department of Community Medicine, Murshidabad Medical College, India.

³Associate Professor, MJN Medical College and Hospital, Cooch Behar, India.

Received : 05/06/2025
Received in revised form : 19/07/2025
Accepted : 08/08/2025

Corresponding Author:

Dr. Debayan Dey,
Senior Resident, Department of
Community Medicine, MJN Medical
College & Hospital, Cooch Behar,
India.
Email: debayandd.dd@gmail.com

DOI: 10.70034/ijmedph.2025.3.347

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (3); 1883-1888

ABSTRACT

Background: Type 2 diabetes mellitus (T2DM) requires consistent self-care behaviors for effective management, particularly in elderly individuals who often face multiple barriers. This study aimed to assess the status of self-care practices among elderly diabetic patients in a rural setting and identify factors influencing these behaviors.

Materials and Methods: A mixed-method study was conducted among 156 elderly individuals with T2DM in Nabagram block of Murshidabad district. The quantitative component assessed self-care practices using a modified Summary of Diabetes Self-Care Activities (SDSCA) scale, while the qualitative component explored perceived barriers through in-depth interviews. Data were analyzed using descriptive statistics, binary logistic regression, and thematic analysis.

Results: Only 50.6% of participants reported satisfactory medication adherence, while practices related to diet (38.4%), physical activity (46.7%), foot care (43.5%), and blood glucose monitoring (49.3%) were suboptimal. Education and socio-economic status were significantly associated with better self-care practices ($p < 0.001$). Qualitative findings revealed barriers including poor knowledge, financial hardship, inadequate healthcare access and cultural misconceptions.

Conclusion: Self-care practices among the elderly with T2DM in rural areas remain inadequate, influenced by multiple socio-economic and systemic barriers. There is an urgent need for tailored health education, community-based interventions, and improved healthcare delivery mechanisms to support diabetes self-management in this population.

Keywords: knowledge, attitude, practice, tuberculosis.

INTRODUCTION

Type 2 diabetes mellitus (T2DM) is a growing public health concern, particularly among the elderly population in developing countries like India. The burden of diabetes is not only due to the disease itself but also due to its long-term complications, which are largely preventable through effective self-care practices.^[1] These include proper dietary habits, regular physical

activity, adherence to medications, blood glucose monitoring, and foot care.^[2]

In elderly individuals, however, self-care becomes more challenging due to age-related limitations, comorbidities, lower literacy, economic constraints, and limited access to healthcare services—especially in rural areas.^[3] Despite national programs promoting diabetes care, the implementation at grassroots levels remains inadequate.^[4]

Our present study, conducted in Nabagram block of Murshidabad district, aims to assess the status of self-care practices among elderly individuals with T2DM and to identify the socio-demographic and clinical factors associated with them. Additionally, it explores the perceived barriers to self-care using a mixed-method approach, providing both quantitative insights and qualitative understanding of the challenges faced by this vulnerable group.

Aims and Objectives

1. To estimate the prevalence of different self-care practices among elderly (≥ 60 years) individuals with T2DM in Nabagram block.
2. To identify the socio-demographic and clinical factors associated with self-care practices.
3. To qualitatively assess barriers to self-care practices in the study population.

MATERIALS AND METHODS

Study Design, Study Area and Duration

This study adopted a **mixed-method approach** using a **sequential explanatory design**, where the quantitative phase was followed by a qualitative exploration. The research was conducted in **Nabagram block of Murshidabad district, West Bengal**, over a period of 18 months, from **October 2022 to March 2024**.

Study Population and Their Inclusion and Exclusion Criteria

The **quantitative phase** consisted of a **descriptive cross-sectional survey** among elderly individuals aged 60 years and above who had been diagnosed with type 2 diabetes mellitus (T2DM) for at least six months and were permanent residents of the study area. The **qualitative phase** involved **focus group discussions (FGDs)** with a purposively selected subset of the quantitative participants to explore perceived barriers to self-care.

Participants were included in the study if they met the following criteria: aged 60 years or above, diagnosed with T2DM for at least six months, residing in the area for one year or more, and willing to provide informed consent. Those who were critically ill or unwilling to participate were excluded.

Sample Size and Sampling Technique

A **sample size of 156** was calculated for the quantitative phase based on a previous prevalence estimate of 35.4%⁵ for self-care practices, with an additional 15% added to account for non-response. A **multistage random sampling technique** was employed to select participants from **12 villages** within the block. For the qualitative phase, participants were selected **purposively**, and FGDs were conducted until **data saturation** was reached.

Study Tools, Techniques and Data Collection

Data collection tools for the quantitative part included a **structured questionnaire**, a **modified**

Summary of Diabetes Self-Care Activities (SDSCA) scale, the **Morisky Medication Adherence Scale (MMAS-8)**, along with **anthropometric measurements** and **clinical record reviews**. For the qualitative part, a **semi-structured FGD guide** was used, supported by **audio/video recordings** and **field notes**.

The study captured a wide range of variables, including socio-demographic characteristics, diabetes history, treatment adherence, lifestyle and clinical indicators such as BMI, blood pressure, and blood glucose levels, as well as self-care behaviors and perceived barriers.

Data Management and Analysis

Quantitative data were analyzed using **SPSS version 20**. Descriptive statistics were calculated, followed by **bivariate analysis** and **multivariable logistic regression** to identify factors associated with self-care practices. A **p-value of less than 0.05** was considered statistically significant.

For the qualitative data, **content analysis** was conducted. Audio and video recordings of the FGDs were transcribed verbatim and thoroughly reviewed. The transcripts were analyzed line by line to identify meaningful units, which were then condensed, coded, and grouped into categories and sub-categories. From these, themes and subthemes were generated. The data were managed using **Microsoft Excel**, with **hierarchy charts (tree maps)** created for visual representation. Thematic analysis was conducted **concurrently with data collection**, and **narrative summaries** of each FGD were also prepared.

Ethical Considerations

The study received ethical clearance from the Institutional Ethics Committee of Murshidabad Medical College (Ref: MSD/MCH/PR/2054/2022). Informed consent was obtained from all participants.

Funding and Conflict of Interest

The study was self-funded. No conflicts of interest were declared.

RESULTS

A. Quantitative Findings

A.1. Background Characteristics of the Study Participants

A total of 156 elderly individuals with Type II Diabetes Mellitus (T2DM) were included in the study. The majority (77.6%) were in the 60–65 years age group, with a slight female predominance (56.5%). Hindus constituted 52.2% of the sample. A large proportion were illiterate (42.9%), and 58.3% were homemakers. Most participants (65.4%) belonged to the lower-middle socio-economic class as per the updated BG Prasad scale. Nearly half (48.7%) lived with family, and 85.9% resided more than 2 km away from a healthcare facility.

Table 1: Socio-demographic Profile of Participants (n=156)

Variable	Category	Frequency (%)
Age	60–65 years	121 (77.6)
	>65 years	35 (22.4)
Gender	Female	88 (56.5)
	Male	68 (43.5)
Religion	Hindu	82 (52.2)
	Muslim	74 (47.8)
Education	Illiterate	67 (42.9)
	Primary (I–IV)	42 (26.9)
	Middle (V–VIII)	29 (18.7)
	Secondary and above	18 (11.5)
Occupation	Homemaker/At home	91 (58.3)
	Non-professional	31 (19.9)
	Retired	27 (17.3)
	Others	7 (4.5)
Socio-economic Status	Lower	20 (12.8)
	Lower-middle	102 (65.4)
	Middle and above	34 (21.8)
Living Arrangement	Alone	2 (1.3)
	With spouse	78 (50.0)
	With family	76 (48.7)
Distance from Facility	≤2 km	22 (14.1)
	>2 km	134 (85.9)

A.2. Clinical Profile of Participants

Over half (56.4%) had diabetes for ≥ 6 years. A vast majority (94.9%) were on oral hypoglycemic agents, with 77.1% consuming ≥ 3 pills daily. Comorbidities

were present in 78.2%, mainly hypertension (83.6%). Only 20.5% had controlled glycemic levels (RBS <200 mg/dL).

Table 2: Clinical Profile of Study Participants (n=156)

Variable	Category	Frequency (%)
Duration of Diabetes	≤ 5 years	68 (43.6)
	≥ 6 years	88 (56.4)
Medication	Oral	148 (94.9)
	Oral + Insulin	8 (5.1)
Daily Pill Count	≤ 2 pills	36 (22.9)
	≥ 3 pills	120 (77.1)
Comorbidities	Present	122 (78.2)
	Absent	34 (21.8)
Types of Comorbidities	Hypertension	102 (83.6)
	Dyslipidemia	18 (14.7)
	Cardiac	2 (1.6)
	Obesity	62 (39.7)
Foot Complications	Present	44 (28.2)
Glycemic Control (RBS <200)	Yes	32 (20.5)

A.3. Lifestyle and Self-Care Practices

Daily walking was the most common form of physical activity (95.5%). However, only 34.4%

practiced foot care ≥ 4 times/week. Just 5.1% owned a glucometer, and only half had tested blood sugar in the past three months.

Table 3: Lifestyle and Self-care Related Practices (n=156)

Practice Area	Indicators	Frequency (%)
Physical Activity	Walking	149 (95.5)
	Brisk Walking	6 (3.8)
	Farming, Gardening, Moping	12–14 (7–9%)
Foot Care Frequency	≥ 4 days/week	54 (34.4)
Foot Care Types	Washing	152 (97.4)
	Drying Between Toes	69 (44.2)
	Wearing Shoes/Inspection	<6%
Glucometer Ownership	Present	8 (5.1)
Eye Check-up (Past Yr)	Done	34 (21.8)
Blood Sugar Testing	Past 3 Months	78 (50.0)

A.4. Self-Care Status Based on Modified SDSCA Scale

Only 2.6% followed a healthy diet 5–7 days/week. Physical activity was performed adequately by

32.7%, while medication adherence was satisfactory in just over half (51.3%).

Table 4: Self-Care Behaviors Based on Modified SDSCA (n=156)

Indicator	Satisfactory (5–7 days/week)	Frequency (%)
Healthy Eating	Yes	4 (2.6)
Fruits & Vegetables Intake	Yes	1 (0.6)
Avoidance of High-fat Foods	Yes (≤1 day/week)	71 (45.5)
Avoidance of Sweets	Yes (≤1 day/week)	62 (39.7)
Physical Activity (≥30 min/day)	Yes	51 (32.7)
Blood Sugar Testing (last 3 mo)	Yes	78 (50.0)
Daily Medication Use	Yes	80 (51.3)
Foot Care – Drying Between Toes	Yes	69 (44.2)
No Smoking	Yes	125 (80.1)

**Figure 1: Bar chart showing satisfactory self-care practices among study participants based on modified SDSCA scale (n=156)**

Note: X axis representing the values (in percentages) of domain wise self-care practices as derived from the modified SDSCA scale and Y axis representing the domains of self-care practices based on modified SDSCA scale.

A.5. Medication Adherence (MMAS-8 Responses)

Adherence was generally low, with 72% admitting they sometimes forgot medications. Only 31.2% took their prescribed medicine the day before the survey.

Table 5: Summary of MMAS-8 Responses (n=156)

Question	"No" Response (Adherent)	Frequency (%)
Forget medication sometimes?	No	44 (28.0)
Skipped medication in last 2 weeks?	No	35 (22.3)
Stopped medication due to feeling worse?	No	155 (99.4)
Forgot medication during travel?	No	143 (91.1)
Took medicine yesterday?	Yes	48 (31.2)
Stopped when felt well?	No	119 (75.8)
Felt hassled by treatment plan?	No	30 (19.1)
Difficulty remembering medications (Often/Always)?	Rarely/Never	19 (12.1)

A.6. Factors Associated with Self-Care Practices

On bivariate analysis, education level and socio-economic status showed significant associations with satisfactory self-care ($p < 0.001$). Multivariable

logistic regression identified education (Middle school & above) as an independent predictor (aOR = 10.83; 95% CI: 3.56–32.90, $p = 0.000$).

Table 6: Predictors of Satisfactory Self-Care Practice (Multivariable Logistic Regression)

Predictor	aOR (95% CI)	p-value
Education ≥ Middle School	10.83 (3.56–32.90)	0.000
Age, Gender, SES, Comorbidities	NS ($p > 0.05$)	

A.7. Integration of Quantitative and Qualitative Findings

The joint display below links low self-care adherence with thematic barriers identified through FGDs.

Table 7: Integrated Quantitative and Qualitative Findings

Self-Care Domain	Quantitative (%)	Qualitative Themes Identified
Healthy Diet	38.4%	Lack of knowledge, cost issues, myths, food unavailability
Exercise	46.7%	Physical limitations, poor roads, lack of awareness
Blood Testing	49.3%	Poor communication, knowledge gaps, financial constraints
Foot Care	43.5%	Lack of awareness, misconceptions, poor health literacy
Medication Adherence	50.6%	Irregular access, forgetfulness, cost of drugs

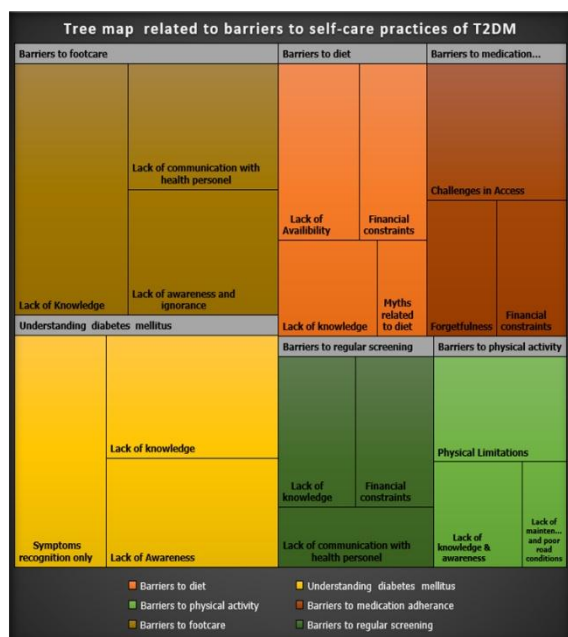


Figure 5: Tree map showing weightages of major themes & sub themes as emerged related to barriers to self-care practices among the study participants

DISCUSSION

This study provides valuable insights into the self-care practices and associated factors among elderly individuals with type 2 diabetes mellitus (T2DM) in rural Nabagram, West Bengal. Only about one-third of participants demonstrated satisfactory self-care, with educational and socio-economic status emerging as significant predictors—education being the most influential.

1. Socio-Demographic Characteristics

The majority of participants were aged 60–65, female, from lower-middle socio-economic backgrounds, illiterate, and had been diagnosed with diabetes for over 5 years. Similar demographic trends were observed in studies by Joshi (2022)⁶, Burman et al. (2021),^[7] and Goyal et al. (2019).^[8] A high prevalence of hypertension (83.6%) and eye problems was noted, indicating possible late diagnoses and limited preventive care—higher than in comparable studies, likely due to the age group targeted.

2. Knowledge of Self-Care Practices

FGDs revealed moderate knowledge about diet but poor awareness of appropriate fruits, foot care, and glucose monitoring. Many lacked understanding of foot care practices, consistent with findings by Shah et al. (2021),^[9] and Dinesh et al. (2020).^[10] Education level was linked to better knowledge and adherence to practices. Visual aids and tailored counseling are essential, especially for illiterate patients.

3. Self-Care Practices (SDSCA)

Despite 97.4% following a healthy eating plan for at least four days in a week, only 32.7% engaged in regular physical activity, and just 51% adhered to daily medication. Blood glucose monitoring and

foot care practices were also suboptimal. Compared with other studies (Goyal et al.,^[8] Recharla et al.,^[11]) adherence in our study was generally lower, possibly due to limited access, awareness, and physical limitations.

4. Associations with Demographics

Multivariate analysis confirmed education and socio-economic status as significant predictors of satisfactory self-care. Similar associations were found in Burman et al. (2021).^[12] Occupation showed no significant effect, likely due to low professional employment in this elderly population.

5. Barriers to Self-Care

Key barriers identified in FGDs included poor knowledge, myths, financial constraints, irregular medicine access, and lack of support or guidance from health providers. Similar themes were observed in studies by Shah et al. (2021),^[9] and Jamadar & Pundkar (2022),^[13] highlighting common rural health system gaps.

CONCLUSION

Self-care is vital for effective diabetes management. This mixed-method study found poor self-care practices among the elderly with type 2 diabetes in Nabagram block, significantly influenced by low education and poor socio-economic status.

Barriers such as limited knowledge, financial constraints, poor healthcare access, and infrastructure issues hindered effective self-care. These findings highlight the need for personalized, context-specific interventions, regular outreach by health workers, and structured education on diet, exercise, foot care, and medication adherence at the primary care level.

To overcome healthcare delivery challenges, task-sharing with trained health workers and community-based programs can help bridge gaps. Involving family, improving access, and policy-level changes are essential to support elderly patients.

Further research—especially longitudinal and qualitative—can deepen understanding and guide more effective interventions to improve diabetes outcomes in rural settings.

REFERENCES

1. International Diabetes Federation. IDF Diabetes Atlas, 10th ed. Brussels, Belgium: IDF; 2021.
2. Shrivastava SR, Shrivastava PS, Ramasamy J. Role of self-care in management of diabetes mellitus. *J Diabetes Metab Disord.* 2013;12(1):14.
3. Chatterjee S, Ranjan Das D, Janarthanan R. Awareness and practice of self-care among diabetes patients in rural India. *Int J Diabetes Dev Ctries.* 2019;39(1):146–52.
4. Government of India. National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS): Operational Guidelines. Ministry of Health and Family Welfare; 2013.
5. 9. Garg S, Paul B, Dasgupta A, Maharana S. Assessment of self-care activities: A study among type 2 diabetic patients in a rural area of West Bengal. *International Journal of Medical Science and Public Health.* 2017;1.

6. Jwalant Joshi, Punit Patel, Shreyas Kumar Gandhi et al: Factors influencing adherence to self-care practices among patients of type 2 diabetes mellitus from Saurashtra region of Gujarat: A conclusive research Journal of Family Medicine and Primary Care 6396 Volume 11: Issue 10: October 2022. [DOI: 10.4103/jfmpc.jfmpc_473_22]
7. Jayeeta Burman, Aritra Bhattacharya, Amitabha Chattopadhyay et al: Self-care practice and its predictors amongst Type-2 Diabetes Mellitus patients in the outpatient department of a tertiary hospital of Kolkata, Eastern India - A cross-sectional study Journal of Family Medicine and Primary Care Volume10: Issue 3: March 2021 DOI: 10.4103/jfmpc.jfmpc_2070_20
8. Goyal N, Gupta SK.: Self-care practices among known type 2 diabetic patients in Haldwani, India: A community based cross-sectional study. Int J Community Med Public Health 2019; 6:1740-6
9. Shah, Anuradha Kunal; Mishra, Sandeep Akhilesh et al: Exploration of barriers to self-care practices among diabetic patients attending chronic disease clinic in an urban slum.6(4): p 193- 198, Oct-Dec 2021. [10.4103/jncd.jncd_40_21]
10. Peraje Vasu Dinesh, Annarao Gunderao Kulkarni, Namratha Kurunji Gangadhar: Knowledge and self-care practices regarding diabetes among patients with Type 2 diabetes in Rural Sullia, Karnataka: A community-based, cross-sectional study Journal of Family Medicine and Primary Care October-December 2016: Volume 5: Issue 4 DOI: 10.4103/2249-4863.201176.
11. Recharla Chenchu Karthik, Radhakrishnan A, Vikram A et al: Self-care practices among type II diabetics in rural area of Kancheepuram district, Tamil Nadu. Journal of Family 105 | P a g e Medicine and Primary Care 2916 Volume 9: Issue 6: June 2020 DOI: 10.4103/jfmpc.jfmpc_356_20
12. Jayeeta Burman, Aritra Bhattacharya, Amitabha Chattopadhyay et al: Self-care practice and its predictors amongst Type-2 Diabetes Mellitus patients in the outpatient department of a tertiary hospital of Kolkata, Eastern India - A cross-sectional study Journal of Family Medicine and Primary Care Volume10: Issue 3: March 2021 DOI: 10.4103/jfmpc.jfmpc_2070_20
13. Jamadar MrP, Pundkar DrRD. A Mixed Methods Study of Self-Care Behavior in Patients of Type 2 Diabetes Mellitus Availing Out-Patient Services in A Hilly Tribal Area of Ahmednagar District of Maharashtra in India. Scholars Journal of Applied Medical Sciences [Internet]. 2022 Apr 25 [cited 2024 Jun 14];10(4):586–91. Available from: <https://www.saspublishers.com/article/5135>.