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A Descriptive Study On Self-Care Practices And Their Associated Factors Among Diabetic Patients Attending The Opd Of A Tertiary Care Hospital In Bhopal

[1]Velmurugan.R, [2] Pavleen K, [3a]Saraswat P, [3b]Kumari P, [3c]Doley P, [3d]Kumari P, [3e]Ramseena K ,[3f] Rani R, [3g]Kumari R

1. Assistant Professor, Nursing College, Savitri Bai Phule Bhawan, AIIMS Bhopal, Saket Nagar, Bhopal, Madhya Pradesh - 462020;
2. Nursing Tutor, College of Nursing, Stephens Group of Institutions, Jammu, 181102, Jammu and Kashmir, India;
3. a,b,c,d,e,f,g ,Bsc(H)Nursing Graduate, Nursing College, Savitri Bai Phule Bhawan, AIIMS Bhopal, Saket Nagar, Bhopal, Madhya Pradesh - 462020

Abstract

This descriptive cross-sectional study aimed to assess self-care practices and associated factors among Type 2 Diabetes Mellitus (T2DM) patients attending the outpatient department of a tertiary care hospital in Bhopal. A total of 352 T2DM patients aged 18 years and above, diagnosed for more than one year, were selected using non-probability convenience sampling. Data were collected using the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire and a self-structured tool assessing demographics, clinical variables, and self-care behaviors. Statistical analysis was conducted using SPSS version 20, with significance set at 0.05. The results revealed that only 15.06% of participants exhibited good self-care practices, while 39.77% had moderate adherence and 45.17% showed poor self-care. Exercise adherence was notably low (13%), and 66.7% had poor blood glucose monitoring, despite 29% owning a glucometer. Significant associations were found between self-care practices and education (p=0.003), occupation (p=0.004), and glucometer availability (p=0.002), while poor exercise habits correlated with marital status (p=0.047) and residence (p=0.013). The findings highlight critical gaps in self-care, particularly in exercise and blood glucose monitoring, emphasizing the need for increased awareness and structured support to enhance diabetes management and prevent complications.

Keywords: Diabetes Mellitus; Self Care; Patient Compliance; Health Knowledge, Attitudes, Practice; Outpatients.

I. Introduction

Diabetes is a chronic metabolic disorder characterized by elevated blood glucose levels, leading to complications such as cardiovascular diseases, neuropathy, and kidney damage. Type 2 diabetes, the most prevalent form, results from insulin resistance or inadequate insulin production, primarily affecting adults. Over the past three decades, diabetes cases have surged, particularly in low- and middle-income countries, with a significant impact on health and economic burdens.[1] Effective management requires more than medication adherence; self-care practices such as healthy eating, physical activity, blood sugar monitoring, and risk-reduction behaviors are crucial for glycemic control and preventing complications.[2,3]

Self-care plays a vital role in diabetes management by enhancing health outcomes and reducing complications.[2,4] However, poor awareness and inconsistent self-care behaviors remain major challenges.[5]Self-care can significantly improve therapeutic outcomes and reduce healthcare costs in resource-limited settings like India.[3,6] Many patients struggle with adherence due to factors such as low health literacy, socioeconomic barriers, and psychological distress.[7,10] Understanding these barriers is essential for improving diabetes management and patient outcomes.[2,8]

Diabetes self-care encompasses medication adherence, dietary regulation, physical activity, and foot care, all critical for disease control.[3,5] Challenges such as treatment costs, complex regimens, limited access to nutritious food, and lack of motivation often hinder adherence.[7,9]Additionally, foot care is essential for preventing ulcers and infections, which, if neglected, can lead to severe consequences, including amputations.[8,10] Sociodemographic characteristics, psychological well-being, health literacy, and healthcare accessibility influence self-care adherence, while social support from family and healthcare providers further facilitates engagement.[6,11]

Given the rising burden of diabetes in India, particularly in urban settings like Bhopal, it is crucial to evaluate self-care practices and identify factors influencing adherence.[3,4] The objectives of the study are to assess self-care practices among diabetic patients visiting the OPD of a tertiary care hospital in Bhopal, identify the sociodemographic, psychological, educational, and healthcare-related factors affecting self-care behaviors, and explore their relationship with demographic variables. The findings will provide insights for improving patient education, healthcare accessibility, and diabetes management strategies to enhance health outcomes and reduce economic burdens.[2,6,9]

II. Materials and methods

2.1 Study Design, Setting and Sampling:

A descriptive cross-sectional study was conducted among diabetic patients attending the outpatient department of a tertiary care hospital in Bhopal. The sample size was determined based on a previous study to ensure statistical significance, using the formula: $n=(Z\text{-}\alpha/2)^{2*}P(1-P)/d^2$ where $Z\text{-}\alpha/2=1.96$, $P=0$, and $d=0.05$, resulting in a calculated sample size of 352 . [7]

A non-probability convenience sampling technique was employed for participant selection.

Eligibility Criteria

Inclusion Criteria:

- T2DM patients aged 18 years and above.
- Diagnosed with T2DM for more than one year.
- Visiting the OPD of selected tertiary care hospital, Bhopal, during the study period.
- Willing to provide written informed consent.

Exclusion Criteria:

- Patients with cognitive impairments or mental health issues that could interfere with the data collection.
- Pregnant women.
- Patients with other major chronic diseases (such as cancer or renal failure) that might confound the study outcomes.

2.2 Study Instruments:

A. Closed ended questionnaire used for demographic data collection and level of knowledge:

A closed-ended questionnaire was utilized to collect data on demographic variables, clinical characteristics, medication adherence, and knowledge levels of diabetic patients. The demographic section covered age, sex, marital status, religion, education, occupation, place of residence, family history of diabetes, and glucometer availability at home. Clinical variables included BMI, co-morbidities, duration of diabetes, current treatment, and smoking status. Medication adherence was assessed through questions related to forgetting medication, challenges in remembering, and discontinuation based on symptoms. The knowledge assessment focused on diabetes risk factors, complications, lifestyle modifications, and treatment adherence. The questionnaire's validity was confirmed through expert review, yielding a Content Validity Index (CVI) of 0.80. Reliability was established based on previous studies, with Cronbach's alpha ranging from 0.7 to 0.9 [(2)], ensuring internal consistency and reliability.

B. Summary of Diabetes Self Care Activities (SDSCA):

It is a standardized tool designed to assess the frequency of diabetes self-care behaviors over the past seven days. It evaluates key aspects of diabetes management, including diet, physical activity, blood glucose monitoring, foot care, and smoking status. The SDSCA consists of 11 items, each scored on a scale from 0 to 7, representing the number of days per week a specific self-care activity was performed. The scoring is structured into different domains: general diet (items 1 and 2), specific diet (items 3 and 4, with item 4 reverse-scored), exercise (items 5 and 6), blood glucose monitoring (items 7 and 8), and foot care (items 9 and 10). Smoking behavior is assessed separately through item 11, categorizing individuals as smokers (1) or non-smokers (0), along with the number of cigarettes smoked per day. Previous studies have reported a content validity index (CVI) above 0.80, indicating strong validity [(5)]. The reliability of the SDSCA tool has also been established in earlier research, with reported Cronbach's alpha values ranging from 0.70 to 0.90, demonstrating good internal consistency and reliability in measuring self-care practices among diabetic patients.

III . Data Collection:

The data collection procedure involved conducting face-to-face interviews with diabetic patients visiting the OPD of a tertiary care hospital in Bhopal. Participants were selected using a non-probability convenience sampling technique, and informed consent was obtained before data collection. The structured questionnaire was administered to each participant, including demographic details, clinical variables, medication adherence, and self-care practices. The collected data was systematically organized, ensuring completeness and accuracy, before being subjected to statistical analysis for further interpretation. Ethical considerations, including confidentiality and voluntary participation, were strictly maintained throughout the process. The data collection period was from 30 May 2024 to 19 August 2024.

IV. Statistical Analysis:

The collected data were analyzed using SPSS version 20. Frequency and percentage distribution were used to describe demographic and clinical variables. Self-care practices among diabetic patients were categorized into good, moderate, and poor levels, with frequency and percentage used for their description. Similarly, the distribution of self-care practices concerning demographic and clinical variables and knowledge levels was analyzed using frequency and percentage. The association between self-care practices and demographic/clinical variables was determined using the chi-square test (χ^2) to identify statistically significant relationships.

V. Ethical Considerations:

Written permission was obtained from the Institutional Human Ethics Committee – Student Research before data collection. Informed consent was obtained from all participants, ensuring confidentiality and anonymity

VI. Results:

Section 1: Description of Demographic and Clinical Variables:

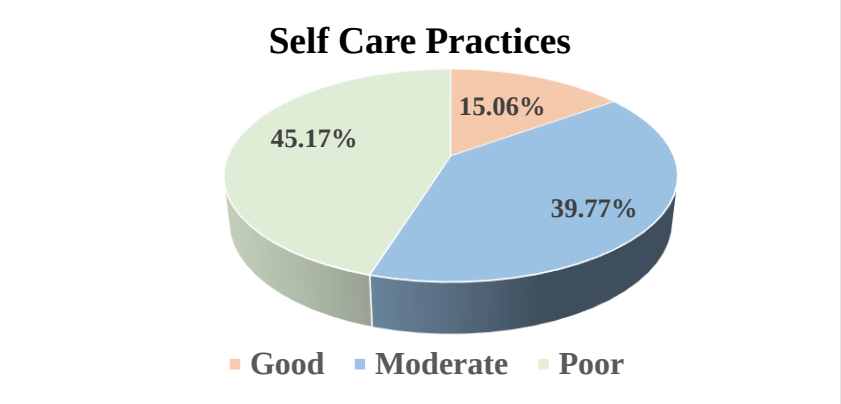
Most participants were aged 55-66 years, with more males (55.6%) and a high proportion of married individuals (88.6%). Most followed Hinduism (91.47%), had secondary education (37%), and were homemakers (36.9%). Participants were evenly split between rural and urban areas, while 60% had a family history of diabetes, and 53% lacked access to a glucometer.

Clinical data showed that maximum participants (47.15%) had a normal BMI (18.5-25), Hypertension (35.79%) was the most common comorbidity, followed by vision impairment (18.46%) and cardiovascular diseases (15.05%). Most participants had diabetes for 1-5 years (41.47%), and a significant portion (73.86%) were on oral antidiabetic medication, while only 15.05% required both oral and insulin therapy. Smoking was reported by 26.17% of participants, while 36.36% admitted forgetting their medication at times. Also, 48.29% faced challenges remembering to take their medication, and 66.76% had halted medication at some point due to improvement or worsening of their condition.

Section 2: Assessment of Self-Care Practices Among Diabetic Patients:

Among participants, 15.06% demonstrated good self-care practices, 39.77% had moderate adherence, and 45.17% exhibited poor self-care. (Figure 1)

Figure 1: Assessment of Self Care Practices



Section 3: Description of Self-Care Practices with Demographic Variables, Clinical Variables and Level of Knowledge:

The distribution of self-care practices with demographic variables showed that 16% of participants had good general diet habits, while 15% moderately adhered to specific diets. Blood glucose testing was poor (66.7%), whereas foot care practices were generally good. Poor exercise habits were reported by 13%, highlighting a critical gap. Participants with secondary education, homemakers, and rural residents showed poorer exercise and blood glucose testing practices. Notably, 29% of glucometer owners still had poor testing habits, indicating a lack of proper usage or understanding.

Table 1 depicts the distribution of self-care practices concerning clinical variables, highlighting that individuals with a normal BMI exhibited better general dietary habits (31%) compared to specific dietary adherence (24.4%). However, 39% of participants with normal BMI lacked adequate knowledge and practices related to blood glucose testing. Foot care practices remained stable (28.4%) across this group. The table also shows that individuals who consistently took their medication still had poor exercise habits and inadequate blood glucose monitoring. Additionally, those who discontinued medication due to improvement maintained moderate dietary habits but exhibited poor exercise routines.

Table 1: Description of self-care practice with clinical variables

Self-Care Practices	Scoring	BMI				Co-Morbidities With Diabetes				Duration Of Diabetes (Years)			
		<18.5 F (%)	18.5-25 F (%)	25-30 F (%)	>=30 F (%)	HTN F (%)	CVDF (%)	Vision Changes F (%)	Others F (%)	1 To 5 F (%)	6 To 10 F (%)	11to 15 F (%)	>=15 F (%)
General Diet	Good	9 (2.5)	109(31)	53(15)	0(0)	68(19.3)	20(5.6)	22(6.5)	61(17.3)	83(23.5)	68(19.3)	15(4.2)	5(1.4)
	Moderate	10(2.8)	39(11)	62(17.6)	12(3.4)	32(9)	2(6.5)	34(9.5)	34(9.6)	39(11)	39(11)	36(10.2)	9(2.5)
	Poor	8(2.2)	18(5.1)	28(7.9)	4(1.1)	26(7.3)	10(2.8)	9(2.5)	13(3.6)	24(6.8)	20(5.6)	8(2.2)	6(1.7)
Specific Diet	Good	8(2.2)	55(15.6)	39(11)	2(0.5)	14(3.9)	10(2.8)	12(3.4)	42(11.9)	52(14.6)	36(10.2)	9(2.5)	7(1.9)
	Moderate	13(3.6)	86(24.4)	76(21.5)	7(1.9)	68(19.3)	32(9)	36(10.2)	46(13)	75(21.3)	72(20.4)	28(7.9)	7(1.9)
	Poor	6(1.7)	25(7.1)	28(7.9)	7(1.9)	18(5.1)	11(3.1)	17(4.8)	20(5.6)	19(5.3)	19(5.3)	22(6.2)	6(1.7)
Exercise	Good	9(2.8)	47(13.3)	39(11)	2(0.5)	36(10.2)	11(3.1)	11(3.1)	34(9.6)	37(10.5)	38(10.7)	13(3.6)	4(1.3)
	Moderate	10(3.9)	33(9.3)	50(14.2)	8(2.2)	36(10.2)	12(3.4)	20(5.6)	33(9.3)	42(11.9)	24(6.8)	26(7.3)	9(2.5)
	Poor	13(0.5)	86(24.4)	54(15.3)	6(1.7)	54(15.3)	30(8.5)	34(9.6)	41(11.6)	67(19)	65(18.4)	20(5.6)	7(1.9)

Blood Glucose Testing	Good	2(1.4)	11(3.1)	11(3.1)	1(0.2)	10(2.8)	4(1.1)	5(1.4)	6(1.7)	7(1.9)	8(2.2)	7(1.9)	3(0.8)
	Moderate	5(5.6)	18(5.1)	24(6.8)	10(2.8)	17(4.8)	5(1.4)	15(4.,2)	20(5.6)	10(2.8)	17(4.8)	21(5.9)	9(2.5)
	Poor	20(2.8)	137(39)	108(30)	5(1.4)	99(28.1)	44(12)	45(12.7)	82(23.2)	129(36.6)	102(28.9)	31(8.8)	8(2.2)
Foot Care	Good	10(2.2)	100(28)	71(20.1)	4(1.1)	78(22.1)	23(6.5)	28(7.9)	56(15.9)	90(25.5)	71(20.1)	17(4.8)	7(1.9)
	Moderate	8(2.2)	23(6.5)	33(9.3)	8(2.2)	22(6.2)	12(3.4)	24(6.8)	14(3.9)	20(5.6)	23(6.5)	23(6.5)	6(1.7)
	Poor	9(2.5)	43(12.2)	39(11.)	4(1.1)	26(7.3)	18(5.1)	13(3.6)	38(10.7)	36(10.2)	33(9.3)	19(5.3)	7(1.9)

Self-Care Practices	**Scoring**	**Current Treatment**			**Current Smoking**	
		Oral F (%)	**Insulin F (%)**	**Both F (%)**	**Yes F (%)**	**No F (%)**
General Diet	Good	144(40.9)	16(4.5)	11(3.1)	17(4.8)	154)43.7)
	Moderate	78(22.1)	12(3.4)	33(9.3)	56(15.9)	67(19)
	Poor	38(10.7)	11(3.1)	9(2.5)	19(5.3)	39(11)
Specific Diet	Good	80(22.7)	11(3.1)	13(3.6)	20(.6)	84(23.8)
	Moderate	13839.2)	22(6.2)	22(6.2)	40(11.3)	142(14.3)
	Poor	42(11.9)	6(1.7)	18(5.1)	32(9)	34(9.6)
Exercise	Good	144(14.9)	16(4.5)	11(3.1)	16(4.5)	76(21.5)
	Moderate	78(22.1)	12(3.4)	33(9.3)	40(11.3)	61(17.3)
	Poor	38(10.7)	11(3.1)	9(2.5)	36(10.2)	123(34.9)
Blood Glucose Testing	Good	9(2.5)	7(1.9)	9(2.5)	10(2.8)	15(4.2)
	Moderate	31(8.8)	8(2.2)	18(5.1)	29(8.2)	28(7.9)
	Poor	220(62.5)	24(6.8)	26(7.3)	53(15)	21
Foot Care	Good	128(36.3)	28(7.9)	29(8.2)	37(10.5)	148(42)
	Moderate	54(15.3)	5(1.4)	13(3.6)	29(8.2)	43(12.2)
	Poor	78(22.1)	6(1.7)	11(3.1)	26(7.3)	69(19.6)

Self-Care Practices	Scoring	Forgot to take medication		Challenges to remember to take medication		Halt due to improvement		Halt due to worsening	
		Yes F (%)	No F (%)	Yes F (%)	No F (%)	Yes F (%)	No F (%)	Yes F (%)	No F (%)
General Diet	Good	67(19)	104(29.5)	77(21.8)	94(26.7)	126(35.7)	45(12.7)	120(34)	51(14.4)
	Moderate	38(10.7)	85(24.1)	64(18.1)	59(16.7)	72(20.4)	51(14.4)	73(20.7)	50(14.2)
	Poor	23(6.5)	35(9.9)	29(8.2)	29(8.2)	37(10.5)	21(5.9)	42(11.9)	16(4.5)
Specific Diet	Good	55(15.6)	49(13.90	70(19.8)	34(9.6)	71(20.1)	33(9.3)	84(23.8)	20(5.6)
	Moderate	51(14.4)	131(37.2)	66(18.7)	116(32.9)	126(35.7)	56(15.9)	111(31.5)	71(20.1)
	Poor	22(6.2)	44(12.5)	34(9.6)	32(9)	38(10.9)	28(7.9)	40(11.3)	26(7.3)
Exercise	Good	42(11.9)	50(14.2)	50(14.2)	42(11.9)	56(15.9)	36(10.2)	71(20.1)	21 (5.9)
	Moderate	33(9.3)	68(19.3)	55(15.6)	46(13)	70(19.8)	31(8.8)	74(21)	27(7.6)
	Poor	53(15)	106(13.1)	65(18.4)	94(26.7)	109(30.9)	50(15.2)	90(25.5)	69(19.6)
Blood Glucose Testing	Good	9(2.5)	16(4.5)	10(2.8)	15(4.2)	127(36)	58916.4)	16(4.5)	9(2.5)
	Moderate	27(7.6)	30(8.5)	37(10.5)	20(5.6)	49(13.9)	23(6.5)	42(11.9)	15(4.2)
	Poor	92(26.1)	178(15.5)	123(34.9)	147(41.7)	59(16.7)	36(10.2)	177(50.2)	93(26.4)
Foot Care	Good	65(18.4)	120(34)	85(24.1)	100(28.4)	15(4.2)	10(2.8)	135(38.3)	50(14.2)
	Moderate	25(7.1)	47(13.3)	35(9.9)	37(10.5)	42(11.9)	15(4.2)	43(12.2)	29(8.2)
	Poor	38(10.7)	57(16.1)	50(14.2)	45(12.70	178(15.5)	92(26.1)	57(16.1)	38(10.7)

Table 2 depicts the distribution of self-care practices based on the level of knowledge, showing strong awareness of general dietary habits and foot care. However, significant gaps were noted in exercise knowledge, with only 21.9% possessing a moderate understanding. Blood glucose testing knowledge, though relatively strong (36.4%), still required improvement. Additionally, only 24.4% had moderate knowledge of specific diets, underscoring the need for personalized nutrition education. These findings emphasize the necessity of targeted educational interventions to improve diabetes self-care practices.

Table 2: Description of self-care practice with level of knowledge

Self-Care Practices	Knowledge			
	Scoring	Good	Moderate	Poor
		F (%)	F (%)	F (%)
General Diet	Good	100 (28.4)	63 (17.8)	8 (2.27)
	Moderate	50 (14.2)	60 (17.04)	13 (3.6)
	Poor	11 (3.1)	37 (10.5)	10 (2.8)
Specific Diet	Good	54 (15.3)	42(11.9)	8 (2.3)
	Moderate	77 (21.8)	86 (24.4)	19 (5.3)
	Poor	30 (8.5)	32 (9.09)	4 (1.1)
Exercise	Good	53 (15)	36 (10.2)	3 (0.85)
	Moderate	46 (13.0)	47 (13.3)	8 (2.3)
	Poor	62 (17.6)	77 (21.8)	20 (5.6)
Blood Glucose Testing	Good	9 (2.5)	12 (3.4)	4 (1.1)
	Moderate	30 (8.5)	20 (5.6)	7 (1.9)
	Poor	122 (34.6)	128 (36.3)	20 (5.6)
Foot Care	Good	94 (26.7)	79 (22.4)	12 (3.4)
	Moderate	26 (7.3)	42 (11.9)	4 (1.1)
	Poor	41 (11.6)	39 (11.07)	15 (4.2)

Section 4: Association of Self-Care Practices with Demographic and Clinical Variables

Significant associations were observed between self-care practices and key demographic factors such as education (p=0.003), occupation (p=0.004), and glucometer availability (p=0.002). Clinical variables, including BMI, comorbidities, and diabetes duration, also influenced adherence. Blood glucose monitoring was significantly associated with family history (p=0.000) and glucometer availability (p=0.000). Poor exercise habits correlated with marital status (p=0.047) and residence (p=0.013). Additionally, occupation, family history, and glucometer availability significantly impacted dietary adherence.

Knowledge gaps were noted in exercise (21.9% moderate knowledge), specific diets (24.4% moderate knowledge), and blood glucose testing (36.4% strong knowledge but requiring improvement). These findings highlight the need for targeted education and behavioral interventions to improve diabetes self-care practices.

VII. Discussion

The study revealed that most participants were aged 55-66 years, with a male predominance (55.6%) and a high proportion of married individuals (88.6%). These findings align with studies by Yekta et al. [2] and Dinesh et al. [4,] while Rajasekharan et al. [3] reported a more balanced gender distribution. Educational attainment and occupation significantly influenced self-care adherence, as noted in studies by Tiruneh et al. [7,] Durai et al. [5]. Clinically, hypertension (35.79%) was the most common comorbidity, consistent with findings from Chittooru et al[.9] and Akashnath et al. [(12)]. In contrast, Joho et al. [13] reported a higher prevalence of obesity, suggesting regional variations.

Self-care adherence was suboptimal, with only 15.06% of participants demonstrating good practices, 39.77% showing moderate adherence, and 45.17% exhibiting poor self-care. This trend mirrors findings from Yekta et al. [2] and Garg et al. [6] while Nguyen et al. [11] reported higher adherence rates in Vietnam due to improved healthcare access. Key areas of concern included poor blood glucose monitoring (66.7%) and low exercise adherence (13%), consistent with Karthik et al. [8] and Tiruneh et al. [7,] Notably, despite glucometer availability, 29% of participants did not monitor their blood glucose adequately, suggesting knowledge gaps similar to those found in Akashnath et al. [12].

Knowledge of dietary habits and foot care was relatively strong, but significant gaps existed in exercise (21.9% moderate understanding) and blood glucose testing (36.4% requiring improvement). Similar findings were reported by Joho et al. [13] and Chittooru et al. [9], emphasizing the need for targeted education. Additionally, self-care practices were significantly associated with education (p=0.003), occupation (p=0.004), and glucometer availability (p=0.002), aligning with Rajasekharan et al. [3] and Tiruneh et al. [7]. Poor exercise habits correlated with marital status (p=0.047) and residence (p=0.013), reinforcing findings by Karthik et al. [8].

Overall, the study underscores the critical need for targeted educational and behavioral interventions to improve diabetes self-care. Findings align with WHO recommendations [1] and previous studies, highlighting the necessity of personalized self-care education, increased accessibility to monitoring tools, and lifestyle modification strategies to enhance diabetes management outcomes.

VIII. Limitations:

This study has several limitations, including its cross-sectional design, which prevents causal inferences, and potential selection bias due to a specific study population, limiting generalizability. Self-reported data on medication adherence, diet, and exercise may be affected by recall and social desirability biases, leading to inaccuracies. Measurement bias is also a concern, particularly in assessing blood glucose monitoring and exercise adherence, as these were not objectively measured. Additionally, the study did not account for psychosocial factors like stress and health literacy, which can significantly influence self-care behaviors. Future research should incorporate a more diverse sample, objective self-care measures, and psychosocial determinants to improve accuracy and applicability.

IX. Interpretation:

The findings of this study provide valuable insights into the self-care practices of diabetic patients, highlighting significant gaps in adherence to diet, exercise, and blood glucose monitoring. While the study objectives were met in assessing self-care behaviors and their associations with demographic and clinical variables, the results should be interpreted with caution due to potential biases and limitations, including self-reported data, selection bias, and the cross-sectional nature of the study. The consistency of findings with previous research, such as low adherence to exercise reported by Tiruneh et al.[7] and Karthik et al. [8]and poor blood glucose monitoring observed in studies by Garg et al.[6]and Chittooru et al.,[9]strengthens the validity of the results. However, variations in dietary adherence across studies suggest the influence of contextual factors like healthcare access and cultural practices. Furthermore, while statistical associations were identified, the absence of a longitudinal approach limits the ability to determine causality. Given the multiplicity of analyses,

findings should be viewed as exploratory, emphasizing the need for targeted interventions and further research to confirm these relationships and address the identified gaps in self-care practices.

X. Generalisability

The findings of this study provide valuable insights into diabetes self-care practices; however, their generalisability may be limited due to the specific demographic and geographic context of the study population. As the study was conducted in a particular region, variations in healthcare accessibility, socioeconomic status, and cultural factors may affect the applicability of results to broader populations. Additionally, self-reported data may introduce bias, and the cross-sectional design prevents establishing causality. Future studies with diverse populations and longitudinal approaches are needed to enhance external validity.

XI. Funding

This study was conducted without external funding. The authors independently carried out the research without financial influence from any organizations or funding agencies. The authors affirm that there were no conflicts of interest in the study's design, data collection, analysis, or interpretation.

XII. Conflict of Interest

The authors declare no conflict of interest.

XIII. Summary:

The study identifies critical gaps in self-care practices among diabetic patients, particularly in exercise adherence and blood glucose monitoring. These findings highlight the need for targeted educational and behavioral interventions. Personalized education, improved healthcare accessibility, and lifestyle modifications can enhance self-care, leading to better disease management and a reduced risk of complications.

References:

1. Diabetes [Internet]. [cited 2023 Dec 27]. Available from: https://www.who.int/news-room/fact-sheets/detail/diabetes
2. Yekta Z, Pourali R, Aghassi MR, Ashragh N, Ravanyar L, Rahim Pour MY. Assessment of Self-Care Practice and Its Associated Factors among Diabetic Patients in Urban Area of Urmia, Northwest of Iran. J Res Health Sci. 2011 Jun 13;11(1):33–8. PMID: 22911945.
3. Rajasekharan D, Kulkarni V, Unnikrishnan B, Kumar N, Holla R, Thapar R. Self-care activities among patients with diabetes attending a tertiary care hospital in mangalore karnataka, India. Ann Med Health Sci Res. 2015;5(1):59–64. doi: 10.4103/2141-9248.149791. PMID: 25745579; PMCID: PMC4350065
4. Dinesh, Peraje Vasu1, Kulkarni, Annarao Gunderao1; Gangadhar, Namratha Kurunji2. 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 5(4):p 847-852, Oct–Dec 2016. | DOI: 10.4103/2249-4863.201176
5. Durai V, Samya V, Akila GV, Shriraam V, Jasmine A, Muthuthandavan AR, *et al*. Self-care practices and factors influencing self-care among type 2 diabetes mellitus patients in a rural health center in South India. J Edu Health Promot 2021;10:151
6. Garg S, Paul B, Dasgupta A, Maharana SP. Assessment of self-care activities: A study among type 2 diabetic patients in a rural area of West Bengal. Int J Med Sci Public Health 2017;6(7):1173-1178.
7. Tiruneh SA, Ayele AA, Emiru YK, Tegegn HG, Ayele BA, Engidaw MT, et al. Factors influencing diabetes self-care practice among type 2 diabetes patients attending diabetic care follow up at an Ethiopian General Hospital, 2018. J Diabetes Metab Disord. 2019 Jun;18(1):199–206. doi: 10.1007/s40200-019-00408-z. PMID: 31275891; PMCID: PMC6582032

8. Karthik RC, Radhakrishnan A, Vikram A, Arumugam B, Jagadeesh S. Self-care practices among type II diabetics in rural area of Kancheepuram district, Tamil Nadu. J Family Med PrimCare 2020;9:2912-8.
9. Chittooru CS, Ananda KG, Dr Panati D, Chaudhuri S, Prahalad H, Self-care practices and its determinants among diabetic population in rural Andhra Pradesh, India: A cross-sectional study, Clinical Epidemiology and Global Health, Volume 16, 2022, 101102, ISSN 2213-3984,
10. Emire MS, Zewudie BT, Tarekegn TT, GebreEyesus FA, Amlak BT, Mengist ST, Terefe TF, Mewahegn AA. Self-care practice and its associated factors among diabetic patients attending public hospitals in Gurage zone southwest, Ethiopia. PLoS One. 2022 Sep 26;17(9):e0271680. doi: 10.1371/journal.pone.0271680. PMID: 36155496; PMCID: PMC9512188.
11. Nguyen VB, Thi KHP, Nguyen TX, Pham NTL, Nguyen VVH, Van Le C. Diabetes self-management and its associated factors among patients with diabetes in central Vietnam: A cross-sectional study. PLoS One. 2022 Jul 8;17(7):e0270901. doi: 10.1371/journal.pone.0270901. PMID: 35802719; PMCID: PMC9269929.
12. Akashnath R, Priya S, Muthuraman K. IJCM_183A: Assessment of treatment adherence among type 2 diabetic patients attending a tertiary care hospital in Madurai district, Tamil Nadu – A cross-sectional study. Indian J Community Med. 2024 Apr;49(Suppl 1):S53. doi: 10.4103/ijcm.ijcm_abstract183. PMCID: PMC11155911.
13. Joho AA, Sandi F, Yahaya JJ. Determinants of knowledge, attitude, and practice among patients with type 2 diabetes mellitus: A cross-sectional multicenter study in Tanzania. PLOS Glob Public Health. 2023 Dec 1;3(12):e0001351. doi: 10.1371/journal.pgph.0001351. PMID: 38039284; PMCID: PMC10691713.
14. Hasnain S. Original Articles Knowledge And Practices Regarding Self-care Management Among Diabetics Visiting Medical Outpatient Department Of Fatima Memorial Hospital, Lahore. Jamdc [Internet]. 2022 Feb. 12