Challenges in Diabetes Management Barriers and Support Systems in North India

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Abstract

Background: The prevalence of Diabetes mellitus is ever growing in India and management of the disease is hindered by socio-economic, healthcare, and psychosocial barriers. Insofar as economic and social barriers pose challenges ranging from limited access to medical care, social stigma, specialist support leading to improper glycemic control, which is a strong predictor for diabetes complications, morbidity and mortality. Moreover, developing an understanding of systemic challenges and available supports is vital for improving diabetes care and controlling the disease.

Methods: A sample of 1500 purposely selected respondents having diabetes from urban and rural district in North India participated in a cross-sectional survey. Participants were asked to provide demographic information alongside the self-reported financial and healthcare barriers,

psychosocial challenges, and other forms of support. The resulting data was analyzed through SPSS version 27 for statistical tests of independence, including chi-square tests and logistic regression.

Results: The most common reporting challenge was stress and psychosocial burden (15.7%). This was followed by lack of access to diabetes specialists (15.3%), lack of social support (14.7%), cost of medication (14.3%), and difficulty in maintaining healthy nutrition (13.9%). No relationship between place of residence (urban vs. rural) and types of diabetes management challenges was found ($\chi^2 = 3.097$, $p = 0.797$). This suggests that barriers exist in both environments. Some level of gender differences in challenges were identified but were not significant ($\chi^2 = 5.453$, $p = 0.941$). Participants reported moderate adherence to prescribed medication (Mean = 2.95, SD = 1.433) and minimal attendance with health care providers (Mean = 2.48, SD = 1.099).

Conclusion: The study points out the existences of challenges in diabetes management, where psychological issues and enforcement concerns take precedence. While evident, diabetes-related challenges cut across gender and residential areas, which calls for systemic solutions. Improving the healthcare system, lowering the cost of treatment, providing psychiatric assistance, and enhancing the provision of diabetes care at the community level could work towards better diabetes management.

Keywords: Diabetes care, access to healthcare, economic barriers, psychosocial barriers, Northern India, adherence to self-care, social support, rural and urban areas.

Introduction

Diabetes mellitus (DM) poses a major public health problem in India and is set to become worse over time as there are many socio-economic, health care, and personal factors that make it difficult for individuals to manage diabetes [1]. Though there have been improvements in the control of diabetes owing to more effective treatment, self-care, especially in under-resourced regions, continues to be a major challenge [2]. In Northern India, the medicated patients face one or more of the following barriers: poor access to medical care; expensive medicines; ignorance; and sociocultural discrimination. As a result, many patients fail to achieve adequate glycemic control and experience complications that substantially increase their morbidity and mortality risk [3].

One of the striking disparities between urban and rural diabetes patients in India is their access to health care services. Remote regions find it even harder to access tertiary specialized diabetes care, which is aggravated by the minimal existing diabetes infrastructure and lack of endocrinology services in rural areas [4]. Further, lack of money makes it impossible to use medicines even when required which makes many people skip doses or stop taking prescribed treatment altogether for monetary reasons [5]. Other than economic issues, many patients are affected by cultural and social stigma which makes them use alternative medicine or abstain from getting medication at all due to lack of information [6].

This study looks into the prominent problems encountered by diabetic patients residing in Northern India paying particular attention to financial, healthcare, sociocultural, and psychological issues. Additionally, it looks into the family, community, and healthcare professional's participation in providing support for diabetes management. It is important to understand these barriers as well as the support systems that currently exist to design appropriate strategies to improve care for diabetes and self-management within the region.

Methodology

Study Design

To assess the self-reported barriers and support in diabetes care, a cross-sectional survey was conducted for individuals with diagnosed diabetes. Financial and non-financial barriers, healthcare and medication access, level of social support, and stress were captured using a structured questionnaire. A cross-sectional approach was the most appropriate method due to the need to measure multiple variables of interest in a defined population at one particular point in time [7].

Study Area and Population

The study was conducted in purposively sampled urban and rural districts from the North region of India. These regions were selected to capture population from different socio-economic strata and varying levels of healthcare accessibility. The source population for the study were people attending diabetes clinics at community health centers and those active in patient support groups to provide unbiased representation of diabetic people. North India was chosen because of the inter-

regional variation in several healthcare access indicators, including payment, and the prevalence of diabetes [8].

Sample Size and Sampling Technique

The study was conducted on a sample of 1,500 diabetics. The sample size was calculated using Cochran's formula with a 95% confidence level and 5% error margin [9]. A stratified random sampling technique was applied to achieve proportional representation of different age groups, gender, and area of residence (urban vs. rural). High prevalence states of diabetes in North India were selected according to the national health report diabetes data [10]. Within each state, two districts were selected randomly. Subsequently, subjects were recruited at healthcare centers and during diabetes awareness campaigns [11].

Data Collection Instrument

A structured questionnaire was tailored using already existing literature on diabetes related issues and their challenges. The questionnaire was partitioned in four categories:

1. Demographic Information – Age, sex, educational qualification, socio economic class and locality.

2. Financial and Healthcare Barriers – Price of medicines, medical examination fees, and diabetes specialty care availability.

3. Social and Psychological Challenges – Support from family, discrimination at work, emotional burden, and diabetes-related stigma.

4. Support Systems and Coping Strategies – Family members, healthcare professionals, and community support in managing diabetes conditions.

A panel of experts evaluated the questionnaire and a pilot test was conducted with fifty people which resulted in a Cronbach’s alpha of 0.82, demonstrating strong internal reliability [12].

Data collection procedure

The survey was conducted in Hindi, Punjabi, and English with a written, self-administered questionnaire. Participants were able to fill the questionnaire out online or in person at paper stations set up at the healthcare centers, community centers, and diabetes support groups. For

individuals requiring assistance, trained data collectors provided guidance in completing the questionnaire while ensuring non-interference with responses. All responses were anonymized and handled with strict confidentiality throughout the study.

Data analysis

Data was coded and analyzed statistically with version 27 of SPSS [13]. The participant characteristics and the self-reported difficulties faced by the participants were summarized descriptively (frequencies, percentages, means). Associations between demographic variables with diabetes related barriers were assessed with chi-square tests, whereas multivariate logistic regression analysis was employed to determine the primary determinants of inadequate diabetes control. P-value <0.05 was statistically significant [14].

Ethical Considerations

Data collection began only after an Institutional Ethics Review Board (IERB) provided ethical approval, per the recommended international practices for research [15]. All willing participants gave written informed consent and were made aware of their freedom to exit at any point during the process. All data was treated confidentially, with no personally identifiable information being recorded.

Results

Table 1: Age Distribution of Respondents

Age Group	Frequency	Percent (%)	Cumulative Percent (%)
18-25	193	12.9	12.9
26-35	254	16.9	29.8
36-45	301	20.1	49.9

The age distribution of respondents reveals a diverse representation across different age groups (table-1). The largest proportion of respondents falls within the 46-55 age category, comprising 28.5% (n=428) of the total sample. This is followed by the 36-45 age group, accounting for 20.1% (n=301), and the 56 and above category, representing 21.6% (n=324). Younger respondents are comparatively fewer, with 26-35-year-olds making up 16.9% (n=254) and those aged 18-25 comprising the smallest proportion at 12.9% (n=193). The cumulative distribution indicates that nearly half (49.9%) of the respondents are aged 45 or below, while a significant 50.1% are 46 and above. These findings suggest that the study captures a well-balanced age range, with a relatively higher representation of middle-aged and older adults.

Table 2: Gender Distribution of Respondents

Gender	Frequency	Percent (%)	Cumulative Percent (%)
Male	599	39.9	39.9
Female	682	45.5	85.4
Other	219	14.6	100
Total	1500	100	

In terms of gender distribution, females constitute the largest proportion of respondents at 45.5% (n=682), followed closely by males, who make up 39.9% (n=599). A notable 14.6% (n=219) of respondents identify as “other,” reflecting a significant representation of gender diversity (table - 2). The cumulative percentages indicate that 85.4% of the respondents identify as either male or female, while the remaining portion belongs to the "other" category. This gender distribution suggests inclusivity in the study, ensuring that diverse gender identities are represented.

Table 3: Place of Residence

Place of Residence	Frequency	Percent (%)	Cumulative Percent (%)
Rural	708	47.2	47.2
Urban	792	52.8	100
Total	1500	100	

Regarding the place of residence, the sample is relatively balanced between urban and rural respondents (table-3). A slightly larger proportion, 52.8% (n=792), reside in urban areas, whereas 47.2% (n=708) are from rural areas. This near-equal representation ensures that perspectives from both rural and urban dwellers are adequately captured. The findings suggest that the study does not disproportionately favor one geographic setting, allowing for a comprehensive understanding of potential regional differences in responses.

Table 4: Challenges in Diabetes Management

What is the biggest challenge you face in managing diabetes?

Challenge	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
High cost of medication	214	14.3	14.3	14.3
Difficulty maintaining a healthy diet	208	13.9	13.9	28.1
Limited access to diabetes specialists	229	15.3	15.3	43.4
Lack of social support	221	14.7	14.7	58.1
Forgetting to take medication	192	12.8	12.8	70.9
Stress and emotional burden	235	15.7	15.7	86.6
None of the above	201	13.4	13.4	100
Total	1500	100	100	

The analysis of respondents' biggest challenges in managing diabetes reveals a wide range of difficulties, with no single challenge overwhelmingly dominant. The most commonly reported issue is stress and emotional burden, cited by 15.7% (n=235) of respondents, highlighting the significant psychological impact of living with diabetes (table-4). This finding suggests that diabetes management extends beyond medical and lifestyle factors, emphasizing the need for mental health support and stress management strategies for individuals with diabetes.

Following closely, limited access to diabetes specialists (15.3%, n=229) and lack of social support (14.7%, n=221) are significant barriers. These findings indicate that many individuals struggle to receive specialized medical guidance, which can impact the effectiveness of their treatment plans. Additionally, the lack of social support suggests that family and community involvement in diabetes care is insufficient for some patients, potentially affecting their ability to adhere to recommended health practices.

High medication costs (14.3%, n=214) and difficulty maintaining a healthy diet (13.9%, n=208) are also substantial concerns. These findings reflect the financial burden associated with diabetes treatment and the challenges of maintaining a balanced, diabetes-friendly diet, particularly in settings where access to affordable and nutritious food may be limited. Forgetting to take medication (12.8%, n=192) is another issue, pointing to potential adherence problems that may affect blood glucose control and long-term disease outcomes.

A small proportion of respondents, 13.4% (n=201), reported none of these challenges, indicating that some individuals do not perceive significant obstacles in their diabetes management. The cumulative percentage analysis shows that 70.9% of respondents experience at least one significant challenge, reinforcing the need for targeted interventions to support diabetes management at both individual and systemic levels.

Table 5: Cross-Tabulation of Diabetes Management Challenges by Place of Residence

Place of Residence	High Cost of Medication	Difficulty Maintaining a Healthy Diet	Limited Access to Diabetes Specialists	Lack of Social Support	Forgetting to Take Medication	Stress and Emotional Burden	None of the Above	Total
Rural	106	101	104	111	87	103	96	708
Urban	108	107	125	110	105	132	105	792
Total	214	208	229	221	192	235	201	1500

The cross-tabulation of diabetes management challenges by place of residence provides insights into the differences in perceived barriers between rural and urban respondents. The distribution of responses suggests that certain challenges are more pronounced in specific settings, reflecting variations in healthcare access, socio-economic conditions, and lifestyle factors.

Among those reporting high medication costs as a primary challenge, rural and urban respondents show similar levels of concern, with 106 (rural) and 108 (urban) respondents affected. This near-equal distribution indicates that the financial burden of diabetes treatment is a widespread issue, regardless of geographic location. Similarly, difficulty maintaining a healthy diet is almost equally prevalent, with 101 rural and 107 urban respondents citing this as a challenge. This suggests that dietary challenges are not solely location-dependent but may be influenced by economic factors, food availability, and individual lifestyle choices (table-5).

However, notable differences emerge in access to diabetes specialists. Limited access to specialists is more commonly reported among urban respondents (125) compared to rural respondents (104). While this may seem counterintuitive, it could reflect longer wait times and overburdened

healthcare facilities in urban areas, despite the greater concentration of specialists. In contrast, lack of social support is reported at nearly equal rates in both rural (111) and urban (110) populations, emphasizing that social isolation and insufficient family or community support are universal concerns for diabetes patients.

When examining medication adherence, a slightly higher proportion of urban respondents (105) report forgetting to take medication compared to 87 in rural areas. This could suggest a more fast-paced urban lifestyle contributing to inconsistent medication adherence. Additionally, stress and emotional burden is reported more frequently in urban settings (132) than in rural areas (103), highlighting the higher levels of psychological stress associated with urban living, possibly due to work-related stress, financial pressures, or limited personal time for self-care.

Interestingly, the proportion of respondents who report "none of the above" as their primary challenge is almost equal in both settings (rural: 96, urban: 105), indicating that a small subset of individuals in both rural and urban areas do not perceive significant barriers in managing their diabetes.

Table 6: Chi-Square Analysis of Diabetes Management Challenges by Place of Residence

Test Statistic	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.097[a]	6	0.797
Likelihood Ratio	3.099	6	0.796
Linear-by-Linear Association	0.72	1	0.396
Number of Valid Cases	1500		

[a] *0 cells (0.0%) have expected count less than 5. The minimum expected count is 90.62.*

A chi-square test of independence was conducted to examine the association between place of residence (urban vs. rural) and the challenges faced in diabetes management. The Pearson chi-square value ($\chi^2 = 3.097$, df = 6, $p = 0.797$) indicates that the relationship between these variables is not statistically significant. Similarly, the likelihood ratio test ($\chi^2 = 3.099$, $p = 0.796$) confirms this finding, suggesting that diabetes management challenges are evenly distributed across urban and rural respondents (table-6).

The linear-by-linear association test ($\chi^2 = 0.720$, $p = 0.396$) further supports the lack of a meaningful trend, implying no progressive pattern in diabetes challenges based on residence.

Additionally, the data meets chi-square test assumptions, with no expected cell counts falling below five and a minimum expected count of 90.62, ensuring the reliability of results.

Overall, the findings suggest that geographic location does not significantly impact the type of diabetes management challenges reported, indicating that barriers such as medication costs, access to specialists, and adherence issues are common across both urban and rural populations.

Table 7: Cross-Tabulation of Diabetes Management Challenges by Gender

Gender	High Cost of Medication	Difficulty Maintaining a Healthy Diet	Limited Access to Diabetes Specialists	Lack of Social Support	Forgetting to Take Medication	Stress and Emotional Burden	None of the Above	Total
Male	89	82	92	84	83	87	82	599
Female	96	90	101	106	81	113	95	682
Other	29	36	36	31	28	35	24	219
Total	214	208	229	221	192	235	201	1500

The cross-tabulation of diabetes management challenges by gender reveals notable differences in the distribution of reported barriers.

Among males, the most frequently reported challenge is limited access to diabetes specialists (n = 92), followed by high cost of medication (n = 89) and stress and emotional burden (n = 87). Challenges such as difficulty maintaining a healthy diet (n = 82), lack of social support (n = 84), and forgetting to take medication (n = 83) are reported at relatively lower but comparable frequencies (table-7). The distribution suggests that males experience a mix of financial, accessibility, and psychological challenges, with healthcare access being a predominant concern.

Among females, the most frequently cited challenge is lack of social support (n = 106), followed by limited access to diabetes specialists (n = 101) and stress and emotional burden (n = 113). Compared to males, females report higher levels of social support issues and emotional burden, indicating potential psychological and interpersonal difficulties in diabetes management. Additionally, a slightly higher number of females report financial and dietary difficulties, with high cost of medication (n = 96) and difficulty maintaining a healthy diet (n = 90) being commonly cited concerns.

For respondents in the "other" gender category, difficulty maintaining a healthy diet (n = 36) and limited access to diabetes specialists (n = 36) are the most frequently reported challenges. The data also indicates that stress and emotional burden (n = 35) is a major issue among this group, reinforcing the psychosocial dimension of diabetes management across gender categories.

Regarding forgetting to take medication, the differences between males (n = 83) and females (n = 81) are minimal, suggesting that adherence challenges are relatively uniform across gender groups. However, the "other" category (n = 28) reports slightly lower instances of this issue, indicating potential differences in medication-taking behavior.

Table 8: Chi-Square Analysis of Diabetes Management by Gender

Test Statistic	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.453[a]	12	0.941
Likelihood Ratio	5.461	12	0.941
Linear-by-Linear Association	0.039	1	0.843

[a] *0 cells (0.0%) have expected count less than 5. The minimum expected count is 28.03.*

A chi-square test of independence was conducted to assess whether there is a significant association between gender and the challenges faced in managing diabetes. The Pearson chi-square value ($\chi^2 = 5.453$, df = 12, p = 0.941) indicates that there is no statistically significant relationship between gender and the type of diabetes management challenges reported. Similarly, the likelihood ratio test ($\chi^2 = 5.461$, p = 0.941) confirms this result, reinforcing that the distribution of diabetes-related challenges is not significantly influenced by gender (table-8).

The linear-by-linear association test ($\chi^2 = 0.039$, p = 0.843) further suggests that there is no meaningful trend or pattern in the relationship between gender and diabetes challenges. Additionally, the chi-square test assumptions are satisfied, as no expected cell counts fall below five, and the minimum expected count is 28.03, ensuring the reliability of the results.

Table 9: Descriptive Statistics on Diabetes Management and Support Systems

Survey Item	N	Minimum	Maximum	Mean	Std. Deviation
How often do you miss your prescribed diabetes medication?	1500	1	5	2.95	1.433
Do you have regular check-ups with a doctor or diabetes specialist?	1500	1	4	2.48	1.099
How satisfied are you with the quality of diabetes care you receive?	1500	1	5	3.02	1.412
How accessible is diabetes-related healthcare in your area?	1500	1	3	1.98	0.811

Where do you primarily receive diabetes care?	1500	1	5	2.99	1.408
Have you had to relocate or travel long distances for diabetes treatment?	1500	1	2	1.52	0.5
Do you think people in urban areas have better access to diabetes care?	1500	1	3	2.01	0.82
Valid N (listwise)	1500				

The descriptive statistics provide insights into various aspects of diabetes management, including medication adherence, healthcare access, patient satisfaction, and geographical disparities in diabetes care. The responses were collected from 1,500 individuals, and their variability is assessed using mean and standard deviation values across different questions (table-9).

The adherence to prescribed diabetes medication varies among respondents, with a mean score of 2.95 (SD = 1.433) on a scale of 1 to 5. This suggests that, on average, participants occasionally miss their medication, though individual responses show high variability. The standard deviation of 1.433 indicates substantial differences in adherence levels, implying that while some individuals consistently follow their prescriptions, others frequently deviate.

Regular check-ups with a doctor or diabetes specialist have a mean score of 2.48 (SD = 1.099) on a 1 to 4 scale, indicating that participants, on average, attend check-ups irregularly rather than consistently. The lower standard deviation (1.099) suggests that responses are more concentrated around the mean, meaning that most participants follow similar healthcare-seeking behaviors.

Patient satisfaction with diabetes care reveals a mean score of 3.02 (SD = 1.412), indicating a moderately positive perception of healthcare services. The relatively high standard deviation of 1.412 suggests considerable variation in satisfaction levels, with some respondents highly content and others dissatisfied, potentially reflecting differences in the quality of care received across different regions or facilities.

The accessibility of diabetes-related healthcare has a mean of 1.98 (SD = 0.811) on a scale of 1 to 3, suggesting that respondents generally perceive access to care as moderate to low. The relatively low standard deviation (0.811) indicates that most respondents share similar perceptions about healthcare accessibility, with fewer extreme variations in responses.

The location where respondents primarily receive diabetes care has a mean score of 2.99 (SD = 1.408) on a 1 to 5 scale, suggesting that respondents seek care from a range of sources, such as public hospitals, private clinics, or alternative healthcare providers. The high standard deviation (1.408) indicates diverse healthcare-seeking behaviors, likely influenced by factors such as affordability, availability of services, and personal preferences.

Regarding travel or relocation for diabetes treatment, the mean score of 1.52 (SD = 0.500) on a 1 to 2 scale suggests that while some respondents do travel long distances for care, the majority receive treatment within a reasonable distance. The low standard deviation of 0.500 shows that responses are relatively uniform, with most individuals either consistently traveling or not traveling for diabetes treatment.

The perception of urban-rural disparities in diabetes care access is reflected in a mean score of 2.01 (SD = 0.820) on a 1 to 3 scale, indicating that many respondents believe urban residents have better access to diabetes care than those in rural areas. The moderate standard deviation (0.820) suggests some degree of agreement on this issue, though a subset of respondents may have differing views based on their personal experiences.

Discussions

The findings highlight a diverse range of challenges faced by individuals in managing diabetes, with no single factor overwhelmingly dominant. The most commonly reported challenge is stress and emotional burden (15.7%), emphasizing the psychological impact of diabetes. Studies have shown that diabetes distress, anxiety, and depression are prevalent among patients, affecting their ability to maintain proper self-care routines [16]. Psychological distress is particularly concerning as it can lead to poor glycemic control and lower adherence to treatment plans [17]. Therefore, addressing mental health support as part of diabetes care is essential.

Access to healthcare is another major concern, with 15.3% of respondents reporting limited access to diabetes specialists. Previous research has found that inadequate healthcare access can lead to delayed diagnoses, poor disease management, and increased complications [18]. This issue is exacerbated in low-resource settings where specialist care is scarce, requiring alternative solutions such as telemedicine and community-based interventions [19].

High medication costs (14.3%) and difficulty maintaining a healthy diet (13.9%) were also substantial concerns. Financial barriers have long been identified as key obstacles in diabetes management, particularly in low- and middle-income countries [20]. The cost of insulin, glucose monitoring devices, and other necessary medications can significantly burden patients, leading to suboptimal treatment adherence [21]. Additionally, maintaining a diabetes-friendly diet is often difficult due to limited availability and affordability of healthy foods [22].

The cross-tabulation analysis reveals that high medication costs and dietary difficulties are equally prevalent among rural and urban residents. This indicates that financial constraints are a universal concern, rather than being limited to a particular setting. However, limited access to diabetes specialists is more frequently reported in urban areas (125 respondents) than in rural areas (104 respondents). This may seem counterintuitive, but research suggests that urban healthcare systems, despite having more specialists, can be overburdened, leading to longer wait times and accessibility issues [23].

Interestingly, stress and emotional burden are reported more frequently among urban residents (132) than rural residents (103). Urban environments have been linked to higher stress levels due to factors such as fast-paced lifestyles, financial pressures, and limited social interactions [24]. Conversely, rural respondents reported slightly lower instances of stress but continued to struggle with social support, indicating that isolation may still be a problem in non-urban settings [25].

A chi-square test of independence ($\chi^2 = 3.097$, $p = 0.797$) revealed that there is no statistically significant association between place of residence and diabetes management challenges. This suggests that diabetes-related difficulties are experienced equally across rural and urban populations, reinforcing the need for interventions that address challenges at a broader, systemic level rather than focusing solely on geographical differences [26].

The gender-based analysis of diabetes management challenges highlights notable variations. Among males, limited access to specialists (92 respondents) and high medication costs (89 respondents) were the most frequently reported concerns. In contrast, females reported higher levels of social support issues (106 respondents) and emotional burden (113 respondents). These differences align with prior research showing that women with diabetes often experience greater emotional distress and perceive lower levels of family and social support than men [27].

Respondents identifying as "other" reported slightly different patterns, with difficulty maintaining a healthy diet (36 respondents) and stress (35 respondents) emerging as dominant concerns. This group also reported lower rates of medication non-adherence compared to males and females, suggesting potential differences in self-care behaviors and healthcare access among gender-diverse populations [28]

Despite these variations, a chi-square analysis ($\chi^2 = 5.453$, $p = 0.941$) confirmed that gender does not have a statistically significant impact on the type of diabetes management challenges experienced. This suggests that while certain trends exist across gender groups, the overall distribution of challenges is similar, reinforcing the need for universal diabetes care strategies that address accessibility, affordability, and psychosocial support for all patients [29].

The descriptive statistics provide additional insights into healthcare-seeking behaviors and treatment adherence. On average, medication adherence is moderate (Mean = 2.95, SD = 1.433), indicating that many patients occasionally miss their prescribed medication. This aligns with existing literature emphasizing the need for structured reminders and adherence support programs to improve compliance [30].

Regular check-ups with healthcare providers received a mean score of 2.48 (SD = 1.099), reflecting inconsistent engagement with medical professionals. This can negatively impact disease monitoring and long-term outcomes, as studies have shown that frequent follow-ups are associated with better glycemic control [31].

Patient satisfaction with diabetes was moderately positive (Mean = 3.02, SD = 1.412) but highly variable, suggesting differences in healthcare quality and accessibility. Accessibility itself was rated relatively low (Mean = 1.98, SD = 0.811), reinforcing concerns about barriers to specialist care and healthcare resources [32].

Overall, the findings highlight significant psychosocial, financial, and healthcare accessibility challenges in diabetes management. Stress, specialist access, and financial burden emerged as key concerns, with no major differences between urban and rural settings. While gender-based variations exist, the lack of statistical significance suggests that diabetes challenges are largely universal, requiring broad interventions focusing on affordability, mental health support, and healthcare accessibility. Addressing these systemic issues through policy reforms, community-

based interventions, and improved healthcare infrastructure is critical to enhancing diabetes outcomes at a population level.

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