Research Article

Assessing the Unmet Needs among Individuals with Long Term Chronic Disease: Type 2 Diabetes

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Abstract

Background: Type 2 Diabetes Mellitus (T2DM) is a common chronic condition marked by insulin resistance and hyperglycemia. Many patients face unmet needs, including poor glycemic control, limited access to care, financial constraints, and inadequate social support.

Objectives: To identify the unmet needs of patients with Type 2 Diabetes.

Methods: This Cross sectional study conducted in Mayo Hospital Lahore during January to July 2024. We collected data from 96 patients suffering from T2DM. Data were collected using a self-administered questionnaire: the first part covered sociodemographic information, and the second assessed perceived and met needs for diabetes management. Unmet needs were calculated as the difference between perceived and met needs.

Results: The study evaluated that average unmet need of diabetics was 36.8%, revealing that the most unmet need access to a psychologist, affecting 66 individuals, while the most met need was social support from family and friends, with 75 individuals reporting their needs met. Other areas with significant unmet needs included information about the importance of physical activity and knowledge on how to care for feet. Conversely, needs such as continuous access to doctors and blood sugar test instruments were among those most frequently met.

Conclusion: Our study identified unmet economic, educational, social, and access needs in type 2 diabetes self-management. Improved outcomes require coordinated healthcare–government policy reforms and continuous education for patients and families. Future qualitative studies should further explore barriers and facilitators.

Keywords: Unmet Needs, Chronic Disease, Type 2 Diabetes, Diabetes Mellitus, Glycemic control

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Received: 18-09-2024 | **Accepted:** 07-03-2025

Introduction

One of the major causes of morbidity and mortality among patients in developing as well as developed countries is diabetes mellitus. In 2019, among 20- to 79-year-old adults, 4.2 million deaths were caused by diabetes mellitus hence causing 11.3% deaths globally. Almost half of these mortalities were patients with an age of less than 60 years.[1] According to the International Diabetes Federation, there are approximately 33 million reported cases of diabetes among adults in Pakistan which is 26.7% of the total adult population. This makes Pakistan one of the countries with the highest prevalence of diabetes.[2] Unmet needs are the requirements related to a disease that are not fulfilled either by the patient himself or the healthcare provider and are a critical indicator to assess the cause of chronic diseases such as diabetes.[3] Patients with diabetes have many unmet needs which include education, income, transportation, self-care, etc. If these needs are not fulfilled the disease can get worse and many complications may arise.[4] Studies done in different parts of the world have shed light on the prevalence of unmet needs of patients suffering from chronic diseases. A study done in Turkey has shown that approximately 25% of the patients suffering from chronic diseases had unmet needs.[5] According to a study done in South Africa, 93.1% of people suffering from diabetes had unmet needs. Moreover, 58.2% of people who were screened positive for hypertension had unmet needs. Among the people suffering from HIV, 21.7% had unmet needs. [6] A study done in China has shown that 13% of the study population had unmet medical needs. People suffering from chronic diseases had increased odds of having unmet needs[7]. According to a study on unmet needs, unmet requirements were found in many different categories; informational (30–55%), psychological

(18–42%), physical (17–48%), and functional (17–37%) domains had the highest prevalence[8]. There have been a lot of studies in Pakistan that focus on the curative and preventive aspect of diabetes, either type 1 or 2 or both, but most of them ignore the fact that it is essential to fulfill the basic unmet requirements (healthcare, self-care, social and educational) for good prognosis of the disease.[9,10] This study aimed to assess unmet needs such as social, healthcare, educational and psychological needs of type 2 diabetic patients in Pakistan. It also intended to assess the association of sociodemographic characteristics with the unmet needs of Type 2 Diabetic patients.

Methods

The study design was a descriptive cross-sectional study conducted at Mayo Hospital, Lahore, from January to July, 2024. The estimated sample size was 96 patients, calculated using the purposive sampling technique a 95% confidence level and a 10% absolute precision, with an expected percentage of unmet needs in diabetic patients being 45.5%.[11] The sample size was calculated using the following formula:

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Perceived needs refer to services that patients consider necessary for optimal diabetes self-management. They are assessed using a self-reported questionnaire completed by patients.[11] Met needs refer to the services an individual receives, which is assessed through a questionnaire completed by the patient. Unmet need was measured by calculating the difference between met need and perceived need. Inclusion criteria for the study were patients with type 2 diabetes, patients attending the outpatient department of Mayo Hospital, and patients aged 40 years or older. The exclusion criteria include patients with mental health conditions and pregnant or lactating women.

After taking the ethical approval from IRB and after taking consent from patients a self-administered questionnaire was used which was validated by Iran's Package of Essential Non-Communicable Diseases.[11] Cronbach's alpha for the questionnaire reliability was 0.872. The questionnaire consisted of two parts. The first part included sociodemographic questions. Perceived needs and met needs were asked in the second part. Unmet needs are the differences between met needs and perceived needs.

Data analysis was conducted using SPSS version 27. Descriptive statistics (frequency and percent) were used to assess the extent of met and unmet needs. And chi square test was performed to find the association between sociodemographic characters and unmet needs. P values (below 0.05) were reported to show statistical significance.

Results

The Table 1 summarizes the study population by gender, age, education level, and diabetes complication status. Total number of participants is 96. Out of 96 participants,

Table 1: Sociodemographic characters of study participants		
Variables	**Categories**	Frequency (Percentage)
Gender	Male	43 (44.8)
	Female	53 (55.2)
Age	40-50 Years	45 (46.9)
	50-60 Years	28 (29.1)
	Above 60 Years	23 (24)
Education	Literate	50 (52.1)
	Illiterate	46 (47.9)
Diabetes Complication	Yes	61 (63.9)
	No	35 (36.1)

Table 2: *Unmet needs of study participants*

Need	Unmet Need	Percent (Unmet Need)	Met Need	Percent (Met Need)	Perceived needs	P-value*
Information About Type 2 Diabetes and Its Complications	25	26.00%	71	74.00%	96	0.041
Information About Healthy Diet	23	24.00%	73	76.00%	96	0.021
Information About the Importance of Physical Activity	46	47.90%	50	52.10%	96	0.09
Knowledge on How to Care for Feet	47	49.00%	49	51.00%	96	0.053
Financial Support to Provide Medicine	44	45.80%	52	54.20%	96	0.039
Social Support from Family and Friend	21	21.90%	75	78.10%	96	0.237
Continuous Access to Doctors in the Area	23	24.00%	73	76.00%	96	0.16
Continuous Access to Blood Sugar Test Instruments	23	24.00%	73	76.00%	96	0.656
Access to a Psychologist	66	68.80%	30	31.30%	96	0.091

*p value calculated using chi square test between literacy and unmet needs.

43 are male and 53 are female. The majority are aged 40-50 years, with fewer in the 50-60 years and above 60 years categories. Education levels are almost evenly split between literate 50 and illiterate 46 individuals. Most participants (61) have diabetes complications, highlighting a focus on individuals with existing diabetes-related issues.

The Table 2 outlines various needs and their fulfillment status among the participants. For information about type 2 diabetes and its complications, 25 individuals reported unmet needs while 71 had their needs met. In the category of information about healthy diet, 23 had unmet needs and 73 had their needs met. The importance of physical activity was unmet for 46 individuals, with 50 having their needs met. Knowledge on how to care for feet was unmet for 47 people, while 49 had their needs met. Financial support to provide medicine was unmet for 44

participants, and 52 had their needs met. Social support from family and friends had 21 individuals with unmet needs and 75 with their needs met. Continuous access to doctors in the area and continuous access to blood sugar test instruments both had 23 unmet needs and 73 met needs. Access to a psychologist was an unmet need for 66 individuals, with 30 having their needs met. The most unmet need was access to a psychologist, while the most met need was social support from family and friends.

The association between literacy and unmet needs was found significant in the following parameters, information about T2D, information about healthy diet and financial support to provide medicine.

Discussion

The demographic data reveals key aspects of the study population, with a slightly higher proportion of females (55.2%) compared to males (44.8%), which aligns with trends observed in diabetes research. The majority of participants are aged 40-50 years (46.9%), indicating a focus on early to mid-adulthood in diabetes management, while those aged 50-60 years (29.1%) and above 60 years (24.0%) also represent significant groups, highlighting the chronic nature of the condition. Educationally, the population is nearly evenly split between literate (52.1%) and illiterate (47.9%) individuals, suggesting varying levels of access to and engagement with diabetes education. Notably, 63.9% report having diabetes complications, underscoring the need for comprehensive care strategies to manage both the disease and its complications.

Table 2 reveals several pressing unmet needs among individuals with Type 2 Diabetes. Despite 74.0% of respondents feeling their need for information about Type 2 Diabetes and its complications is met, 26.0% still lack sufficient educational resources, indicating room for improvement in providing comprehensive and accessible information. Similarly, although 76.0% of individuals are satisfied with the dietary guidance they receive, 24.0% report unmet needs, suggesting that targeted educational interventions are necessary to support those who are underserved in this area. A more significant gap is evident in information about the importance of physical activity, with 47.9% of respondents indicating unmet needs, highlighting a crucial need for enhanced education and resources to promote physical activity. Knowledge of foot care is also a concern, with 49.0% of individuals feeling inadequately informed, pointing to the necessity for more focused educational efforts to prevent diabetic foot complications. Financial support for medications is another critical unmet need, affecting 45.8% of respondents, underscoring the importance of improving financial assistance programs to ensure all individuals can afford their necessary treatments. Social support from family and friends, while adequate for 78.1% of respondents, remains insufficient for 21.9%, indicating a need for bolstering social support systems for those feeling isolated. Continuous access to doctors and blood sugar testing equipment, although met for 76.0% of respondents, still leaves 24.0% with unmet needs, highlighting the need to enhance healthcare accessibility and ensure the reliable availability of diagnostic tools. The most significant gap is in access to psychological support, with 68.8% of respondents reporting unmet needs, which points to a critical shortfall in mental health resources essential for managing the emotional challenges associated with diabetes. Addressing these unmet needs through targeted interventions and expanded resources is crucial for improving overall diabetes care and patient outcomes.

There was no significant association found between gender and any of the unmet needs. Similarly, there was no significant association found between age and any of the unmet needs. The association between literacy and unmet needs was found significant in the following

parameters, information about T2D, information about healthy diet, and financial support to provide medicine.

Our study yielded an average unmet need of 36.82% in the study population, which was lower in comparison to a similar study conducted in Iran which had produced an average unmet need of 45.6%, this difference between the averages can be attributed to the differences between the socio-economic status of the participants as the participants in Iran were slum-dwellers belonging to the population below the poverty line defined by Iran, while those in our study was conducted diabetic from the general population of Lahore. 68.8% of the participants had no access to essential psychological counseling, making it the most common unmet need of diabetics in our study.[11] As compared to our study, a study done in South Korea has stated that diabetic patients had a much lesser need for a psychologist.[12] It is because the psychological aspect is neglected in the management of almost all chronic diseases in Pakistan and also because visiting a psychologist or a psychiatrist is considered a stigma.[13] Various studies have highlighted the importance of addressing psychological issues in patients with type 2 diabetes, for instance, a study conducted in Jordan supports the idea that psychological counseling at regular intervals is required in the diabetics along the course of treatment.[14]

The most met need in our study was social support from family and friends with 78.1% of the participants getting this need fulfilled. A study conducted in Bulgaria yielded a contradictory result showing only 50% of those with T2D need getting this need fulfilled.[15] This can be explained based on the strong family systems in Pakistan.[16] The percentage of the participants in our study who had continuous access to blood sugar measuring instruments was 76% which was quite higher than the proportion of the study population having access to the same need in Iran. This relative unavailability in Iran is due to high co-payment and distrust in health care in the country.[11,17] In Pakistan blood sugar measurement is done free of cost in government hospitals throughout the country. The average unmet educational need in our study was 36.7% which was quite similar (36%) to the findings of a previous international web-based survey in 2021.[18] The education level of the patient was found to have a statistically significant relation with the unmet needs. Chi square test run between the literacy and the knowledge of the study population yielded a p-value of 0.041, which shows a significant relation between the two. The level of education is associated with the behavior of health or the knowledge of diseases, which affects health problems; When education is relatively low, more satisfied health care needs arise from a negative attitude towards disease management.[19] To use the satisfactory level of the medical service, you must be able to choose a medical institution necessary for them and receive appropriate medical services; However, a low level of education can limit the corresponding choice for information and medical services. The study has shown that a significant increase in self-care and a significant decrease in metabolic values were observed as a result of education.[20] Moreover, lack

of knowledge on the management of foot care, which is very important for chronic diabetics, was nearly twice as common as lack of general knowledge on T2DM, with 49% of participants in this study expressing unmet needs in this area, similar to a study by Boulton et al. (2008), which showed that a significant number of patients with diabetes are unaware of the importance of proper foot care, leading to a higher risk of complications such as foot ulcers and amputations.[21] The unmet need for information about physical activity was reported by 47.9% of participants in this study. This finding mirrors those of other studies that emphasize the critical role of physical activity in diabetes management but note that patients often do not receive adequate guidance or support. A study by Plotnikoff et al. (2006) found that while the benefits of physical activity are well-known, many patients with diabetes reported barriers such as lack of time, motivation, and appropriate guidance.[22]

The chi test run between gender and unmet needs had given no statistically significant relation as the value was less than 0.05 which implies needs were equally unmet for all the participants regardless of their genders. However, another study done in South Korea showed a greater percentage of female diabetics having unmet needs than male diabetics.[23] Diabetes management is hindered by financial needs of the patients and they experience financial barriers to various aspects of their care.[24] According to another study, diabetics have a 44% chance of experiencing unmet healthcare needs due to cost reasons.[25]

After assessing and interpreting the results of our study, some strengths and limitations arose that are to be discussed. One of the strengths that emerged in our study is a well-constructed study design used in methodology. The cross-sectional study design made the results simple but impactful. However, the main strength of our study is the result section which completely aligns with the objectives of our study. These results, through association with socio-demographic characteristics, displayed the significance of these characteristics, for example, literacy, in governing the results. The results of our study have laid a perfect map of the needs that are not being met by the patients themselves, healthcare providers, or even by society in T2D care. The results also depict the patients' perspective and can lead to effective, targeted interventions. When discussing the strengths of our research, there is also a need to acknowledge its limitations. The sample size of our study was quite small. The study's participants were primarily drawn from a single geographic region, limiting the generalizability of the findings to other populations with different demographic or socio-economic characteristics.

Conclusion

Our study highlighted important unmet needs for diabetes self-management among people with type 2 diabetes. To improve diabetes self-management, it is important to consider unmet needs in economic, educational, social

and access areas. Cooperation between the healthcare system and the government to develop a comprehensive plan is necessary to change the health policy. Detailed and constant education about the self-government of diabetes and the necessary actions to maintain a healthy life should be provided to patients and their families. Finally, qualitative studies are recommended to gain a deeper understanding of facilitators and barriers to diabetes management.

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