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Patient Awareness of Diabetes at Farooq Hospital, Lahore: A Cross-Sectional Study

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ABSTRACT

Diabetes mellitus is a common chronic disease influencing diverse populations worldwide and poses a significant public health challenge in Pakistan. The country ranks third globally in diabetes prevalence, necessitating urgent public health interventions. Raising awareness and educating the public on diabetes is essential for its prevention and effective management. The objective of this study was to assess the diabetes awareness among patients at Farooq Hospital, Westwood Colony, Lahore. This descriptive cross-sectional study was performed at Farooq Hospital, Lahore, from 2023 to 2024. Data was collected from both indoor and outdoor patients using a modified structured questionnaire adapted from Diabetes Knowledge Questionnaire (DKQ-24). Participants were selected through a non-probability convenience sampling method.The sample size of 109 was identified using the Raosoft sample size calculator, considering a 5% margin of error, a 95% confidence level, and a total population of 500. Data analysis was performed using IBM SPSS Statistics version 29, with descriptive statistics applied to summarize the findings. The results revealed that out of 109 ,82.6% of participants had general knowledge about diabetes, while 17.4% lacked awareness. Among the participants, 57.8% were aware of diabetes-related complications. The primary sources of diabetes-related information were physicians (50.5%) and relatives (40.4%). Higher awareness was observed among females (73.4%) and those with higher education. However, knowledge gaps regarding risk factors, symptoms, and complications were prominent among illiterate and low socioeconomic groups. It was concluded that despite general awareness, complete knowledge of diabetes related risks, clinical manifestations, and treatment remains inadequate. Targeted educational programs are necessary, especially for illiterate and socioeconomically disadvantaged groups.

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1. Introduction

Diabetes mellitus (DM) is a common metabolic disorder causing chronic hyperglycemia due to insulin dysfunction (American Diabetes Association, 2022). This condition results in increased blood sugar levels, which, gradually, can cause major damage to various organs (World Health Organization, 2023). Diabetes has two types. Type 1 diabetes occurs due to the autoimmune destruction of pancreatic beta cells responsible for insulin production. Individuals with type 1 diabetes require externally administered insulin for survival. In contrast, type 2 diabetes mainly develops due to insulin resistance combined with a relative deficiency of insulin (Bullard et al., 2018). Diabetes prevalence is growing rapidly worldwide. The International Diabetes Federation (IDF) indicates that millions worldwide have diabetes, with numbers expected to rise further in the coming years. Pakistan has one of the highest prevalence rates, affecting approximately 33 million adults (International Diabetes Federation, 2021). Major risk factors consists of physical inactivity, unhealthy eating habits, excessive weight gain, and

hereditary influences. Additionally, limited healthcare access, inadequate awareness and socioeconomic factors contribute to the increasing burden of diabetes (Gillani et al., 2018). Diabetes has been known for centuries, but in recent years, its cases have increased due to changes in lifestyle. It causes great damage to social and economic systems worldwide (Saadia et al., 2010). Since diabetes is a long-term condition, it can lead to serious health problems and increase the risk of death (Zowgar, Siddiqui, & Alattas, 2018). Diabetes awareness is important for preventing complications, and educational programs can play a key role in enhancing knowledge and promoting preventive healthy behaviors among vulnerable groups (Hoque et al., 1970).

Many individuals, particularly those with lower socioeconomic status and education levels, lack sufficient knowledge about diabetes. This highlights the need for improved education on proper diet management to prevent complications. Implementing lifestyle changes, initiating early treatment, and enhancing public health policies are essential steps to alleviate the impact of diabetes (Bano et al., 2017). Organizations like the World Health Organization (WHO) and the International Diabetes Federation (IDF) stress the importance of awareness programs, health education, and policies that promote a healthier lifestyle and better access to medical care. In Pakistan, such programs are especially important for people in rural and underserved areas where healthcare services are limited. While many studies on diabetes awareness exist worldwide, there is limited research on this topic in Pakistan, particularly in cities. Farooq Hospital, located in Westwood Colony, Lahore, has a diverse group of patients, making it a suitable place to assess knowledge about diabetes. This study seeks to bridge the knowledge gap by assessing diabetes awareness among patients at Farooq Hospital, Lahore, with a focus on understanding their awareness of diabetes risk factors, symptoms, complications, and management strategies. The findings will enhance current knowledge on diabetes awareness in Pakistan and guide the development of targeted educational programs.

1.1. Problem Statement

Limited studies have explored diabetes awareness in Pakistani urban healthcare settings, necessitating targeted research to identify knowledge gaps and inform health interventions. To address this gap, it is important to assess the severity of the problem. This study aims to evaluate the level of diabetes awareness among patients at Farooq Hospital, Lahore.

1.2. Objective

The objective of this study was to assess the diabetes awareness among patients of Farooq Hospital, Lahore.

1.3. Research Question

What is the level of diabetes awareness among different demographic groups at Farooq Hospital, Lahore?

2. Literature Review

Pakistan faces a significant burden of diabetes mellitus (DM), ranking sixth globally in DM prevalence. A cross-sectional study was conducted in five districts in Punjab from January to March 2017. Data was collected from 2019 adults aged 18–90 years and it was found that many people had limited awareness about diabetes, including its risk factors, care, and management (Gillani et al., 2018). Another study was conducted in 2008 on adult males who visited a health camp at Dhobi Mandi, Lahore. Among the 100 participants, high rates of diabetes mellitus, obesity, physical inactivity, unhealthy nutrition, and poor dietary habits were observed (Khan, CH, & Ahmad, 2009). A study at Services Hospital Lahore assessed diabetes awareness among 142 patients using a cross-sectional design. The results indicated a significant association between gender and diabetes awareness. This study revealed that adequate dietary knowledge can help type 2 diabetes patients prevent complications (Bano et al., 2017). Diabetes is a major threat to the public health. A descriptive study conducted in peshawar assessing knowledge and perceptions of diabetes among 305 participants, aged 15 to 60 years revealed a lack of awareness about key risk factors and complications (Zuhaid, Zahir, & Diju, 2012). In India, a study was conducted among urban adults.It was revealed that awareness regarding diabetes prevention, causes, and treatment was very low. It highlighted the importance for large-scale awareness programs to educate the public (Murugesan et al., 2007).

In the United Arab Emirates (UAE), a study conducted in two clinics in Al Ain evaluated patients' knowledge about diabetes. The knowledge score was low with common false beliefs about the diabetic diet and blood sugar testing (Hashim, Mustafa, & Ali, 1995). A study in The Gambia assessed DM awareness among 200 patients with diabetes visiting the Medical Out Patient Department in the Royal Victoria Teaching Hospital. Only 47% of participants knew what diabetes was, and nearly 50% were unaware of preventive measures. The study highlighted the need for improved diabetes awareness programs (Foma et al., 2013). A study was conducted in Saudi Arabia. It aimed to assess knowledge about diabetes among diabetic patients. The Michigan Diabetes Knowledge Test was used to evaluate awareness among 435 patients. Findings revealed that, although patients had some knowledge about it but further counseling was necessary (Abouammoh & Alshamrani, 2020). A study in Zimbabwe assessed diabetes knowledge among adults with diabetes mellitus. The study found major knowledge gaps regarding diet and insulin use. This study also found that people with lower general knowledge had a higher risk of complications related to diabetes. It recommended that focused education programs could raise awareness and help prevent these complications (Mufunda, Albin, & Hjelm, 2012).

3. Theoretical Framework

The current study uses the Health Belief Model (HBM), which explains how individuals' views about the risks of diabetes affect their actions to prevent or control this condition. People's understanding of the risks that are related with diabetes can shape their willingness to adopt healthy behaviors. By assessing how aware participants are of diabetes risks, the study examines how their perceptions of this disease affect their decisions to take preventive steps. The model consists of six key factors. Perceived Susceptibility is that how likely participants believes they are to get diabetes. This study looks at how aware participants are of the diabetes risk factors. For example, someone with a family history of diabetes and unhealthy habits might feel more at risk of getting diabetes. Perceived Severity looks at how seriously participants view diabetes and its potential complications. Perceived Benefits focuses on whether participants believe that preventing or managing diabetes through lifestyle changes will be beneficial. This includes things like changing their diet and regularly checking blood glucose. Perceived Barriers are Various factors, including limited knowledge, financial difficulties, and restricted access to healthcare services, can hinder diabetes prevention efforts. This study investigates the role of socioeconomic status in shaping participants ability to adopt preventive behaviors. Cues to Action can influence the actions one chooses to take. External factors such as healthcare professionals advice, media campaigns, or educational programs can prompt individuals to take preventive actions. This research examines the influence of these cues in promoting diabetes awareness. Self Efficacy referes to a person's confidence in their ability to manage or prevent diabetes plays a important role in behavior change. This study explores whether participants feel capable of implementing lifestyle changes to reduce their risk or manage the diabetes effectively. This study provides insight into how demographic and socioeconomic factors influence diabetes awareness and preventive behaviors. The findings emphasize the significance of targeted educational programs to fill awareness gaps and encourage proactive health practices.

4. Methodology

4.1. Study Design

A cross-sectional descriptive study design was used.

4.2. Study population & Setting

The study involved both indoor (admitted) and outdoor (outpatient) patients and was conducted in Farooq Hospital, westwood colony, Lahore from 2023 to 2024.

4.3. Sample Size & Sampling Technique

The study included 109 participants, selected using a non-probability convenience sampling approach due to ease of access to participants, time and resource constraints, and the feasibility of recruiting willing patients at Farooq Hospital, Lahore. To determine the required sample size, the Raosoft sample size calculator was used. Based on a total population of 500, a 5% margin of error, and a 95% confidence level, the calculated sample size was 109 participants. The sample size was calculated using the following formula: $x=Z(c/100)2r(100-r)$, $n=N\ x/((N-1)E2 + x)$, $E=Sqrt[(N - n)x/n(N-1)\}$

4.4. Variable of study

Awareness regarding Diabetes.

4.5. Eligibility Criteria

The study included patients aged 18 and above who were willing to participate, while patients not willing to participate and with cognitive impairments or severe illnesses were excluded.

4.6. Research Tool for Data Collection

A modified structured questionnaire adapted from Diabetes Knowledge Questionnaire (DKQ-24) ,was used to collect data .It has been previously validated in different populations. (Garcia et al., 2001). The original study by Garcia et al. (2001) reported a Cronbach's alpha of 0.78, indicating a good level of reliability. Given these established reliability measures, the DKQ-24 was deemed suitable for assessing diabetes awareness in this study population. However, modifications were made to tailor the questionnaire to the local context. Some questions were reworded for better clarity and understanding, especially for participants with limited health literacy. Certain irrelevant items from the original DKQ-24 were excluded. These modifications ensured that the questionnaire was more relevant and easily comprehensible for the participants.

4.7. Data Analysis

The data were examined using IBM SPSS Statistics version 29. The descriptive statistics statistics were applied to summarize demographic characteristics and awareness levels. The results were presented as percentages and frequencies.

4.8. Ethical Consideration

Data were collected by following the ethical guidelines without harming anyone and with personal willingness of every participant. Ethical approval was obtained from the Institutional Review Board (IRB) of Akhtar Saeed College of Nursing, under approval number CAHS-06/2023-NUR-46. As it is a simple question based survey, no invasive methods were used. Consent was taken from all the participants. Anonymity was maintained and the collected data were used only for research purposes.

5. Results

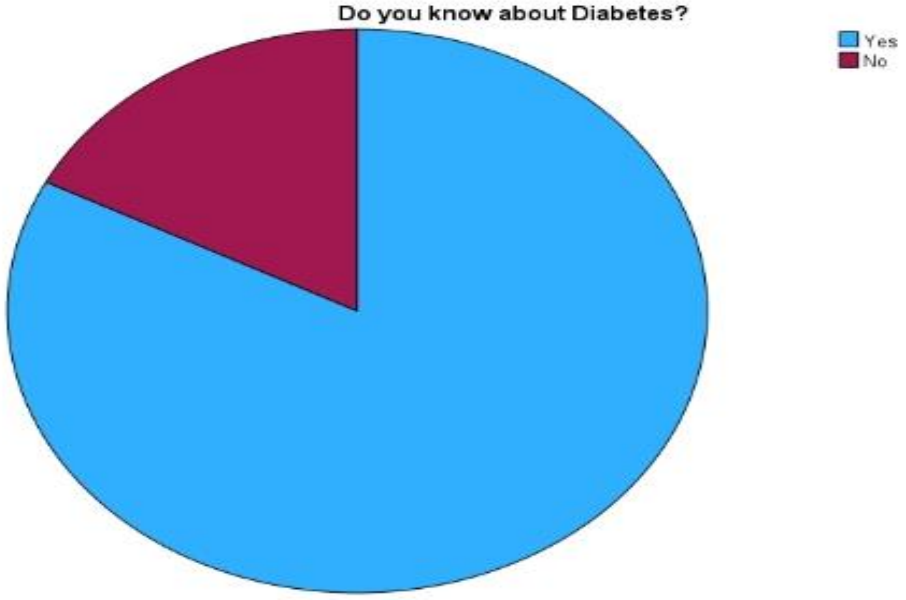
A total of 109 patients from Farooq Hospital, Westwood Colony, Lahore, participate in this study, achieving a 100% response rate. The analysis revealed notable relationships between demographic factors and diabetes awareness.

Table 1: Demographic Characteristics of Participants

Question	Response	Frequency	Percent	Valid percent
What's your marital status?	Married	90	82.6	82.6
	Unmarried	19	17.4	17.4
What's your education?	Undergraduate	42	38.5	38.5
	Graduate	31	28.4	28.4
	illiterate	36	33.0	33.0
What's your occupation?	Working	23	21.1	21.1
	Non-working	86	78.9	78.9
What's your socioeconomic status?	Lower	71	65.1	65.7
	Middle	28	25.7	25.9
	Upper	9	8.3	8.3

The demographic data is presented in Table 1. According to table 01, most of the participants (73.4%) were females and only 26.6% were males. In terms of marital status, most participants were married (82.6%), with only 17.4% being unmarried. Regarding education, 38.5% were undergraduates, 28.4% were graduates, and 33% were illiterate. Occupational data showed that 21.1% were working, while a significant 78.9% were non-working. The socioeconomic status of participants revealed that the majority belonged to the lower class (65.7%), followed by the middle class (25.9%), and the upper class (8.3%). The age distribution indicated that 36.7% were between 16–30 years, 37.6% were between 31–50 years, and 25.7% were in the 51–70 years age group.

Figure 1: Percentage of Knowledge about Diabetes



According to Figure 1, A substantial majority, 82.6%, reported knowing about diabetes, while 17.4% had no knowledge of the disease.

Table 2: Knowledge about Diabetes among participants

Question	Response	Frequency	Percent	Valid percent	Cumulative percent
Do you know about Diabetes?	Yes	90	82.6	82.6	82.6
	No	19	17.4	17.4	100.0
Eating too much sugar and other sweet foods is a cause of diabetes?	Yes	19	82.6	82.6	82.6
	No	14	12.8	12.8	95.4
	Don't know	5	4.6	4.6	100.0
The usual cause of diabetes is lack of effective insulin in the body?	Yes	61	56.0	56.0	56.0
	No	23	21.1	21.1	77.1
	Don't Know	25	22.9	22.9	100.0
Diabetes can be cured?	Yes	56	51.4	51.4	51.4
	No	22	20.2	20.2	71.6
	Don't Know	31	28.4	28.4	100.0
If I am diabetic, my children have a higher chance of being diabetic?	yes	83	76.1	76.1	76.1
	No	14	12.8	12.8	89.0
	don't know	12	11.0	11.0	100.0
Medication is more important than diet and exercise to control my diabetes?	Yes	41	37.6	37.6	37.6
	No	48	44.0	44.0	81.7
	Don't know	20	18.3	18.3	100.0
Diabetes can cause loss of feeling in my hands, fingers and feet?	Yes	74	67.9	67.9	67.9
	No	14	12.8	12.8	80.7
	Don't know	21	19.3	19.3	100.0
In untreated diabetes, the amount of sugar in the blood usually increases?	yes	75	68.8	68.8	68.8
	No	14	12.8	12.8	81.7
	Don't know	20	18.3	18.3	100.0
Are you Aware of diabetes complications?	yes	63	57.8	57.8	57.8
	No	24	22.0	22.0	79.8
	Don't know	22	20.2	20.2	100.0
Do you know about Insulin?	Yes	55	50.5	50.5	50.5
	No	34	31.2	31.2	81.7
	Don't know	20	18.3	18.3	100.0
Do you check your blood sugar at home?	Yes	56	51.4	51.4	51.4
	No	48	44.0	44.0	95.4
	Don't know	5	4.6	4.6	100.0
Is foot care important in diabetic patient?	yes	73	67.0	67.0	67.0
	No	20	18.3	18.3	85.3
	don't know	16	14.7	14.7	100.0

Is family history associated with incidence of diabetes?	Yes	72	66.1	66.1	66.1
	No	21	19.3	19.3	85.3
	Don't know	16	14.7	14.7	100.0
Diet have significant role in control of diabetes?	Yes	80	73.4	73.4	73.4
	No	11	10.1	10.1	83.5
	Don't know	18	16.5	16.5	100.0
Shaking and sweating are sign of high blood sugar?	yes	71	65.1	65.1	65.1
	No	15	13.8	13.8	78.9
	Don’t know	23	21.1	21.1	100.0
Reducing sugar intake, reduce diabetes?	yes	83	76.1	76.1	76.1
	No	9	8.3	8.3	84.4
	Don't know	17	15.6	15.6	100.0
Fasting blood sugar level of 210 is too high?	Yes	71	65.1	65.1	65.1
	No	12	11.0	11.0	76.1
	Don't know	26	23.9	23.9	100.0
What is your source of information about diabetes?	Physicians	55	50.5	50.5	50.5
	Nurse	8	7.3	7.3	57.8
	Relatives/Friends	44	40.4	40.4	98.2
	Television	1	.9	.9	99.1
	Internet	1	.9	.9	100.0

In the table 2, Regarding dietary misconceptions, About 82.6% believed that eating too much sugar and sweet foods causes diabetes. 56% correctly identified that diabetes is caused by the body’s inability to produce insulin effectively , while 22.9% were unaware of this fact. When asked if diabetes can be cured, 51.4% believed it could, while 28.4% did not know, reflecting a gap in knowledge about diabetes management. 76.1% acknowledged that having diabetes increases the risk of their children developing diabetes, whereas 12.8% disagreed. Only 37.6% believed that medication is more important than diet and exercise, while 44% disagreed, showing a moderate understanding of holistic diabetes management. 67.9% recognized that diabetes could lead to loss of sensation in the hands, fingers, and feet, indicating good awareness of diabetes-related complications. 68.8% correctly identified that untreated diabetes results in high blood sugar levels. 57.8% were aware of diabetes complications, while 22% were not. Only 50.5% knew about insulin, reflecting a need for more education on treatment options.51.4% reported regularly checking their blood sugar at home, whereas 44% did not.67% recognized the importance of foot care in diabetes management.66.1% were aware of the link between family history and diabetes risk. A significant 73.4% understood that diet plays a major role in managing diabetes. 65.1% identified shaking and sweating as symptoms of high blood sugar. Physicians (50.5%) were the most common source of knowledge and Relatives/Friends (40.4%) also played a significant role in spreading awareness.

6. Discussion

Diabetes is one of the most common disease worldwide. Assessing the awareness of diabetes in the hospital setting was an important aspect of this study. Purpose of this discussion is to compare our findings with existing literature, identify consistencies and discrepancies. Our study found that 82.6% of participants were aware of diabetes, which is comparable to previous research in Pakistan. Similar awareness levels were reported in Punjab Gillani et al. (2018) and urban Pakistan (Khan, CH, & Ahmad, 2009), where 84% and 80% of participants, respectively, were aware of diabetes. However, a Bahawalpur based study found a slightly lower awareness rate of 77% (Masood et al., 2016), indicating possible regional variations in diabetes education. The current study shows that most of the participants (37.6%) fall in the age group of 30-50 and 36.7% in age group of 16-30. Regarding Education 66.9% of the participants had a graduate or higher level of education .These findings are similar to that of Bahawalpur study in which there were adequate awareness regarding diabetes (Masood et al., 2016). 73.4% were aware that diet have significant role in control of diabetes. Females and participants with higher education have more knowledge regarding diabetes similar to the findings in study of Punjab districts (Gillani et al., 2018). A similar finding to our study was observed in Pakistan, where 80% had heard about diabetes, but only 45% were aware of its complications (Shera, Jawad, & Maqsood, 2007). This study showed that people from lower socioeconomic status had less awareness about diabetes, similar to the results of a study conducted in rural Punjab. On the other hand, a study in Karachi found that awareness levels were similar across different income groups. This may be because of widely

shared diabetes information through community programs, TV and radio ,making it easier for everyone to learn about diabetes , regardless of their financial situation (Saeed, 2018). Current study shows that participants with higher education levels shows greater knowledge about diabetes. This finding is similar to that of a study conducted in Bangladesh in which individuals with higher education had better understanding of diabetes management (Saleh et al., 2012). 50 % of participants reported that their main source of information about diabetes were physicians. This finding highlights the important role of healthcare professionals in teaching patients about diabetes. This finding aligns with a study in Bangladesh, which states that counselling by health care professionals improved patients diabetes awareness (Afroz et al., 2019). Our study observed that 82.6% participants have awarenes regarding diabetes but only 57.8% know about diabetes complications. In contrast to our study, higher levels have been documented in other countries. For instance, study in the United Arab Emirates reported a 90% awareness of diabetes and its complications, which is attributed to previously conducted educational programs (Al-Maskari et al., 2013). These comparisons indicate that future interventions should focus on targeted educational programs and media initiatives to fill the knowledge gaps and promote effective diabetes prevention. Literatures were searched on published work regarding knowledge of patients. There were different studies found in different countries of the world but in Pakistan there were few studies on stated topic.

7. Conclusion

The findings of this study shows current study population had moderate awareness regarding diabetes. However, lack of awareness was observed among illiterate, poor and rural participants that indicated the immediate need of diabetes awareness programs for these participants. Public health campaigns on TV and social media can help share important information about diabetes.

7.1. Limitations

Following are the limitations of this study:

1. In current study, sample size is not large enough to generalize findings to the whole community.
2. Current study is restricted to one hospital only. Hence, the results cannot equally generalize to other settings in different parts of country.
3. In current study non probability convenient sampling technique is used.

7.2. Recommendations

1. Large sample size should be used in future.
2. It is necessary and responsibility of Government and non-government organizations to made policies for health education regarding diabetes.
3. For populations with lower literacy rates, health education materials that utilize visuals, videos, and interactive tools could be more effective in conveying information about diabetes prevention, symptoms, and management.
4. Collaboration with NGOs and the media can further strengthen the outreach of diabetes awareness programs.
5. Electronic media and print should be used for creating awareness regarding diabetes.
6. Targeted public education programs should be instigated at a national level to increase understanding of diabetes prevention and treatment.

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