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A STUDY TO ASSESS DIABETES CARE PRACTICES AND ITS ASSOCIATED AWARENESS AMONG TYPE II DIABETES MELLITUS PATIENTS

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ABSTRACT Diabetes mellitus, the most prevalent non-communicable disease, affecting around 150 million people in the world in 2002, 180 million people in 2003, and expected atleast there will be 330 million people in 2025[4]. Diabetes mellitus results in increased morbidity and mortality and huge financial burden over the citizens and also on the nation. Hence it is necessary to pay attention in acquiring knowledge about the disease, which will be beneficial in terms of cost effectiveness and also in prevention and management of disease. The study included total of 100 type 2 diabetes mellitus patients attending diabetology outpatient clinic in Coimbatore medical college hospital. Awareness about diabetes was analysed for Knowledge , Self care practices and their understanding level about diabetic complications by providing them a Structured questionnaire which was based on the review of related journals [1,2]. The average scores on the Knowledge of diabetes and Self care practices aspects were observed to be above 50 %. Awareness regarding complications is only about 38%. Illiterates had significantly lower awareness of diabetes care practices and complications. Unemployed individuals scored less compared to employed groups. Awareness regarding every aspects of diabetes among diabetic group and also for common people is the need of the hour for better control and prevention from its complications.

KEYWORDS : Diabetes mellitus, Knowledge, Self care practices, Complications.

INTRODUCTION

Diabetes mellitus is a significant global health issue, affecting millions of individuals worldwide. Characterized by either a lack of insulin secretion or defects in insulin action, this chronic disease has become one of the most prevalent non-communicable diseases today. In 2002, approximately 150 million people worldwide were diagnosed with diabetes, a number that increased to 180 million in 2003, and it is projected that by 2025, at least 330 million individuals will be living with the disease (Vankudre et al., 2013). The burden is particularly alarming in developing countries, where the prevalence is expected to rise by 170%, with around 76% of all cases originating from these regions (Sorganvi et al., 2013). India, in particular, faces a daunting scenario, with an estimated 35 million people living with diabetes, a number projected to double by 2025, disproportionately affecting working-age individuals (Belsti et al., 2019).

The rise in diabetes cases not only leads to increased morbidity and mortality but also imposes a significant financial burden on both citizens and national healthcare systems. Effective diabetes management is heavily reliant on the patient's knowledge of self-care practices, which can significantly contribute to achieving therapeutic goals, especially in outpatient settings. In addition to treatment, awareness of various aspects of diabetes plays a crucial role in the primary and secondary prevention of complications associated with the disease. Thus, enhancing knowledge about diabetes is essential, as it not only improves health outcomes but also reduces healthcare costs (Sorganvi et al., 2013).

Given the critical role of patient awareness in diabetes management, this study aims to assess the diabetes care practices and the associated awareness among patients with Type II Diabetes Mellitus (T2DM). The focus is on understanding how well patients are informed about their disease, the complications it may cause, and the self-care practices that are essential for effective management.

REVIEW OF LITERATURE

Numerous studies have explored diabetes care practices and awareness levels across various regions, highlighting significant gaps in patient knowledge and self-care practices. A study conducted by Vankudre et al. (2013) in a tertiary care hospital found that only about half of the participants demonstrated good awareness of diabetes management practices. Similarly, research by Sorganvi et al. (2013) emphasized the need for improved patient education, particularly in rural and underprivileged areas, where awareness of diabetes complications and management is alarmingly low.

Self-care plays a critical role in the management of Type II Diabetes Mellitus (T2DM), with practices such as regular blood glucose monitoring, foot care, adherence to a healthy diet, and maintaining regular medical check-ups being fundamental in preventing complications. Studies have shown that patients who regularly monitor their blood glucose and adhere to proper dietary habits experience better glycemic control and reduced risk of complications (Belsti et al., 2019). Additionally, foot care is crucial for preventing diabetic foot ulcers, a common complication that can lead to severe outcomes if neglected. Regular check-ups also allow for the timely detection of issues like retinopathy and nephropathy, enabling early intervention (Sorganvi et al., 2013).

Several factors have been identified as influencing diabetes management, including education, socioeconomic status, and family history of diabetes. Patients with higher levels of education tend to have better awareness of diabetes care practices and are more likely to engage in self-care activities such as blood glucose monitoring and dietary management (Vankudre et al., 2013). Furthermore, individuals with a family history of diabetes are often more aware of the disease's complications and more vigilant about their care practices (Sorganvi et al., 2013). Socioeconomic status also plays a pivotal role, with lower-income groups having limited access to healthcare resources and education, leading to poorer diabetes management outcomes (Belsti et al., 2019).

OBJECTIVES

The study aims to achieve the following objectives:

1. PRIMARY OBJECTIVE: To assess the awareness of diabetes care practices and the complications associated with Type II Diabetes Mellitus (T2DM) among patients. This includes evaluating the knowledge of self-care practices, such as blood glucose monitoring, dietary habits, foot care, and awareness of potential complications like retinopathy, nephropathy, and cardiovascular diseases.

2. SECONDARY OBJECTIVE: To identify the demographic factors, such as age, gender, education level, and occupation, that influence the awareness levels of T2DM patients. This will help to understand the impact of these factors on the patient's ability to manage the disease and prevent complications effectively.

MATERIALS AND METHODS:

This study was designed as a cross-sectional analysis, conducted among 100 patients diagnosed with Type II Diabetes Mellitus (T2DM)

who attended the Diabetology outpatient department (OPD) at Coimbatore Medical College Hospital. A structured 23-item questionnaire based on review of related journals [1,2] was used as the primary data collection tool, which aimed to assess the patients' knowledge of diabetes, self-care practices, and awareness of complications. The questionnaire included questions related to key aspects such as blood glucose monitoring, dietary habits, foot care, and awareness of complications like retinopathy, nephropathy, and cardiovascular diseases.

The responses were scored based on a three-point scale: 2 points for "Yes," 1 point for "No," and 0 points for "Don't know." These scores were then used to calculate overall awareness and self-care practice levels for each participant. The data were analyzed using IBM SPSS software (version 29.0). Independent t-tests were employed to compare mean scores between two groups, while one-way ANOVA was used for comparing more than two groups. A p-value of less than 0.05 was considered statistically significant to determine the influence of demographic factors such as age, gender, education, and occupation on awareness levels.

RESULTS

The study revealed important insights into the levels of diabetes knowledge, self-care practices, and awareness of complications among the participants. Table 1 showed overall, the average awareness scores for diabetes knowledge and self-care practices were relatively high, with more than 50% of participants demonstrating moderate to good understanding of essential care practices such as blood glucose monitoring and dietary management. However, awareness of diabetes-related complications such as retinopathy, nephropathy, and cardiovascular diseases was notably lower, with only 38% of participants having adequate knowledge in these areas (Vankudre et al., 2013).

When examining the distribution of awareness scores across demographic variables as shown in table 3, significant differences were observed. Higher education levels were associated with better awareness, as participants with undergraduate or postgraduate degrees had the highest scores (40.5 ± 8.8), while illiterate participants scored the lowest (29.6 ± 6.4) (Sorganvi et al., 2013). Additionally, participants with a family history of diabetes scored significantly higher in diabetes knowledge and self-care awareness compared to those without a family history (34.3 ± 9 vs. 28.9 ± 7.6, p = 0.002) (Belsti et al., 2019). Other demographic factors such as age and gender showed no significant impact on the awareness scores.

Table 1: Distribution of respondents according to the Awareness score

	Category	No. (%) n=100
Knowledge of diabetes among study group	Good (Score 14–20)	50(50%)
	Fair (Score 7–13)	49(49%)
	Poor (Score 0–6)	1(1%)
Knowledge of self care practice for diabetes among study group	Good (Score 12–18)	55(55%)
	Fair (Score 6–11)	44(44%)
	Poor (Score 0–5)	1(1%)
Knowledge of Complications	Good (Score 6–8)	38(38%)
	Fair (Score 3–5)	58(58%)
	Poor (Score 0–2)	4(4%)
Total	Good	48(48%)
	Fair	50(50%)
	Poor	2(2%)

Table 2: Response to selected questions on awareness regarding Diabetes Mellitus

Sr.No.	Question	Yes no. (%)	No no. (%)	Do not Know no. (%)
	Knowledge of Diabetes			
1	Is the diabetes Mellitus a life style related disease?	58(58)	21(21)	21(21)
2	For diagnosis of diabetes mellitus & routine followup is it important to do both fasting as well as Post Prandial blood sugar level?	96(96)	4(4)	-
3	Are you aware of about HbA1c testing?	24(24)	18(18)	58(58)
	Self care practices			
4	Are you aware of self monitoring of blood glucose in Diabetes?	43(43)	14(14)	43(43)
5	Is it necessary to consume diet rich in fibre in DM care?	60(60)	13(13)	27(27)
6	Is maintaining a proper foot care necessary in DM?	41(41)	9(9)	50(50)
	Knowledge regarding complications of DM			
7	Unmanaged DM can cause eye problems or even blindness	37(37)	4(4)	59(59)
8	Uncontrolled DM can affect your kidneys	38(38)	4(4)	58(58)
9	Uncontrolled DM can cause Ischemic Heart disease	38(38)	4(4)	58(58)
10	Uncontrolled DM can cause stroke	38(38)	4(4)	58(58)

Table 2 showed response to selected questions on awareness regarding Diabetes Mellitus. In Knowledge of Diabetes, is it important to do both fasting as well as Post Prandial blood sugar level for diagnosis & monitoring? Yes, has highest percentage (96.0%), No has lowest percentage (4.0%), In Self care practices, is it necessary to consume high fibre diet in DM care? Yes, has highest percentage (60.0%), is foot care necessary in DM? No has lowest percentage (9.0%), and in Knowledge regarding complications of DM, people unaware of unmanaged DM can cause eye problems or even blindness has highest percentage (59.0%), Only 38% of people knows unmanaged DM can cause eye problems or even blindness, affect kidneys, causes ischemic heart disease and stroke.

Table 3: Comparison of Awareness score with demographic variables.

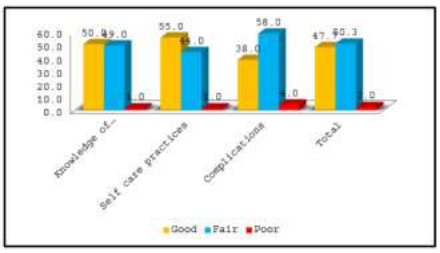
Sr. No	Chara cteristics	Category	Frequency (%)	Mean Score ± SD
1	Age (Years)	30 - 45 yrs	8(8%)	32.8 ± 10.3
		46 - 60 yrs	63(63%)	30.5 ± 8.8
		Above 60 yrs	29(29%)	33.6 ± 8
		F = 1.332, p = 0.269 (One way ANOVA) #		
2	Gender	Male	46(46%)	31 ± 9.8
		Female	54(54%)	32 ± 7.8
		t = 0.614, p = 0.541 (Independent t test) #		
3	Marital status	Married	83(83%)	31.6 ± 8.8
		Widow/Single	17(17%)	31.5 ± 9
		t = 0.042, p = 0.966 (Independent t test)#		
4	Occupation	Employed	45(45%)	30 ± 9.1
		House wife	32(32%)	32.1 ± 7.9
		Retired/Farmer	3(3%)	37.3 ± 11.7
		Self Employed	9(9%)	38.3 ± 9.4
		Unemployed	11(11%)	29 ± 5.6
		F = 2.419, p = 0.054 (One way ANOVA) #		
5	Education	Illiterate	28(28%)	29.6 ± 6.4
		Primary	59(59%)	31.4 ± 9.4
		secondary	7(7%)	32.4 ± 8.2
		UG/PG	6(6%)	40.5 ± 8.8
		F = 2.713, p = 0.049 (One way ANOVA) *		
6	Family History of DM	Present	49(49%)	34.3 ± 9
		Absent	51(51%)	28.9 ± 7.6
		t = 3.260, p = 0.002 (Independent t test) **		
7	Body Mass Index (BMI)	Underweight	13(13%)	30.2 ± 8.1
		Normal	44(44%)	33.1 ± 7.8
		Pre Obese	39(39%)	30.6 ± 9.6
		Obese	4(4%)	28.5 ± 12.3
		F = 0.864, p = 0.463 (One way ANOVA) #		

8	Duration since diagnosis	Upto 1 yr	15(15%)	30.5 ± 7.4
		1 - 5 yrs	33(33%)	33.4 ± 8.7
		5 - 10 yrs	18(18%)	30.7 ± 8.9
		> 10 yrs	34(34%)	30.6 ± 9.3
		F = 0.732, p = 0.535 (One way ANOVA) #		
n=100, **= Highly Significant ,* = Significant and # =No Significant				

A key challenge identified in the study was the low level of awareness regarding HbA1c testing, a crucial measure for long-term glucose control. Only 24% of participants were aware of the importance of this test, highlighting a significant gap in knowledge that could affect long-term diabetes management. Additionally, while participants were generally aware of the importance of foot care and blood glucose monitoring, there was poor understanding of complications such as retinopathy, nephropathy, and cardiovascular diseases, with many respondents either unaware or uncertain about the impact of unmanaged diabetes on these conditions (Vankudre et al., 2013).

These findings underscore the need for targeted educational interventions, particularly for less educated and at-risk groups, to improve awareness of critical aspects of diabetes management and complication prevention.

Figure 1 : Awareness regarding various aspects of DM



DISCUSSION

The results of this study align with existing literature that emphasizes the critical role of awareness in diabetes management and the challenges faced by Type II Diabetes Mellitus (T2DM) patients in comprehending the complexities of the disease. Similar to findings by Vankudre et al. (2013), this study highlights that although general diabetes knowledge and self-care practices were moderately well understood by the patients, awareness of diabetes-related complications such as retinopathy and nephropathy remains alarmingly low. This gap in awareness of complications poses a significant risk for long-term disease management, as patients may not recognize the importance of early detection and intervention for these conditions.

Socio-demographic factors, particularly education level and family history of diabetes, were found to have a significant impact on awareness scores. As corroborated by Sorganvi et al. (2013), patients with higher education levels had better knowledge of diabetes care practices and complications, reflecting the positive correlation between education and health literacy. Moreover, individuals with a family history of diabetes demonstrated a greater understanding of the disease, likely due to their exposure to the challenges of managing the condition within their families. These findings suggest that educational interventions should be tailored to target less educated and disadvantaged populations, who are often at greater risk of poor disease management due to limited awareness.

One of the most concerning findings of this study is the substantial gap in knowledge regarding advanced diabetes care practices, particularly HbA1c monitoring. As only 24% of the participants were aware of the HbA1c test, this reflects a significant deficiency in patient education, as HbA1c is a critical measure for long-term glucose control and is widely recommended by diabetes management guidelines (Belsti et al., 2019). A lack of understanding about this important test could lead to poor long-term outcomes for patients, as they may not be adequately informed about the need to monitor and control their HbA1c levels to prevent complications.

The implications of these findings are significant for healthcare providers, who play a pivotal role in educating patients about diabetes management. More structured and targeted patient education programs are needed, particularly in primary care settings, to enhance awareness of key aspects such as HbA1c testing, potential complications, and the importance of self-care practices. Mass media campaigns and community-based interventions could also be employed to reach a broader audience, particularly in underserved and rural areas, where access to healthcare education is often limited (Sorganvi et al., 2013). Furthermore, healthcare providers should incorporate regular educational assessments into patient follow-up visits, ensuring that patients have a comprehensive understanding of their condition and its management.

By addressing these gaps in patient knowledge, healthcare providers can empower T2DM patients to take a more proactive role in managing their disease, ultimately improving health outcomes and reducing the burden of diabetes-related complications.

CONCLUSION

This study underscores the urgent need for enhanced diabetes education programs, especially for illiterates who were found to have significantly lower awareness of diabetes care practices and complications. Unemployed individuals also scored less compared to employed groups. Improving knowledge among these vulnerable groups is crucial for better management of Type II Diabetes Mellitus (T2DM) and for reducing the risk of long-term complications. Educating patients about essential self-care practices, such as regular blood glucose monitoring, dietary management, and foot care, can significantly improve their ability to manage their condition effectively. Public health interventions must focus on increasing awareness of diabetes complications, such as retinopathy, nephropathy, and cardiovascular diseases, through structured educational programs and widespread campaigns. These interventions should be designed to reach not only diagnosed patients but also the broader community to prevent and manage the disease more effectively. In particular, there should be an emphasis on raising awareness about the importance of HbA1c testing, a critical aspect of long-term diabetes management that many patients are currently unaware of. Healthcare professionals play a pivotal role in disseminating this knowledge and organizing awareness campaigns. By incorporating diabetes education into routine consultations, organizing community health talks, and leveraging mass media for public outreach, healthcare providers can ensure that patients receive accurate and timely information about managing diabetes. These efforts are essential for empowering patients to take control of their health and for reducing the societal and economic burden of diabetes.

CONFLICT OF INTEREST: Nil

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