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Medication Adherence and Self-Care Management among Patients with Type II Diabetes

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Abstract: Type II diabetes is a metabolic disorder in which the body cannot effectively use insulin to regulate blood sugar levels. This condition affects millions of people worldwide and is associated with numerous complications, including cardiovascular disease, kidney damage, nerve damage, and blindness. Effective management of type II diabetes requires a combination of lifestyle modifications, such as diet and exercise, alongside medications like insulin and oral hypoglycemic agents.Medication adherence and self-care management are critical in diabetes management. Non-adherence to medication regimens can result in poor glycemic control and increase the risk of developing complications. Self-care management, such as monitoring blood glucose levels, adhering to a healthy diet, and engaging in regular physical activity, can significantly improve health outcomes.This study aims to assess medication adherence and self-care management among type II diabetic patients attending the outpatient department at SRM General Hospital, Kattankulathur.To assess medication adherence and self-care management among type II diabetic patients.To examine the association between medication adherence, self-care management, and selected demographic variables. The majority of type II diabetes patients were in the 35-44 age group (40%), with a higher proportion of females (53.3%) than males (46.7%). A significant portion of patients (80%) were married, and most (66.7%) had a monthly income of Rs. 5000 or below. In terms of family structure, 80% lived in nuclear families, and 53.3% resided in rural areas. Regarding Medication Adherence a substantial majority (97.78%) of patients demonstrated low adherence to their medication regimen, while only 2.22% exhibited medium adherence. No patients exhibited high adherence. Regarding Self-care Management 80% of patients had a fair level of self-care management, while 10% showed poor or good levels. This suggests that most patients are managing their condition at a moderate level, though improvement is necessary.

Keywords: necessary, adherence, medication, outpatient, management

INTRODUCTION

Type II diabetes mellitus is a chronic metabolic disorder characterized by insulin resistance and impaired insulin secretion, resulting in elevated blood glucose levels. This condition poses a significant public health challenge, affecting millions globally, and is associated with severe complications, such as cardiovascular disease, nephropathy, neuropathy, and retinopathy (1). Effective management of type II diabetes hinges on a comprehensive approach that includes lifestyle modifications, such as a balanced diet and regular physical activity, along with pharmacological interventions like insulin and oral hypoglycemic agents (2). However, achieving optimal outcomes is often hindered by poor medication adherence and inadequate self-care practices.

Medication adherence, defined as the extent to which a patient's behavior corresponds with prescribed medical recommendations, is a crucial determinant of glycemic control and overall health outcomes in diabetes management (3). Similarly, self-care management, encompassing behaviors such as blood glucose monitoring, dietary adherence, and physical activity, plays a pivotal role in mitigating the risk of complications and enhancing quality of life (4). Despite

the critical importance of these factors, non-adherence to medication regimens and suboptimal self-care practices remain prevalent among patients with type II diabetes, particularly in low-resource settings.

This study seeks to assess the levels of medication adherence and self-care management among type II diabetic patients attending the outpatient department at SRM General Hospital, Kattankulathur. Additionally, it examines the association between these factors and selected demographic variables, thereby contributing to a deeper understanding of the challenges faced by this population and informing targeted interventions.

METHODOLOGY

A descriptive cross-sectional study was conducted among type II diabetic patients attending the outpatient department at SRM General Hospital, Kattankulathur. The study population included patients diagnosed with type II diabetes for at least one year and aged 18 years or older. Participants were selected using a convenience sampling method, ensuring inclusion across various demographic strata. The sample size comprised 90 patients.A standardized questionnaire was used to assess medication adherence levels, categorizing them into low, medium, and high adherence.A structured scale evaluated patients' engagement in self-care practices, including blood glucose monitoring, dietary compliance, and physical activity.Data were collected through face-to-face interviews conducted in the hospital's outpatient department. Patients provided informed consent before participation. Demographic details, including age, gender, marital status, income, family structure, and residence, were recorded alongside responses to the adherence and self-care scales.

The collected data were analyzed using descriptive and inferential statistics. Frequencies and percentages were calculated to describe demographic characteristics, medication adherence, and self-care levels. The association between adherence, self-care management, and demographic variables was examined using chi-square tests. Statistical significance was set at $p < 0.05$.

Self-care management practices were found to be at a fair level in 80% of participants, with only 10% achieving good self-care and another 10% exhibiting poor practices. These findings are consistent with studies that report moderate engagement in self-care behaviors among diabetic populations (6). Barriers to optimal self-care may include limited access to healthcare resources, inadequate patient education, and cultural factors influencing dietary and lifestyle choices.

Demographic analysis revealed that most patients belonged to the 35-44 age group, with a slightly higher proportion of females (53.3%) than males. The predominance of rural residence (53.3%) and low-income households (66.7% earning Rs. 5000 or below per month) underscores the socioeconomic challenges faced by this population. These factors likely contribute to the observed patterns of low adherence and suboptimal self-care, as financial and educational disparities have been shown to impede effective diabetes management (7).

The findings underscore the urgent need for comprehensive interventions that address both medication adherence and self-care practices. Strategies such as patient education programs, community-based support groups, and affordable medication schemes could

significantly enhance diabetes management outcomes. Further research exploring the specific barriers to adherence and self-care in rural and low-income populations is warranted to inform tailored solutions.

Table 1: Frequency and Percentage Distribution of Demographic Variables of Type II Diabetic Patients

N = 90

Demographic Variables	**Frequency**	**Percentage**
Age (years)		
25 – 34	30	33.4
35 – 44	36	40.0
45 – 54	12	13.3
55 – 64	12	13.3
≥65	0	0
Gender		
Male	42	46.7
Female	48	53.3
Religion		
Hindu	24	26.7
Muslim	36	40.0
Christian	30	33.3
Educational Status		
Primary School	18	20.0
Secondary School	42	46.7
Higher Secondary School	30	33.3
Marital Status		
Single	18	20.0
Married	72	80.0

Demographic Variables	**Frequency**	**Percentage**
Family Type		
Nuclear Family	72	80.0
Joint Family	18	20.0
Family Income (per month)		
Rs. 5000 or below	60	66.7
Rs. 5000 – 10,000	30	33.3
Habitat		
Rural	48	53.3
Urban	42	46.7
Chronic Diseases		
Diabetes Mellitus	48	53.3
Hypertension	42	46.7
Duration of Treatment		
1 – 5 years	72	80.0
6 – 10 years	18	20.0

Table 2: Level of Medical Adherence among Type II Diabetes Mellitus Patients

N = 90

Level of Medical Adherence	**Frequency**	**Percentage**
Low Adherence (<6)	88	97.78
Medium Adherence (6-7)	2	2.22
High Adherence (7-8)	0	0

Table 3: Level of Self-Care Management among Type II Diabetes Mellitus Patients

N = 90

Level of Self-Care Management	Frequency	Percentage
Poor (0-5)	9	10.0
Fair (6-10)	72	80.0
Good (11-16)	9	10.0

Table 4: Assessment of Medication Adherence and Self-Care Management Scores Among Type II Diabetes Mellitus Patients

N = 90

Measure	Medication Adherence	Self-Care Management
Minimum	0.0	3.0
Maximum	6.0	11.0
Median	4.0	7.0
Mean	3.44 ± 0.93	7.02 ± 1.91
Standard Deviation (S.D.)	0.93	1.91

Table 5: Association of Level of Medication Adherence and Self-Care Management With Demographic Variables

N = 90

Demographic Variables	Medication Adherence	Self-Care Management
Age (years)	$\chi^2 = 0.767$, p = 0.857 (N.S)	$\chi^2 = 10.563$, p = 0.103 (N.S)
Gender	$\chi^2 = 2.338$, p = 0.126 (N.S)	$\chi^2 = 2.109$, p = 0.348 (N.S)
Religion	$\chi^2 = 1.151$, p = 0.563 (N.S)	$\chi^2 = 22.031$, p = 0.0001 (S)
Educational Status	$\chi^2 = 1.607$, p = 0.448 (N.S)	$\chi^2 = 17.143$, p = 0.002 (S**)
Marital Status	$\chi^2 = 1.151$, p = 0.283 (N.S)	$\chi^2 = 3.281$, p = 0.194 (N.S)

Demographic Variables	Medication Adherence	Self-Care Management
Family Type	$\chi^2 = 0.511$, p = 0.475 (N.S)	$\chi^2 = 5.625$, p = 0.060 (N.S)
Family Income	$\chi^2 = 0.256$, p = 0.613 (N.S)	$\chi^2 = 5.063$, p = 0.080 (N.S)
Habitat	$\chi^2 = 0.009$, p = 0.924 (N.S)	$\chi^2 = 3.616$, p = 0.174 (N.S)
Chronic Disease	$\chi^2 = 0.009$, p = 0.924 (N.S)	$\chi^2 = 2.109$, p = 0.348 (N.S)
Duration of Treatment	$\chi^2 = 1.151$, p = 0.283 (N.S)	$\chi^2 = 3.281$, p = 0.194 (N.S)

DISCUSSION

The results of this study revealed significant insights into medication adherence and self-care management among type II diabetic patients at SRM General Hospital, Kattankulathur. This section discusses these findings in the context of existing literature, highlighting key associations and implications for clinical practice.

MEDICATION ADHERENCE

The findings of this study highlight critical gaps in medication adherence and self-care management among type II diabetic patients. The overwhelming majority (97.78%) of participants demonstrated low adherence to their prescribed medication regimens, aligning with prior research indicating that non-adherence is a pervasive issue in diabetes management, particularly in low-income settings (5). Low adherence may stem from factors such as financial constraints, lack of awareness, and medication side effects, necessitating targeted educational and support interventions. The findings show a distressing low level of medication adherence among the patients, with a predominant 97.78% reporting low adherence to prescribed regimens. The average medication adherence score was notably low (mean = 3.44 ± 0.93), consistent with previous studies that have documented poor medication adherence among type II diabetic patients. For example, a study by Wu et al. (2021) observed that approximately 60% of diabetic patient's exhibit low adherence, which correlates with suboptimal control of blood glucose levels and increased complications, such as diabetic nephropathy and retinopathy (6). The poor adherence in the current study can be attributed to factors such as forgetfulness, inadequate knowledge about the disease, and financial constraints, all of which were identified in prior research (7). Furthermore, research has consistently shown that non-adherence to diabetes medication leads to poor glycaemic control, which increases the likelihood of adverse outcomes such as cardiovascular events and kidney failure (8).Various patient-related and systemic factors may influence medication adherence. According to the Health Belief Model, patients' beliefs about their illness and medication impact their likelihood of adherence (9).

Patients who do not perceive their condition as serious or do not experience immediate symptoms often neglect their treatment regimen (10). This is particularly relevant in this study, where many patients likely did not fully comprehend the long-term implications of their condition. These findings suggest that healthcare providers must focus on improving patient education, emphasizing the critical role of medication adherence in preventing complications.

Self-Care Management

The findings of this study highlight critical gaps in medication adherence and self-care management among type II diabetic patients. The overwhelming majority (97.78%) of participants demonstrated low adherence to their prescribed medication regimens, aligning with prior research indicating that non-adherence is a pervasive issue in diabetes management, particularly in low-income settings (5). Low adherence may stem from factors such as financial constraints, lack of awareness, and medication side effects, necessitating targeted educational and support interventions.

The level of self-care management in this cohort was relatively better, with 80% of patients reporting fair self-care management practices. This finding aligns with the results of previous studies that have shown that most diabetic patients adopt basic self-care behaviours such as blood glucose monitoring and dietary changes (11). The average score for self-care management (mean = 7.02 ± 1.91) suggests that while patients are managing their condition to some extent, there is substantial room for improvement. The relatively fair self-care practices observed in this study may be attributed to factors such as education level, socioeconomic status, and the availability of healthcare resources. For instance, the study found a significant association between educational status and self-care management, consistent with the findings of Bastos et al. (2020), who reported that individuals with higher education levels are more likely to engage in effective self-care practices.

The self-care behaviours of diabetes patients include not only medication adherence but also regular physical activity, dietary management, and blood glucose monitoring. These behaviours are crucial for maintaining optimal blood sugar levels and preventing complications. The low adherence to physical activity and dietary restrictions in this study suggests that while patients may be aware of the need for self-care, they may struggle to implement these practices consistently. This finding mirrors that of Jiao et al. (2020), who found that despite patients' awareness of self-care importance, lifestyle changes such as exercise and diet control are frequently neglected due to barriers such as time constraints, physical limitations, and lack of support.

Impact of Demographics

The study also identified several significant associations between demographic variables and self-care management, particularly with religion and education. The positive association between higher educational levels and better self-care practices is well-documented in the literature. A study by Wanjiku et al. (2018) revealed that individuals with higher education levels tend to have a better understanding of diabetes and its management, leading to more effective self-care practices. Additionally, religion played a role in self-care management in this cohort, with religious beliefs potentially influencing dietary practices, medication

adherence, and health-seeking behavior (11). This highlights the need for healthcare professionals to consider patients' cultural and religious backgrounds when designing personalized care plans.

Challenges in Diabetes Management

This study corroborates the longstanding challenge of effectively managing type II diabetes in a way that minimizes complications. A multifaceted approach that includes medical treatment, education, psychological support, and lifestyle modifications is essential for improving adherence and self-care. The findings suggest that while patients are engaged in basic self-care practices, they are not consistently adhering to medication regimens and have room for improvement in other areas of diabetes management.

A key challenge noted in the study was the significant discrepancy between patients' reported self-care practices and actual behavioural outcomes. This gap may be partially explained by social determinants of health, such as poverty, limited access to healthcare, and inadequate social support, which are often overlooked in clinical settings. Addressing these social factors is crucial for achieving sustainable improvements in diabetes management (12).

Limitations and Future Research

Several limitations must be considered in the interpretation of these findings. First, the study was conducted in a single hospital, which may limit the generalizability of the results to other settings. Second, the reliance on self-reported data for assessing medication adherence and self-care management may have introduced bias, as patients may underreport or over report their behaviours. Future studies should consider longitudinal designs with objective measures of adherence and self-care behaviours, such as electronic monitoring of blood glucose levels and pill counts. Additionally, exploring the influence of family support and community-based interventions could provide valuable insights into improving diabetes management.

CONCLUSION

In conclusion, this study highlights the critical need for improved medication adherence and self-care management among type II diabetic patients. While many patients in the current study engaged in fair self-care practices, the low levels of medication adherence are concerning and require urgent attention. Tailored interventions that address patient beliefs, socio-economic challenges, and education are essential to enhance adherence and self-care behaviours, ultimately improving health outcomes for individuals living with type II diabetes.

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