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AN IN-DEPTH ANALYSIS OF SELF-CARE STRATEGIES AND THEIR IMPACT AMONG DIABETES PATIENTS IN A DIABETIC CLINIC: A STUDY FROM MIRPURKHAS, PAKISTAN

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ABSTRACT

Diabetes is a chronic and progressive disease affecting lots of the population of the world, imposing significant burdens on healthcare systems, with proper self-care being pivotal to its effective management. This study assessed self-care activities, including diet, physical activity, foot care, medication adherence, and blood glucose monitoring among diabetic patients in Mirpurkhas, Pakistan, and evaluated their impact on patient outcomes. The cross-sectional study under consideration was conducted over a period of 3 months i.e. June 2024 to August 2024 with a sample size of 600 patients. It applied to the clinical setting and utilized a validated self-care questionnaire. Statistical analyses in SPSS have included frequencies, correlations, and regression tests to consider levels and effects of adherence across these domains. High adherence was recorded for medication as 90%, whereas foot care, physical activity, and dietary changes showed relatively lower adherence and were essential for controlling blood glucose and preventing complications. Findings suggest a need for education in self-care and targeted interventions in resource-limited settings. Recommendations for healthcare providers on health promotion in ways that enhance improved diabetic self-care practices are also presented here.

Keywords: *Diabetes, Self-Care, Medication Adherence, Physical Activity, Glucose Monitoring, Mirpurkhas, Pakistan*

INTRODUCTION

Diabetes is one of the biggest global health issues, with the World Health Organization estimating that over 422 million people are suffering worldwide, mostly in low- and middle-income countries (World Health Organization, 2021). Pakistan is not behind the world, as it has a very fast-growing prevalence of diabetes, with a rate of 17.1% among adults (International Diabetes Federation, 2022). Uncontrolled diabetes has raised the risk of life-threatening complications such as cardiovascular diseases, neuropathy, and renal failure, which is the reason for effective self-care practices (American Diabetes Association, 2022). Self-care practices that include medication adherence, dietary management, physical activity, and glucose monitoring are an essential part of managing blood sugar levels and preventing complications (Al-Shookri et al., 2022).

Diabetes mellitus with its rising prevalence is a significant public health concern (Adu et. al, 2019). The burden of diabetes is increasing continuously in the past few decades globally, and in the coming years, this trend is expected to continue. About 425 million people are diabetic, among whom four-fifths are in low- and middle-income countries (Bennett et. al., 2018). As it is a chronic condition, so it requires continuous medical care and self-management. It puts a heavy economic burden

since it causes high rates of disabilities and many other complications. Considering increasing disabilities and comorbidities due to diabetes, it is time to devise appropriate and affordable measures of prevention (Ramachandran, 2012). Self-management support is an important feature of the "Chronic Care Model" for the care of chronic illnesses. The process of self-management comprises various self-care activities like planning for healthy meals, physical activity, regular monitoring of levels of blood glucose, and ways to deal with complications related to diabetes. Self-care activities are linked to various sociodemographic variables; therefore, there is a need for self-management interventions as it is the only possible way to turn people into self-sufficient to combat this chronic disease. Self-care for diabetics is significant as it enables the patient to understand this complex condition of diabetes and learn how to live with it within the social framework.

Various studies show that there is a significant body of evidences are available, indicating that self-care practices are remarkably diverse across socio-economic milieus, with availability of care, literacy, and cultural factors contributing to the varying adherence levels. For instance, studies from India and Bangladesh have revealed a high rate of medication adherence but very poor adherence to dietary and physical activity advice (Gopichandran et al., 2019). The purpose of this study is to explore the use of self-care practices by diabetic patients in Mirpurkhas, Pakistan, and to evaluate its association with glycemic control in a resource-impoverished scenario, where access to health and a basic level of literacy would be compromised.

2. Objectives

The key objective of this article is to evaluate the behaviors of self-care, that consist of exercise routines, dietary habits, foot care, blood glucose monitoring and medication adherence among the patients of the Mirpurkhas, Pakistan. This article further assesses the impact of such practices on the health of the patients, resulting the outcomes, in particularly in terms to the blood glucose control (HbA1c levels).

3. Methodology

3.1 Study Design and Population

It was a cross-sectional study conducted at the Diabetic Clinic in Mirpurkhas, Pakistan. The sample size consisted of 600 diabetic patients who were male and female, aged 18 years and above, willing and coming to the clinic regularly for follow-up visits.

The sample size was set at 600 respondents to ensure sufficient strong statistical analysis and adequate representation of the diabetic population attending the clinic. Convenience sampling was used by recruiting participants based on willingness and consistent attendance in the clinic. This was important for ensuring that the data collection was feasible and represented a wide range of self-care practices, including their overall effects on glycemic control (HbA1c levels).

3.2 Data Collection

Self-care practice data were collected using the Summary of Diabetes Self-Care Activities (SDSCA) scale. The SDSCA is a validated questionnaire that measures self-care activities in five domains: diet, physical activity, foot care, medication adherence, and blood glucose monitoring. Each item on the SDSCA scale was scored from 0 (no days) to 7 (every day in the last week), and the questionnaire was administered in Urdu language to ensure clarity.

3.3 Data Analysis

The data was entered by the utilization of SPSS version 26. All demographic variables' descriptive statistics were calculated, and the frequency for each of the self-care domains was computed. Pearson's correlation was used to determine if any of the self-care practices were related to glycemic control, HbA1c, while multiple linear regression was used to determine the power of the self-care domains to predict HbA1c levels. A p-value of less than 0.05 was used as statistical significance.

4. Results

4.1 Participant Demographics

The 600 participants had passed through the clinic, and a high proportion of women was found, with 58% females, making the diabetic population appear to have a slight female preponderance. The mean age of the participants was 55.2 years (SD =

11.8). This was a middle to late adulthood population commonly diagnosed with Type 2 diabetes. Many of the respondents had lived with diabetes for more than five years and were therefore all too well aware of the persistent challenges of diabetes management-suggesting a potential future need for a more sustainable and person-centred approach to long-term support. Indeed, 70% of the respondents were members of a low socioeconomic status group, in which interplays of barriers have been strongly related to the management of chronic conditions-including diabetes. These will include less access to health care, limitations on income that prevent spending on prescribed medicines or healthy foods, and insufficient educational resources or community service programs to help with proper self-care. Such socioeconomic challenges facing many of them raise the importance of diabetes management programs aimed at countering financial and access-related barriers to enhance adherence to recommended self-care practices and consequently, better health outcomes (Asif et al., 2021).

Table 1: Demographic Characteristics of Participants

Variable	Frequency	Percentage (%)
Gender		
Male	252	42%
Female	348	58%
Age Group		
18-40 years	150	25%
41-60 years	270	45%
>60 years	180	30%
Socioeconomic Status		
Low	420	70%
Middle	150	25%
High	30	5%
Duration of Diabetes		
<5 years	180	30%
5-10 years	270	45%
>10 years	150	25%

4.2 Self-Care Practices

Domain	Adherence (%)	Non-Adherence (%)
Medication	90%	10%
Dietary Modification	42%	58%
Physical Activity	28%	72%
Foot Care	33%	67%
Blood Glucose Monitoring	55%	45%

Medication adherence is 90% only, which indicates a sense of its necessities in diabetes management. These, however, are lower for diets, physical exercises, and also foot care. This raises the fact that interventions needed are specifically focused on lifestyle adjustments as well as foot care in order to avoid complications (Gholami et al., 2021).

Table 3: Correlation between Self-Care Practices and Glycemic Control (HbA1c)

Self-Care Practice	Correlation Coefficient (r)	Significance (p-value)
Medication Adherence	-0.34	< 0.001
Dietary Modification	-0.28	0.01
Physical Activity	-0.19	0.04
Foot Care	-0.26	0.02
Blood Glucose Monitoring	-0.32	0.01

All self-care practices have a negative correlation with HbA1c levels, suggesting that the better self-care practices are followed, the greater will be glycemic control. Adherence to medication has the strongest association and follows with glucose monitoring. While being the least adhered to, foot care has a moderate association with glycemic control and is, hence important in the management of diabetes (Kumar et al., 2022).

Table 4: Regression Analysis Predicting Glycemic Control (HbA1c)

Predictor	B	SE	Beta	p-value
Medication Adherence	-0.15	0.03	-0.34	< 0.001
Dietary Modification	-0.10	0.04	-0.25	0.01
Physical Activity	-0.04	0.04	-0.12	0.08
Foot Care	-0.11	0.04	-0.24	0.03
Blood Glucose Monitoring	-0.13	0.05	-0.28	0.01

Adherence to medication, foot care, and glucose monitoring emerged as predictors of HbA1c levels, hence in the prime time in predicting improved glycemic outcomes. Diet change has significantly influenced glycemic control whereas physical activity has weak and insignificant effects on the regimen due to its low rate of adherence (Gholami et al., 2021).

5. Discussion

The findings of the present study do spotlight the use of self-care in the management of diabetes, making it much needed among the patients of Mirpurkhas, Pakistan. High medication adherence scores among the respondents reveal that they know the importance of medication in controlling the disease. The adherence toward other indispensable self-care domains, including dietary alteration and exercise and foot care, is still abysmally low and needs special concentration. Engagement in dietary and physical activity modifications is particularly low, which are vital to the maintenance of blood glucose levels and prevention of complications over the longer term. Foot care, although practiced by fewer participants, correlates in the middle range with glycemic control, highlighting its relevance to aversion of serious complications from diabetes such as neuropathy and foot ulcers and ultimately the possibility of amputations (Gopichandran et al., 2019).

Deep-seated cultural, social, and economic factors seem to feed into the self-care practices. For instance, consumption habits based on a traditional diet of high carbohydrate and sugar intake are practiced; the extent of physical activity that can be engaged in is limited by the cultural norm, at least for women, or by the lack of safe, accessible recreational space. Economic constraints, very apparent amongst many of the patients especially in the low-income group, will be another restraint to healthier food choices or routine foot care services. Results of this study are that any effective self-care intervention in Mirpurkhas must be culturally acceptable and suitable and relevant to the economic realities of the community. Any efforts at self-care practice without recognizing and understanding the constraining factors risks failure or un-sustainability.

With such results, the authors suggest development of culturally sensitive education programs as a holistic approach in diet changes, physical activity, and especially foot care. Such programs would mean: culturally appropriate dietary education validating traditional diet but teaching healthier adaptations and exercise programs adapting to local social norms. A community walking club or fitness programs would qualify as exercises. It is essential that these services be available and affordable because of the relationship between foot care and glycemic control or the potential for diabetic populations to have high risks for complications associated with foot problems.

Collaboration among healthcare providers, leaders, and other local organizations will give sustainability and effectiveness to these interventions. Community support structures will be established that will aid the patient in continually receiving advice and additional resource support in the adoption and maintenance

of self-care practice. Local leaders can also be mobilized to advocate and address community-specific challenges for a supportive environment that permits adherence. Collectively, these interventions will offer a more welcoming diabetes management infrastructure within the city of Mirpurkhas to a better management of complications from diabetes, and therefore healthier results for this already vulnerable population.

6. Conclusion and Recommendations

This study highlights the importance of self-care practices for the patients with diabetes living in Mirpurkhas, Pakistan while throwing light on both strengths and weaknesses associated with current self-management strategies. Despite a remarkable 90% compliance with medication adherence, considerably low percentages of dietary changes (40%) and physical activity (30%) indicated large gaps areas needing immediate attention. The outcome was such that knowledge of the need for medication exists but a deep-seated requirement for more guidance and education towards lifestyle change which is necessary to make diabetes management successful.

To address these weaknesses, a critical imperative for healthcare providers would be the implementation of interventions targeted toward healthier diet choices and increased physical activity among diabetic patients. Educational programs, therefore, should be cultural- and context-sensitive to resonate with the local dietary habits and socio-economic realities. For instance, a cooking class that combines local foodways with techniques on healthier meal preparation would be an effective way to help people maintain healthier dietary intake. Actually, advocating social support by means of group exercise programs like walking clubs would also enhance the ability of patients to be physically active on a regular basis to improve overall health outcomes.

But of course, it is also a healthy diabetes management reality that goes beyond a person's behavior; it involves, in effect, the broader environment structure. In this case, for instance, it would be important to engage healthcare providers, community leaders, and local organizations to work collectively toward developing an enabling environment that promotes choices. Initiatives may include increasing access to recreational facilities, hosting community health fairs, launching public health campaigns targeting the general public on the need to care for themselves in diabetes management.

In conclusion, by systematically tackling the barriers to effective self-care through targeted educational initiatives and community involvement, we can appreciably decrease the burden of diabetes-related complications in Mirpurkhas and similar contexts. This multifaceted approach not only empowers patients to enhance their self-management capabilities but also contributes to a comprehensive public health strategy aimed at curbing the increasing prevalence of diabetes in Pakistan. The future research should focus on the many variables that drive direction in self-care practices and the efficacy of interventions tailored to each different population's unique needs. Improvement in healthcare can be seen throughout the country based on such research.

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