

# Exploring Diabetes Self-Management Behaviors among Patients at District General Hospital Polonnaruwa, Sri Lanka: A Comprehensive Analysis <sup>†</sup>

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**Abstract:** This study investigated the relationship between Diabetes Self-Management (DSM) behaviors and glycemic control among 160 adults with diabetes at District General Hospital Polonnaruwa, Sri Lanka. Despite the global escalation of diabetes and its complications, DSM's role in optimizing glycemic control lacked data in Sri Lanka. Findings unveiled 50% physical inactivity, 71% hyperglycemic management knowledge, and 79% hypoglycemic management knowledge. Only 41% exhibited foot care awareness, with 28% reporting a family diabetes history. Retinopathy affected 65%, neuropathy 33%, and nephropathy 22%. Therapeutic oral hypoglycemic drug knowledge was 89%, and insulin comprehension was 21%. Moderate DSM emerged, urging targeted interventions addressing age, health, family support, physical activity, and glycemic awareness to enhance diabetes self-care.

**Keywords:** diabetes mellitus; glycemic management; self-care practices

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## 1. Introduction

Diabetes, a chronic metabolic condition, raises blood glucose levels, leading to heart, vessel, eye, kidney, and nerve damage over time (D & B, 2011; WHO, 2023). Worldwide, there are around 422 million people with diabetes, mainly in low- to middle-income nations. Each year, diabetes contributes to roughly 1.5 million deaths. Incidence and prevalence of diabetes have been consistently rising over the past few decades (Ernawati et al., 2021; WHO, 2023). By taking preventative steps for type 2 diabetes and offering early diagnosis and appropriate care for all forms of diabetes, it is feasible to lessen the effects of diabetes, nonetheless. People who are dealing with the disease can benefit from these methods by delaying or preventing complications (IDF, 2021). Diabetes self-management (DSM) is the practice of self-care by people with diabetes. It includes knowledge, attitudes, and behaviors aimed at maintaining personal health, avoiding long-term complications from the disease, and pursuing specific glycemic control goals through a holistic lifestyle that includes dietary control, exercise, weight management, ideal medication adherence, and glucose self-monitoring (Lampthey et al., 2023; Nguyen et al., 2022). The study seeks to evaluate self-management practices in diabetic patients at District General Hospital, encompassing objectives of assessing knowledge, self-management practices, and associated influencing factors.

## 2. Methods

A descriptive cross-sectional study was conducted to assess diabetes self-management practices in the Polonnaruwa District. The study was carried out at the diabetic clinic of the District General Hospital Polonnaruwa, employing consecutive sampling to select a sample of 160 participants aged 18 and above, who were attending the clinic and provided voluntary consent; individuals with communication issues or acute illnesses were excluded. Data was collected using an interviewer-administered questionnaire with three sections: the first gathering sociodemographic characteristics, the second assessing knowledge about Diabetes Self-care Activities, and the third evaluating practices of diabetes self-care through the revised version of the Summary of Diabetes Self-care Activities (SDSCA) tool, which covered aspects like diet, exercise, blood glucose testing, medication, foot care, and smoking behavior over the past week, accounting for illness periods. Prior to the main data collection, a pre-test of the questionnaire was conducted with ten hospital patients to identify and address any language, tone, structural, or design issues (Leslie Kolb et al., 2020; Saumika et al., 2019).

## 3. Results

Among the 160 respondents, a majority were observed to grapple with inadequate diabetes self-care activities, encompassing aspects such as dietary adherence, exercise, and foot care, indicating a need for comprehensive behavioral change beyond solely focusing on glycosylated hemoglobin reduction. Challenges to physical activity were evident, with 15% lacking exercise facilities, 32% citing cost concerns, and 53% facing scheduling issues. A prevalent negative attitude towards exercise was noted. Concurrent health problems were reported by 62.1%, with hypertension being the most common (54.8%). Comorbidities like cholesterol disorders (26.6%) and asthma (25.8%) were also prevalent. Inactivity emerged due to a lack of spousal (71%), family support (66.1%), and childcare duties (53.2%). Strong associations were found between perceived activity barriers and actual engagement. Over two-thirds exhibited uncontrolled blood sugar levels, despite the predominant use of oral anti-hyperglycemic drugs (45%) over insulin therapy.

## 4. Discussion

This study was conducted to assess self-management practices among patients with diabetes visiting the medical clinic at District General Hospital Polonnaruwa over a span of two weeks, resulting in 160 responses. The respondents comprised 77% males and 23% females. Analysis of religious and nationality data revealed a predominantly Sinhala Buddhist population (97%), with smaller representation from Catholic (1%) and Islamic (2%) backgrounds, all of whom were Sri Lankan. Most participants were married (93%), with 7% being single. Educational levels varied, showing 53% up to O/L, 15% A/L, 2% Diploma, 1% Graduate, 3% up to Grade 5, and 26% with no formal education. Employment status reflected 63% being employed and 27% unemployed. Notably, participants scored lowest in domains related to changing diet, exercise, and insulin injection for controlling blood glucose levels upon awareness of abnormal levels, which aligns with findings from (Ausili et al., 2017) study. Given Sri Lanka's high-carbohydrate diet, dietary interventions should focus on reducing rice consumption and increasing protein and vegetable intake, as suggested by (Jayawardena et al., 2007). The study indicated that 46% had poor dietary habits and 54% had good habits. Comparatively, (Saumika et al., 2019) study indicated 56.7% of participants had poor dietary practices related to T2DM. Research findings indicate a 50-50 split between inactive and physically active individuals. A UAE study on type 2 diabetics revealed 25% engage in physical activity post-diagnosis, with just 3% meeting recommended guidelines (Al-Kaabi et al., 2009). A study that recruited South Asian with diabetes in the UK they included many who had diabetes for over 4 years & possibly had complications. The average duration of diabetes patients with macrovascular & microvascular complication were excluded. Our primary focus was on achieving glycemic control

early in the disease history to prevent complications (Raymond et al., 2009). Contrasting this, our study focused on early glyceic control, excluding patients with longer diabetes duration and complications. Findings included knowledge percentages of 71% for hyperglycemic management, 79% for hypoglycemic management, and 41% for foot care. A family history of diabetic mellitus was reported by 28%. Retinopathy, neuropathy, and nephropathy were prevalent among 65%, 33%, and 22%, respectively. Understanding of therapeutic oral hypoglycemic drugs was noted in 89%, while 21% understood insulin use. Regarding hygiene, personal hygiene was rated good by 53%, normal by 31%, and poor by 15%. Family support was reported by 56%, while 44% lacked such support. This study comprehensively assessed self-management practices among patients with diabetes in the Polonnaruwa clinic, considering factors like age, education, diet, physical activity, hygiene, family support, diabetes history, and therapeutic drug knowledge.

## 5. Conclusions

It was determined that self-care management among patients with Diabetes Mellitus visiting the medical clinic at DGH-Polonnaruwa was at a moderate level, as revealed by our results. The study illuminated a range of factors that exerted influence over the self-management of diabetes. Notably, the role of education emerged as a significant determinant, with patients possessing a higher level of education demonstrating better awareness, particularly concerning aspects like personal hygiene and self-care practices. Coexisting health conditions, primarily high cholesterol, were prevalent among the participants, and Retinopathy emerged as the predominant complication of diabetes, underscoring the need for comprehensive management strategies. While the occurrences of Neuropathy and Nephropathy complications were less frequent, many patients in the study fell within the 35 to 65 age range. The study highlighted the pivotal importance of factors such as personal hygiene, physical activity, family support, dietary habits, and foot care in shaping effective self-management practices among diabetes patients. These findings emphasize the significance of targeted interventions aimed at enhancing self-care strategies and thereby enhancing the overall quality of life for individuals living with diabetes.

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