



PATIENT EDUCATION AS A TOOL FOR ENHANCED DIABETES MANAGEMENT: A CASE STUDY FROM CIVIL HOSPITAL, HYDERABAD, SINDH, PAKISTAN"

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خلاصہ

ذیابیطس میلانٹس دنیا بھر میں ایک عام بیماری ہے، اور پاکستان میں 2022 میں بالغوں میں اس کی شرح 26.7% تک پہنچ گئی ہے۔ اس بیماری کی بڑھتی ہوئی شرح کے پیچھے آگاہی کی کمی، غیر صحت مند غذائیں، ہائی بلڈ پریشر، اور ذہنی صحت کے مسائل شامل ہیں۔ اس تحقیق کا مقصد حیدرآباد سندھ کے عوامی اسپتالوں میں ذیابیطس کے مریضوں کی صحت کی تعلیم اور خود کی دیکھ بھال کے طریقوں کی جانچ کرنا ہے

مطالعہ میں 110 مریضوں کا انتخاب کیا گیا، جن میں 50 مرد اور 60 خواتین شامل ہیں۔ خود کی دیکھ بھال کے طریقوں کا جائزہ ایک سوالنامے کے ذریعے لیا گیا، جس میں مریضوں کی بنیادی معلومات، خود کی دیکھ بھال کے طریقے، ذیابیطس کی پیچیدگیاں، اور غذائی انتظام شامل تھے۔ نتائج سے یہ ظاہر ہوا کہ زیادہ تر مریضوں کی خود کی دیکھ بھال کے طریقے نامناسب ہیں، جس کی وجوہات میں آگاہی کی کمی، مالی مسائل، اور کم عمل درآمد شامل ہیں

تحقیق کے نتائج نے یہ بھی دکھایا کہ مردوں میں ذیابیطس کی پیچیدگیوں کی سب سے زیادہ شرح پائی گئی، جبکہ خواتین میں موٹاپے کی شرح زیادہ تھی۔ یہ مطالعہ اس بات کی نشاندہی کرتا ہے کہ ذیابیطس کے مریضوں کو غیر پروسیس شدہ خوراک، میٹھے اشیاء کی مقدار کو محدود کرنے، جڑی بوٹیوں کی دوائیں استعمال کرنے، اور روزانہ ورزش کرنے کی ضرورت ہے۔ ان اقدامات کے ذریعے مریض اپنی صحت کی دیکھ بھال میں بہتر کردار ادا کر سکتے ہیں، جو کہ ذیابیطس کے موثر انتظام کے لیے ضروری ہے۔

Abstract

Diabetes mellitus is the most frequent disease globally, with 26.7% of adults affected in Pakistan in 2022. Factors contributing to this increase include lack of awareness, unhealthy diets, hypertension, and mental health issues. Despite the challenges, self-care plays a significant role in managing diabetes. Our study investigates health literacy and self-practices among diabetic patients through criteria sampling in public hospitals of Hyderabad Sindh, and to provide guidelines about diet to make people aware of healthy choices in the future. The present study was conducted at a civil hospital. 110 patients were selected from civil hospitals in the months of August and September, which included 50 males and 60 females. The self-care practice was carried out by a questionnaire that consisted of demographic characteristics, self-care management practices, diabetic complications, and dietary management of patients. Among the total samples, the majority of patients with poor self-care practices were found to be unsatisfactory. The reasons are a lack of awareness, financial crises among affected patients, and low implementation. Almost 80 patients were taking medicines, and 40 patients were following self-care. The major complications were patients with the highest ratio of diabetic feet in males due to injury and carelessness and the highest ratio of obesity in females. For patients in civil hospitals, managing their health care has become essential. Our study findings showed that diabetic patients require implementation of self-care, eat unprocessed food like vegetables, fruits, and limit sugary items to maintain glycemic control, use herbal medicine, and exercise daily all these can take an active role in managing their self-care.

Keywords: Self-care; Health literacy; Civil hospital; Self-efficacy; Diabetes mellitus; Pakistan; Hyderabad; Sindh

Introduction

Diabetes Mellitus is a chronic illness that requires continuous medical care and multifaceted risk-reduction strategies beyond glucose control. Patient self-management education and assistance are crucial for preventing acute complications and minimizing long-term risks. There is substantial evidence to support a variety of therapies to improve diabetes outcomes. Diabetes patients require not only blood glucose control but also preventable disabilities, side effects, and rehabilitation difficulties.

The International Diabetes Federation (IDF) has reported that Pakistan has 7.5 million adult cases of diabetes. By 2045, this number is anticipated to increase to 16.7 million if suitable interventional measures are not taken. Education on diabetes helps people learn more about their condition and how to take care of themselves, which leads to better glycemic control and fewer complications from the disease (Abdulrehman *et al.* 2016; AADE 2008). Effective diabetes treatment depends on a patient's understanding of their medications, healthy dietary choices, exercise, and self-monitoring of blood glucose levels, in addition to the proper use of glycemic medications (ADA 2021; Anderson 1995). These suggested measurements can be helpful for researchers testing novel treatment modalities as well as clinicians and educators treating specific patients. Self-report is frequently viewed as unreliable despite being by far the most practical and economical method of self-care assessment. Diabetes self-care practices are actions made by those who have the condition or are at risk of getting it to effectively manage it on their own (Ayele *et al.* 2012). To successfully manage their diabetes, patients must undertake numerous dietary and lifestyle changes, in addition to receiving support from the healthcare team. This will help them retain a higher level of self-confidence from the healthcare team. Because they know very well about their patient (Bukhsh *et al.* 2018).

Diabetes education is a crucial component of diabetes therapy and one of the most successful strategies to improve lifestyle choices. By increasing adherence to treatment, decreasing complications, lowering treatment costs, and enhancing the quality of life of those with diabetes mellitus, diabetes education strives to ensure the effective participation of those with the disease (Byers *et al.* 2016). WHO has also recognized the importance of patients learning to manage their diabetes (Chrvala *et al.* 2016). The American Diabetes Association evaluated the requirements for diabetes self-management education and discovered that those with diabetes who hadn't gotten formal instruction about self-care techniques experienced a four-fold increase in diabetic complications (Farahani *et al.* 2016). After the initial education offered by the diabetes nurse educator, patients are given appointments for more education; nevertheless, patient involvement in recurrent teaching may be minimal. The patients' likely lack of education may be the cause of this. Over half of the patients did not have enough understanding about diabetes education. The belief regarding the significance of diabetes education may be significantly impacted by their less awareness and less understanding of diabetes education. Additionally, one of the factors that lower participation in recurrent instruction could be the cost of transportation to the hospital (GB M, Premkumar 2015).

In Pakistan, difficulties in diabetes self-care are usually cited as psychological and cultural (Gupta *et al.* 2020; Hendra, Sinclair 1997). Evidently, many different, intricate elements make managing diabetes difficult (Hood *et al.* 2015). The research on diabetes self-management practices highlights several variables that might either hinder or help with diabetes self-management, and these variables change depending on the context. The following factors served as obstacles to diabetic self-management practices: adjusting to a new lifestyle after being diagnosed with diabetes is challenging (IDF 2017; Kassahun *et al.* 2016) fiscal difficulties (Kotwani *et al.* 2007) lack of knowledge (Laroche *et al.* 2017). The biggest barriers to managing diabetes on one's own are socio-cultural, such as the use of complementary therapies, placing family demands before one's own, and notions that diabetes is a disease that can be cured (Mensing *et al.* 2006). These were noted as impediments to managing diabetes on one's own. Accepting the diagnosis of diabetes acted as a facilitator for diabetic self-management (Mogre *et al.* 2017). The present study was proposed in Hyderabad to assess the relationship between self-care and complications in diabetic patients. This study let patients know about the self-care management of diabetes and showed that patients should adopt a well-defined diet plan and they should follow a routine of self-care management to live a long life and reduce complications. Also, focus on self-care instead of taking many medications that affect our liver and kidneys. Medication has adverse reactions that can lead to severe diseases. Here, education and guidance should be given, along with self-care as the most powerful keys to follow to cope with this chronic illness.

Materials and Methods

To determine diabetes mellitus patient self-care competence, a descriptive cross-sectional study was carried out from August 3 to September 13, 2023. Using a cross-sectional technique, data from patients with diabetes mellitus attending a civil hospital in Hyderabad, Sindh, A cross-sectional study design was used, and 110 DM patients were enrolled from outpatient clinics at The following criteria were required for inclusion: major side effects such as diabetic foot injuries, The criteria for exclusion were: severe illness stages, including extensive retinopathy, diabetic foot injury, diet control, neuropathy, and obesity.

A convenience sample of diabetes patients was gathered. 110 participants were enlisted to gauge their familiarity with self-care. The apparatus consisted of a questionnaire created. It contained three portions, the first of which asked about the patient's demographics. Parameters in years of age The second section of the questionnaire asks about blood sugar levels, including hyperglycemia, hypoglycemia, and normal range. The third part was checked with an investigational evaluation, such as Diet control is based on the food index and is divided into three sections. Low glyceimic index, which contains vegetables, fruits, and kidney beans; medium glyceimic index, which contains oats, whole grains, wheat, and sweet corn; high glyceimic index, which contains rice, white bread, and potatoes. The fourth part is the diabetic complications; the fifth part is types of treatment, such as oral medication or insulin; and the last part is the self-care of patients, including glucose monitoring, foot care, and exercise.

Results and Discussion

The patients' ages span from 18 to 70 years, with the largest proportion of males and females (51.8%) calculated from 31 to 50 years of age; the highest percentage of males and females with hyperglycemia (54.5%) in 60 patients; and about 49% of patients had a high glyceimic index. Regarding the length of diabetes, 78 patients used oral medication or 42.5%. Problems brought on by inadequate self-care, Diabetic Foot, About 48% of males had diabetic feet; some were on medication, and others had surgery because of injuries. They don't have good footwear material. About 30% of females and males were considered overweight. Due to the high level of triglycerides and excessive usage of sugar, Diabetic nephropathy: 0.9% of patients, including males and females, had diabetic nephropathy due to unmanaged diabetes and poor self-care. Diabetic neuropathy: 13% of patients were observed to have numbness, burning, or pain in their hands or feet due to an unhealthy diet and the usage of alcohol. Above all, the diabetic foot had a higher frequency rate observed in civil hospitals. However, just a small percentage of patients (3.5%) combined insulin with medicines, and 25 individuals (12.5%) utilized insulin. The self-care glucose monitoring rate was about 33.6% among 37 patients, both male and female. The foot care was calculated for male and female patients. Male patients had the lowest rate of foot care practice (22%) In the last exercise, rates were high in males (40%) and females (10%).

Table-1: Showing frequency distribution and percentage of demographic characteristics.

Variables	Frequency	Percentage %
Age in years		
18-30	6	6.3
31-50	57	51.8
51-70	47	42.7
Total	110	100

Blood sugar		
Hyperglycemia	60	54.5
Normal	24	21.8
Hypoglycemia	26	23.6
Total	110	100
Diet Control		
Low glyceemic index	30	27.2
Medium glyceemic index	26	23.6
High Glyceemic index	54	49.0
Total	110	100
Diabetic complication		
Diabetic feet	53	48.1
Obesity	33	30
Neuropathy	14	12.7
Nephropathy	10	0.9
Total	110	100
Type of Treatment		
Oral medication	78	42.5
Insulin	25	12.5
Oral + insulin	7	3.5
Total	110	100

Selfcare		
Glucose monitoring	37	33.6
Foot care	40	36.3
Exercises	33	30
Total	110	100

Some patients suggested medicines to treat diabetic foot and some had surgery, with time foot got worse and as a result, some fingers were amputated. Many patients were suffering from anxiety, and illiteracy some wanted to know more about self-care management. Almost 80% of females were dependent on family members, and after taking the data, many patients were motivated.



Fig. 1: Showing demographic history of patients.



Fig. 2: Shows newly diagnosed patient of diabetes on 12-Sept-2023.



Fig. 3: Showing worst diabetic foot condition that covered with piece of cloth.



Fig. 4: Showing treated diabetic foot with amputated toes.

The examined rate of diabetes was very high daily. Continuous Glucose Monitoring (CGM) Improved glycemic control and reduced hypoglycemia. Diabetes self-management education (DSME) has proven effective in enhancing quality of life and self-efficacy. There were almost many patients visited for early diagnosis and further treatment. Diabetic foot patients are seen on each day visit, and some people discussed that they're unable to maintain diabetes due to financial issues. However, those who were stable financially followed their diet plan for healthy self-practices. As a result, those people had fewer complications than those who didn't follow self-care. Most patients fall into the category of low-level self-care. This demonstrates that practically all countries have DM patients with poor self-care practices. Patients with diabetes who want to practice self-care must change their lifestyle and work with their healthcare team (Nam *et al.* 2011). Similarly, the patient's motivation has been enhanced by the caregivers' or family members' participation in the health education session, which also addressed psychological readiness and self-care (Peek *et al.* 2014). Finding strategies to alter health attitudes, boost self-efficacy, and alter cultural norms around behavior change is also crucial to ensuring that behavior change is effective. Family and caregiver support is also important for encouraging and maintaining healthy behaviors (Perrin *et al.* 2017; Peyrot *et al.* 2005). Owing to the chronic nature of the illness, those who practice self-care behaviors see their disease worsen over time. Additionally, subjects with diabetic nephropathy who fear DM consequences or the advancement of such difficulties exhibit higher self-care practices. In this study, the middle-aged group outperformed the other groups in terms of self-care scores. Another study found no connection between age and self-care practices (Rafique, Shaikh 2006; Rehan, Naz 2015). With a thorough understanding of an individual's food intake, eating behaviors, stress management techniques, and nutrition objectives, the RD/RDN can collaborate closely with the medical team to achieve treatment objectives, maximize medication administration, reduce the need for medications to meet glycemic targets, and facilitate progress toward other goals influenced by food intake. Based on national recommendations, the entire healthcare team should convey consistent ideas and suggestions about nutrition treatment and its significance as a cornerstone of high-quality diabetes care (Samancıoğlu *et al.* 2017).

There was no difference in our study between the income levels of patients (poor, moderate, and high income), their smoking status, or their self-care activities based on gender. According to Ayele, the middle-class group scored higher on self-care than the high-income group (Sharoni *et al.* 2015). It is imperative that medical professionals

actively assist their patients in creating personalized self-care routines. For each patient, this regimen should be the best possible mix, and it should also seem practical to them so that they can stick to it (Shera *et al.* 2002).

An American trial discovered that when each adjustment was applied separately, participants were more likely to make improvements. Therefore, success may differ based on whether the adjustments are applied concurrently or one at a time (Shobhana *et al.* 1999). One of the facts of type 2 diabetes is that adequate metabolic control cannot be achieved by only adhering to self-care regimens. research project worldwide documentation demonstrates that metabolic regulation is a complex mixture of factors, not merely patient compliance (Shrivastava *et al.* 2013; Stiffler *et al.* 2014). An additional study focused on the patient's characteristics (adherence, mindset, beliefs, diabetes knowledge, linguistic and cultural competence, health literacy, and financial resources, social support, and comorbidities) and the physician associated elements (knowledge, attitudes, and beliefs regarding diabetes, efficient dialogue) (Stiffler *et al.* 2014) similarly Just 30% of participants in a diabetes trial followed their medication regimens, and the non-compliance rate was higher among those from lower socioeconomic backgrounds (Tewahido, Berhane 2017).

For follow-up visits, many participants relied on family members. The issue of continuity of care and frequency of visits might provide additional difficulties because they rely on the patient's willingness, access to healthcare, and financial commitment to their health, which is typically their lowest priority. Thus, it follows naturally that a patient would not always provide proper care if they were not well informed on the illness (Toljamo, Hentinen 2001). Self-care practices help patients improve their blood glucose control, they are therefore essential for individuals with type 2 diabetes. Self-care behaviors result in better treatment adherence than medical therapy, according to a different study that compared DM patients who followed treatment orders alone vs those who combined both healthy behavior and medical therapy (Wing *et al.* 2001).

Conclusion

Based on the study's findings, it can be said that many patients are unable to understand diet plans and self-care due to a lack of knowledge. Knowledge should be provided by health care providers, Patients haven't a proper schedule for maintaining self-care. It's not about only self-care management; it's also about implementing the needed guidance to lead a healthy life.

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