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Critical Study on Diabetes and Self-Management of Diabetes

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ABSTRACT

Diabetes affects about 346 million people worldwide, according to the World Health Organization. This figure is predicted to have more than doubled by 2030. Controlling diabetes in patients includes more than simply maintaining adequate glucose levels; it also entails avoiding negative outcomes including handicap limitation and rehabilitation. Seven self-care behaviours that predict positive results in people with diabetes are a nutritious diet, physical activity, blood sugar monitoring, medication compliance, strong problem-solving abilities, healthy coping skills, and risk-reduction behaviours. All seven of these activities have been associated to improved glycemic management, fewer health issues, and a higher quality of life. Patients with diabetes who manage their own care have been shown to have a substantial impact on their condition's progression and development.

1. Introduction

Diabetes is a metabolic disease caused by deficits in insulin secretion, insulin action, or both, and is characterised by persistent hyperglycemia and alterations in carbohydrate, lipid, and protein metabolism. Diabetes mellitus causes long–term damage, dysfunction, and failure of various organs.

Type 1 (T1B) diabetes develops during childhood and adolescence and requires lifetime insulin treatment to survive, but Type 2 (T2B) diabetes develops in adulthood and is directly linked to obesity, physical inactivity, and bad diets, and mainly affects persons over the age of 30. This type of diabetes is the most common, accounting for 90 percent to 95 percent of diabetic cases worldwide. Treatment may consist solely of dietary adjustments and weight loss, as well as oral medications and insulin injections (WHO, 1999). According to the National Diabetes Education Program, type 2 diabetes is also characterised by "(a) insulin resistance, which prevents glucose uptake by skeletal muscle, (b) a decrease in pancreatic beta cell function, which alters insulin release, and (c) an increase in gluconeogenesis by the liver" (Gumbs, 2012, p. 19). Diabetes sufferers are plagued by the disease's terrible symptoms, which are made worse by the lack of treatment alternatives and no cure. Diabetes is diagnosed when the fasting plasma glucose level exceeds 126 mg/dl, the causative plasma glucose level exceeds 200 mg/dl, or the plasma glucose level exceeds 200 mg/dl after a 75 g oral glucose load (WHO, 1999).

Complications

Diabetes problems have contributed to soaring health-care expenses for Type 2 diabetes patients and the public health system. Acute and chronic diabetic complications are the two categories of complications. Acute complications are short-term elevations in blood glucose levels, while chronic complications are long-term hyperglycemia. Acute complications include hypoglycemia, hyperglycemia, infection, and insulin allergy. The most prevalent chronic effects of Type 2 diabetes are neuropathy and vascular diseases, which are the leading causes of death. The two types of chronic sequelae include macrovascular complications, which include atherosclerosis and cardiovascular disease, myocardial infarction, and stroke, and microvascular repercussions, which include retinopathy, neuropathy, and nephropathy (Hunt, 2013). Diabetes self-management education has been found as an important factor in reducing the high prevalence of complications among Type 2 diabetes patients (Karakurt & Kasikci, 2012).

Prevalence of Diabetes

According to the International Diabetes Federation, the number of people living with diabetes is expected to jump from 366 million to 552 million by 2030, with the working population bearing the brunt of the increase (as cited in Narayan et al., 2006). The rising prevalence of diabetes in the Caribbean can be attributed to a number of factors, including increased economic growth and improved health status, which leads to increased longevity (Wilkes et al., 1999).

St. Kitts and Nevis has a population of 50,134 people, with diabetes affecting 4,600 people aged 20 to 79 (a prevalence of 13.3%). (IDF, 2014). The tremendous economic growth of St. Kitts and Nevis over the last 20 years has been matched by an increase in diabetes prevalence (PAHO, 2012). In addition, according to a 2012 World Bank study, St. Kitts and Nevis had the largest change in urbanisation in the Eastern Caribbean States in 2010, at 1.8 percent, and that rate was expected to rise in 2015. Women are more likely than men to get diabetes, and it has a higher impact on the working population. In all of the Eastern Caribbean countries, the similar pattern has been seen (WHO, 2008). The prevalence rate of diabetes mellitus in St. Kitts and Nevis may appear to be low when compared to other countries, however the growth in diabetes should not be underestimated.

Morbidity

Diabetes causes severe morbidity and death due to cardiovascular, renal, and neurologic issues, as well as end-stage renal failure, blindness, and lower-extremity amputation, all of which cause disability and a ten-year reduction in life expectancy (Schiotz et al., 2012). This has had a negative impact on the health and socioeconomic structures of the

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Caribbean (PAHO, 2012). Diabetes was a cause of blindness for persons aged 20 to 74 years old in a 2008 report of new cases, according to the CDC (2011). Type 2 diabetes can be managed and avoided, but if left untreated, it can lead to life-threatening complications and a peaceful death (CDC, 2011). In St. Kitts, 90 lower extremity amputations were recorded between 2010 and 2011, with 65 of them being male (PAHO, 2012).

Mortality

Diabetes-related death rates have been reported to be high in countries with large diabetic populations, such as the United States, China, and India (International Diabetes Atlas, 2012). Furthermore, diabetes death rates in South and Central America, the West Pacific, North America and the Caribbean, and the Middle East and North Africa have been observed (International Diabetes Atlas, 2012). While death rates for other chronic diseases have reduced in most nations, there has been no change in diabetes death rates (IDF 2011). Diabetes has been identified as one of the Caribbean's most critical health threats, with reports indicating that chronic diseases, particularly diabetes mellitus, have accelerated the region's economic growth and burden (Cunningham-Myrie, Reid, & Forrester, 2008). Mortality rates have dominated the majority of attention during the previous three decades (Cunningham-Myrie, Reid, & Forrester, 2008), with cardiovascular illnesses accounting for the highest death rates associated with diabetes (The World Bank, 2012).

In St. Kitts and Nevis, the number of persons living with diabetes has increased, as has the fatality rate, which now stands at 3.16 percent. According to a survey issued by the Pan American Health Organization (PAHO) in 2012, diabetes was the fourth leading cause of death in St. Kitts and Nevis, after heart disease, stroke, and cancer. According to the PAHO (2009), diabetes-related mortality rates in St. Kitts and Nevis were 77.2 deaths per 100,000. (as mentioned in Gittens-Gilkes et al., 2013). Meanwhile, diabetes-related lower leg amputations and other life-threatening complications have become more common (PAHO, 2012).

Diabetes has placed a tremendous financial pressure on the United States' health-care system. In 2010, diabetes treatment accounted for 11.6% of all health-care costs worldwide. The cost of preventing and treating diabetes and its complications was USD376 billion for the same time period, with an estimate of USD490 billion by 2030. In 2010, diabetes cost an average of USD703 per person worldwide, with North America and the Caribbean accounting for USD 214 billion, or 57% of the total. In the twenty-first century, diabetes mellitus has emerged as one of the Caribbean's most urgent public health challenges (Ferguson, Tulloch-Reid, & Wilks, 2010).

According to data, diabetes has had a substantial impact on the healthcare system in St. Kitts and Nevis, owing to the rising cost of diabetes management and its associated comorbidities. Increased hospitalizations have imposed a huge socioeconomic burden on the country's expenditures, as well as on individuals and their families, amounting to US$1,120 or EC$3,024 per person (US$1.0 = EC$2. 70). (Source: IDF, 2014). Diabetes treatment cost USD1.5 million in 2013. This is especially true when it comes to the treatment of foot infections, which accounted for 13% of overall spending. In St. Kitts and Nevis, 90 lower extremity amputations were documented between 2010 and 2011. (PAHO, 2012). The “foundation of diabetes care” is diabetic self-management (Jalilian, Motlagh, Solhi, & Gharibnavaz, 2014, p. 1). Raising awareness of risk factors and symptoms through diet, exercise, blood sugar monitoring, and medication adherence education can significantly reduce diabetes care costs. This strategy has been endorsed by the American Association of Diabetes Care (Jalilian et al., 2014).

2. Self-Management of Diabetes:

Diabetes self-management places the patient at the centre of care, allowing them to make daily decisions about their diabetes to improve their health (Baghbanian & Tol, 2012). Self-management also necessitates the patient adapting their lifestyle, balancing their resources, values, and preferences, and adhering to a preventive regimen that includes good eating, frequent physical activity, blood glucose self-monitoring, and medication compliance. Self-care is linked to Type 2 diabetes self-management because it includes actions that individuals start and engage in voluntarily to sustain life, health, and wellbeing. Poorly controlled diabetes is linked to poor self-management, resulting in a rise in diabetes-related comorbidities and treatment expenditures (Venkatesh, Weatherspoon, Kaplowitz, & Song, 2013).

Individuals with diabetes frequently lack adequate knowledge of their condition, its risk factors, and related complications, and this lack of awareness may play a role in their self-management (Abdo & Mohamed, 2010).

People with less education were less likely to engage in diabetes self-management, according to Xu, Pan, and Liu (2010). Furthermore, those with a longer history of diabetes and insulin treatment were shown to be more active in self-monitoring blood glucose levels than those with a shorter history of diabetes and oral hypoglycemic medication.

On the other side, effective self-management therapies can improve therapeutic outcomes. Individuals with Type 2 diabetes need to be able to mix a variety of everyday activities in order to be effective (Xu, Pan, and Liu) (2010).

Self-Management Education

Self-management education is "the gold standard" for diabetes control, according to the study, and has been shown to be a significant aspect of diabetic therapy (Funnel et al., 2013). Patients who are illiterate have a restricted understanding of the world. Individuals with low literacy are more likely to have poor diabetes knowledge, making learning advanced self-management approaches to improve glycemic control challenging. Literacy has been proven to be an important factor in identifying who may benefit from a diabetes self-management programme.

According to Gill, Kumar and Wiskin, people aged 65 and under are more knowledgeable than their older counterparts (2008). This was shown to be attributable to older people's increasing familiarity with diabetes-related issues, which resulted in misunderstandings about diabetes signs and symptoms.

For senior adults, self-management might be difficult, particularly if they have minor cognitive impairment and have had diabetes for a long time. When evaluating their feet and monitoring their blood glucose levels, people with good memories can stay alert (Tomlin & Asimakopoulou, 2014). In

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research conducted in industrialised countries, self-management education has been demonstrated to have a favourable impact on the prevention of issues (Ezenwaka & Eckel, 2011). Diabetes self-management education can only be effective if Type 2 diabetes patients are provided enough knowledge and motivated to self-manage their disease to avoid complications. This highlights the value of patient education (Ezenwaka & Eckel, 2011).

A number of research have looked into the topic of diabetes self-management education and examined a variety of factors. Efforts have been made to provide diabetes patients with the knowledge they need to control their disease on their own. When Jalilian, Motlagh, and Solhi (2012) used lecture and group discussion to teach self-management to a group of Type 2 diabetic patients, they discovered that it had a positive impact on self-management.

According to Ergenmann and Colagiuri, patients with Type 2 diabetes should have their self-management behaviours examined at baseline and at frequent intervals after the intervention (2007). They also feel that learning, behavioural, clinical, and health status outcomes should be assessed in order to demonstrate the link between diabetes self-management education and behaviour modification. Furthermore, the specific outcomes of each patient should be used as a benchmark for the intervention that will improve patient care.

Another study on the effectiveness of diabetes education programmes for Type 2 diabetes patients discovered that the majority of patients (67 percent) had little knowledge of the disease's many features. It also revealed very low levels of knowledge among females (31%) and those who were not educated, as well as those who were older in age groups, despite significant improvements in patients' knowledge following education intervention (78 percent and 72 percent, respectively) (Abdo & Mohamed, 2010). Diabetes education has been demonstrated to be an effective technique for increasing patients' diabetes awareness (Abdo & Mohamed, 2010).

At a primary health care clinic, Perara, DeSilva, and Perera (2013) investigated Type 2 diabetic patients' knowledge about diabetes, revealing the usefulness of educational programmes to fill knowledge gaps in the areas of poor control symptoms and regular follow-ups. In this study, 150 patients (135 women and 15 men) were asked about their diabetes knowledge. The findings revealed that 70% of patients passed the knowledge exam with a score of >65. Patients with diabetes for a longer period of time had higher mean knowledge levels, according to the study.

Elliott et al. (2013) studied diabetes patients in a primary care setting. The detection and responses of patients to hypo- and hyperglycemia, as well as the ways they devised to keep blood glucose levels stable, could be used to evaluate diabetes self-management and education. This study looked at patients' demographic information, self-management practises, awareness of potential long-term implications, and diabetes management attitudes. According to the findings, the majority of the patients exhibited substantial diabetic self-management and knowledge gaps.

The primary goal of diabetes education is to assist diabetic patients in improving their knowledge and abilities by aiding them in changing their lifestyles and increasing confidence in their capacity to do so. Structured diabetes teaching programmes, whether done one-on-one or in groups, can be beneficial to diabetic patients. This method was discovered in a study by Dhanalakshmi and Subashini (2013), who assessed the effectiveness of a structured education programme on comprehension of specific aspects of diabetes mellitus, such as food, exercise, medication, foot care, and problem prevention.

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