Management of Diabetes:

Literature Review

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Despite the well-known diabetes management, uncontrolled diabetes admissions are increasing in America's emergency departments (Andreano et al., 2020). Researchers estimate the incidence of type 2 diabetes-related episodes of hyperglycemia to be 0.5-8 per 1000 person annually (Andreano et al., 2020). Diabetes mellitus increases the risk of a multitude of conditions known to decrease a person's quality of life (Capriotti et al., 2016). Reoccurring high blood sugars can lead to slow-healing sores, nerve damage, and damage to vital organs like eyes, heart, or kidneys (Capriotti et al., 2016). Individuals who have damaged these critical organs may experience other challenging adaptions like blindness and limb loss (Capriotti et al., 2016).

A nurse-led interdisciplinary approach to promote self-management of type 2 diabetes: a process evaluation of post-intervention experiences.

Type 2 diabetes mellitus increases the risk of long-term complications (Capriotti et al., 2016). Management of type 2 diabetes mellitus helps to decrease the chances of developing a secondary complication. Medications can help manage type 2 diabetes, but lifestyle changes also aid in risk reduction (Whitehead et al., 2017). The primary purpose is to help individuals with type 2 diabetes achieve blood sugar within the recommended ranges (Whitehead et al., 2017). According to Whitehead et al. (2017), the critical question is, "how do we achieve blood sugars in the recommended ranges?" Of most importance in this article, patient education, including the management of blood sugar levels through diet, exercise, and training contribute to significant changes in diabetes outcomes (Whitehead et al., 2017).

Key Points

In the article, A Nurse-led Interdisciplinary Approach to Promote Self-management of Type 2 Diabetes: A Process Evaluation of Post-intervention Experiences, the authors state managing diabetes mellitus type 2 involves education intervention or education intervention plus acceptance and commitment therapy intervention (Whitehead et al., 2017). One of the critical points in this article is that the participants must understand the diabetes plan of care to implement the changes and have improved outcomes (Whitehead et al., 2017).

In this study, one group of participants received education intervention only. The pathophysiology of diabetes, the risk factors and complications, foods, portion control, and diabetes management are crucial interventions (Whitehead et al., 2017). Two healthcare-based nurses taught the participants signs and symptoms of hyperglycemia and hypoglycemia (Whitehead et al., 2017). Participants who had diet and exercise were better able to adhere to their medication regimen and more successfully control their blood sugars (Whitehead et al., 2017). One inference of this article, at six months post-intervention, those who received just the education had significantly improved blood sugar control (Whitehead et al., 2017).

The second group of participants received education plus an acceptance and commitment therapy intervention (Whitehead et al., 2017). Unlike education intervention alone, these participants receive a general overview of diabetes education (Whitehead et al., 2017). The acceptance and commitment therapy intervention focuses on participants' thoughts and feelings about their diabetes and their acceptance or rejection of their diagnosis (Whitehead et al., 2017). This intervention combination was facilitated by a mental health nurse in a workshop which aimed to improve the participants' mental health through mindfulness and acceptance training (Whitehead et al., 2017). Other inferences of this article, at six months post-intervention, researchers saw an increase in diabetes management, but it was not as significant as the group who received only education (Whitehead et al., 2017).

The chronic nature of diabetes mellitus, combined with the need to learn and implement new lifestyle changes, can be overwhelming for patients (Whitehead et al., 2017). In the third inference of this article, individuals with diabetes must understand the importance of adaption and actively manage blood glucose levels to optimize their health (Capriotti et al., 2016). Participants in this study describe these adjustments as challenging (Whitehead et al., 2017). By increasing their knowledge and recognizing their responsibility to their health, participants were able to successfully adapt to their diabetes diagnosis (Whitehead et al., 2017).

In the follow-up interviews, one barrier a participant expresses there was a lack of understanding of the importance of medication regimen adherence (Whitehead et al., 2017). One participant mentions appreciated his newfound knowledge of neuropathy and proper foot-care (Whitehead et al., 2017). Through the workshops, participants in this study learned how to manage their blood glucose levels, prevent diabetes complications, and promote healthy lifestyles (Whitehead et al., 2017).

Assumptions

The author assumes that patients who receive proper, in-depth education alone can successfully manage their blood glucose levels. If we take this line of reasoning and increase the patient's knowledge about their condition, it will increase their awareness and give them a sense of responsibility for their health (Whitehead et al., 2017). These interventions can decrease the risk of complications associated with diabetes, such as myocardial infarction, retinopathy, neuropathy, and kidney failure (Capriotti et al., 2016). As nurses, we must use this information to promote holistic well-being for our diabetic patients. If we don't take this line of reasoning seriously, the consequences of inadequate education interventions are uncontrolled blood sugar, which can lead to atherosclerosis, neuropathy, development of wounds due to poor circulation, and poor wound healing, and cataracts (Karimabad et al., 2020). While diabetes is a challenging diagnosis, the prevention of these co-morbidities enhances our patients' lives.

Deficit/Conclusion

This article concludes that the proper implementation of these interventions is essential for blood glucose control in diabetic patients. As mentioned before, diabetes mellitus is a challenging medical condition requiring strict management and lifestyle modifications. In-depth education, including disease pathophysiology, risks, and complications, helps patients with diabetes better understand their situation (Whitehead et al., 2017). By teaching patients about medication management, proper diet, and exercise regimens, their confidence increases and will result in more success in disease management (Whitehead et al., 2017).

Predicting Health Lifestyle Behaviors Among Patient with Type 2 Diabetes in Rural Bali, Indonesia.

There are two types of diabetes mellitus. Type 1 diabetes is a chronic condition that develops when the pancreas beta cells can no longer produce insulin (Capriotti et al., 2016). Type 2 diabetes is when the pancreas cannot produce enough insulin to control glucose levels (Capriotti et al., 2016). In the United States, 29 million citizens have type 2 diabetes (WebMD, 2019). There are also 84 million prediabetic citizens because their sugars remain high, but not high enough to be diagnosed with diabetes mellitus (WebMD, 2019). Diabetes mellitus type 2 also has caused 1.6 million deaths in adults younger than 70 years old (Asril et al., 2020). The main point of the article is to identify healthy lifestyle behaviors to manage type 2 diabetes. The main question the author is trying to address would be, "can diabetes type 2 be managed through healthy lifestyle behaviors including extended health belief model, demographic characteristics, clinical lifestyle factors, and diabetes knowledge" (Asril et al., 2020)? The most crucial information in this article is that the healthy lifestyle behaviors to manage type 2 diabetes includes extended health belief model, demographic characteristics, clinical lifestyle factors, and diabetes knowledge (Asril et al., 2020).

Key Points

In Indonesia, 6% of deaths occurred from diabetes mellitus type 2 or from a complication that arises from the condition (Asril et al., 2020). The extended health belief model encourages patients with type 2 diabetes to practice healthy lifestyle choices (Asril et al., 2020). This model was chosen for this study because it shows a comprehensive examination of patients' attitudes, beliefs, and behaviors related to their diabetes diagnosis (Asril et al., 2020). Other factors like demographic characteristics, clinical and lifestyle factors, and diabetes knowledge were measure through a personal information sheet and standard self-report scale (Asril et al., 2020). The investigators in this study include a medical doctor, a nurse, and a psychologist (Asril et al., 2020). The researchers used Cronbach's alpha to assess their study's reliability and validity (Asril et al., 2020).

Demographic characteristics included the patient's age, sex, marital status, education level, religion, and employment (Asril et al., 2020). Diabetes develops by black magic, and shamans can heal (Asril et al., 2020). Clinical and lifestyle factors include BMI collection of adults, fasting blood glucose levels, how long diabetes symptoms have been present, diabetic medications, family history, and other diseases (Asril et al., 2020). The researchers note if the participant uses tobacco or alcohol products (Asril et al., 2020). Researchers want to identify the participants' knowledge of the risk factors, diagnosis, symptoms, treatment, and complications from a prediabetes knowledge questionnaire that assessed their knowledge related to diabetes (Asril et al., 2020). One inference provided in this article is that the Cronbach's alpha was 0.74, which indicates that the participant had good knowledge about their diabetes (Asril et al., 2020). The likelihood of action is another critical point in this study. The factors of the likelihood of action include the benefits and barriers the participants may face (Asril et., 2020). The scale to measure the likelihood of action was the DSHB subscale, a 5-point range (Asril et al., 2020). Compared to the Cronbach's alphas scale, this scale was relatively close in the score (Asril et al., 2020). The inference of this section indicates that the participants that were managing their diabetes faced many benefits and barriers (Asril et al., 2020). The last part that was measured was the healthy lifestyle behaviors (Asril et al., 2020). Researchers used personal control questionnaire (Asril et al., 2020). Included in this questionnaire were 12 items of dietary choices, avoidance, eight items of daily routine management, two physical exercise items, and four items of social and mental balance (Asril et al., 2020). The scale to measure indicates that 0.83 to 0.94 is high (Asril et al., 2020). The inference of this crucial point is that the participants have a good idea of healthy lifestyle behaviors essential to managing diabetes (Asril et al., 2020).

Assumptions

The assumption underlying the author's thinking is that the primary intervention to prevent the complication of diabetes is practicing and living a healthy lifestyle (Asril et al., 2020). If we take this line of reasoning seriously, the implications are a decrease in the development of diabetes type 2 (Asril et al., 2010). The result of decreasing the development of diabetes type 2 can be beneficial for low-income countries (Asril et al., 2020). If we do not take this line of reasoning seriously, the development of diabetes type 2 will continue to increase (Asril et al., 2020). Many obstacles will be faced by those seeking treatment with limited access to insurance and other health services (Asril et al., 2020).

Deficit/Conclusion

The main points discussed in this article are that the study participants do not choose to live a healthy lifestyle, increasing type 2 diabetes development. If the participants decided to lose weight, being active, eating healthy, and avoiding smoking would have a robust practice managing their blood glucose levels (Capriotti et al., 2016). The author also states that those with diabetes diagnoses should have education, but also consider their beliefs, support, the environment, and culture they are surrounded by (Asril et al., 2020).

The influence of mobile phone-based health reminders on patient adherence to medications and healthy lifestyle recommendations for adequate manage of diabetes type 2: A randomized control trial in Dhaka, Bangladesh

Over half of the adults with diabetes live in low or middle-income countries (Yasmin et al., 2020). Diabetes mellitus type 2 may increase by 629 million by 2045 (Yasmin et al., 2020). In Bangladesh, the author states that there has been an increase in a sedentary lifestyle, higher calorie consumption, and more stressful life conditions (Yasmin et al., 2020). Almost half of the residents in Bangladesh could not afford diabetes treatment in 2011 (Yasmin et al., 2020). There has been an increase in uncontrolled diabetes in the minority (Hinkle et al., 2014). The primary purpose of this article is to encourage adherence to treatment for better outcomes (Yasmin et al., 2020). The critical question that the author is addressing is mobile health combined with existing health care sustainable and cost-effective ways to treat diabetes mellitus type 2 (Yasmin et al., 2020). The most important of this article is if there were mobile phone-based health reminders, there would be an increase in medication compliance and other adherence to lifestyle recommendations that can effectively treat and manage diabetes mellitus type 2 (Yasmin et al., 2020).

Key Points

In this study, there were 320 patients in this intervention (Yasmin et al., 2020). There were two groups, evenly divided into 160 patients in each group (Yasmin et al., 2020). One group was the intervention group, and the second group was the non-blind control group (Yasmin et al., 2020). Seven participants interview each day. They used the lottery method to pick for interviews (Yasmin et al., 2020). If a patient did not meet the criteria for this study, the researchers moved on to the next person (Yasmin et al., 2020). Once the patient enrolls in the automated message, the participant was to confirm their registration (Yasmin et al., 2020). The researchers use a questionnaire with 12 sub-sections to collect data.

The questionnaire included general survey information, sociodemographic information, disease, and therapeutic information, knowledge, and diabetes perception. It also consists of the understanding of health care services, adherence to the medication advice, adherence to the dietary advice, adherence to the physical exercise advice, adherence to other lifestyle medication measures advice, cost information about the use of out-patient services, cost information about the use of in-patient services, and anthropometric and biomedical information (Yasmin et al., 2020).

The control group was only receiving treatment through the traditional services provided by the hospital (Yasmin et al., 2020). The intervention group received voice calls from an automated system (Yasmin et al., 2020). The participants would be encouraged and support to adhere to the medication, diet, physical exercise, hospital visits, and other lifestyle modification measures to help manage their type 2 diabetes (Yasmin et al., 2020). One key point in this study would be that the voice call messages were created and personalized to each participant based on the information that the participant provided in the questionnaire (Yasmin et al., 2020). The participants would receive a phone call every ten days, a max of three times per day (Yasmin et al., 2020). In addition to the voice calls, the participants had 24/7 access to a physician (Yasmin et al., 2020).

A key point of this article is that adherence measures through medication intake, lifestyle behavioral changes, and bio-medical outcomes. The researchers found that 90% of both controlled and intervention groups were compliant with their medication (Yasmin et al., 2020). If medication adherence failed, it was from the lack of financial access for the participants (Yasmin et al., 2020). The lack of financial access increased in both the intervention and control groups (Yasmin et al., 2020). There was no significant difference in outcome between the two groups (Yasmin et al., 2020). Participants were to adhere to dietary practices. There was an increase in total calories and fruits (Yasmin et al., 2020). The participants continued to live a sedentary lifestyle (Yasmin et al., 2020). One inference that the author noted was an increase in physical activity per week, but not increased per day (Yasmin et al., 2020). There was a decrease in the use of smokeless tobacco, chewing tobacco, and betel nut (Yasmin et al., 2020). They found no significant relationship between tobacco use and blood sugar control (Yasmin et al., 2020). This article's inference is that with these interventions being in place, there was a significant improvement in fasting blood glucose levels and blood glucose levels two hours after breakfast (Yasmin et al., 2020).

Assumptions

The author's assumption in this article is that to manage type 2 diabetes, it is crucial to adhere to medication and hospital practices, healthy dietary practices, and physical activity practices (Yasmin et al., 2020). If we take this line of reasoning, the implications are lower the risk of developing complications that arise from diabetes mellitus type 2 (DerSarkissian, 2020). Giving in-depth education, increasing physical activity, promote a healthy diet, and following a medication regimen is essential to managing diabetes. If we do not take this line of reasoning seriously, the implications are blood glucose levels will remain outside of recommended ranges. Patients with chronic hyperglycemia can result in heart disease, heart attack, stroke, kidney disease, and nerve damage (DerSarkissian, 2020).

Deficit/Conclusion

In conclusion, the author's main points include keeping blood glucose levels within normal ranges and why non-adherence to regimen occurs. In low- and middle-income countries, diabetes type 2 has increased as well as the increase of treatment cost (Yasmin et al., 2020). In this article, the researchers found that the cost of treatment is the main reason why they do not adhere to the medication regimen (Yasmin et al., 2020). Non-adherence can increase the mortality and morbidity of the condition and complication (Yasmin et al., 2020).

Conclusion

Overall, there has been a significant increase in diabetes admissions in the United States (Hinkle et al., 2018). Diabetes type 2 is the result of insulin resistance and impaired insulin secretion (Hinkle et al., 2018). The authors of each study concluded, "how do we control blood sugars in the recommended ranges?" Even with low- and middle-income families, the nurse should evaluate the patient's ability to afford medication (Yasmin et al., 2020). Before discharge, the social worker can provide resources to patients who cannot afford their medication. Access to help will increase their medication adherence. Researchers have found that an in-depth education that includes the pathophysiology, signs, and symptoms, risk factors, foods, portion control, and the importance of control blood glucose levels gave them a sense of responsibility for their health (Whitehead et al., 2017). Providing education to those who are not diabetic or prediabetic can reduce the diagnosis of diabetes (Hinkle et al., 2018).

Further diabetes education includes lifestyle changes like daily exercise and eating healthier (Hinkle et al., 2018). The interventions reduce complications such as retinopathy, neuropathy, and cardiovascular disease (Hinkle et al., 2018). Managing diabetes mellitus type 2 can be challenging. Each patient should receive adequate education and resources to help guide and support them. In theory, if patients are set up, in the beginning, to be successful, the United States hospitals could see a decline in diabetes type 2 admissions.

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