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The Influence of Information and Educational Media in Supporting the Self Management of Diabetes Melitus

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Abstract: The purpose of this study is to determine the effect the need for information and educational media in supporting self-management of people with diabetes mellitusat RSU Royal Prima Medan. This type of research is a quantitative research with a cross sectional approach. The population in this study isout patient diabetes mellitusat RSU Royal Prima Medan from January 2022 to December 2022 who have been diagnosed based on criteria totaling 548 patients. Sampling used the Taro Yamane formula with a total sample of 100 samples. Data analysis in this study used univariate analysis and bivariate analysis. The research results show that the majority of diabetes mellitus patients in this study were aged 31-40 years and the majority of patients were male, the quality of self-management of people with diabetes mellitus at RSU Royal Prima Medan was good for 89 patients and 11 patients who were not good, Information needs play a role and influence in supporting self-management of people with diabetes mellitus at RSU Royal Prima Medan p value <0.05, educational media play a role and influence in supporting self-management of people with diabetes mellitus at RSU Royal Prima Medan p value <0.05. Suggestions for RSU Royal Prima Medan should be to maximize all forms of educational activities as well as information regarding self-management of people with diabetes mellitus, such as routinely giving seminars to people with diabetes mellitus on how to maintain good self-management for people with diabetes mellitus.

Keywords: Diabetes Mellitus; Educational Media; Information Needs; Self Management

Introduction

DM is a metabolic disorder characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Hyperglycemia is a medical condition that describes an increase in the amount of blood sugar above normal which is also a feature of several diseases, including diabetes (Mogre et al., 2017).

Diabetes mellitus is a condition where there is a chronic increase in blood sugar levels as a result of disturbances in the metabolism of carbohydrates, fats and proteins due to a deficiency of the hormone insulin. Chronic hyperglycemia in diabetes can cause long-term damage and dysfunction of several organs, especially in the eyes, kidneys, nerves, heart and blood vessels, which will lead to various complications, including atherosclerosis, neuropathy, kidney failure and retinopathy.

Epidemiology shows an increasing trend of the incidence and prevalence of Type 2 DM in the world. WHO estimates that the total type 2 DM can rise sharply in the coming year. WHO estimates that the number of people with type 2 DM in Indonesia could increase by 8.4 million in 2000 to 21.3 million in 2030. IDF estimates show that in 2013 - 2017 there will be an increase in total DM sufferers from 10.3 million to 16.7 million in 2045 (Soebagijo, 2019).

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DM is a concern because it is a group of metabolic diseases with characteristic hyperglycemia due to abnormalities in insulin secretion, insulin action, or both, which occur one of them due to dietary noncompliance (Bonger et al., 2018). Some of the symptoms that are often found in diabetics are polyuria, polydipsia, polyphagia, weight loss, and blurred vision. Type 2 DM has the characteristics of insulin resistance accompanied by a decrease in insulin secretion whose severity varies from relative to dominant deficiency (American Diabetes Association.

IDF data on the prevalence rate of people with DM will increase to 84% from 2017 to 2045, from 82 million people to 151 million people. The risk of death from the impact of DM problems from all deaths from non-communicable diseases is 4%. By 2030, it is estimated that DM will rank as the seventh cause of death in the world (Perkeni, 2021).

The prevalence of diabetes in 2019 is estimated to be around 9.3%, growing to 10.2% in 2030. Some people are not aware that they have diabetes. The global prevalence of impaired glucose tolerance is estimated at 7.5% (374 million) in 2019 and is projected to reach 8.0% in 2030 and 8.6% in (Ogurtsova et al., 2017).

Data from the Medan City Health Office total DM sufferers in 2013 totaled 27,075 people, 2014 January and February 3,607 people, in this total patients aged > 55 years amounted to 85% and of the total 70% were women. DM patients in 39 puskesmas in Medan City in 2013. From this data it can be seen that DM in North Sumatra is relatively high(Nuryatno, 2019).

From the pathophysiology, DM can be distinguished into 2 types. Type I DM is caused by autoimmune destruction of pancreatic β cells useful in producing insulin. Type II DM is caused by cell resistance to insulin. In this type of DM, the patient can produce insulin, although the amount continues to decrease. Nearly 80% of the prevalence of DM is type II(Soebagijo, 2019).

DM risk factors are divided into two factors, risk factors that can be changed and those that cannot be changed. Risk factors that cannot be changed are race/ethnicity, age, gender, family history of diabetes, history of birth weight >4000 grams, also history of low birth weight (<2500 grams). Risk factors that can be changed include excess body weight, abdomen, lack of physical activity, hypertension, dyslipidemia, unhealthy eating patterns, impaired glucose tolerance (IGT), as well as fasting blood glucose levels (impaired GDP). medical history. smoke(Nurjana & Veridiana, 2019).

Diabetes often causes complications that require educational support related to long-term care and treatment of DM clients. Diabetes management can provide maximum results when accompanied by client adherence to therapy recommended by health workers. The success of managing the disease is determined by the obedient behavior of DM sufferers towards the management of the disease. With good adherence, treatment can be carried out optimally and the quality of health can be felt by patients (Lestarina, 2018).

Indonesia has made programs to minimize non-communicable diseases such as the CERDIK, PATUH, Posbindu PTM programs, the Germas program and other efforts made both from a community perspective in society and from a family perspective (Yerizel & Manaf, 2015). These efforts are carried out by the government, or stakeholders, as well as nurses in the community and families who are expected to reduce this non-communicable disease. There are 4 types of diabetes mellitus management, namely education or health education, physical exercise, stress management and adherence to taking medication, so that one of the interventions that can be carried out by diabetes mellitus patients is to explore health information education about diabetes mellitus.

Diabetes mellitus can affect all aspects of the sufferer and diabetes mellitus patients have an increased risk of complications and can be life threatening if not treated and properly controlled. These problems can be minimized by managing the disease, namely by self-management (Hidayah, 2019).

Self-management Diabetes can reflect conscious patient behavior and self-desire to control diabetes mellitus. Self-management is an integral part of diabetes control. Self-management can describe individual behavior that is carried out consciously, is universal, and is limited to oneself. Diabetes self-management is action taken by individuals to control diabetes including treatment and prevention of complications (Imelda, 2019). Several aspects are included in diabetes self-management, namely dietary regulation, physical activity/exercise, blood sugar monitoring, adherence to drug consumption, and self/foot care. Optimal implementation of self-management in diabetic patients can help in increasing the achievement of goals in the management of DM (Cherrington et al., 2010). Therefore, Lack of understanding of what has been conveyed by medical personnel to patients or families regarding self-management can also result in uncontrolled blood sugar levels in patients so that several tools are needed when carrying out health education to patients and families of patients with DM health problems to help health workers in conveying information clearly and easily understood, such as using print media and electronic media (Hidayah, 2019).

The government through BPJS has provided educational media for DM and hypertension sufferers in an activity called Prolanis, a chronic disease service program. Prolanis is a health service system and a proactive approach that is implemented in an integrated

manner (Cherrington et al., 2010). This program involves participants, health facilities, and the Board of Health Insurance Services in order to maintain health to achieve an optimal quality of life with cost-effective and efficient health services to prevent disease complications (Sidiq et al., 2020). One form of prolanis activity is medical/educational consulting activities.

Research by Mulyani (2016) showed that among several cases of type II diabetes mellitus that occurred in Banda Aceh Hospital, one of the causes was due to poor self-management which caused an increase in blood sugar levels. Self-management in people with diabetes mellitus is done to control blood sugar levels and reduce the serious risk of disease complications (Mulyani, 2020).

This research will be carried out at the Royal Prima Medan General Hospital, based on the results of a pre-survey conducted by researchers on January 15, 2023 by conducting interviews with the management of the Royal Prima Medan General Hospital. Based on the results of the interviews, it is known that the Royal Prima Medan Hospital in particular has not conducted a self-management education program for diabetes mellitus patients (Riadi & Ichsan Gorontalo, 2017). The existence of education obtained based on interview answers to patients is through internal medicine doctors and education provided by young doctors (koas). Usual education is given such as following a healthy diet, increasing physical activity and regular physical exercise, using DM drugs and other drugs in special circumstances safely and regularly (Rumana & Sapang, 2018).

Researchers chose RSU Royal Prima Medan as the research location because the number of respondents was sufficient for the sample size of the study. From the elaboration of the background above, the researcher is interested in conducting research with the title "The influence of information and educational media in supporting self-management of people with diabetes mellitus".

Method

This type of research is a quantitative research with a cross sectional approach. Quantitative research according to Sugiyono (2018) is a research method based on the philosophy of positivism, used to examine certain populations or samples, collecting data using research instruments, data analysis is quantitative or statistical, with the aim of testing established hypotheses. Cross Sectional is a study that uses data collected only once (it can be collected over a period of several days, weeks or several months) in order to get the answers needed in the study.The sampling technique for this study used purposive sampling.Purposive sampling is a sampling technique with certain considerations (Sugiyono, 2018).

The reason for using this purposive sampling technique is because it is suitable for use in quantitative research, or studies that do not generalize (Wahyuni, 2020). Inclusion Criteria: (1) Diabetes mellitus patient; (2) The patient is willing to be a respondent; (3) Patient is able to communicate well; (4) Outpatients who have been to RSU Royal Prima Medan more than once. Exclusion Criteria: (1) Patients without diabetes mellitus; (2) The patient is not willing to be a respondent; (3) The patient is unable to communicate well; (4) Outpatients who have been to RSU Royal Prima Medan less than 1 time.

Result and Discussion

From the research that has been done, the results show thatRespondents who said the need for information to support self-management of people with diabetes mellitus were fulfilled as many as 88 respondents with a percentage of 88%, and respondents who said the need for information to support self-management of people with diabetes mellitus were not met were 12 respondents with a percentage of 12%. From these results it can be concluded that the majority of information needs to support self-management of people with diabetes mellitus are met.

From the results of the cross table it can be seen that if the information needs of diabetes mellitus patients are met, good self-management of patients with diabetes mellitus is 82 patients with a percentage of 93% and self-management of patients with diabetes mellitus that is not good is 6 patients with a percentage of 7%. From these results it can be seen that there is still self-management of people with diabetes mellitus that is not good even though the information needs of patients with diabetes mellitus have been fulfilled where this occurs due to several influencing factors such as the lack of support from the family which causes a lack of motivation from diabetes mellitus patients to carry out self-management well in accordance with the information obtained by patients from various educational media regarding self-management in patients with diabetes mellitus (Kamradt et al., 2014).

If the information needs of diabetes mellitus patients are not met, good self-management of patients with diabetes mellitus is 7 patients with a percentage of 59% and self-management of diabetes mellitus patients who is not good is 5 patients with a percentage of 41%. Test resultschi squarevalue resultsp-valuesof 0.003 <0.05 which means that information needs play a role or influence onself-management of diabetes mellitus sufferers at RSU Royal Prima Medan.

The results of this study are in line with research conducted by Ni Ketut (2021) which states that providing information to DM patients affects the self-management of DM patients (Ketut et al., 2021). The need for information is a situation that occurs where a person feels there is ignorance of information or knowledge because of various needs such as assignments or just being curious. This deficiency needs to be filled with new information according to their needs. Diabetes mellitus can affect all aspects of the sufferer and diabetes mellitus patients have an increased risk of complications and can be life threatening if not treated and properly controlled. These problems can be minimized by managing the disease, namely by self-management (Hidayah, 2019).

Efforts that can be made to improve DM patient self-management can be done by increasing patient knowledge and skills regarding the management of DM disease by providing information through health education by nurses in treatment rooms and outpatient care. Patients who get information about their disease participate more effectively in the therapy process (Kamradt et al., 2014).

Providing information through health education is the right way to overcome the problem of non-compliance with DM patients, information can be conveyed in several ways in the form of audio and visual media that can be used to assist the learning process (Richard & Shea, 2011). A multimedia approach during the learning process can help patients master information more effectively, one example is using a booklet. Booklets can be studied at any time because they are in the form of a book and can disseminate information in the form of writing and pictures, so that they look more attractive and are very suitable for use as educational media for type 2 DM patients.

Valentina's research (2018) proved that booklet media can increase compliance in type 2 diabetes mellitus patients at the South Banjarbaru Health Center. In addition, other studies with similar results were also conducted by Sabarudin (2018) who also found that providing education through effective booklets can help improve adherence to treatment of type 2 DM patients at the Puuwatu Health Center, Kediri City. Providing information needs can also be said as a form of support for health workers, in this case nurses. Providing information and support from health professionals can improve adherence if done routinely and in a planned manner. From the research that has been done, the results show that.

Respondents who said educational media in supporting self-management of people with diabetes mellitus were fulfilled as many as 81 respondents with a percentage of 81%, and respondents who said educational media in supporting self-management of people with diabetes mellitus were not fulfilled were 19 respondents with a percentage of 19%. From these results it can be concluded that the majority of educational media in supporting self-management of people with diabetes mellitus are fulfilled (Gebermariam et al., 2020).

From the results of the cross table it can be seen that if the education media for diabetes mellitus patients is fulfilled, good self-management of patients with diabetes mellitus is 76 patients with a percentage of 94% and self-management of patients with diabetes mellitus who is not good is 5 patients with a percentage of 6%. From these results it can be seen that there is still self-management of people with diabetes mellitus that is not good even though educational media in supporting self-management of patients with diabetes mellitus have been fulfilled where this occurs due to several factors that influence it such as the age factor of diabetes mellitus patients and also the gender factor, where it is common patients with female gender are more skilled and more diligent in self-management (Istiyawanti et al., 2019).

If the educational media for diabetes mellitus patients is not fulfilled, good self-management of patients with diabetes mellitus is 13 patients with a percentage of 68% and self-management of patients with diabetes mellitus who is not good is 6 patients with a percentage of 32%. Test resultschi squarevalue resultsp-valuesof 0.006 <0.05 which means that educational media has a role or influence onself-management of diabetes mellitus sufferers at RSU Royal Prima Medan.

The results of this study are in line with Agustiningrum's research (2019) which states that the application of Diabetes Self Management Education is very effective in improving patient self-care. Hailu's research (2019) shows that there are significant short-term improvements in relevant DSME parameters such as diabetes knowledge and self-care behavior (Rumana & Sapang, 2018). Research by Felix, et al (2019) states that education can improve self-care behavior in diabetes patients (Ardini, 2017).

According to Agustiningrum (2019) education in self-management is very effective in improving self-care in patients with diabetes mellitus. Education in general is a planned effort to influence other people, both individually, in groups and in society in general so that they can do what is expected of educators. This boundary includes elements of input (a process planned to influence other people) and output (an expected result). The expected result of a promotion is behavior to increase knowledge.

Diabetes often causes complications that require educational support related to long-term care and treatment of DM clients (Pujiwati et al., 2023). Diabetes management can provide maximum results when

accompanied by client adherence to therapy recommended by health workers. The success of managing the disease is determined by the obedient behavior of DM sufferers towards the management of the disease. With good adherence, treatment can be carried out optimally and the quality of health can be felt by patients (Lestarina, 2018).

The government through BPJS has provided educational media for DM and hypertension sufferers in an activity called Prolanis, a chronic disease service program. Prolanis is a health service system and a proactive approach that is implemented in an integrated manner. This program involves participants, health facilities, and the Council's Health Insurance Services in order to maintain health to achieve optimal quality of life with cost-effective and efficient health services to prevent disease complications (Rapitos et al, 2020). One form of prolanis activity is medical/educational consulting activitie (Sidiq et al., 2020). Educational media will gradually become a source of knowledge so as to enable DM patients to carry out self-care properly.

Conclusion

Based on the results of the research and discussion above, the conclusions in this study are as follows: the need for information has a role and influence in supporting the self-management of people with diabetes mellitus at RSU Royal Prima Medan and media education has a role and influence in supporting the self-management of people with diabetes mellitus at RSU Royal Prima Medan.

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All authors had significant contributions to the completion of this manuscript

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Conflicts of Interest
The author's interest in the last 3 years has been in the public health. Because in today's era public health is very important to improve, especially in the field of hospital services, where the quality of service is expected to get maximum results, for the realization of better public health.

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