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THE EFFECT OF EDUCATION LEVEL ON SELF CARE EMPOWERMENT OF DIABETES MELLITUS PATIENTS

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ABSTRACT
According to the International Diabetes Federation (IDF) there has been an increase in the number of people with diabetes from 7.0 million in 2009 to 12.0 million in 2030. Diabetes mellitus if not managed properly can lead to various complications. The application of self care management is expected to prevent complications. Self care include managing diet, determining appropriate physical activity, monitoring blood sugar levels independently and obediently carrying out DM pharmacological therapy. A person's level of education is influential in responding to something that comes from outside. The purpose of this study was to determine the relationship of the level of education to self care of patients with diabetes mellitus. This study uses a descriptive analytic design with a cross sectional approach. The population in this study were all DM patients. The sample was taken partly from the patient population with purposive sampling technique. Data analysis to be carried out includes univariate and bivariate analysis. The results that there was a relationship between the level of education and self-care for DM patients with a p-value of 0.015 (p-value <0.05). It is hoped that the Puskesmas can improve health promotion about self-care for DM patients in order to prevent complications.
Keywords: *Self Care, Diabetes Mellitus*

INTRODUCTION

Diabetes mellitus is a chronic metabolic disease characterized by an increase in blood sugar levels above normal values or hyperglycemia which is influenced by abnormalities in carbohydrate, fat and protein metabolism due to damage to synthesis in pancreatic beta cells or insulin secretion, sensitivity or both (American Diabetes Association, 2018). . According to the International Diabetes Federation (IDF) there has been an increase in the number of people with diabetes from 7.0 million in 2009 to 12.0 million in 2030. WHO predicts an increase in the number of people with diabetes mellitus in Indonesia from 8.4 million in 2000 to around 21, 3 million by 2030, which represents a 2-3-fold increase in the number of people with diabetes. Based on a report from the Health Research and Development Agency of the Ministry of Health (RISKESDAS) in 2013, it was informed that the prevalence of DM diagnosed by doctors or symptoms in East Java had almost doubled from 1.1% in 2007 to 2.1% in 2013 [1].

DM if not managed properly can lead to various complications, such as cerebrovascular disease, coronary heart disease, leg blood vessel disease, eye, kidney and nerve disorders. People with diabetes are 2 times more likely to develop coronary heart disease and cerebrovascular disease, 5 times more likely to suffer from ulcers/gangrene, 7 times more

likely to develop terminal kidney failure, and 25 times more likely to develop blindness due to retinal damage than non-diabetic patients[2].

In reducing the possibility of complications, it is necessary to have self-management by people with DM with self-care management, the goal is to control glucose levels in the blood (PERKENI, 2019). This is done with the hope that if self care management activities are carried out properly, the risk of complications will be smaller [3]. There is one obstacle in preventing complications, namely the inability of people with diabetes to control blood glucose levels, of course this requires serious attention for health workers. The application of self care management is expected to prevent complications [4]. Ability to self care / self care including managing diet, determining appropriate physical activity, monitoring blood sugar levels independently and obediently carrying out DM pharmacological therapy [5].

According to Dorothea Orem, self care is a human need for self-care and conditions whose management is carried out continuously in an effort to maintain health and life, as well as healing from disease and overcoming complications caused. This theory aims to help clients perform self-care. Orem developed a definition of nursing that emphasized the client's need for self-care. Self care is needed by every individual, both women, men, and children. When self care is inadequate and cannot be maintained, it will result in illness and death. DM self care is an action or program that is the responsibility of DM sufferers and must be carried out throughout the life of the sufferer. 13 Wattana in his research states that effective DM self care can reduce DM patients risk the incidence of coronary heart complications, besides that self care can also control normal blood sugar levels, reduce the impact of problems due to DM, and reduce mortality and morbidity due to DM. Self care in DM patients aims to be able to control blood glucose levels optimally and prevent complications that arise. When individuals have contracted complications, it will have an impact on decreasing life expectancy and decreasing quality of life. Research conducted by Suantika (2015) on the relationship between diabetes self-care and the quality of life of type 2 DM patients stated that DM self-care affects the quality of life by 36%, which means that the higher the level of self-care, the higher the quality of life of type 2 DM respondents [6].

Human Resources (HR) is one of the important assets in the development of a nation, so the quality of human resources needs special attention. One important aspect that affects human resources is the level of public health, where health status plays an important role. Public health status can be influenced by four factors, namely: 1) the achievement of life expectancy, morbidity, disability, or death rates; 2) the achievement of participation in health services, the achievement of internal satisfaction, and external satisfaction; 3) participation in social life; and 4) living environment. In a community, these four supporting factors have a close relationship with each other, and cannot be separated from natural resources, population density, cultural systems, and environmental balance. HL. Blum in his concept describes that the health status of a person or a community is the result of the interaction of various factors, both internal factors and internal factors consisting of physical and psychological factors, while external factors consist of various factors, including social, community culture, physical environment, politics, economics, education etc [6].

Education and health are two things that are very closely related. Education is a tool used by an individual so that later he gains an understanding of health awareness. Most people judge that if a person gets a good education process and gets sufficient health knowledge then he will also have a good level of health awareness as well. That way, it is hoped that in the future

the person will apply a healthy lifestyle in his life and be able to pass it on to the people around him [7].

Putri's research (2017) mentions factors that can influence the behavior of Diabetes Mellitus treatment, namely age, gender, education level, length of suffering, social support, and behavior of health workers. Several demographic factors are referred to as determinants of the level of compliance or behavior of patients with diabetes mellitus, including gender and education level. A person's level of education is influential in responding to something that comes from outside. Someone who has a high level of education will give a more rational response and also in his motivation will have the potential than those with lower or moderate education [8].The purpose of this study was to determine the relationship of the level of education to self care of patients with diabetes mellitus.

RESEARCH METHODS

This study uses a descriptive analytic design with a cross sectional approach, namely research that aims to describe the status of the phenomenon or the relationship between phenomena at one time [9] . The population in this study were all DM patients. The sample was taken partly from the patient population with a purposive sampling technique, namely a sample selection method carried out on the basis of the researcher's considerations and with a specific purpose [10].

Data analysis to be carried out includes univariate and bivariate analysis. Univariate analysis aims to explain or describe the characteristics of each variable to be studied. Bivariate analysis aims to determine whether there is a significant relationship between the two variables [11]. The purpose of doing bivariate analysis in this study is to prove the hypothesis whether there is a relationship between education and self-care in DM patients. Statistical test used for bivariate analysis, using SPSS.

RESULTS AND DISCUSSIONS

Table 1 Distribution of Respondents Based on Education Level and Self Care of DM Patients

Variables	Category	F	%
Education	Higher education	39	65
	Low education	21	35
Self care	*Good self care*	30	50
	Self care is not good	30	50

The results of the analysis in table 1 show that some respondents have a high level of education, namely 39 people (65%) while 21 people (35%) have a low level of education. Distribution of respondents based on self care for DM, the results obtained were equal between good and bad categories of self care, each of which was 50%.

Table 2 The Relationship Between Education and Self Care of DM Patients

Education	Self Care				Total		*p-value*
	Good		Not good				
	N	%	N	%	N	%	
High	24	80	15	50	39	65	0.015
Low	6	20	15	50	21	35	

Low education and self care are not good as In table 2 above, it can be seen that there are 24 respondents with DM who have higher education and have good self-care, while 6 respondents with DM who have low education and have good self-care. It can also be seen that DM patients who have higher education and self care are not good as many as 15 respondents and DM patients who have well as 15 respondents. And the P-value obtained based on the table above is 0.015, this states that there is a significant relationship between education and the incidence of self-care.

Based on the description of the results of the study above, it was found that 39 people (65%) had higher education, 21 people (35%) had low education, 50% of self care was good and 50% of self care was not good. And it can also be seen that respondents who are highly educated and have good self-care are 24 respondents, respondents with higher education have poor self-care as many as 15 respondents, respondents with low education have poor self-care as many as 15 respondents and respondents with low education have good self care as many as 6 respondents. And the results of statistical tests for the two variables obtained p-value 0.015 (p-value <0.05), this indicates that there is a significant relationship between the two variables.

This study is in line with the results of Hunt (2012) that the educational background of the largest respondent is higher education, which is 57.9%, then secondary education is 32.2% and the lowest is basic education at 9.9%. Likewise with the results of Wilson's research (2012), respondents with the largest educational background are higher education, which is 66.2%, secondary education is 23.1% and the lowest is basic education at 1.5% [12].

The analysis of the relationship between education and self-care for DM patients in this study showed that there was a significant relationship, which means that there were differences related to self-care for DM patients between respondents who had high and low educational backgrounds.

The level of education of a person determines the attitude and pattern of behavior. The higher the level of education of a person, the higher the level of behavior patterns, but the lower the level of education of a person, it is almost certain that the level of behavior patterns is also low. Low education turns out to have a high level of behavior patterns because there are factors of religious understanding and also other understandings [7]

The level of education has an influence on the incidence of type 2 diabetes mellitus. People who have high education will have a lot of knowledge about health management, education also affects the awareness of each respondent. The level of education affects the way a person thinks and acts in dealing with something. People who have very limited basic education and

skills and poor health conditions will tend to experience stress. Low levels of education are also associated with poor self-care skills [13].

National education functions to develop capabilities and shape the character and civilization of a dignified nation in order to educate the nation's life. This aspect also covers the health sector. In the future, the individual is given an understanding from the school to instill healthy behavior and also values related to health so that later students can understand correctly what a healthy lifestyle is and of course will practice it in life [7].

People who have high education will have a lot of knowledge about health management, education also affects awareness for respondents. The level of education affects the way a person thinks and acts in dealing with something. People who have very limited basic education and skills as well as poor health conditions will tend to experience stress but have a desire to achieve healing. Respondents will also be careful in their diet to avoid these diseases. Low levels of education are also associated with poor self-care skills. Respondents with poor levels of education are often resigned and indifferent to their illness. In addition, a low level of education is associated with low self-awareness to seek treatment at health services considering that not all treatment can be covered by health insurance, even though it is currently available in government programs [5].

This is in line with various studies which show a strong correlation between education level and health status. Ross and Mirowsky in their research conclude that there is a positive effect of the length (years) of education with consistent health, arguing that the length of the school year can develop an effective life capacity that will ultimately affect health, including working full-time, being able to carry out work with good, improving welfare, economy, self-control, more social support, and a healthy lifestyle. This argument is based on "Human capital theory and status attainment model". Schools provide general skills, especially those related to cognitive, special skills that are useful for work, social values, behavior and have an important disposition for achieving a goal Higher education teaches people to think more logically and rationally, an issue from various sides so that they can be more perform analysis and solve a problem. In addition, higher education improves the cognitive skills needed to be able to continue learning outside of school [6].

The Seeman-Lewis study and the Seeman Budros study concluded that people who know more about health are more likely to initiate preventive behavior. The knowledge gained can come from formal or informal education. They argue that especially in schools can promote relationships and support equally because it helps partners in understanding each other. This social support can reduce depression, anxiety and psychological stress that affects health. Likewise, social support can be translated, among others, such as the habit of doing social activities such as doing sports activities, participating in anti-smoking movements or peer associations [6].

The research is inversely proportional to research conducted by Wattanakul (2012) and Adwan & Najjar (2013), both studies gave p value > 0.05, indicating that there is no difference in DM self-management behavior between respondents who have a basic education background. , medium, and high [10].

CONCLUSION

Based on the results of the study showed that there was a relationship between the level of education and self-care for DM patients with a p-value of 0.015 (p-value <0.05).

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