

**THE EFFECT OF ATTITUDE, LEVEL OF EDUCATION AND
SUPPORT OF HEALTH PERSONNEL ON THE ABILITY OF
REGULATING DIET PATTERNS IN DIABETES MELLITUS
PATIENTS USING A SELF-CARE THEORY APPROACH**

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Abstract

Diabetes mellitus is a chronic disease of metabolic disorders and hyperglycemia caused by impaired insulin secretion which is characterized by an increase in blood glucose levels exceeding normal limits (70-140 mg/dL). Diabetes mellitus can be caused by several factors, one of which is a poor diet. The purpose of this study was to analyze the effect of attitudes, education level and support of health workers on the ability to manage dietary patterns in diabetes mellitus sufferers using the Self-Care theory approach in Banjarejo Village, Pakis District. The research design used Analytical Observational with Cross-Sectional method. The sample used is 80 respondents using Non Probability Sampling with purposive sampling technique. The variables used are attitude, level of education, support of health workers and ability to manage diet patterns. The process of collecting data using a questionnaire in accordance with the inclusion and exclusion criteria, then data processing is carried out and followed by a statistical test of logistic regression using the help of a computer program. The results of the Logistic Regression Test showed that the variable that had the most influence on the ability to manage dietary patterns was the support of health workers variable with a significance value (p-value) of $0,044 < 0,05$. As a result, it can be seen that health worker support is one of the factors that can affect a person's ability to manage diet patterns, and thus that there is a need for positive health worker support for diabetes mellitus patients in order to increase their ability to manage diet patterns and avoid uncontrolled increases in blood sugar levels or complications.

Keywords: Diabetes Mellitus, Ability to Manage Diet Patterns, Attitudes, Education Level, Health Workers Support

1. INTRODUCTION

As defined by Joan (2014), diabetes mellitus is a condition of metabolic abnormalities and chronic hyperglycemia that is caused by decreased insulin secretion and characterized by an increase in blood glucose levels that exceed the normal limit (70-140 mg/dL). It is extremely crucial to manage dietary patterns in patients with diabetes mellitus in order to avoid complications (Isnaini & Saputra, 2017). In patients with diabetes, though, it was shown that their ability to control their eating habits was severely limited. People with diabetes mellitus have a low ability to manage their eating patterns, which is characterized by high blood glucose levels caused by an unhealthy lifestyles, obesity (overweight), unhealthy food habits, and a lack of physical activity (Kasumayanti & Rahayu, 2019).

Uncontrolled dietary patterns in people with diabetes mellitus can lead to major complications that can lead to serious diseases that affect the heart and blood vessels, eyes,

kidneys, nerves, and teeth (IDF, 2020). According to the WHO Global Report, there were 1.5 million deaths in 2012 due to diabetes mellitus (WHO, 2016). There are (43%) of the 3.7 million deaths occurred before the age of 70 years. In Indonesia based on the results of Riskesdas data in 2018 the prevalence of diabetes mellitus according to the results of the measurement of the age of ≥ 15 years increased to 2%. Meanwhile, according to doctor's diagnosis and educational status, the highest prevalence of diabetes sufferers is college graduates, which is the category of the highest level of education. Based on data from Riskesdas, the 2018 Research and Development Agency in Infodatin (2019), East Java province was on ranks 5th in patients with diabetes mellitus with a total of 2.6% at the age of ≥ 15 years. According to the Central Bureau of Statistics of Malang Regency (2018), the incidence of diabetes mellitus was 2.322 cases. From the results of the preliminary study, data obtained from patients with diabetes mellitus in Banjarejo Village, Pakis District, Malang Regency amounted to 100 sufferers from a population of approximately 5000 people.

The ability of patients with diabetes mellitus to manage their diet pattern can be influenced by the attitudes, education, and support provided by health care professionals who play a critical role in controlling blood glucose levels. Based on the research of Kasumayanti & Rahayu (2019), there is a significant influence between the support of health workers and the diet of people with type 2 diabetes mellitus. Further, beliefs and attitudes as well as personality also affect the ability of patients to implement the diet. Meanwhile, according to research conducted by Kusumawati & Hertinjung (2015) there is a significant influence of the level of education in undergoing a diet in people with type 2 diabetes mellitus. According to the Self-Care theory proposed by Dorothea Orem, that humans basically have the ability to take care of themselves which known as Self-Care Agency. Self-Care Agency can change at any time which is influenced by predisposing factors consisting of knowledge, attitudes, beliefs, education, and work. Second factor is the enabling factor which consists of infrastructure and the distance between health services. While the last factor as a reinforcing factor which consists of the role of family support and the existence of rules (Nursalam, 2016).

Based on the theoretical basis above, the ability to manage diet patterns in people with diabetes mellitus is needed in an effort to prevent an increase in blood glucose levels. In previous studies, the ability to manage the diet pattern of people with diabetes mellitus was influenced by the role of nurses in improving attitudes, personality and beliefs and could also be influenced by the level of education and support of health workers (Kasumayanti & Rahayu, 2019; Kusumawati & Hertinjung, 2015). Besides that, a positive (supportive) attitude toward the diet can help minimize the emergence of acute and chronic complications. Complications and eventually mortality will ensue if the patient does not have a positive attitude toward the diabetes mellitus diet. Education also has an indirect effect on diet patterns. This level of education has an effect on the way of life (lifestyle). Meanwhile, health care professionals provide guidance on how the proper diet for people with diabetes mellitus will affect the diet pattern of people with diabetes mellitus.

The objective of this study is to analyze the effect of attitude, level of education and support of health workers on the ability to manage diet patterns in people with diabetes mellitus using the Self-Care theory approach in Banjarejo Village, Pakis District.

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2. RESEARCH METHOD

Analytical observation and the Cross-Sectional approach were utilized in the study's design. Non-Probability Sampling with Purposive Sampling was utilized to choose 80 respondents from Banjarejo Village, Pakis District, Malang Regency. Attitude, level of education, support from health workers, and the ability to manage nutrition patterns are all considered in the study's research variables. Data collection through a questionnaire with inclusion/exclusion criteria, data processing, followed by a statistical test of Logistics Regression carried out on a computer with the assistance of a program

3. RESULT AND DISCUSSION

3.1. Result of the Research

Table 1. Distribution of Socio-Demographic Characteristics of Diabetes Mellitus Patients in Banjarejo Village, Pakis District

	Characteristics of Respondents	Frequency (n)	Percentage (%)
Age	30-40	6	7.5
	41-51	13	16.3
	52-62	25	31.3
	63-70	36	45.0
Total		80	100.0
Gender	Male	20	25.0
	Female	60	75.0
Total		80	100.0
Education	No school	0	0
	Elementary School/Equivalent	74	92.5
	Junior High School/Equivalent	4	5.0
	Senior High School/Equivalent	4	2.5
	College	0	0
Total		80	100.0
Occupation	Civil Servant	0	0
	Entrepreneur	0	0
	Farmer	22	25.5
	Housewife	58	75.5
Total		80	100.0
The length period of suffering	< 2 years	7	8.8
	2-5 years	20	25.0
	> 6 years	53	66.3
Total		80	100.0

(Source: Research questionnaire primary data, March 2021)

Based on table 1, it shows that most of the respondents are 63-70 years old with a total of 36 respondents. Meanwhile, the majority of people with diabetes mellitus are female, with a total of 60 respondents. Based on education, the majority of people with diabetes mellitus are graduated from elementary school with a total of 74 respondents. Based on occupation, the majority of people with diabetes mellitus work as farmers and housewife with a total of

22 and 58 respondents, respectively. Furthermore, based on the length of suffering, the highest number is in the range of > 6 years with a total of 53 respondents.

Table 2. Distribution of Respondents Based on Attitudes, Education Levels, Support of Health Workers and Diet Patterns for Diabetes Mellitus Patients in Banjarejo Village, Pakis District

Variable	Score for Diabetes Mellitus Patients		
	Classification	Frequency (n)	Percentage (%)
Attitude	Good	73	91.3%
	Less	7	8.8%
Total		80	100.0
Level of education	High	72	97.5%
	Low	8	2.5%
Total		80	100.0
Health worker support	Good	73	91.3%
	Less	7	8.8%
Total		80	100.0
Diet pattern	Good	68	85%
	Less	12	15%
Total		80	100.0

(Source: Research questionnaire primary data, March 2021)

Table 2 shows that the attitude of the respondents is mostly good with a total of 73 respondents. Meanwhile, the level of education that is on average only graduated from elementary school/equivalent with a total of 72 respondents. Most of the support from health workers was in the good category with a total of 73 respondents, as well as data on the ability to manage diet patterns were obtained in the good category with a total of 68 respondents.

Table 3. Result of Variables in the Equation

		Variables in the Equation					
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	Attitude(1)	-,233	1,153	,041	1	,840	,792
	Education level			,573	2	,751	
	Education level(1)	19,179	28420.785	,000	1	,999	213364381,529
	Education level(2)	20,104	28420.785	,000	1	,999	538491058,146
	Health workers(1)	-1,737	,863	4.048	1	,044	,176
	Constant	-19,234	28420.785	,000	1	,999	,000

(Source: Research questionnaire primary data, March 2021)

Based on the table above, the regression model obtained is as follows:

1. The first hypothesis states that attitudes have a negative effect on the ability to manage diet patterns. The test results show that the calculated attitude variable has a negative regression coefficient of -0,233 with a significance level of 0,840 which is greater than (0,05). Therefore, it can be concluded that the attitude variable has no effect on the ability to manage diet patterns or in other words H1 is rejected.

2. The second hypothesis states that the level of education has a positive effect on the ability to manage diet patterns. The test results show that the calculated level of education variable has a negative regression coefficient of 19,179 with a significance level of 0,999 which is greater than (0,05). Hence, it can be concluded that the education level variable has no effect on the ability to manage diet patterns or in other words H2 is rejected.
3. The third hypothesis states that health workers support the ability to manage diet patterns. The test results show that the health worker support variable has a regression coefficient of -1,737 with a significance level of 0,044 which is smaller than (0,05). So, it can be concluded that the health worker support variable has a positive effect on the ability to manage diet patterns or in other words H2 is supported.

4.2. Discussion

4.2.1. The Influence of Attitude on Ability to Manage Diet Pattern

Based on the first hypothesis, it shows that attitude has no significant effect on the ability to manage diet patterns in people with diabetes mellitus. This hypothesis can be proven from the results of logistic regression statistical tests through a computerized program showing the results of a p-value of $0.840 > 0.05$ and a coefficient value of -0.233 where it can be concluded that H1 is rejected or which means that attitudes have no significant effect on the ability to manage diet patterns in people with diabetes mellitus in Banjarejo village, Pakis district.

The results of the significance test in this study are in accordance with and in line with research conducted by Dewi (2013) and Vinti (2015) which states that there is no influence of attitude on the dietary behavior of people with diabetes mellitus. On the other side, the results of this study are not in accordance with Notoatmodjo's theory that a disease can be prevented by health behavior that is supported by good knowledge and attitude towards the disease (Notoatmodjo, 2003). This knowledge and attitude can form certain beliefs so that a person behaves according to these beliefs. A person's attitude can be divided into good and bad attitudes. The good attitude of people with diabetes mellitus towards diet is because they already know and feel the benefits of diet or see the experiences of other people around them to live a healthy life. However, in order for a person's attitude to become a genuine action, there must be other circumstances or conditions.

In Banjarejo Village, Pakis Subdistrict, the average person with diabetes mellitus has a good attitude. This is in accordance with the data from the attitude questionnaire which showed as many as 73 sufferers had a good attitude. The good attitude of diabetics is obtained from the knowledge gained and from the experience they feel while suffering from diabetes mellitus. Besides that, they also get experience from people around who have previously suffered from diabetes mellitus and feel the benefits. Based on the theory put forward by Dorothea Orem, humans basically have the ability to take care of themselves or what is called a Self-Care Agency. Self-Care Agency can change at any time which is influenced by predisposing factors, enabling factors, and motivating factors.

4.2.2. The Effect of Education Level on the Ability to Manage Diet Patterns

Based on the second hypothesis, it shows that the level of education has no significant effect on the ability to manage diet patterns in people with diabetes mellitus. This hypothesis

can be proven from the results of multiple linear regression statistical tests through a computerized program showing the p-value of $0,999 > 0,05$ and the coefficient value of 19,179 where it can be concluded that H1 is rejected or which means that the level of education has no significant effect on the ability to manage diet patterns in people with diabetes mellitus in Banjarejo village, Pakis district.

The results of the significance test in this study are in line with research conducted by Sunarno (2008), Kusumawati & Hertinjung (2015), and Hestiana (2017) on the education variable, there is no relationship between education level and diet management in patients outpatients with type 2 DM. In this study, it was shown that there were more respondents with low education than those with higher education. So, it can be concluded that the proportion of diet management in respondents with low education is higher than respondents with high educational backgrounds. Diet management that is not carried out properly can be caused by the respondent's lack of knowledge about the importance of maintaining a diet in order to avoid the emergence of complications from type 2 DM disease. Knowledge is related to education, because education is a learning process that is able to change a person's behavior to achieve quality of life. Therefore, the higher a person's education, the higher the diet management.

Based on theoretical studies that the higher a person's education will make it easier for that person to obtain information (Soekanto, 2014). Education has a person's absorption of the information received. A person with a good education will be more mature towards the process of change that is in him, so that it is easier to accept positive, objective and open external influences to various information including information about health (Notoatmodjo, 2003).

The level of education is one of the factors that determine the occurrence of behavioral changes, where someone who is highly educated means that he has experienced a longer learning process, in other words, the level of education reflects the intensity of learning. Knowledge about diabetes mellitus diet can be obtained from the respondent's own experience or other sources of information. Although in certain types of formal education knowledge about diabetes mellitus diet is studied, so that the level of education is not a dominant variable on the respondent's ability to detect diabetes mellitus diet. Education level is an indicator that a respondent has taken formal education and a certain field, not an indicator that someone has mastered certain fields of knowledge. Such individuals' ability to manage their dietary patterns is based on their knowledge, attitudes, and actions, which they have gained from personal experience, observation of others, and/or through other sources of information.

As a matter of fact, when compared to the above-mentioned concept of education, this study contradicts the theory that the higher the education, the easier it is to accept the influence of positive, objective, and open information on diverse information, including diabetes mellitus diet information.

4.2.3. The Effect of Health Worker Support on the Ability to Manage Diet Patterns

Based on the third hypothesis, it shows that the support of health workers has a significant effect on the ability to manage diet patterns in people with diabetes mellitus. This hypothesis can be proven from the results of multiple linear regression statistical tests through a computerized program showing the p-value of $0,044 < 0,05$ and the coefficient

value of -1,737 which can be concluded that H_0 is accepted or which means that the support of health workers has a significant effect on the ability to manage diet patterns in people with diabetes mellitus in Banjarejo village, Pakis district.

The results of the significance test in this study are in line with research conducted by Rani (2019) which states that there is an influence between the support of health workers and diet in people with diabetes mellitus.

Furthermore, Niven said that the support of health workers is needed for diet in patients with diabetes mellitus by using communication techniques (Ilmah & Rochmah, 2015; Niven, 2020). The interaction between patients and health workers greatly determines the degree of ability and also failure to convey information has a very bad impact on patient health.

In Banjarejo village, Pakis sub-district, on average, they received good support from health workers. This is in accordance with data from the health worker support questionnaire which showed as many as 73 patients received good health worker support. This is supported by the existence of Posyandu (Integrated Healthcare Center) for the elderly which is held once a month. However, in reality, the Posyandu activities still have no material exposure or lack of counseling to all posyandu members so that the patient's knowledge obtained from health workers is still inadequate. Patients' knowledge is obtained from their own experiences during illness, as well as experiences from people around who have previously experienced or suffered from diabetes mellitus. Therefore, whenever Posyandu activities are held, materials related to disease phenomena that are often experienced by the community should be given so that the community's understanding is wider and the contribution of health workers is conveyed properly. Based on the theory put forward by Dorothea Orem, humans basically have the ability to take care of themselves or what is called a Self-Care Agency. Self-Care Agency can change at any time which is influenced by predisposing factors, enabling factors, and motivating factors. In this case, the support of health workers is included in the driving factor that can increase the enthusiasm of the patient in taking care of himself.

4. CONCLUSION

From the results of research conducted in March 2021 on the Effect of Attitude, Education Level and Support of Health Workers on the Ability to Manage Diet Patterns in Patients with Diabetes Mellitus in Banjarejo Village, Pakis District, Malang Regency, it can be concluded that affects the ability to manage diet patterns is only from the health workers support with the results of the p-value of $0,044 < 0,05$ and the coefficient value is -1,737.

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