

# CORRELATION OF EDUCATION, KNOWLEDGE, AND FAMILY SUPPORT WITH COMPLIANCE PERFORMING ROUTINE CONTROL OF PATIENTS WITH TYPE 2 DM AT KALIORI HEALTH CENTER

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**Abstract:** Diabetes Mellitus sufferers who do not perform with routine control completely will increase the risk of complications and premature death. Education, knowledge, and family support can have an influence in undergoing treatment adherence. The purpose of the study was to analyze the correlation of education, knowledge, and family support with compliance performing routine control of patients with type 2 DM. This is an observational analytic study with a cross-sectional approach using consecutive sampling method. A total of 75 patients with type 2 diabetes mellitus who are receiving treatment at the Kaliori Health Center were performed for the study. The data was obtained from interviews with patients of type 2 diabetes mellitus education, knowledge, and family support. Data analysis was performed using Fisher's Exact. The results showed that there was no correlation between the level of education and knowledge with compliance performing routine control of patients with type 2 DM at the Kaliori Health Center ( $p=0.631$ ,  $p=0.696$ ), and there was a correlation between family support with compliance performing routine control of patients with type 2 DM at the Kaliori Health Center ( $p=0.000$ ). The level of education and knowledge will affect therapy adherence because patients would be able to prevent or treat the disease. Good family support can support patients in growing confidence in their ability to perform self-care. In addition, good family support can also increase and foster a comfort and secure feeling, in order to comply the routine controls.

**Keywords:** education, knowledge, family support, control compliance

## Introduction

Diabetes Mellitus (DM) can cause kidney failure, blindness, heart disease, and even premature death worldwide. According to data obtained from the International Diabetes Federation (IDF), there were 463 million diabetics aged 20-79 years in 2019. Indonesia stands at the 7th most diabetes mellitus patients in the world, which is 10.7 million cases.<sup>1</sup> The Central Java Provincial Health Office recorded that there were 652,822 people suffering from diabetes in 2019.<sup>2</sup> Based on data from the Rembang District Health Office, diabetes was ranked 8th out of the 10 highest diseases in 2015, which is 9,883 cases.<sup>3</sup>

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DM may causes the patient's condition continually to decline over time and recovered possibility, therefore treatment must be carried out during life in order to avoid the risk of complications and even premature death. According to Janti Health Center in Malang City, shows that 93% of DM patients do not have experience in complications due to routine controls adherence, in the form of health services presence, controlling blood glucose, doing sports and planning a calories needed based diet.<sup>4</sup>

In fact, DM sufferers often feel bored of undergoing treatment and at the end, non-compliance often occurs. Non-compliance with treatment occurred in several previous studies, a research conducted at several health centers in Surabaya which stated that approximately 24.5% of DM sufferers did not comply routine controls.<sup>5</sup> In other study conducted at several health centers in Yogyakarta City and Bantul Regency using the Medication Adherence Report Scale (MARS-5) questionnaire, there were approximately 57% of DM sufferers who had a low of treatment adherence level.<sup>6</sup> Many DM sufferers do not comply routine controls due to low awareness about the importance of complying treatment, this is also supported by the low level of education and knowledge of DM sufferers therefore tend to have healthy feeling and only carry out controls when they feel their body has increased blood glucose.<sup>5</sup>

According to Lawrence Green's theory, there are factors that can influence compliance behavior within the individual which is called as predisposing factor. Predisposing factors are the level of education and knowledge. Education can affect habits and knowledge in carrying out healthy living behaviours. Awareness of carrying out routine treatment/control can be influenced by education and knowledge since higher level education and knowledge will affect a person in judging something.<sup>7</sup> DM sufferers who have low knowledge can affect treatment adherence. The lack of knowledge in DM patients is due to the provision of information from health workers about DM disease, which is carried out orally so that the information provided is lacking. Similar to previous research at the Teluk Dalam Health Center in Banjarmasin which showed that 89.3% of respondents with a high level of education obeyed the controls.<sup>8</sup> In other study conducted at the Immanuel Hospital Bandung Polyclinic, it was also shown that 93.3% of respondents who had a good level of knowledge were obedient in undergoing therapy.<sup>9</sup>

In addition, there are external factors that are manifested from the people surrounding that can encourage medication adderence, which are called reinforcing factors. Family support is one of the example of a reinforcing factor.<sup>7</sup> DM patients with good family support will help them improve their ability to take self-care actions and also to increase compliance with DM sufferers in carrying out routine controls.<sup>10</sup> Similar to previous research at the Puskesmas in Surabaya which stated that there were 65.7% of type 2 DM sufferers with good family support who adhered to routine controls.<sup>5</sup>

## **Method**

Analytic observational research with a cross-sectional design was carried out at the Kaliori Health Center in November-December 2021.

A total of 75 type 2 DM sufferers taken using consecutive sampling technique with inclusion criteria are: members of Prolanis at the Kaliori Health Center, aged > 40 years, lived together with their

families in the same house, and were willing to be respondents. The exclusion criteria are DM sufferers who has an experience of complications.

The data collected using primary data by questionnaire instrument and secondary data by control visits rescored in the last 2 months. The data obtained were analyzed by Fisher's Exact test.

## **Results**

### *Univariate Analysis*

*Table 1. Characteristics of respondents*

Characteristics of respondents	Frequency	Percentage
<b>Age</b>		
Late adulthood (40-45 years)	9	12.0%
Early elderly (46-55 years)	27	36.0%
Late elderly (56-65 years)	31	41.3%
Seniors (>65 years)	8	10.7%
<b>Gender</b>		
Man	11	14.7%
Woman	64	85.3%
<b>Marital status</b>		
Married	75	100.0%
Not married yet	0	0.0%
<b>Work</b>		
Work	63	84.0%
Doesn't work	12	16.0%
<b>last education</b>		
No school	26	34.7%
SD	37	49.3%
JUNIOR HIGH SCHOOL	6	8.0%
SENIOR HIGH SCHOOL	5	6.7%
College	1	1.3%
<b>Knowledge of DMs</b>		
Tall	2	2.7%
Currently	6	8.0%
Low	67	89.3%
<b>Family support</b>		
Good	68	90.7%

Enough	5	6.7%
Not enough	2	2.7%
<hr/>		
control compliance		
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obey	64	85.3%
Not obey	11	14.7%

Based on table 1, most of the respondents are in the range of 56-65 years with, 31 respondents (41.3%). The majority of respondents were female, which is 64 respondents (85.3%). All respondents were married, with 75 respondents (100.0%). The majority of respondents as a worker, which is 63 respondents (84.0%). The most recent education in this study was elementary school, which is 37 respondents (49.3%) and the least recent education was tertiary education, which is 1 respondent (1.3%). The majority of respondents' level of knowledge about DM is low, which is 67 respondents (89.3%). The majority of respondents in the study received good family support by 68 respondents (90.7%). The majority of respondents adhered to routine control over the last 2 months, namely 64 respondents (85.3%).

**Bivariate Analysis**

Table 2. Results of cross-tabulation of education, knowledge, and family support with adherence to routine control

		control compliance				$\rho$ values
		obey		Not obey		
		F	%	F	%	
last education	No school	23	88.5	3	11.5	0.631 ¥
	SD	29	78.4	8	21,6	
	JUNIOR HIGH SCHOOL	6	100.0	0	0.0	
	SENIOR HIGH SCHOOL	5	100.0	0	0.0	
	College	1	100.0	0	0.0	
Knowledge of DM	Tall	2	100.0	0	0.0	0.696 ¥
	Currently	6	100.0	0	0.0	
	Low	56	83.6	11	16,4	
Family support	Good	62	91.2	6	8,8	0.000 ¥
	Enough	1	20.0	4	80.0	
	Not enough	1	50.0	1	50.0	

**Discussion**

Some type 2 DM sufferers at the Kaliori Health Center not compliant DM treatment/control every month which includes checking blood glucose levels, planning diets, taking medication, and conducting counseling about diabetes. Diabetes Mellitus sufferers who do not comply routine control

will increase the risk of complications and even premature death .1 Non-compliance with routine control was also found in some studies at several Community Health Centers in Surabaya. This non-compliance is because DM sufferers have less awareness about the importance of complying routine controls, as they do not have uncomfortable feeling and only carry out controls when having increased blood glucose symptoms such as frequent thirst (polydipsia), frequent urination at night (polyuria), often feel hungry (polyphagia), itching, tingling, etc.5

In this study the number of respondents with the last education did not go to school more than the respondents with the last tertiary education. Fisher`s exact test results showed that there was no correlation between education level and routine control adherence in type 2 DM patients. Similar research at the University of North Sumatra Hospital in Medan City, recent education had nothing to do with compliance in type 2 DM sufferers. Based on the theory that there are people who have higher education, it will increase compliance in carrying out routine controls. However it cannot be denied that there are people with a higher education level who are ignoring health problems for various reasons, for example because of work.11 In contrast, a research at the Teluk Dalam Health Center in Banjarmasin stated that education level had a correlation with adherence to routine controls.8

In this study, the number of type 2 DM sufferers at the Kaliori Health Center who had high knowledge of DM was less than the respondents with low knowledge. Based on the Fisher`s Exact test, there is no correlation between the level of knowledge and adherence to routine control in patients with type 2 DM. A study conducted at the University of North Sumatra Hospital in Medan City, exhibited consistently, that the level of knowledge had nothing to do with compliance with DM sufferers.11 Several studies showed different results, they are research at Sukoharjo Hospital which states that between the level of knowledge and compliance in Diabetes Mellitus patients Type 2 has a correlation.12

The level of education and knowledge will affect therapy adherenc, since it is able to prevent or treat the disease. Knowledge can influence the disease understanding and therapy that is being carried out, therefore it may increase the maintaining health awareness. In accordance with the results of this study, type 2 DM sufferers who have a high level of education and have high knowledge of DM are all obedient to routine control. However, it cannot be denied that people with high education and knowledge can ignore the treatment that is being carried out. This is influenced by several reasons, which are : the majority of DM sufferers as a worker so they have limited time to carry out routine treatment, the bored feeling of having too many drugs to take, and lack of self-motivation to recover, may also affect non-compliance with treatment.11 , 12 , 13

Compliance routine control can also be influenced by external factors, for example family support. In this study, there were fewer people with type 2 DM with low family support than those with good family support. Based on the Fisher`s Exact test result, a correlation was found between family support and routine control adherence in type 2 DM patients. Similar to research at Blud Rsuza Banda Aceh, conducted at type 2 DM patients with concluded that family support has a significant correlation with undergoing treatment adherence.10 One study conducted at the Teluk Dalam Health Center in Banjarmasin exhibition that family support is much important, and adherence to control has a correlation with a PR value of 3.5, which means that someone who gets less family support has a 3.5 times risk of not complying routine controls.8

The family is the closest unit to the patient who can play a role in determining education or teachings in caring for patients at home.<sup>14</sup> Family members can do a number of things to support them in undergoing treatment, for example by reminding them to control, take medication, exercise, and eat regularly, provide assistance by providing time, provide information needed, encourage sufferers to continue to seek knowledge, encourage adherence to treatment, as well as changing lifestyles to be healthier so as to control the disease. Good family support can support patients in growing confidence in their ability to perform self-care. In addition, good family support can also increase and foster feelings of comfort and safety so that patients comply routine controls.<sup>10, 15</sup>

Family plays an important role to support the healing of family members.<sup>5</sup> In this study, there were several respondents have good family support but did not comply with routine control, arguing that DM sufferers were afraid of being infected with the Covid-19 virus, considering that DM is a comorbidity that ranks second after hypertension as a risk factor for positive cases and deaths. due to Covid-19.<sup>16</sup> On the other hand, there were also respondents who received less family support but adhered to routine controls, this was due to the high motivation of the respondents to recover from their illness.<sup>5</sup>

## Conclusion

In this study it was concluded that there was no correlation between level of education and knowledge with adherence to routine control of type 2 DM patients at the Kaliori Health Center and there was a correlation between family support and adherence to routine control of type 2 DM sufferers at the Kaliori Health Center.

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