



An Analysis of Knowledge. Attitude. Family Support. and Compliances of Taking Drugs Towards Diabetes Mellitus Type II in Sleman. Special Region of Yogyakarta

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Abstract

Diabetes mellitus has quickly become one of the most common non-communicable diseases globally. According to the Health Centre Integrated Disease Surveillance Report of Yogyakarta Province in 2017 there were 8.321 cases of diabetes and the results showed that DM was the number 4 most common disease in DIY in 2017 with 152 deaths. The purpose of this study was to analyze knowledge. attitudes. family support. and compliances of taking medication towards diabetes mellitus Type II in Sleman. Special Region of Yogyakarta. This research was a quantitative study with a cross sectional approach. The research sample consisted of 119 simple random sampling techniques. This research instrument used a questionnaire. The analysis in this study used Path Analysis. The results showed that there was a direct effect of knowledge on blood glucose levels with a path coefficient of 0.193 ($p = 0.031 < 0.05$). There is an influence of attitudes towards blood glucose levels with a path coefficient of 0.203 ($p = 0.019 < 0.05$). The community needs to adopt a healthy lifestyle. the health office and the local government need to conduct health education (KIE) in a comprehensive manner.

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INTRODUCTION

Diabetes mellitus is defined as a chronic disease that results from a lack of insulin secreted by the pancreas or ineffective in using insulin hormone. The World Health Organization predicts that there will be an increase in the number of diabetics from 135 million in 1995 to 300 million in 2025. The highest increase is predicted to occur in the Asian Continent (Zahra et al., 2016)

According to *Riskesdas* in 2016, Indonesia ranks seventh in the world with the highest diabetes mellitus sufferers after China, India, the United States, Brazil, Russia with the prevalence of people with diabetes in Indonesia showing an increasing trend of 5.7% in 2007 to 6.9% in 2016.

Patients with type 2 diabetes mellitus are increase because of an unhealthy lifestyle. Frequent consumption of fast food is likely to have high calorie levels. Many people with diabetes mellitus have not yet realized that they have diabetes mellitus so the sufferer is late for controlling blood glucose levels and eventually experiencing complications or even realizing that having diabetes but they consider that disease can be cured immediately in one examination. If this is not immediately addressed, complications of diabetes mellitus will arise (Wardani and Isfandiari, 2014)

Based on the results of *Riskesdas* in 2017, Diabetes Mellitus is ranked number four in non-communicable diseases and there is an increase in the prevalence of DM along with increasing age and decreasing at the age of 65 years. This certainly can have a negative impact, because DM is mostly suffered by people who are in productive age. In addition, DM also affects the incidence of

new diseases such as heart failure and kidney failure, blindness, vascular and nerve abnormalities, strokes and various other complications (Yogyakarta Health Office, 2017).

According to the Health Centre Integrated Disease Surveillance Report of Yogyakarta Province in 2017 there were 8.321 cases of diabetes. Whereas based on the hospital Health Centre Integrated Disease Surveillance Report, the number of cases and grouping of diabetes were specific DM (11.254), insulin dependent DM (6.571), Other unspecific DM (904), Insulin dependent DM (1.817), DM related to malnutrition (185). The results of Health Centre Integrated Disease Surveillance Report shows that DM is the number 4 disease in DIY in 2017 with 8.321 cases (DIY Health Office, 2017)

The purpose of this study was to analyze knowledge, attitudes, family support and compliances of taking medication towards blood glucose levels of diabetes mellitus type II in Sleman, Yogyakarta

METHOD

The study was conducted using a cross sectional approach. The population of outpatients who joined Chronic Disease Management Program in Sleman, Yogyakarta was 530. The sample in this study was obtained by calculating using the *Slovin* formula, the result of calculation was 119 samples using a simple random side technique. Independent variables are knowledge, attitude, family support and compliances of taking medication, while dependent variable is blood glucose level. This research used *path analysis* technique.

RESULT AND DISCUSSION

Table 1 . Descriptive Analysis Distribution of Frequency of Characteristics of Respondents in Patients with Type II Diabetes Mellitus in Sleman. Yogyakarta

Characteristics	Category	Total	Percentage
Sex	Male	37	31.1
	Female	82	68.9
Age	36-45	8	6.7
	46-55	28	23.5
	56-65	54	45.4
	>65	29	24.4
Occupation	Civil Servants	13	10.9
	Private Employees	2	1.7
	Entrepreneur	23	19.3
	House Wife	62	52.1
	Labor	4	3.4
	Farmer	4	3.4
	Retired	11	9.2

Based on Table 1 shows that the characteristics of respondents in the Sleman. Yogyakarta based on the sex of the respondents were female with the number 82 (68.9%) and respondents who were male with the number 37 (31.1%). Most age of the respondents are in the age range of 56-65 years. amounting to 54 respondents (45.4%) while the least in the age range of 36-45 years is 8 respondents (6.7%). Most respondents were housewife with the number of 62 respondents (52.1%) while the least were private employees with the number of 2 respondents (1.7%).

Table 2. Distribution of Respondents Based on Knowledge. Attitudes. Family Support. Compliances taking drugs and Blood Glucose Levels

Category	Total	Percentage
Knowledge		
Good	100	84
Sufficient	19	16
Poor	0	0.0
Attitude		
Good	98	82.4
Sufficient	17	14.3
Poor	4	3.4%
Family Support		
Good	83	69.7
Sufficient	34	28.6
Poor	2	1.7
Compliances of taking medicine		
Obedient	91	76.5
Disobedient	28	23.5
Blood Glucose Level		
Controlled	68	57.1
Uncontrolled	51	42.9

From the total of the 119 respondents. they are divided 100 respondents (84%) had good categorical knowledge and no respondents had poor knowledge. It is known that the respondents in the Sleman. Yogyakarta said shows that 98 respondents (82.4%) had a good attitude. while respondents who had a bad attitude were 4 respondents (3.4%). From the category of family support shows that 83 respondents (69.7%) had good family support and respondents who had poor family support were 2 respondents (1.7%).

There are 91 respondents (76.5%) are obedient to take drugs in and 28 respondents (23.5%) are disobedient. While. it was found out those respondents that is indicated controlled

blood glucose level are 68 respondents (57.1%) and 51 respondents (42.9) in the uncontrolled category.

Table 3. Path Analysis Tables 1 Effect of Knowledge. Attitudes. Family Support on Compliance with Medication

Variable	Regression Coefficient	t _{value}	Sig t
Konstanta	-0.023		
Pengetahuan (X1)	0.132	3.633	0.000
Sikap (X2)	0.106	3.424	0.001
Dukungan Keluarga (X3)	0.101	3.433	0.001
R Square	0.406		
R	0.637		

Dependent Variable: Compliances taking Medication (X4). Based on table 3 the results of the test analysis of the influence of knowledge (X1). attitude (X2). family support (X3) and affect of compliances in taking medication (X4).

The results of *path* analysis shows that knowledge is proven to influence blood glucose levels through compliance with *path* coefficients of 0.065 with a total effect of 0.253. then the fifth hypothesis states "knowledge influences blood glucose level of Diabetes Mellitus Type II for respondents who join Chronic Disease Management Program in Sleman. Yogyakarta through compliances as an intervening variable " is accepted. Based on the research conducted by Rahmadiliyani and Abi Muhlisin (2008). there is a significant correlation between knowledge about disease and complications in DM patients by controlling blood glucose levels.

Based on the path analysis results showed that attitudes proved to have a direct effect on

blood glucose levels with a *path coefficient* of 0.203 ($p = 0.019 < 0.05$). then the second hypothesis stated "Attitudes influence blood glucose levels in Diabetes Mellitus type II in respondents who join Chronic Disease Management Program in Sleman. Yogyakarta is Accepted. In line with the research of Muhibuddin et al (2016). the relationship between knowledge and attitudes with controlled blood sugar levels $p = 0.001$ (37%) in controlling blood sugar levels in patients with type II Diabetes Mellitus was influenced by factors of knowledge and attitude.

Attitude is a person's mental and nerve readiness which is regulated through experience. so it provide a dynamic or directed influence on one's response to objects and situations related to it (Widayatun. 2009). Attitude is a form of evaluation or reaction of one's feelings (Azwar. 2016). The research from Rathod Gunvanti et al (2014) research shows that some respondents had a bad attitude (65%).

Based on the results of *path* analysis showed that family support proved to have a direct effect on blood glucose levels with a *path* coefficient of 0.217 ($p = 0.012 < 0.05$). then the third hypothesis stated "Family support affects blood glucose levels in Diabetes Mellitus type II is accepted.

In line with the research of Rosland et al (2011) which reviewed various studies on family support for chronic diseases including DM. mentioning that family support can affect the health of patients with chronic diseases. Good communication patterns and family coping mechanisms can increase the motivation of clients to always maintain their health.

Reinforced Research comes from Tamara et al (2014) states that there is a relationship between family support and quality of life for patients with DM Type II in Arifin Achmad Hospital. Riau Province. Family support is very petrified for DM type 2 patients to be able to increase their confidence in their ability to carry out self-care actions.

Prantika Research (2016). on her research with the Spearman rho test found the results of the majority of the roles of underactive families with high glucose levels of 24 (66.6%) with significant values.

Table 4. Path II Analysis Tables Effect of Knowledge. Attitudes. Family Support and Compliances in Taking Medication to Blood Glucose Levels

Variable	Regression Coefficient	t _{value}	Sig t
Constanta	440.148		
Knowledge (X1)	-32.929	-2.263	0.026
Attitude (X2)	-29.533	-2.388	0.019
Family Support (X3)	-29.819	-2.547	0.012
Compliances of taking medicine (X4)	-83.870	-2.363	0.020
<i>R Square</i>	0.398		
R	0.631		

Dependent Variable: Blood Glucose Level (Y). Based on table 4 the knowledge variable (X1). attitude (X2). Family support (X3). and compliances of taking medication (X4) affect the blood glucose level (Y).

Based on the results of *path* analysis. it was shown that knowledge proved to have a direct

effect on blood glucose levels with a path coefficient of 0.193 ($p = 0.031 < 0.05$). the first hypothesis stated "Knowledge influences blood glucose levels in Diabetes Mellitus type II patients in Sleman. Yogyakarta is accepted.

The results of the study showed that out of 119 respondents no respondent had poor knowledge. while respondents with good knowledge were 100 respondents (84%). Their education background are mostly graduated from high school (53.8%) and those who graduated from tertiary education (19.6%). it will clearly affect the level of knowledge about blood glucose levels in DM type II patients. in Sleman. In line with the Perdana et al (2013) study. there was a relationship between the level of knowledge about DM disease and control of blood glucose levels. The better the level of knowledge of DM patients about DM. the more controllable their blood glucose levels are.

Maina et al (2010) study showed only 575 (29%) respondents had good knowledge about the signs and symptoms of diabetes while 1407 (71%) respondents had poor knowledge about diabetes. Dewi Rosita's research (2013) showed that there was no significant correlation between diet knowledge ($p = 0.163$) and blood glucose levels.

According to Notoatmodjo (2007). the knowledge approach through health promotion is an effort to prevent the most appropriate health problems to change people's behavior. knowledge of individual health efforts to maintain one's own health. improve and enhance health value. and prevent disease. In this study it was found that respondents' knowledge was included in the good category.

Based on *path* analysis results show that attitudes are proven to influence blood glucose levels through compliances with path coefficients of 0.061. with a total effect of 0.264 then the fifth hypothesis which reads "Attitudes influence the blood glucose level of DM type II in respondents who joined *Chronic Disease Management Program* in Sleman Yogyakarta through compliances as a variable intervening" is accepted. In line with the research conducted by Phitri & Widiyaningsih (2013). the results of the study showed that there was a relationship between attitude and compliances of to diabetic mellitus in RSUD AM. Parikesit East Kalimantan. Research by Widodo (2016) showed that there is a relationship of compliances in taking anti-diabetic drugs with blood sugar levels. A controlled blood glucose that have a significant relationship is the level of compliances in taking anti-diabetic drugs in the high category. $p = 0.022$.

. Path analysis shows that family support influence blood glucose levels through compliance with a path coefficient of 0.061 with total effect of 0.278. In connection with the direct effect is greater than indirect influence. the seventh hypothesis which states family support influences the blood glucose levels of DM type II who joined Chronic Disease Management Program in the Sleman DIY region through medication obedience as an intervening variable was accepted.

The results of bivariate analysis showed that there was a significant relationship between family roles and blood glucose levels in patients with diabetes mellitus ($p < 0.05$). Based on the results of the study found the role of the family has a role in controlling blood glucose levels. (Putri et al., 2013)

It is strengthened by the theory of Kristyaningsih (2011). family is a factor that influences a person's health and beliefs. Family support is an important aspect of a family. because the effects of family support on health and well-being function simultaneously and the large participation of families in providing support will lead to good coping for other members of the family.

Based on the results of path analysis showed that compliances was shown to have a direct effect on blood glucose levels with a path coefficient of 0.223 ($p = 0.020 < 0.05$). then the fourth hypothesis stated "Compliance with taking drugs has an effect on blood glucose levels in DM type II participants in the Sleman region. DIY is accepted. In line with the results of the study of Salistyaningsih et al (2011) showed that there was a significant relationship between patients who were obedient and disobedient in drinking OHO with blood glucose levels of DM type 2 patients. for instance. patients who were obedient had normal blood glucose levels and disobedient patients had high blood glucose levels.

Awodele O. & Jemeela A. (2015) research. explained that there was a significant relationship between patient age, gender and adherence to treatment. Health education and counseling result in a level of compliance and improvement of clinical parameters.

Good and correct treatment therapy if supported by compliances of taking medication patient will be very beneficial for the patient itself. both in terms of health and costs that must be spent. Compliance of patients in taking medicine is important especially for patients who have to take drugs for a long time for Diabetes Melitus disease.

Therefore. the efficiency and effectiveness of compliance with drug use are important factors to consider (Rochana. 2009).

CONCLUSION

Based on the results of research conducted in the Sleman region. Yogyakarta can be concluded 1) Knowledge of DM patients directly affects blood glucose levels 2) The attitude of people with DM directly affects blood glucose levels 3) Family support for DM patients directly affects blood glucose levels 4) Compliance of taking DM drugs directly affects blood glucose levels 5) The amount of knowledge contribution (X1) influences blood glucose levels through compliances to take medication (X4) positively and significantly 6) The amount of attitude contribution (X2) through medication compliances (X4) indirectly effect the blood glucose levels of 26.4% 7) The amount of contribution of family support (X3) has an effect on blood glucose levels through compliances of taking medication (X4) positively and significantly by 27.8%.

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