



The Effect of Counseling on Knowledge and Compliance of Patient with Diabetes Mellitus at Wates Public Health Center of Pringsewu

Mida Pratiwi^{*1)}; Wiwi Febriani¹; Desti Ambarwati¹

¹⁾ Universitas Aisyah Pringsewu

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ABSTRACT

Diabetes mellitus (DM) is a chronic metabolic disease characterized by increased glucose levels in the blood. Doing counseling is one way to increase knowledge, patient compliance, and achieve optimal health. Lack of knowledge and patient non-compliance with treatment resulted in problems in improving the condition of patients with diabetes mellitus. The objective of this study was to determine the effect of counseling on the knowledge and compliance of patients with diabetes mellitus. This study was an observational study by using a quasi-experimental method with pre and post control groups to see the level of patient knowledge and assess the effectiveness of therapy as seen by the decrease in blood sugar levels of patients with diabetes mellitus at the Wates Public Health Center of Pringsewu from January to March 2021 with a study sample of 54 patients. The results showed that counseling can increase knowledge and compliance in diabetic patients with a p-value < 0.05, which means that there is a significant difference. This research was given counseling by pharmacists and nutritionists to increase knowledge and compliance of patients with diabetes mellitus and improve blood glucose control in diabetic patients at Wates Public Health Center of Pringsewu.



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Kata kunci:

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^{*}) corresponding author

Mida Pratiwi

Bachelor of Pharmacy Study Program,
Health Faculty, Universitas Aisyah
Pringsewu

Email: midapратиwi28@gmail.com

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ABSTRAK

Diabetes mellitus (DM) merupakan penyakit metabolik kronis yang ditandai dengan peningkatan kadar glukosa dalam darah. Konseling merupakan salah satu cara untuk meningkatkan pengetahuan, kepatuhan pasien dan mewujudkan kesehatan yang optimal. Pengetahuan yang kurang dan ketidakpatuhan pasien terhadap pengobatan mengakibatkan permasalahan dalam perbaikan kondisi pasien diabetes melitus. Tujuan penelitian ini adalah untuk mengetahui pengaruh konseling terhadap pengetahuan dan kepatuhan pasien diabetes mellitus. Penelitian ini bersifat observasional dengan menggunakan metode quasi eksperimental dengan pre dan post control group untuk melihat tingkat pengetahuan pasien dan menilai efektivitas terapi yang dilihat dari penurunan kadar gula darah pasien diabetes mellitus di Puskesmas Wates Pringsewu pada bulan Januari-Maret 2021 dengan sampel penelitian sebanyak 54 pasien. Hasil penelitian menunjukkan bahwa pemberian konseling dapat meningkatkan pengetahuan dan kepatuhan pada pasien diabetes dengan p value <0.05 yang artinya terdapat perbedaan bermakna. Penelitian ini adalah pemberian konseling yang dilakukan oleh farmasis dan ahli gizi dapat meningkatkan pengetahuan dan kepatuhan pasien diabetes melitus dan meningkatkan terkontrolnya glukosa darah sewaktu pada pasien diabetes di Puskesmas Wates Pringsewu.



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INTRODUCTION

Diabetes mellitus is a chronic disease in which there are limitations in physical, psychological, or cognitive abilities in carrying out daily functions or conditions that require treatment for several months (World Health Organization, 2003). The International Diabetes Federation (IDF) reported that the number of patients with Diabetes Mellitus globally in 2017 reached 425 million adults aged between 20-79 years. Indonesia is currently ranked 6th in the world with 10,3 million people with diabetes. Based on the results of the 2018 Basic Health Research (Riskesdas), the prevalence of people with diabetes rose to 8.5% from 6.9% (Fowler M.J., 2008). Diabetes Mellitus was a group of metabolic diseases characterized by hyperglycemia that occurs due to abnormalities in insulin secretion, insulin performance or both (Koda-Kimble et al., 2013). Chronic hyperglycemia from diabetes was related to long-term damage, dysfunction, and failure of various organs of the body, especially the eyes, kidneys, nerves, heart, and blood vessels. The condition of increased blood sugar levels or hyperglycemia in uncontrolled diabetes mellitus can cause serious disorders in the body system, especially nerves and blood vessels (Dipiro et al., 2009).

The most important treatment for diabetes, apart from taking the medication regularly, is also necessary to change lifestyles, especially regulating a healthy and balanced diet, the implementation of a diet was one of the main components in the success of diabetes management, but it was often an obstacle in diabetes services because it requires compliance and motivation of the patient himself (Hatterje, et al., 2018). Nutritional therapy was a major component of successful diabetes management. Patient compliance to the principles of nutrition and medication is one of the obstacles in diabetic patients (Friedman, Bowden, and Jones., 2010). Non-compliance with the use or use of oral antidiabetic drugs in patients can lead to complications and worsening of the patient's condition so that it can increase the morbidity and even death of diabetic patients. Compliance in taking medication plays an important role in maintaining blood glucose levels within normal ranges and achieving treatment goals. Non-compliance in taking medication can be affected because the patient does not know in detail about the disease, the rules of use and the patient's lifestyle. In addition to obesity, other risk factors that play a role in the occurrence of diabetes, among others; genetics, age, lack of physical activity and an unbalanced diet that trigger obesity. A diet in the form of high-energy and high-fat food intake without being accompanied by regular physical activity will change the energy balance by storing energy as stored fat that is rarely used. Excessive energy intake will increase insulin resistance even though there has not been a significant weight gain (Hatterje et al., 2018). One of the main factors in the failure of therapy was non-compliance with planned therapy, so one important effort to improve patient compliance with therapy was education or counseling that is complete, accurate, and structured about the therapy (Tambayong., 2002). The existence of counseling for diabetic patients is important regarding treatment and lifestyle to achieve effective and efficient treatment (Herlena., 2013). Providing counseling to diabetic patients was expected to have sufficient knowledge which can then change attitudes and behavior so that it was expected to control disease conditions and blood sugar levels and can improve their life quality (Bosenbergh and Van., 2008).

Based on the frequency of patient arrivals every month controlling blood sugar and treating the level of knowledge

and compliance of patients with diabetes mellitus at the Wates Public Health Center needs to be improved properly. The study result which was conducted at the Dr. Mintohardjo Naval Hospital, Central Jakarta, stated that of 26 people (86.67%) carrying out diet therapy who did not comply showed sugar levels above normal (200 mg/dl), and some of the respondents, namely 19 people (63.34%) had controlled fasting sugar levels (Notoadmodjo., 2003). The results of the Diabetes Control and Complication Trial (DCCT) showed that good diabetes mellitus control can reduce chronic complications of Diabetes Mellitus by between 20-30% (Febriyanti, 2007), stated that there was a significant correlation between the level of knowledge and the attitude of patient compliance in undergoing diet therapy for diabetes mellitus (Wild S et al., 2004). This study aims to see and determine the effect of counseling on knowledge and compliance in taking medication using the knowledge instrument, Morisky and pill count on blood glucose levels in patients with diabetes mellitus at the Wates Public Health Center of Pringsewu.

METHOD

Research Design

This study was experimental research using a quasi experiment with a pre and post control group design to determine the level of knowledge and patient compliance and to assess the effectiveness of therapy as seen from the decrease in blood sugar levels in patients with diabetes mellitus. The quasi method was chosen because its implementation did not use random assignment to continue existing groups. Sampling was carried out using the Consecutive Sample method or according to the size of the sampling time, namely from January to March 2021. The data were taken by using questionnaires and interviews with patients and their families regarding knowledge and adherence to taking oral diabetes medication. The data analysis used Statistical Product and Service Solutions (SPSS) with univariate and bivariate analysis by using descriptive and correlative statistical tests.

Research Site

The study location will be carried out at the Outpatient and Prolanis Polyclinic at the Wates Public Health Center of Pringsewu. The location of this study was chosen because of the high incidence and morbidity of patients in Pringsewu. On Friday morning, the Wates Public Health Center of Pringsewu held gymnastics for elderly patients and diabetic patients, when the diabetic patient was exercising and including the study, the researcher would check blood sugar levels and provide counseling by the researcher.

Population and Sample

The samples taken in this study were patients with diabetes mellitus who received outpatient treatment at the Wates Public Health Center from January to March 2021. The researcher determined the number of samples in this study by using Lameshow's calculations and obtained a minimum result of 28 samples with a 95% confidence interval. The patients who complete the inclusion criteria are willing to take part in the study, get counseling, carry out examinations and receive regular treatment. In this study, there were 56

patients. Data collection began by looking at the knowledge, compliance, and blood sugar levels of patients before counseling and after counseling by conducting an assessment of questionnaires filled out by the research sample (diabetes mellitus patients).

Research Instrument

The instrument used was a pretest-posttest questionnaire on aspects of knowledge, behavior, and patient compliance according to the self-medicating counseling protocol, knowledge score table, compliance score table, and patient pill count. Questions related to patient knowledge and compliance through questionnaires that must be filled out by respondents or research samples honestly and pill counts or the number of drugs available in patients to determine the number and composition of drugs available in diabetic patients.

Data Analysis

The analysis in this study aimed to provide an overview and explanation of the respondents' characteristics and the effect of counseling on knowledge and compliance in taking medication for patients with diabetes mellitus at the Wates Public Health Center of Pringsewu. The characteristics of the patients in this study included age, gender and education of diabetes mellitus patients at the Wates Public Health Center of Pringsewu. The statistical test used in this analysis is univariate using one variable and bivariate using two or

more variables. Bivariate data analysis in this study used the application of Statistical Product and Service Solutions (SPSS) with Paired Sample T-Test, ANOVA and chi square tests to determine the effect and correlation between counseling on knowledge and compliance of diabetes mellitus patients to their blood glucose levels.

RESULT AND DISCUSSION

The samples taken in this study were patients with type 2 diabetes mellitus who were treated at the Wates Public Health Center of Pringsewu and received oral antidiabetic therapy. At the beginning of the study, patients with diabetes mellitus received a questionnaire to determine the knowledge level and patient compliance as a baseline or pretest. After getting the initial results, the researchers conducted counseling about diet, treatment, and complications that could occur if they did not comply with the consumption of diabetes mellitus drug treatment. The results of this study obtained a sample of 56 patients who get treatment at the Wates Public Health Center of Pringsewu and follow the prolanis program every Friday morning. After receiving three counseling sessions from the researcher, the sample in this study filled out questionnaires related to knowledge and adherence to obtain the final results as a result of the intervention given as a posttest. The following is a questionnaire to determine the knowledge given to respondents in the study:

Table 1.
Questionnaire of Knowledge in Patient with Diabetes

No.	Statements	True	False
1.	Diabetes mellitus is a disorder of glucose metabolism in the body so that sugar levels in the body become high.		
2.	A good blood sugar level is more than 200 mg/dl		
3.	Signs or symptoms of diabetes mellitus are usually easy to hunger, thirsty and want to urinate more often		
4.	A good blood sugar level is less than 200 mg/dl		
5.	Granulated sugar, palm sugar, condensed milk, sweet cakes, dodol, fried foods, salted fish, fast foods, and foods containing preservatives can be consumed by diabetic patients		
6.	Rice, bread, noodles, potatoes, cassava, sweet potato and sago, tempeh, tofu and beans in certain and easily digestible quantities should be limited for patients with diabetes mellitus.		
7.	Diabetics must eat according to a schedule, namely 3 main meals, and 3 interlude meals at 3-hour intervals. In the morning, from 06.00-07.00, in the afternoon from 12.00-13.00, and in the evening from 18.00-19.00.		
8.	Kale, leaf beans, oyong, cucumber, tomato, water pumpkin, cauliflower, mustard greens, lettuce, celery, eggplant are recommended vegetables that are high in fiber for diabetics.		
9.	Patients with diabetes if they do not take medication regularly and do not maintain their diet will be susceptible to complications such as heart disease, stroke, hypertension, etc.		

The questionnaire in table 1 will be given by the researchers to respondents for determining the knowledge level of patients with diabetes mellitus. The patients with diabetes mellitus who were willing to be sampled in the study or respondents before being given counseling filled out the questionnaire. In the knowledge questionnaire by answering true or false, the researcher will know the knowledge of diabetes patients related to their disease and lifestyle. After the respondent fills out the knowledge questionnaire, then they will get counseling related to the

disease, treatment, and lifestyle modification of diabetic patients in order to increase the patient's knowledge. After receiving counseling, the patient was checked for blood sugar levels at any time and will be checked again after receiving counseling for three meetings with the researchers. In addition to knowledge questionnaires, researchers looked at patient compliance by distributing questionnaires that had to be filled out by respondents as well. The compliance questionnaires made by researchers to be given to patients are as follows:

Table 2.
Questionnaire of Patient Compliance

No.	Questions	Yes	No
1.	Do you sometimes forget to take your medicine?		
2.	Do you sometimes forget to take your medicine for some reason other than forgetting? For example, in the last 2 weeks, have you never taken medication?		
3.	Have you ever cut back or stopped taking your medication because you felt it got worse after taking the medication?		
4.	Do you sometimes forget to take your medicine with you when you travel or leave the house?		
5.	Did you take medicine yesterday?		
6.	Did you stop taking the medicine when your condition got better?		
7.	Taking medicine every day sometimes makes people uncomfortable. Have you ever had trouble sticking to your treatment plan?		
	How often do you have difficulty remembering to take medication?		
8.	a. Very rarely/never b. once in a while c. Sometimes d. Usually e. Often/always		

In table 2, it can be seen that the questionnaire will be given by researchers to respondents for determining the level of compliance of diabetes mellitus patients. Patients with diabetes mellitus who were willing to be sampled in the study or respondents before being given counseling filled out the questionnaire. In the compliance questionnaire by answering yes or no by the respondent, the researcher will know the compliance of diabetes patients with regard to the treatment of diabetes mellitus. After the respondent fills out the compliance questionnaire, they will then receive counseling related to disease, treatment, and lifestyle modification of diabetic patients in order to improve patient compliance. After receiving counseling, the patient was checked for blood sugar levels at any time and will be checked again after receiving counseling for three meetings with the researchers. The first meeting between the researcher and the respondent is to provide direction and understanding regarding the course of the research so that the respondent knows the purpose of the study and so that

the patient knows the intervention that will be carried out by the researcher at the time of the study. Besides the questionnaire above, researchers will also look at patient compliance by using the pill count method by calculating the remaining medication the patient gets during therapy or during treatment of the patient with the assistance of the patient's family. The pill count method was often used to see the level of patient compliance during treatment because it was cheap, easy, and comfortable to do.

In the next stage, the researcher will analyze the patient or respondent data in the study by conducting a demographic analysis of the respondents. The data obtained by the researcher was in accordance with the questionnaire containing the identity and draft of the informed consent approved by the patient as a respondent in the study. The demographic data of the patients studied included the patient's age, gender, and education level of the patient. The patients characteristics in this study can be seen in Table 3 as follows:

Table 3.
Patient Characteristics (n = 56)

Variable	Frequency (n)	Percentage (%)
Age		
< 50 years	9	16,1
≥ 50 tahun	47	83,9
Gender		
Female	51	91,1
Male	5	8,9
Education		
Elementary- Middle School	35	62,5
High school - University	21	37,5

Based on the table above, the majority characteristics of the patients are elderly age, namely 50 years (83.9%) while patients with age <50 years (16.1%). Gender in this study showed the risk of diabetes mellitus at the Wates Public Health Center of Pringsewu was female (91.1%) while the male was only 5 people (8.9%). Furthermore, data analysis of patient demographics based on the education of patients with diabetes mellitus who had low education or up to junior high school was (62.5%) and educated up to university was (37.5%). Research conducted at the Wates Public Health Center found an age relationship that showed that patients aged <50 years had better knowledge than patients aged ≥50

years. This happens because based on observations, patients at this age are more active and open in receiving counseling from counselors or researchers regarding disease information and drugs that are given and consumed regularly (ADA, 2010). Elderly patients will be more attentive and concerned with the disease that is in them to be able to improve the life quality of the patients so that it was better and longer (Kezerle et al., 2014). In a study conducted by (Becker et al., 2017) support from family or other people for elderly patients provides a better education, knowledge, and compliance and leads to a decrease in blood glucose in patients with diabetes mellitus.

From the data obtained in this study, it can be found that there are more female patients than male patients (8.9 %). This is due in part to factors that can increase the risk of type 2 diabetes experienced by women, such as a history of pregnancy with a baby weighing > 4 kg, a history of diabetes during pregnancy, obesity, use of oral contraceptives, and high-stress levels (Sabu M.C and Kuttan., 2002). Female patients have high sex hormones which affect energy metabolism, body composition, resulting in an endocrine imbalance associated with an increase in cardiovascular risk and myocardial infarction. Diabetes can cause a weakening of the metabolic protective effect of female patients so that complications can develop (Kautzky-Willer et al., 2016). In this study, male patients with diabetes had better knowledge and compliance than women because of the influence of awareness on disease development and complications if not

controlled properly. The other characteristic of patients is that the most diabetic patients are those with education up to junior high school (62.5 %) and education up to university (37.5 %). Education is one of the factors that can affect the level of medication compliance. Patients with a good level of education tend to have knowledge about treatment and the importance of compliance. Low levels of knowledge can be at risk for experiencing disease, possibly due to a lack of knowledge of the disease and diet and lifestyle modifications that must be applied to a patient with diabetes mellitus (Shakibazadeh, 2012).

Furthermore, to see the correlation between patient characteristics and patient knowledge and compliance in taking medication, it can be seen using the crosstabs statistical test in table 4 as follows:

Table 4.
The Effect of Patient Characteristics on Knowledge and Compliance in Taking Medicines

Variable	Knowledge	Compliance
	Good Category (%)	
Age		
< 50 years	56	37
≥ 50 years	44	63
Gender		
Female	42,5	48
Male	57,5	52
Education		
Elementary-Middle School	34	30,3
High School-University	66	69,7

In the table above, it can be seen the correlation between age, gender, and education on knowledge and compliance in taking medication for diabetes mellitus patients. Patients with adult age up to <50 years have good knowledge (56%) and low compliance (37%) while elderly patients have low knowledge (44%) but have high knowledge (63%). This is based on the desire for the recovery rate of elderly patients to reduce mortality and improve life quality. Furthermore, diabetes mellitus patients with the female gender had low knowledge and compliance compared to men with knowledge (57.5%) and compliance (52%). Male patients with diabetes mellitus are more aware of the level of genetic risk and there was not much influence of stress levels so they can know well the disease they are suffering from and tend to comply with their treatment (Kautzky-Willer et al., 2016). The patients who have a history of higher education also have higher knowledge (Heriansyah, 2014); (Ramadona, 2011). This was because the higher a person's education, the

faster they will receive and absorb the information provided by the counselor and have a better mindset towards the disease and therapy they are undergoing. In this study, it was found that the drug counseling given could significantly increase the patient's knowledge. Low patient knowledge and awareness of health was another reason that can lead to low compliance. The patient initially thought that the symptoms experienced such as frequent fatigue, frequent urination, and frequent thirst were common symptoms and easily disappeared by themselves without knowing that these symptoms were the cause of diabetes mellitus. When the symptoms interfered with daily activities, the patient had just gone to the doctor and was diagnosed with diabetes mellitus. Furthermore, to see the correlation between patient characteristics and patient knowledge, and medication adherence, the researcher conducted a statistical analysis using the Paired Sample t-test. The complete results can be seen in Table 5 below:

Table 5.
Correlation between Counseling to Patient's Knowledge and Compliance in Taking Medicines

Characteristic	Knowledge	Compliance
	Significance	Significance
Age	0,05	0,03
Gender	0,001	0,001
Education	0,038	0,003

From the table above, it can be seen that there is a correlation between age and gender on the knowledge and compliance of diabetic patients in consuming oral hypoglycemic drugs used ($p < 0.05$) while the education level of the patients was significant for diabetes mellitus patient medication compliance. Knowledge data and after being given counseling there were significant differences in diabetic patients, based on paired t-test and ANOVA test, the

significance value was ($p < 0.001$), which means that counseling has an influence on the knowledge of diabetic patients. Counseling had an important role in increasing knowledge and compliance with disease treatment. Counseling was also an appropriate method in increasing patient knowledge because counseling is a two-way communication between patients and pharmacists (Norimah & Mohammadi, 2015). Counseling is formed from two

elements, namely consultation, and education where with consultation the patient expresses all their difficulties in carrying out the treatment process, and with education, a pharmacist can help solve the patient's problem. In the research process, there were several patients who received combination therapy with oral antidiabetic drugs who tended to have low drug adherence. The number of drugs received by the patient will have an effect on patient compliance. Patients with low knowledge sometimes think

that if their condition has improved they will not continue treatment that should be routinely consumed such as this anti-diabetes drug (Presley et al., 2019) therefore patients should be given counseling to be able to increase their knowledge and compliance of diabetes mellitus patients (Norimah & Mohammadi, 2015). To see the effect of counseling on knowledge and patient compliance in taking medication, data analysis was carried out using SPSS and the results can be seen in Table 6 as follows:

Table 6.
The Effect of Counseling in Research

Variable	SD	t	p
Knowledge before and after counseling	0,496	8,883	0,001
Compliance before and after counseling	0,499	8,563	0,001
Blood sugar level before and after counseling	0,538	6,456	0,000

In this study, after the patient received counseling related to disease treatment and lifestyle modification, the researcher would get the results of the patient's post-test score and compared it with the pretest or baseline. Changes in blood sugar levels of diabetic patients were checked twice, namely before counseling and after counseling. From the results obtained, the knowledge of patients with diabetes mellitus before and after being given counseling has a standard deviation value of 0.496 which means the sample can represent the population in the study because the standard deviation is used to determine the state of the statistical sample with the average data. The higher the standard deviation value, the wider the data variation was susceptible. Data on the influence of counseling on knowledge showed a significant effect with a p-value = 0.001 (<0.005). The increase in knowledge scores that occur due to counseling shows that knowledge is greater after the intervention, namely counseling for diabetic patients, and shows that the goals of counseling are well achieved. Furthermore, patient compliance before being given counseling and after showing a standard deviation value of 0.499 and showing a significant effect with p = 0.001. Besides the knowledge and compliance in taking medication for patients with diabetes, the researchers also looked at the patient's blood sugar levels whether they decreased or got better or not. The decrease in blood glucose levels after medicine counseling showed that the counseling given had an effect on the knowledge and attitudes of the patient so that it would lead to actions to comply with treatment with p = 0.000 an increase in the patient's compliance score indicating that the counseling goals were well achieved. Examination of blood sugar levels was carried out three times, namely before and after counseling. Monitoring blood sugar levels before counseling is carried out in the first week while blood sugar levels are then checked the following week while simultaneously providing counseling to patients with diabetes mellitus at the Wates Public Health Center of Pringsewu. This study showed that the benefit of counseling was to increase knowledge and patient compliance in taking medication. Several studies are similar to this study, such as research (Fatiha & Sabiti, 2021) which showed that providing counseling on how to take medication to diabetic patients can improve patient knowledge and compliance. Research (Heriansyah, 2014) also showed that there was better behavior in diabetes mellitus patients after receiving directions related to treatment and management of a healthier lifestyle. There are several factors that cause the patient's blood sugar level to be still high. These factors are

not doing the diet as recommended the reason for forgetting, being busy, resigned to the disease and not caring about the disease (Smeltzer et al., 2010). This was supported by the theory which stated that for the realization of an attitude to become a real action, a supporting factor or an enabling condition is needed, including facilities (Jane Kelly., 2018). In this study, it was also found that some patients were less compliant with the use of glimepiride. The reason the patient does not take the medicine according to the rules of use was that they forgot to take their medicine, they didn't have time and sometimes feel the side effects of the medicine such as nausea, vomiting and indigestion. The compliance that was measured in this study, apart from calculating the patient's pill count, the researchers also conducted evaluations and questions and answers that supported the patient's compliance data. Pill count was done by counting the remaining amount of the patient's medication. Calculation of the remaining medicine was carried out on the 30th day or at the end of the study to see patient compliance. The results can be categorized as compliant if the percentage is 80-100% and non-compliant if <80%. The percentage of patient compliance with the pill count method was obtained by looking at the remaining drugs in the drug box for patients with diabetes mellitus. There were many ways that can improve patient compliance, such as giving the medication with a schedule of taking medication once a day, giving medication according to the patient's ability to buy it, and not changing the type of drug that is usually consumed by the patient (BPOM., 2019). In addition, it can also provide tools such as medication reminder cards that can be recorded when the patient takes medication and there was a family monitoring patient taking medication. Various studies have shown that patient compliance showed that patient compliance to treatment of acute and chronic diseases was generally low. The low level of patient compliance that may be found was accidental due to busy and busy activities, resulting in patients forgetting to take medication (Presley et al., 2019). In this study, there are limitations in the study, namely the examination of blood sugar at time, so the examinations carried out in this study cannot be used as long-term indicators of blood glucose control in diabetic patients. In addition, there is no control group that can be compared to the treatment group that was given counseling. The researchers suggest in future studies use HbA1c examination or doing check-ups the patients with diabetes mellitus and include a control group as a comparison.

CONCLUSION

Based on the research that has been done, it can be concluded that the giving of counseling related to disease, treatment, and lifestyle modifications carried out by researchers can significantly increase knowledge and compliance in taking medication in patients with diabetes mellitus and can control the patient's blood sugar for the better.

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