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Increasing Knowledge of Diabetes Mellitus Patients through Dietary Assistance at the Gurah Community Health Center, Kediri, East Java

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ABSTRACT
Considering the high prevalence of Diabetes Mellitus in Indonesia, education on proper eating patterns is important to control blood sugar and prevent serious impacts for patients. This report aims to increase the knowledge of Gurah Public Health Center prolanis patients about the importance of diet in preventing complications of Diabetes Mellitus. The method of implementing community service activities is carried out using lecture and discussion methods, using leaflets and presentations. Patients receive an explanation about Diabetes Mellitus, appropriate eating patterns, and the principles of balanced nutrition. This activity includes a pre-test and post-test to measure the increase in participants' knowledge. The result of the activity was that there was a significant increase in participants' understanding, shown by the average post-test results which were higher than the pre-test, indicating educational success. Conclusions and suggestions from community service are because this program has succeeded in increasing knowledge about the management of Diabetes Mellitus among patients. It is recommended that similar activities be carried out on an ongoing basis to strengthen public awareness and understanding of the prevention and management of Diabetes Mellitus.

Keywords: CIE (Communication, Information, and Education)**,** Diabetes Mellitus, Dietary Patterns

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INTRODUCTION

The convenience-focused lifestyle of modern society, with little attention to health aspects, such as frequently consuming fatty, salty, and sugary foods, is one of the factors contributing to the increase in degenerative diseases, including diabetes. Diabetes is a metabolic disorder characterized by abnormally high blood sugar levels. Globally, diabetes has become a leading cause of blindness, kidney failure, and heart disease (Yuantari, 2022).
The International Diabetes Federation (IDF) estimates that at least 463 million people worldwide aged 20–79 had diabetes in 2019, equivalent to a prevalence rate of 9.3% of the total population in this age range (Riskesdas, 2022). Southeast Asia, where Indonesia is located, ranks third with a prevalence of 11.3%. The IDF also projects that the number of

people with diabetes aged 20–79 in Indonesia ranks seventh among the ten countries with the highest number of cases, at approximately 10.7 million. Indonesia is the only Southeast Asian country on this list, indicating a significant contribution to the diabetes prevalence rate in Southeast Asia (Riskesdas, 2022). Throughout 2024, there were 735 patients with the disease commonly called blood sugar who requested services. Meanwhile, globally, in Kediri City, the number is even higher. In the same year, 8,030 new sufferers were found. The number of patients with diabetes mellitus. At the Gurah Health Center in 2023 was 897. From the results of interviews with officers, it was found that only a small portion participated in prolanis, namely 147.

The primary treatment for diabetes involves lifestyle changes, particularly maintaining a healthy and balanced diet. This is one of the most crucial factors in managing diabetes successfully, although it is often hindered by patients' need for knowledge, attitude, and motivation to prevent more serious complications. A healthy diet, such as following the "3J" principles (the right types, quantities, and schedules for eating) and avoiding foods high in sodium, sugar, and fats, is essential. This practice is heavily influenced by the patient's understanding and attitude. Someone who understands diabetes and its causes will strive to prevent their condition from worsening. One way to keep this disease from progressing is by regulating their diet, especially for elderly individuals who may experience a decline in intellectual abilities and information processing as they age (Decroli, 2019).

With the increasing prevalence of diabetes and the challenges in managing this disease, it has become more important to implement educational strategies that enhance diabetes patients' understanding of dietary practices to keep blood sugar levels stable and minimize the risk of complications. Through an education-based approach, effective strategies can be developed to help diabetes patients adopt healthier and more sustainable dietary habits. This approach not only focuses on managing diabetes but also on improving overall health for the patients at the Gurah Health Center, Kediri City.

METHODS

The implementation of this community service activity takes the form of providing communication, education and information (KIE) using power points. The methods used were lectures, discussions and questions and answers and pre-tests, post-tests to measure the increase in participants' knowledge by community service participants and mentors. The number of respondents who will participate in this community service activity is 20 from prolanis participants at the Gurah Health Center, Kediri. The activity was carried out in the waiting room of the Gurah Community Health Center, Kediri on 10 October 2024. The targets of this activity were prolanis participants at the Gurah Community Health Center, Kediri.

RESULTS

Table 1. Table of Characteristics of prolanis researchers at Gurah Community Health Center

Characteristics	Frequency	
Gender	Number	Percent%
Male	5	25
Female	15	75
Age		
30-50	3	15
51-70	14	70
Above 71	3	15

Suffering from DM for a long time		
≤ 5 years	7	35
6-10 years	11	55
≥ 11 years	2	10

From the table above, it can be seen that according to gender characteristics, there are more women, namely 75% or 15 participants, while according to age, the majority are aged 51-70 years, namely 70% or 14 participants. The longest characteristic of suffering from diabetes mellitus was 6-11 years as much as 55% or 11 participants.

Table 2. Table Pre-test and post-test results of prolanis Gurah Community Health Center participants

NO	NAME	RESULTS	
		PRE TEST	POST TEST
1	Mrs. Y	6	9
2	Mrs. S	6	8
3	Mrs. Ag	8	9
4	Mrs. SR	6	10
5	Mr. Ah	8	10
6	Mrs. M	6	8
7	Mr. Mh	7	9
8	Mr. Ru	6	9
9	Mrs. Sn	6	9
10	Mrs. DJ	6	9
11	Mrs. Su	5	9
12	Mr. Ad	6	9
13	Mr. Sl	7	9
14	Mrs. Sp	7	9
15	Mrs. Sa	6	9
16	Mrs. Sw	6	9
17	Mrs. Si	6	9
18	Mrs. SS	8	9
19	Mrs. Sl	6	9
20	Mrs. Am	7	9
AVERAGE		**6,3**	**9**

From the table above, it can be seen that there is an increase in the knowledge of prolanis participants about preventing diabetes mellitus with a dietary approach. This can be seen from the average pre-test score of 6.3 and after giving KIE the average is 9.

DISCUSSION

The activity of providing KIE regarding the knowledge of prolanis participants about preventing diabetes mellitus using a dietary approach was carried out by giving a pre-test first. After knowing the results of the pre-test, namely the lack of understanding of prolanis participants about preventing diabetes mellitus using a dietary approach, information and education were provided. In an effort to evaluate the results of providing information and education about preventing diabetes mellitus using a dietary approach, a post-test was carried out.

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Based on the description above, the ability of prolanis diabetes mellitus related to diet can be explained that behavioral ability has been formed in the amount of food intake during DM, but according to researchers, this ability is generally still lacking, because the ability to reduce food intake is not in accordance with the standard size with calorie needs per body weight, the size of the amount of intake is still based on estimates. Then related to the type of food that has been consumed, prolanis still depends on the type of food that contains a lot of carbohydrates and protein, there is no ability to adapt to types of food that contain little carbohydrates such as potatoes, corn rice or brown rice. That related to the amount of food portions, in general, behavior has been formed in food intake, there is a similarity in reducing the amount of food portions consumed. This condition can be interpreted as a concern or compliance of a type 2 DM sufferer in food intake. This diet compliance is very likely to be influenced by knowledge about the importance of diet and the risks that can occur if you do not care about the amount of food intake.

Picture 1 Registration, Attendance and Blood Pressure Examination of Prolanis Participants

Picture 2 Pre test for Prolanis participants

Picture 3 Providing CIE (Communication, Information, and Education) to Prolanis Participants

According to Prasetyani & Sodikin (2017), differences in hormonal control and body composition between women and men also influence the incidence of DM. The reason why many DM cases occur in women is due to a decrease in the hormone estrogen due to menopause. The hormones estrogen and progesterone are hormones that can influence cells to respond to insulin. After women experience menopause, there will be changes in hormonal control which can trigger fluctuations in blood sugar control. Research conducted on DM sufferers found that the number of respondents was mostly women than men because women are more at risk of suffering from DM. Physically, women have a greater chance of increasing body mass index hormones (Tandra, 2013).

Physical activity is any body movement that increases energy expenditure. Physical activity can help improve sugar balance in people with diabetes. In addition, when someone does physical activity, blood flow to the active muscles increases, this can cause capillaries to open, which increases the supply of oxygen and nutrients to muscle cells. Along with this increase in blood flow, it also increases the number of insulin receptors on the surface of muscle cells, making insulin receptors more active (Wanjaya et al., 2020). Some differences in the types of activities carried out by men and women. For example, housework such as cooking, cleaning the house, or caring for children tend to be more often the responsibility of women. Meanwhile, men may be more involved in heavier physical work or competitive sports (Sundayana et al., 2021).

According to Prasetyani & Sodikin (2017), differences in hormone control and body composition between women and men also affect the incidence of diabetes. The cause of the high incidence of diabetes in women is due to a decrease in the hormone estrogen due to menopause. The hormones estrogen and progesterone are hormones that can affect cells to respond to insulin. After women experience menopause, there will be changes in the control of these hormones so that it can trigger fluctuations in blood sugar control. Research conducted on DM sufferers found that the number of respondents was mostly women than men because women are more at risk of developing DM. Physically, women have a greater chance of increasing body mass index hormones (Tandra, 2013)

Age is the period since a person's birth, most people will experience physical and biological development that is similar or in accordance with the expected range. Age can affect blood sugar, in late adulthood, namely 46-60 years of age, which is the phase where the function of body organs begins to decline so that physical activity begins to be limited (Hasanuddin & Jumiarsih, 2022). As we age, physical health conditions can decline. Some people may experience a decrease in physical activity levels due to decreased muscle strength and endurance. This can make various physical activities more difficult to do. So that with the decrease in strength, the activity can cause uncontrolled sugar (Sartika & Damayanti, 2021)

However, in the diet of people with diabetes mellitus, with increasing age they have bad habits in managing a healthy diet for several reasons, including bad habits such as consuming foods high in added sugar, salt, and saturated fat, and not paying attention to the 3J principle (Amount, Type, Schedule) (Kurniasari et al., 2020).

Long-term diabetes or diabetes can affect a person's health and blood sugar control. When someone has diabetes for a long time, many factors can affect blood sugar control, including physical activity, diet, and changes in the body's systems related to diabetes. When someone suffers from diabetes by doing light daily physical activity, it can cause sugar levels to increase continuously. In addition, poor diet in terms of quantity, type, and schedule, diabetes patients can increase blood sugar. It is known that in people with diabetes, the beta cells in the pancreas that are responsible for producing insulin are gradually damaged. As a result, insulin production in the body can decrease over time (Kayar et al., 2017).

CONCLUSION

This community service program has been implemented and can run smoothly as expected, and produce a change in accordance with the target outcome, namely knowledge about preventing diabetes mellitus through dietary assistance for diabetes mellitus patients, implemented and applied in the daily life of the community continuously. Ad suggetion for people with diabetes is Increasing understanding of diabetes mellitus prevention through dietary guidance, increasing awareness of h ow to prevent diabetes mellitus through dietary guidance for prolanis participants at Gurah Health Center, Kediri.

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