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Importance of Knowledge and Literacy about Diabetes Mellitus and Related Factors for Diabetes Patients in the Kahuripan Health Center Working Area, Tasikmalaya City

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ABSTRACT

Diabetes patients require education and expertise in self-care management. A lack of understanding and knowledge about diabetes and diabetes-related topics leads to uncertainty, fear, and skepticism, which are readily exacerbated by emotions. Educating patients about diabetes has been found to improve their clinical results and quality of life. This study aims to identify knowledge and awareness of diabetes self-care management by increasing knowledge through education and demonstration of diabetes self-care management activities in the Kahuripan Community Health Center working area in Tasikmalaya City, to reduce complications. This study used a quantitative descriptive design with total sampling. Activities were conducted to enhance diabetes awareness and literacy. Results. The service participants were 57 persons. D III Nursing Study Program Faculty, with the assistance of students, implemented expanding knowledge in PROLANIS activities. This study used a quantitative descriptive design with total sampling. Activities are carried out to promote knowledge and awareness about diabetes and related issues. Results The service participants were 57 persons. Increased understanding of PROLANIS activities is carried out by D III Nursing Study Program lecturers with the assistance of students. The activity is carried out by preparing and administering the Diabetes Knowledge Questionnaire (DKQ)-24 questionnaire via mobile phone, with the aid of students. The majority of participants, 55 (96.5%), had bad knowledge before the counseling activities and exercise demonstrations. Following the activities, 7 (12.3%) participants had good knowledge, 22 (38.6%) had good knowledge, and 28 (49.1%) participants had poor information. The connection between diabetic self-management behavior and health attitudes is mediated by knowledge and cultural literacy regarding diabetes. Furthermore, because diabetic health literacy can impact patients' ability to manage their treatment, healthcare professionals must evaluate patients' health literacy and create interventions that can raise it. To achieve positive health outcomes, health literacy should be regarded as essential in health education and interactions with emergency services.

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INTRODUCTION

Diabetes mellitus is a chronic, multifactorial illness characterized by hyperglycemia or persistently high blood glucose levels. There are two types of diabetes: type 1 (which requires insulin) and type 2 (which does not require insulin) (International Diabetes Federation, 2021). Globally, type 2 diabetes affects around 400 million people. It is projected that over 640 million people globally will have diabetes by 2040 (International Diabetes Federation, 2021). According to estimates from the International Diabetes Federation, over 50% of individuals with type 2 diabetes remain undiagnosed, with 60% of the global population estimated to have the disease in Asia (Cho et al., 2018).

Numerous variables and mechanical processes contribute to the development of type 2 diabetes, including but not limited to epigenetics, impaired insulin action, glucotoxicity, lipotoxicity, inflammation, oxidative stress, and dysfunction of the pancreatic β-cell (Akash et al., 2021; Epidemiology & Disease Control Division, Ministry of Health & Evaluation, 2017; Rehman et al., 2020). Diabetes risk can be raised by genetics, environment, and lifestyle choices. Obesity and insulin resistance can be caused by a variety of lifestyle factors, such as food quality and quantity, body weight, and physical activity (e.g., excessive calorie consumption, high-fat meals, and more sedentary lives) (Rehman, Haider, et al., 2020; Rehman & Akash, 2016).

Polyuria, polydipsia, and polyphagia are well-known signs of diabetes (Cho et al., 2018). Fatigue, recurring infections, delayed wound healing, impaired eyesight, and gastrointestinal issues are some more symptoms. Diabetic neuropathy, blindness, heart disease, and renal issues can result from diabetes's subsequent damage to the eyes, heart, blood arteries, and kidneys, among other organs. By changing their lifestyle and keeping a close eye on their blood glucose levels, diabetics can lower their risk of problems (eg HbA1c) (Abbasi et al., 2016; American Diabetes Association, 2023; Lim et al., 2018). Most people don't become aware they have diabetes until after issues like renal problems and eyesight loss manifest (Elafros et al., 2023). Being conscious of one's own diabetes risk presents a chance to implement preventative measures to halt or postpone the onset of problems (Khan et al., 2022).

Understanding this prevalent illness is crucial for prompt diagnosis and treatment (Ting et al., 2016). Patients who are more informed about their condition will live a healthy lifestyle and have a good outlook. Furthermore, patients who are not aware of their risk for a disease have less influence over these indicators (Al-Yahya et al., 2020). Acquiring the necessary information and expertise to live with diabetes will take time. Educating people with diabetes on self-management techniques is the primary prerequisite for successful diabetes management. Patients who know too little about diabetes and diabetes-related topics are confused, anxious, and distrustful, and they are also more susceptible to emotional triggers. It has been demonstrated that raising awareness of diabetes improves clinical results and quality of life (Mamaghani et al., 2021). Patients' lack of information, attitudes, and practices in controlling their diabetes may allow them to lower the degree of diabetes-related morbidity and death, even for those patients and healthcare professionals who are unable to alter their lifestyle (Mansy et al., 2022).

As a developing nation, Indonesia has a comparatively high rate of diabetes. According to earlier investigations, the prevalence of diabetes mellitus was found to be influenced by several factors, including sociodemographics, disease awareness, and early diagnosis. Most people never check their blood glucose levels, according to a new Saudi study, and one-third of participants believed diabetes could be treated with alternative therapies (Alqahtani et al., 2020).

A thorough understanding of this extremely common condition is necessary to enhance early detection and suitable response. Patients who knew more about this illness than the ordinary person were shown to have positive attitudes and healthy habits, which helped them to profit from the illness. presenting at an earlier stage of their illness (Al-Yahya et al., 2020). Anih et al.'s 2023 qualitative investigation revealed that low literacy and a lack of knowledge about diabetes and its management contribute to diabetes patients' noncompliance with self-care management (Kurnia et al., 2023). In addition, patients have a sense of overwhelm due to the dearth of diabetes information that health professionals provide and the time constraints associated with scheduling appointments. Thus, the significance of health literacy as a beneficial factor for diabetes patients' general health, including any coexisting diseases (Bushra A. ALSharit, 2022).

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The ability to get, comprehend, interpret, and use health-related information is known as health literacy, and it is a crucial idea in healthcare environments (Bushra A. ALSharit, 2022). Sufficient knowledge of one's health is more important than ever because people are expected to take greater responsibility for their health (Coughlin et al., 2018). In contemporary times, health literacy is regarded as a means of attaining health and well-being, a determinant of the quality of human existence, and a factor that can lessen health disparities in a target demographic (Bushra A. ALSharit, 2022).

The purpose of this service is to identify the level of literacy and knowledge regarding diabetes self-care management to reduce the risk of complications. This will be accomplished through education and the demonstration of diabetes self-care management activities in the working area of the Kahuripan Community Health Center in Tasikmalaya City.

METHOD

This study's quantitative descriptive design makes use of a total sample approach, which includes all patients who participated in PROLANIS activities on November 14, 2023. To achieve the goals of the study, efforts were made to raise awareness and literacy on diabetes and associated factors. These efforts were broken down into Below are several stages of the activities:

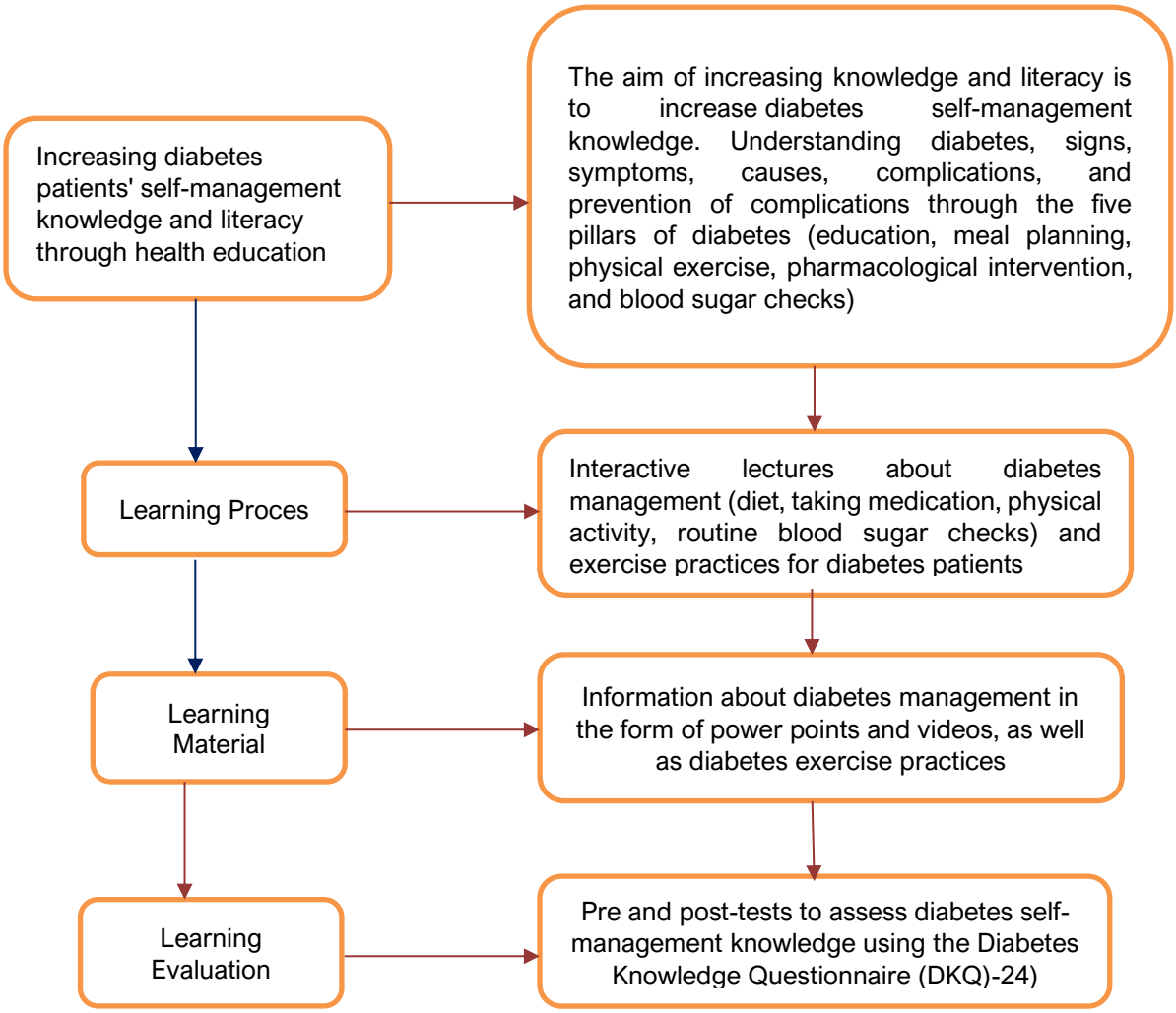

FIGURE 1. Diagram Illustrating The Increase In Diabetes Knowledge

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RESULT

Demographic Characteristics

Fifty-seven individuals participated in the service. The majority of respondents were between the ages of 40 and 59 29 (50.9%), female 42 (73.7%), with an educational background of elementary-middle school 27 (47.4%), living with families 55 (96.5%), having an excessive body mass index 27 (47.4%), tall 41 (71.9%), having BPJS insurance 50 (87.7%), and being housewives 29 (50.9%). The majority had a view of their health, believing that their health is something they feel 17 (29.8%), the majority had suffered from diabetes mellitus for less than five years 40 (70.2%), and some had neither a parental history nor had been detected in prior offspring 32 (56.1%). Table 1 presents demographic data.

TABLE 1. Characteristic of Respondents

No	Sociodemography	Frequency	Percent (%)
1	Age		
	<40 years old	11	19.3
	40-59 years old	29	50.9
	60-65 years old	7	12.3
	> 65 years old	10	17.5
2	Gender		
	Man	15	26.3
	Woman	42	73.7
3	Education		
	elementary school- junior high school	27	47.4
	Senior High School	12	21.1
	College	18	31.6
4	Residence Status		
	Alone	2	3.5
	With family	55	96.5
5	BMI (Body Mass Index)		
	Thin	2	3.5
	Ideal Body Weight	25	43.9
	Overweight	27	47.4
	Obesity	3	5.3
6	Marital status		
	Married	41	71.9
	Widower/Widow	7	12.3
	Single	9	15.8
7	Health Insurance		
	BPJS	50	87.7
	Without insurance	4	7.0
	Other Health Insurance	3	5.3
8	Job status		
	Civil servants	6	10.5
	Private sector employee	3	5.3
	Entrepreneur	5	8.8
	Doesn't work	29	50.9
	Etc	14	24.6
9	Smoking Status		
	Yes, smoking	4	7.0
	No, but I have smoked	10	17.5
	Never smoked one cigarette	43	75.4
10	Family income		
	< 2500.000	34	59.6
	≥ 2500.000	23	40.4
11	Perspectives on health		
	Perceived health status	17	29.8

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No	Sociodemography	Frequency	Percent (%)
	Attitude towards health	7	12.3
	adherence of patients to self-management	14	24.6
	Choice 1,2	4	7.0
	Choice 1,3	4	7.0
	Choice of all (1,2,3)	11	19.3
12	Long-Term Diabetes Sufferer		
	≤ 5 years	40	70.2
	>5 years	17	29.8
13	Family History		
	there are (parents, brothers, sisters, or own children)	22	38.6
	yes (grandfather, aunt, uncle, or first cousin)	3	5.3
	Nothing	32	56.1
	Total	57	100.0

Increased Knowledge.

Implementing increasing knowledge in PROLANIS activities by D III Nursing Study Program lecturers assisted by students. To carry out the activity, students will assist in preparing the Diabetes Knowledge Questionnaire (DKQ)-24 and administering it via mobile phone. Photos of the implementation efforts are shown below.

FIGURE 2. Picture Preparation For Implementation

FIGURE 3. Guiding Participants In Filling Out The Dkq-24 G-Form Questionnaire

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FIGURE 4. Implementation of Gymnastics Counseling And Training

TABLE 2. DKQ-24 Questionnaire Before and After Implementing The Activity

Before Implementation of Activities			After the Implementation of Activities		
Category	Frequency	Percent	Category	Frequency	Percent
Good knowledge	0	0	Good knowledge	7	12.3
Sufficient Knowledge	2	3.5	Sufficient Knowledge	22	38.6
Lack of Knowledge	55	96.5	Lack of Knowledge	28	49.1
Total	57	100	Total	57	100

Table 2 shows that the majority of participants, 55 (96.5%), had good knowledge prior to the counseling activities and exercise demonstrations. Following the activities, 7 (12.3%) participants had good knowledge, 22 (38.6%) had sufficient knowledge, and 28 (49.1%) participants lacked knowledge.

RESULTS OF MEASUREMENTS OF BLOOD PRESSURE, BODY MASS INDEX

The findings of measuring the respondents' blood pressure and Body Mass Index are shown below.

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TABLE 3. The Results of The Blood Pressure Examination

Blood Pressure	Frequency	Percent
≤ 120/80 mmHg (Normal)	8	21.6
120-139/80-89 mmHg (Prehipertensi)	10	27.0
140-159/90-99 mmHg (Hypertension Stage 1)	13	35.1
≥ 169/100 mmHg (Hypertension Stage 2)	6	16.2
Total	37	100.0

Based on table 3, shows that 37 respondents who checked their blood pressure and body mass index showed that most of them were in the stage 1 hypertension range 35.1% and 27% prehypertension, 16.2% of participants had stage 2 hypertension, and 16.2% of participants who were in normal blood pressure range 21.6%.

TABLE 4. Results of The Assessment of The Body Mass Index

Body Mass Index	Frequency	Percent
18,5-25 (Normal)	20	54.1
>25-27 (Overweight)	9	24.3
>27 (Obese)	8	21.6
Total	37	100.0

Table 4 shows that the majority of respondents had a normal BMI of 54.1%. 24.3% of people are overweight, while 21.6% are obese.

The results of the laboratory tests performed during the prolanis installation are provided below.

TABLE 5. Results of Laboratory Examination

HbA1c	Frequency	Percent
<5,7% (Normal)	2	5.4
5,7-6,4 % (Prediabetes)	14	37.8
> 6,5% (Diabetes)	21	56.8
Total	37	100.0

According to Table 5, the majority of respondents had an HbA1c value greater than 6.5% (56.8%), an HbA1c value between 5.7 and 6.4% (37.8%), or an HbA1c value within the normal range of 5.4%.

DISCUSSION AND RECOMMENDATION

People with diabetes can perform self-management tasks to a great extent when they are empowered with information. Raising awareness about diabetes as a source of information for those with the disease will come via informational campaigns and a literacy-promoting society. Our research's key finding is that PROLANIS is participants' knowledge of diabetes care is still lacking. For those who have diabetes, knowing the disease is crucial to compliance. One of the most frequent barriers to information searching for people with diabetes is unstructured and occasionally contradicting information (Heise et al., 2022; Milewski & Chen, 2010).

In addition to health education, the electronic health record (HER) needs a clinical support tool that can help identify patients and remind physicians to connect patients to health services so they may take control of their health. It has been demonstrated that using mobile health apps is one effective way to increase knowledge and lower HbA1c (Ashrafzadeh & Hamdy, 2018; Masupe et al., 2022).

According to a study by Heise et al., participants in diabetes self-management education programs had greater knowledge about diabetes than those who did not, particularly when it came to topics like diabetes in general, treatment, acute complications, and diabetes management in day-to-day living. Participants also reported consulting health professionals and diabetes care specialists more frequently for information (Heise et al., 2022). Additional studies by Wang et al. demonstrate that diabetes self-management behavior

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is positively impacted by diabetes knowledge and self-efficacy, with diabetes knowledge having the greatest impact on perceived advantages and self-efficacy and diabetes self-management behavior following (Wang et al., 2023).

Buhra's research (2022) offers distinctive insights into how health literacy impacts health outcomes. According to his research, 62.8% of people with type 2 diabetes have fewer than ideal levels of health literacy, with an average score of 14.08 out of 20. (Bushra A. ALSharit, 2022), Due to the enormous financial strain low health literacy will place on the healthcare system, it needs to be addressed. Medical professionals need to investigate efficient ways to educate patients about their health.

Healthcare providers must identify the demographic characteristics of their patients, as these are linked to health literacy (Palumbo et al., 2019). According to this study, health literacy is positively correlated with patients' involvement in state health insurance programs and adversely correlated with smoking habits, education, and income (BPJS). Results demonstrate that greater knowledge scores are correlated with higher income and education levels. The ability to read health management materials, understand information, interact with healthcare practitioners, and navigate the healthcare system is eventually enhanced by higher income levels, which also increase educational accessibility (Brook & Brook, 2017). In addition, healthcare workers ought to think about giving older people actual instruction rather than just written materials, using simple language.

CONCLUSION

Several major elements that can influence diabetes practice and self-care include diabetics' education and literacy levels. Adherence to diabetes self-care is strongly linked to knowledge and self-care practices. Despite having diabetes for a long period, most Prolanis participants lack knowledge. The necessity of literacy and reminding patients to practice self-care, such as eating according to their needs, taking medicine on time, and engaging in regular physical activity (exercise), must be emphasized in diabetic self-care. Participants with high HbA1c levels were less likely to adhere to diabetic care. As a result, improved diabetes self-management behavior is mostly based on knowledge and cultural literacy, with health attitudes serving as a mediator. Healthcare practitioners should also assess their patient's health literacy and develop programs to improve it, as diabetes can affect patients' capacity to manage their treatment. Health literacy should be prioritized when it comes to improving health outcomes through emergency care encounters and education.

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