Clinical Indicators and Quality of Life of Diabetes Mellitus Patients Program Prolanis Di Puskesmas Kasihan I

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Abstrak

Background: According to the International Diabetes Federation (IDF), in 2021, an estimated 537 million people worldwide will suffer from diabetes, and this number is expected to continue to increase (International Diabetes Federation, 2019). The prevalence of diabetes mellitus (DM) in Indonesia increased by 2% in 2018 compared to 2013. The highest prevalence was in DKI Jakarta Province (3.4%) and the lowest was in NTT Province (0.9%) among residents aged ≥15 years. The prevalence of DM in all ages was lower, at 1.5%, than the prevalence of DM in those aged ≥15 years (Kemenkes RI, 2018a, 2018b).Complications in diabetes mellitus patients can have an impact on the quality of life of diabetes mellitus patients. Various physical health problems that can be caused by diabetes mellitus include diabetic neuropathy, diabetic retinopathy, heart disease, and vascular problems. Objective : The aim of the study was to determine the clinical indicators and quality of DM patients participating in the Prolanis program at Kasihan I Community Health Center. Methods : This study was observational with a cross-sectional design on outpatient DM patients at Kasihan I Community Health Center, Bantul, DIY. Sampling of diabetes mellitus patients was carried out using a non-probability sampling technique, namely purposive sampling was carried out by taking samples based on certain criteria. This research was conducted at Kasihan 1 Community Health Center, Kasihan, Bantul, from December 2023 to August 2024. Data collection form containing a questionnaire on the subject's personal biodata (demographics), medical history and treatment, and a questionnaire on lifestyle habits. Patient quality of life was measured using the EQ-5D-5L questionnaire. In-time blood sugar testing kit. Chi-Square analysis was used to determine factors related to the quality of life of prolanis DM patients. Results and Discussion : There were 40 respondents (97.6%) who were female and only 1 respondent (2.4%) who was male. This indicates the increasing involvement of women in Prolanis. There were no significant differences in systolic and diastolic blood pressure and quality of life of DM patients participating in Prolanis at the Kasihan Community Health Center based on gender. Blood sugar levels in male DM patients were higher than in female DM patients (normal, 186.00±63.48). The normality of blood sugar levels of Prolanis participants at Kasihan 1 Bantul Health Center showed that more of them had controlled blood sugar levels. Conclusion: There are differences in the values of clinical picture indicator data and quality of life of patients. Physical exercise interventions for the elderly have a very big influence in changing their quality of life.

Key word : *Diabetus mellitus; Blood Sugar and Quality of Life.*

I. INTRODUCTION

Diabetes mellitus is a chronic disease that has a significant impact on global public health. According to the International Diabetes Federation (IDF), in 2021, an estimated 537 million people worldwide had diabetes, and this number is expected to continue to rise (International Diabetes Federation, 2019). Diabetes mellitus is characterized by persistently high blood glucose levels, which can lead to serious complications such as heart disease, stroke, kidney failure, eye disorders, and nerve problems. In addition to serious physical impacts, diabetes also affects the quality of life of individuals with this disease. People with diabetes often face daily challenges in managing their blood sugar levels, adhering to a strict diet, and following ongoing medical care. All of this can negatively impact their quality of life.(Schmidt, 2018). The number of people with diabetes mellitus (DM) continues to increase worldwide. In 2019, it was estimated that people with diabetes mellitus (DM) aged 20-79 years, both type 1 and type 2, reached 463 million, 351 million of whom were of working age. The prevalence of DM is projected to continue to increase, reaching 578 million in 2030 and 700 million in 2045 (International Diabetes Federation, 2019). The prevalence of DM in Indonesia in 2018 increased by 2% compared to 2013. The highest prevalence of DM was in DKI Jakarta Province (3.4%) and the lowest was in

NTT Province (0.9%) in the population aged ≥15 years. The prevalence of DM at all ages was lower, at 1.5%, than the prevalence of DM in those aged ≥15 years (Ministry of Health, 2018a, 2018b).

Complications in diabetes mellitus patients can impact their quality of life. On the other hand, complications affecting physical health are one of the components that most significantly impact their quality of life. Various physical health problems that can be caused by diabetes mellitus include diabetic neuropathy, diabetic retinopathy, heart disease, and vascular problems. Diabetic neuropathy, for example, can cause pain, numbness, and weakness in the extremities, which can limit a person's ability to move and function properly in daily life. Diabetes can also affect vision, which can impact a person's ability to work and lead an active social life.(Zheng et al., 2018)Diabetes can affect a person's quality of life beyond physical health. It can cause stress and depression in patients.

Some people with diabetes may feel ashamed or guilty about their condition, especially if they have to make major lifestyle changes or use medications. Another factor that can contribute to anxiety is uncertainty about the disease's progression and long-term treatment.(Roifah, 2016)Support and education are crucial in this regard. People who are aware of their diabetes tend to have a better quality of life. They can better manage their blood sugar, avoid complications that can affect their quality of life, and feel more confident when facing challenges. Social support, in addition to education, is crucial for improving the quality of life for diabetes patients. Family, friends, and support groups can provide the emotional and practical support diabetes patients need to cope with everyday challenges.(Nuraisyah et al., 2017)They can remind sufferers to take their medications regularly, as well as provide support when they are anxious or depressed.(Roifah, 2016).

Education helps patients understand the complications that can occur if diabetes is not properly managed. Patients may be more motivated to follow their doctor's recommended treatment because they know the risks of these complications. Providing emotional support to diabetes patients in addition to education is crucial.(Nutbeam et al, 2021)Diabetes is a condition that requires significant lifestyle changes, and for many people, these changes can be a daunting and stressful challenge. Family, friends, and support groups can help patients cope with the anxiety and stress that can arise from the disease. Those who receive support have a greater chance of successfully managing their diabetes and living a healthy life.(Hamida et al., 2019)In addition, they must provide moral support and regularly follow up on patients' progress to ensure appropriate care is provided. To prevent complications in diabetes mellitus, community health promotion activities are crucial. Health promotion plays a crucial role in controlling diabetes mellitus. This is not only about providing information; it also involves providing emotional support, creating a supportive environment, and incorporating health education into routine care.(Emma et al., 2019)This effort will provide diabetes patients with a better understanding of their condition, help them better manage their disease, and lead healthier and more meaningful lives. Health promotion is crucial to preventing the increase in diabetes mellitus cases, as it can help people adopt a healthy lifestyle and minimize their risk of developing diabetes. The use of this health promotion approach is seen as comprehensive.*(Aadahl et al*., 2023).

The chronic disease service program (Prolanis) is one of the important programs organized by BPJS Health in the management of chronic diseases such as diabetes mellitus and other chronic diseases. Prolanis helps patients with diabetes mellitus with a comprehensive system in accordance with the pillars of diabetes mellitus management, both in terms of education and therapy. pharmacology, diet, physical activity and exercise. Prolanis makes it easier for people who registered in the BPJS system so that people can continue to maintain their health without additional costs(Sitompul et al., 2016). The lack of active participants in prolanis group activities resulted in not all participants being educated in the activity counseling during the prolanis activities which had an impact on decreased quality of life in some participants (BPJS Kesehatan, 2014).Based on this background, the aim of the study was to determine the clinical indicators and quality of DM patients participating in the Prolanis program at Kasihan I Community Health Center.

II. RESEARCH METHODS

This study was observational with a cross-sectional design on outpatient DM patients at Kasihan I Community Health Center, Bantul, DIY.

Research Population and Sample

The population is comprised of subjects who meet the established criteria. The population of this study was Prolanis patients with diabetes mellitus in the Kasihan 1 Bantul Community Health Center. Sampling of diabetes mellitus patients was conducted using a non-probability sampling technique, namely purposive sampling, which is conducted by taking samples based on certain criteria (Notoatmodjo, 2012). The sample criteria in this study are as follows:

The inclusion criteria are (i) Prolanis participants who suffer from type 2 diabetes mellitus; (ii) Have intellectual abilities that can receive the information provided or do not experience mental retardation and (iii) Willing to follow the course of the research until completion. The exclusion criteria are (i) Prolanis group participants who do not attend scheduled meetings and cannot be met; (ii) When sick. and (iii) Experiencing decreased consciousness or even coma.This study involved 60 patients with stable diabetes mellitus.

Location and Time of Research

This research was conducted at Kasihan 1 Community Health Center, Kasihan, Bantul, from December 2023 to August 2024.

Research Instruments

The instruments in this study include:

(i) The data collection form contains a questionnaire on the subject's personal biodata (demographics), medical history and treatment, and a questionnaire on lifestyle habits.

(ii) The EQ-5D-5L questionnaire from the EuroQol Group to measure patients' quality of life.

(iii) In-time blood sugar testing kit.

Variables and Operational Definitions

Prolanis patients are male and female patients with chronic diabetes mellitus who are in the Kasihan 1 Community Health Center, Kasihan, Bantul. The quality of life of patients was measured using the EQ-5D-5L questionnaire. The EQ-%D-5L questionnaire is a standard instrument for measuring a person's quality of life which consists of two parts, namely the EQ-5D descriptive system and the EQ-5D-5L Visual Analogue Scale (VAS). The EQ-5D-5L descriptive system consists of five question domains which include the domain of movement ability, self-care domain, usual activities domain, pain or discomfort domain and anxiety or depression domain, where each domain has 5 answer choices, while the EQ5D VAS records respondents' assessment of their health using a vertical visual analogue scale with a scale of 0-100.

The Course of Research

The research process for data collection is as follows:

Research permission was granted by the Head of the Kasihan 1 Bantul Community Health Center. Based on data from the Community Health Center, the team then selected potential subjects using inclusion criteria. Those who met the inclusion criteria were then asked to complete an informed consent form. Information and requests for consent were provided in person.

Quality of life in Prolanis patients was measured using the EQ-5D-5L questionnaire. Data on lifestyle habits and medical history were obtained through questionnaire-guided interviews. Data on medication history and clinical data were obtained from patient medical records and direct measurements using a blood glucose monitoring kit.

A. Data analysis

Demographic characteristics, clinical characteristics, and quality of life are presented descriptively. Chi-square analysis was used to determine factors associated with quality of life in prolanis DM patients.

B. Research Ethics

This research was conducted in accordance with ethical principles approved by the Health Research Ethics Commission of Muhammadiyah University of Yogyakarta. These principles include:

Principles of Research Ethics

a. *Respect*,namely respecting patients who are subjects in research this.

b. *Beneficiary*,namely having good benefits for patients

c. *Justice*, namely having a fair attitude in providing treatment because every subject has the same opportunity.

Research ethics rules are carried out by filling out informed consent for each respondent and taking care of ethical clearance at the ethics commission before conducting the research.

III. RESULTS AND DISCUSSION

The demographic and clinical characteristics of DM patients participating in the Prolanis program at Kasihan I Community Health Center are presented in Table 1.

1. Respondent profile characteristics based on demographics

Table 1 below shows the data obtained in the research regarding the basic data of respondents who participated in the research.

Table 1. Respondent characteristics

Variables	Frequency	Percentage
Sex		
Man	1	2.4
Woman	40	97.6
Total	41	100
Age		
12-25	2	4.8
26-45	2	4.8
46-65	28	67
>65 years	9	23.4
Total	41	100
Education		
elementary school	9	22
Junior high school	12	29.38
Senior High School	11	26.82
D3	2	4.8
S1	7	17
Total	41	100
BMI		
Normal	31	75.60
Obesity	5	12.20
Total	41	100
Blood pressure		
Normal	9	21.95
Hypertension	32	78.5
Total	41	100
Random blood sugar		
Normal	39	95.20
Abnormal	2	4.8
Total	41	100

Based on Table 1 above regarding gender-specific characteristics, there were 40 respondents (97.6%) who were female and only 1 respondent (2.4%) who was male. This indicates the increasing involvement of women in Prolanis. This is reinforced by previous research conducted by Sapara et al. (2020) (5), which found that a supportive social environment facilitates behavioral change in women. The next age variable, most respondents who participated in this study were between 46 and 65 years old (67%).

2.Clinical Indicators and Quality of Life of DM Patients Participating in Prolanis

2.1. Indicators of blood sugar levels, blood pressure and quality of life based on gender

An overview of blood sugar levels, blood pressure and quality of life based on gender is presented in Table 2.

Table 2. Clinical indicators and quality of life of patients based on gender

Type	N	GDS	TDS	qaly
man	19	210.73±61.08	132.10±9.17	74.47±7.43
woman	41	186.00±63.48	132.92±10.54	74.87±10.75

There were no significant differences in systolic and diastolic blood pressure and quality of life of DM patients participating in Prolanis at the Kasihan Community Health Center based on gender. Blood sugar levels in male DM patients were higher than in female DM patients (normal, 186.00 ± 63.48). This is likely due to lower compliance of male DM patients in participating in the Prolanis program. This condition can be seen from the presence of attendance in the Community Health Center data. This situation is in accordance with the results of research by Fitriana F, et al., 2025, regarding the level of compliance of Prolanis patients in managing hypertension, namely that participants who adhered to the Prolanis program had more controlled blood pressure conditions. This patient compliance also includes the condition of diabetes which is part of the Prolanis program.

2.2. Clinical indicators of blood pressure, blood sugar and quality of life based on the age of DM patients participating in Prolanis

Clinical indicators of blood sugar levels, systolic blood pressure and quality of life of DM patients participating in the Prolanis program at Kasihan I Health Center based on age groups are presented in Table 3.

Table 3. Blood pressure, blood sugar levels and quality of life of DM patient participants Prolanis Kasihan I Health Center based on age group

	N	gds	Tds	qaly
</=50	15	175.60±78.84	128.66±11.25	78.66±11.09
51-65	28	208.53±57.15	135.00±7.93	75.17±8.86
.65	17	185.70±55.30	132.35±11.47	70.58±8.81
Total	60	193.83±63.29	132.66±10.06	74.75±9.76

Table 3 above shows that blood pressure is more controlled in DM patients under 50 years of age, while there is no significant difference in those aged 51-65 years and over 65 years. Meanwhile, blood sugar levels in DM patients aged 51-65 years are relatively higher. Several possible causes of this condition include a lack of awareness of daily eating patterns and a lack of continuous exercise. This condition aligns with research by Sitompul et al. in 2016 regarding the analysis of Prolanis management, which also emphasizes awareness of lifestyle patterns, including diet, activity patterns, and thought patterns for Prolanis participants.

3.3. Blood pressure, blood sugar levels and quality of life of prolanis DM patients at Kasihan I Community Health Center based on education level

Indicators of blood pressure, blood sugar levels and quality of life of DM patients participating in Prolanis at Kasihan I Health Center based on education level are presented in Table 4.

Table 4. Blood Pressure Indicators, Blood Sugar Levels, and Quality of Life of Prolanis DM Patients at Kasihan 1 Community Health Center, Based on Education Level

T	N	GDS	Systolic blood pressure	Quality of life score
basic=-smp	37	180.18±53.01	133.78±10.36	74.86±9.82
middle school = high school	18	227.66±64.54	131.66±9.85	74.72±9.77

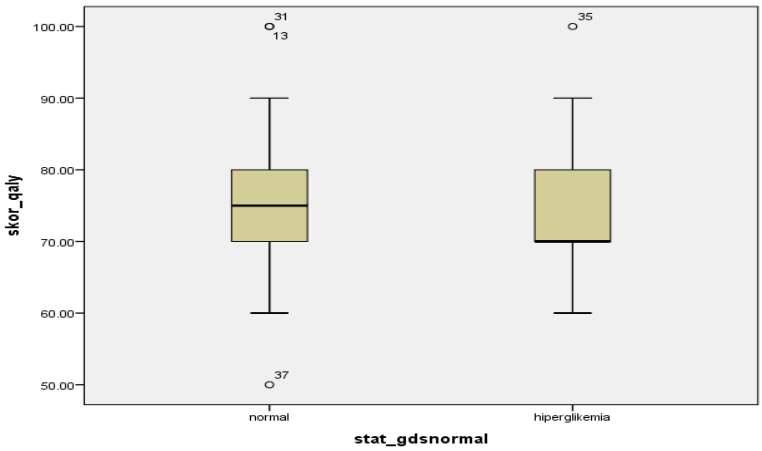
height = pt	5	173.00±93.12	128.00±8.36	74.00±11.40
Total	60	193.83±63.29	132.66±10.06	74.75±9.76

Participants in the Prolanis program with diabetes mellitus (DM) at Kasihan I Community Health Center with secondary education had abnormal blood sugar levels (greater than 200 mg/dl), while those with higher education had lower levels. This blood sugar indicator data illustrates that education level significantly influences a person's healthy lifestyle. A person's level of education influences their mindset and perspective, so decisions about life choices are heavily influenced by their perspective (Mustapa et al., 2022).

3.4. Quality of life of DM patients based on normal blood sugar levels. Indicators of quality of life of DM patients participating in Prolanis at Kasihan 1 Health Center, Bantul.

Table 5. Quality of Life Indicators for DM Patients Participating in Prolanis at Kasihan 1 Health Center, Based on Blood Sugar Normality Status

random blood sugar levels	N	Quality of life (Mean±SD)
Normal	31	76.29±10.41
Hyperglycemia	29	73.10±8.91



Based on Table 5 above, it shows that the normal blood sugar levels of Prolanis participants at the Kasihan 1 Bantul Health Center indicate that more of them have controlled blood sugar levels. This condition is in accordance with the opinion ofAlshayban, D., & Joseph, R. (2020), regarding the quality of healthy life for people with type 2 diabetes mellitus, which shows the normality of blood sugar levels in people who have a good quality of healthy life, with their blood sugar levels being controlled normally. A person's quality of healthy life is largely determined by how accurately they choose their attitudes and behaviors. Their attitudes and behaviors are always considered based on considerations that are not merely to fulfill desires and pleasures, but also take into account the negative impacts or risks that occur when choosing their attitudes and actions. A person's health condition is more influenced by the consequences of errors in attitudes and actions, which can have a negative impact on their physical condition, especially those related to non-communicable diseases.

IV. CONCLUSION

Based on the description above, it can be concluded that:

1. There are differences in the data values of clinical picture indicators and quality of life of patients before becoming members of the Prolanis program and after becoming members of Prolanis with interventions in the form of education and physical exercise for elderly Prolanis members.
2. Physical exercise interventions for the elderly have a significant impact on changing their quality of life.

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