

Prolanis Visit Frequency and Blood Glucose Stability Among Elderly Patients with Type 2 Diabetes Mellitus at Karangreja Public Health Center, Purbalingga

Sri Rahayu¹, Eko Julianto², Dwi Astuti³

^{1,2,3}Politeknik Yakpermas Banyumas, Indonesia

Email: sri226688@gmail.com

Abstract

Diabetes mellitus is a chronic disease characterized by elevated blood glucose levels due to impaired insulin production or function. This disease is common among the elderly and is at risk of causing complications if not well managed. One of the efforts to control diabetes mellitus is thru the Chronic Disease Management Program (Prolanis). The purpose of this study is to determine the frequency of Prolanis visits by elderly individuals and their impact on the stability of blood sugar levels in type II diabetes mellitus at the Karangreja Health Center in Purbalingga. The method used is descriptive research with a cross-sectional approach. The research population consists of all elderly Prolanis participants with diabetes mellitus at the Karangreja Health Center. The research sample consisted of 54 respondents selected using the convenience sampling technique. Data analysis was conducted univariately. The research results show that the majority of respondents have an active frequency of Prolanis visits, with 49 people (90.74%) categorized as active and 5 people (9.26%) as less active. The majority of respondents have unstable blood glucose levels, with 48 people (88.89%) and stable levels with 6 people (11.11%). The conclusion of this study indicates that the majority of Prolanis participants actively engage in activities, but most still have unstable blood glucose levels. It is hoped that efforts to control the blood glucose levels of Prolanis participants will continue to be improved so that the percentage of participants with stable blood glucose levels can increase.

Keywords: *Elderly, Type II Diabetes Mellitus, Visit Frequency, Blood Sugar Stability.*

A. INTRODUCTION

Diabetes is a long-term disease that occurs when the pancreas is unable to produce sufficient insulin or when the body cannot effectively use the insulin it produces, resulting in inadequate regulation of blood glucose levels (World Health Organization, 2024). This condition causes hyperglycemia, or elevated blood glucose levels, which can progressively lead to severe damage to various body systems, particularly the nerves and blood vessels (Bhandari., 2023). Diabetes mellitus is one of the most common degenerative diseases and has increasingly become a major concern among older adults, with its prevalence rising among individuals aged over 65 years (Camargo, 2023).

Globally, the number of people living with diabetes continues to increase. In 1990, approximately 200 million people were living with diabetes, while by 2022, this number had reached 830 million. Notably, the prevalence of diabetes has increased more rapidly in low- and middle-income countries than in high-income countries. Furthermore, in 2022, more than half of people with diabetes did not receive medication for their condition, with diabetes treatment coverage remaining lowest in

low- and middle-income countries. Diabetes can lead to serious complications, including blindness, kidney failure, heart attack, stroke, and lower-limb amputation (World Health Organization, 2024).

Indonesia ranks fifth globally in terms of the number of adults aged 20–79 years living with diabetes, with an estimated 20.4 million cases in 2024. This number is projected to increase to 28.6 million by 2050 (IDF, 2025). According to data from the Indonesian Ministry of Health's Riskesdas (2025), the prevalence of diabetes in Indonesia increases significantly with age. Among individuals aged 20–44 years, the prevalence remains relatively low at approximately 1.5%. However, it increases to 6% among those aged 45–54 years and continues to rise to 12.8% among individuals aged 55–64 years. The highest prevalence is observed among adults aged over 65 years, reaching nearly 20%. This condition indicates a substantial risk of diabetes mellitus among older adults (Grvila, 2025).

According to the 2024 Health Profile of Central Java Province (Dinas Kesehatan Provinsi Jawa Tengah, 2024), morbidity, including diabetes mellitus, has been recorded through health data and health complaints reported by the community. Overall, the morbidity rate in Central Java reached 13.83% in 2024, increasing from 12.34% in 2023. This means that approximately 13–14 individuals per 100 residents experienced health problems that interfered with their daily activities. Purbalingga is one of the regencies in Central Java and has 22 community health center working areas providing health services to the community (Dinkes, 2024).

According to data from the Purbalingga District Health Office in 2024, there were 13,759 cases of diabetes mellitus in Purbalingga Regency (Dinkes, 2024). According to information provided by healthcare personnel at Karangreja Public Health Center, the number of diabetes mellitus cases has continued to increase each month. The available data recorded 144 cases of diabetes mellitus during the period from December 2025 to February 2026. Diabetes mellitus remains a major concern at Karangreja Public Health Center, as demonstrated by the implementation of the Chronic Disease Management Program (Program Pengelolaan Penyakit Kronis/Prolanis) every month (Puskesmas Karangreja, 2026).

The Deputy Minister of Health of the Republic of Indonesia, Prof. Dr. Dante Saksono Harbuwono, stated that the elderly population in Indonesia is projected to continue increasing until 2045 (Kemenkes RI, 2024). This demographic trend is a serious concern given the potential increase in diabetes mellitus cases among older adults. Contributing factors include declining organ function and limited understanding of the importance of maintaining a healthy lifestyle. In response to this situation, the government and private sectors have established health services known as elderly integrated health posts (*posyandu lansia*). These services are designed to improve community health, with particular emphasis on older adults (Hartono et al., 2024).

Diabetes is a serious health problem because of its severe impact on various body systems and its occurrence across countries and among both men and women. It is also one of the leading causes of death and disability. Diabetes mellitus is

currently one of the leading causes of death in Indonesia, ranking fourth after stroke and ischemic heart disease. Diabetes accounts for approximately 7.8% of all causes of death (Hartono et al., 2024). Therefore, continuous disease management is necessary, particularly among older adults who have a higher risk of developing diabetes mellitus and its complications.

The Chronic Disease Management Program (Prolanis) is a service provided by BPJS Kesehatan that is designed to improve the quality of life of individuals with chronic diseases (Shinta et al., 2025). Participants in this program receive various benefits, including complication prevention, appropriate treatment, and improved quality of life. Members of Prolanis clubs also receive routine health examinations, including blood pressure, random blood glucose, cholesterol, and uric acid measurements (Kemenkes, 2022). According to the monthly report of the Ministry of Health (Kemenkes, 2022). Prolanis activities are implemented through five approaches, including medical consultations, group education, reminders through SMS gateway, home visits, and health status monitoring (Sulistyaningsih, 2022).

Although diabetes affects a large proportion of the population, type 2 diabetes mellitus can be prevented in many cases. Some patients with type 2 diabetes mellitus may achieve remission when the condition is detected and treated at an early stage (Ong et al., 2023). This finding is relevant to Prolanis, which is designed and implemented by BPJS Kesehatan in collaboration with healthcare facilities and BPJS participants. The program provides opportunities for patients with type 2 diabetes mellitus to receive continuous disease management and, at a minimum, to maintain better blood glucose control and prevent more severe complications.

This is supported by a study conducted by Kusuma, Haryatmo, and Artanti (2025) concerning blood glucose levels among Prolanis participants in the working area of Temanggung Public Health Center. The study found that the mean random blood glucose level among participants who regularly attended Prolanis activities was 143.99 mg/dL, with a minimum value of 94 mg/dL and a maximum value of 304 mg/dL. Meanwhile, participants who did not regularly attend Prolanis had a mean random blood glucose level of 144.51 mg/dL, with a minimum value of 70 mg/dL and a maximum value of 419 mg/dL. These findings indicate that participants' regular attendance in Prolanis activities is an important aspect to consider in diabetes mellitus management.

Another study conducted by Nastiti (2023), which examined the relationship between adherence to Prolanis visits and fasting blood glucose levels, found that the majority of participants were adherent (69.8%), while 30.2% were non-adherent. Another study by Irayani (2024), entitled *The Effectiveness of the Chronic Disease Management Program in Controlling Diabetes Mellitus at Arditho Medika Clinic, Bandar Lampung*, also reported relevant findings. The study found that 21 respondents (53.4%) considered the Prolanis program effective, while 23 respondents (59.0%) experienced a reduction in fasting blood glucose levels to the range of 80–130 mg/dL.

These studies indicate that participation and regular attendance in Prolanis are relevant to blood glucose management among patients with diabetes mellitus. However, previous studies have focused on different aspects. Kusuma, Haryatmo, and Artanti (2025) focused on describing blood glucose levels based on participants' activity in Prolanis, whereas Nastiti (2023) employed a correlational analytical design to examine the relationship between adherence to Prolanis visits and fasting blood glucose levels. Meanwhile, Irayani (2024) focused on evaluating the effectiveness of Prolanis in controlling diabetes mellitus. Therefore, there remains an opportunity to specifically describe the frequency of Prolanis visits among older adults and the stability of blood glucose levels among patients with type 2 diabetes mellitus in the working area of Karangreja Public Health Center, Purbalingga.

Based on this background, this study aims to describe the frequency of visits to the Chronic Disease Management Program (Prolanis) among older adults with type 2 diabetes mellitus at Karangreja Public Health Center, Purbalingga. Specifically, this study aims to describe the frequency of Prolanis visits among participants with diabetes mellitus during the previous six months and to describe the stability of blood glucose levels among Prolanis participants. This study is expected to provide information to participants regarding the importance of continuous disease management through Prolanis, contribute to a better understanding of chronic disease management among older adults, and provide input for educational institutions and the community regarding the importance of utilizing Prolanis in diabetes mellitus management.

B. METHODS

This study employed a descriptive design with a *cross-sectional* approach. The study was conducted in the working area of Karangreja Public Health Center, Purbalingga Regency, from September 2025 to June 2026. The study population consisted of all older adults aged 60 years and above who were registered as participants in the Chronic Disease Management Program (Program Pengelolaan Penyakit Kronis/Prolanis) at Karangreja Public Health Center. A total of 54 respondents were selected using *convenience/accidental/opportunity sampling*, in which participants were selected based on their availability at the research location and during the data collection period populasi (Mushofa et al., 2024).

The inclusion criteria were older adults aged over 60 years, registered as Prolanis participants, diagnosed with diabetes mellitus, actively participating in or having visited Prolanis during the specified study period, able to communicate adequately, and willing to participate by signing an *informed consent* form. The exclusion criteria included older adults who did not meet the age or Prolanis participation requirements, had severe cognitive impairment or impaired consciousness, experienced acute complications or severe illness, withdrew from the study, or had incomplete medical records related to Prolanis visits or blood glucose examinations.

The study variables consisted of Prolanis visit frequency as the independent variable and blood glucose stability in patients with type 2 diabetes mellitus as the dependent variable. Visit frequency was measured based on the number of participant visits during the previous six months, from December 2025 to May 2026, using an observation sheet and Prolanis attendance records. Visit frequency was categorized as active for participants with 5–6 visits and less active for those with fewer than 5 visits. Blood glucose levels were obtained from glucometer measurements and medical records, based on fasting blood glucose levels >126 mg/dL or random blood glucose levels >200 mg/dL.

The study used both primary and secondary data. Primary data consisted of blood glucose measurement results obtained from Prolanis participants, while secondary data were obtained from Prolanis registers or records covering the previous six months. Data collection was conducted through observation and documentation of participant attendance and blood glucose measurement results (Rahman et al., 2023). The study was conducted after obtaining research permission from Politeknik Yakpermas Banyumas, the Health Office, and Karangreja Public Health Center.

Data were analyzed using univariate analysis to describe the frequency and percentage distribution of each study variable. The results were presented in frequency distribution tables, percentages, narrative descriptions, and diagrams. Statistical analysis was used to process the collected data into information that could describe the research phenomenon (Muammar Khaddafi et al., 2025).

This study adhered to research ethics principles, including honesty, objectivity, integrity, accuracy, social responsibility, competence, and legality (Saidin & M.Syahrani Jailani, 2023). Participants were informed about the study and provided consent by signing an *informed consent* form. The confidentiality of participants' data was maintained throughout the research process.

C. RESULTS AND DISCUSSION

1. Frequency of Prolanis Visits among Older Adults with Diabetes Mellitus

The results regarding the frequency of visits among patients with diabetes mellitus participating in the Chronic Disease Management Program (Prolanis) are presented in Table 1.

Table 1. Frequency of Prolanis Visits among Patients with Diabetes Mellitus

Category	Number of Respondents	Percentage (%)
Active	49	90.74
Less Active	5	9.26
Total	54	100

Based on Table 1, the majority of respondents were categorized as active Prolanis participants, comprising 49 respondents (90.74%), while 5 respondents (9.26%) were categorized as less active.

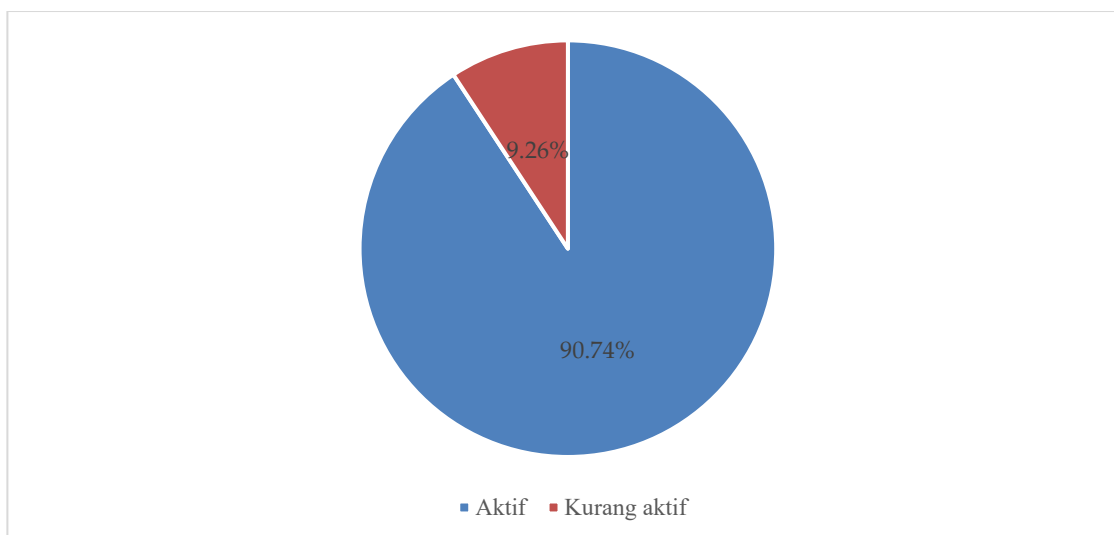


Figure 2. Frequency of Prolanis Visits among Older Adults

The distribution of Prolanis visit frequency showed that the majority of respondents were active participants, with 49 respondents (90.74%) categorized as active, while 5 respondents (9.26%) were categorized as less active. This finding may be attributed to the various benefits provided by Prolanis in supporting the management of chronic diseases. The program provides health services and activities that may help participants monitor and manage their health conditions and potentially reduce the burden of chronic diseases (BPJS, 2022).

This finding is supported by Pasaribu et al. (2024), who reported that participants who actively engaged in Prolanis activities perceived improvements in their health status. Participants also reported that they were able to monitor their health more regularly, experienced fewer physical complaints, and benefited from social interaction with other program members. These benefits may encourage participants to maintain regular participation in Prolanis activities. Nevertheless, a small proportion of respondents in the present study were categorized as less active, comprising 5 participants (9.26%). This finding indicates that although most respondents participated in Prolanis activities regularly, some participants had not yet utilized the program optimally.

According to health behavior theory, participation in health programs is influenced by various factors, including knowledge, motivation, perceived benefits of the program, family support, support from healthcare professionals, and accessibility of health services. Adequate knowledge enables participants to understand the objectives, benefits, and implementation mechanisms of Prolanis, thereby potentially increasing their awareness and commitment to participating regularly (Rahayu et al., 2025).

Healthcare professionals also play an important role as information providers, motivators, and facilitators, while family members may provide emotional, informational, and instrumental support, such as reminding participants about program schedules, accompanying them to activities, and providing encouragement.

When these factors are insufficient, participation in Prolanis activities may be reduced (Rahayu et al., 2025).

The present findings are consistent with those of Rahayu et al. (2025), who found that knowledge, the role of healthcare professionals, and family support significantly influenced active utilization of Prolanis. Their study also indicated that knowledge was the most dominant factor influencing participant activity, followed by the role of healthcare professionals and family support.

Participants with adequate knowledge are more likely to understand the benefits of Prolanis and therefore have greater opportunities to participate actively. Similarly, healthcare professionals who provide regular education, remind participants of activity schedules, and provide ongoing assistance may increase participants' motivation to attend Prolanis activities. Family support, including accompaniment, reminders, and encouragement, may also contribute to maintaining regular participation in Prolanis.

2. Blood Glucose Stability among Prolanis Participants

The results regarding blood glucose stability among participants of the Chronic Disease Management Program are presented in Table 2.

Table 2. Distribution of Blood Glucose Stability among Prolanis Participants

Blood Glucose Category	Number of Respondents	Percentage (%)
Stable	6	11.11
Unstable	48	88.89
Total	54	100

Based on Table 4.2, 6 respondents (11.11%) had stable blood glucose levels, whereas the majority, comprising 48 respondents (88.89%), had unstable blood glucose levels.

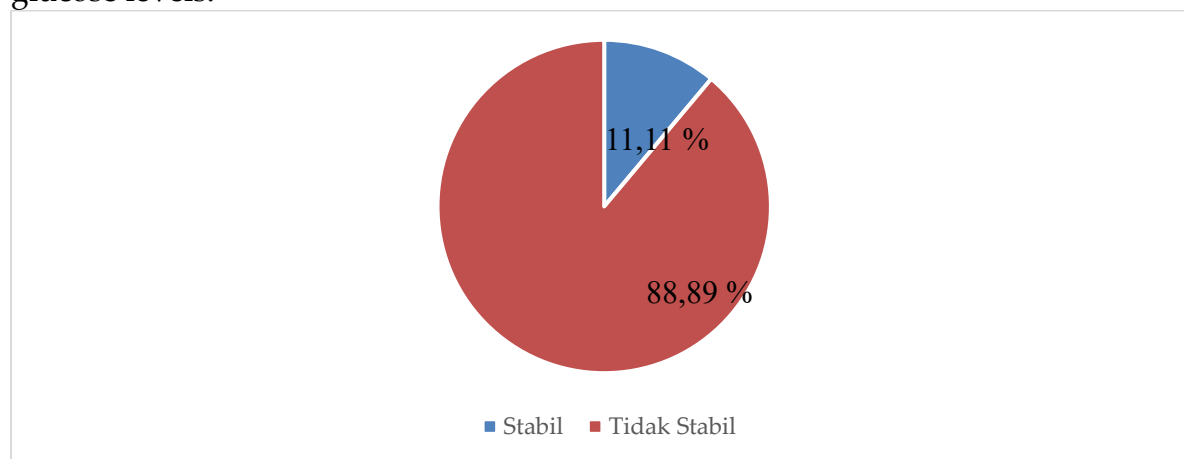


Figure 2. Blood Glucose Stability among Prolanis Participants

The findings presented in Table 4.2 show that the majority of respondents had unstable blood glucose levels, accounting for 48 respondents (88.89%). This finding indicates that most respondents had blood glucose levels that remained above the expected target range despite their participation in Prolanis.

Considering that the majority of respondents were categorized as active Prolanis participants, a more favorable level of blood glucose control might be expected. This expectation is supported by Marbun and Shidieq (2023), who reported that patients with type 2 diabetes mellitus participating in Prolanis had a greater likelihood of achieving controlled blood glucose and HbA1c levels.

However, the present study found that most respondents had unstable blood glucose levels, with random blood glucose (RBG) levels ranging from 210 to 380 mg/dL and fasting blood glucose (FBG) levels ranging from 106 to 500 mg/dL. This finding suggests that blood glucose stability is not determined solely by the frequency of Prolanis visits. Other factors may also contribute to blood glucose control, including stress, knowledge, obesity, and dietary patterns (Siburian & Suherni, 2024).

Therefore, regular participation in Prolanis does not necessarily guarantee stable blood glucose levels. Although Prolanis provides an important platform for monitoring and managing chronic diseases, the effectiveness of blood glucose control may also depend on participants' adherence to dietary recommendations, physical activity, treatment, self-monitoring, and other individual and behavioral factors. Consequently, continuous education and comprehensive support are needed to help Prolanis participants achieve better blood glucose control.

D. CONCLUSION

Based on the findings of the study on the description of Chronic Disease Management Program (Prolanis) visit frequency and blood glucose stability among older adults with type 2 diabetes mellitus at Karangreja Public Health Center, Purbalingga, most Prolanis participants were categorized as active in attending Prolanis visits, with 49 participants (90.74%) classified as active and 5 participants (9.26%) as inactive. Nevertheless, the majority of participants had unstable blood glucose levels, accounting for 48 participants (88.89%), while only 6 participants (11.11%) had stable blood glucose levels. These findings indicate that active participation in Prolanis visits does not necessarily correspond to stable blood glucose levels among participants.

The limitation of this study was that blood glucose measurements, including random and fasting blood glucose tests, were performed by a physician. Therefore, the researcher used the results of these examinations as the source of study data and did not directly measure the participants' blood glucose levels.

Based on the findings, Karangreja Public Health Center is expected to maintain active Prolanis participation through health education using various media, such as posters, leaflets, infographics, and educational videos. In addition, continuous education should be provided to Prolanis participants regarding blood glucose management, including adherence to an appropriate diet, regular physical activity, compliance with prescribed therapy, periodic blood glucose monitoring, and the adoption of a healthy lifestyle. These efforts are expected to support Prolanis participants in achieving more optimal blood glucose control.

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