

## Research Article



## Quality of Life Among Diabetes Mellitus Patients in Indonesian Chronic Disease Management Program (Prolanis)

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### ABSTRACT

**Background:** International Diabetes Federation (IDF) data shows that the increasing prevalence of diabetes mellitus worldwide is still happening and is a significant global health challenge. Patients with diabetes mellitus tend to have a poorer quality of life than those without a chronic disease. This study aims to obtain an overview of the quality of life of patients with diabetes mellitus.

**Method:** This research was a quantitative descriptive study with a cross-sectional approach, conducted in July–October 2021 at one of the Chronic Disease Management Program Communities (Prolanis) in Bantul District, Yogyakarta. The total participants of this study were 63 patients with diabetes mellitus who were registered in the Prolanis community; they did not show mental disorders and were willing to participate in the study. We used purposive sampling to recruit the participants. Researchers used the WHOQOL-BRIEF questionnaire that has been standardized and created by WHO. Other variables recorded in this study include eating patterns and socio-demographic characteristics. A descriptive analysis was conducted to present the results in tables and graphs.

**Results:** Most participants were elderly (over 50 years old), had a high level of education, had good religious spirituality, were in marital status, and had no comorbidity. Patients with diabetes mellitus in the Prolanis group had a good quality of life and level of life satisfaction. The description of the participants' eating patterns was also good, where none of them consumed instant food anymore, and all consumed a variety of fruits and vegetables regularly.

**Conclusion:** This study showed the quality and satisfaction of life and a good diet in patients with diabetes mellitus in the Prolanis Community. Therefore, it is necessary to advance the Prolanis community to maintain the quality of life, life satisfaction, and lifestyle of patients with diabetes mellitus.

**Keywords:** Quality of life; Diabetes mellitus; Prolanis community

## INTRODUCTION

The International Diabetes Federation (IDF) reports an escalating prevalence of diabetes mellitus globally. This number will continue to increase and become a significant global health challenge for individuals, families, and communities. In 2021, the IDF reported a total of 537 million or similar, with 1 in 10 adults living with diabetes. Cases will increase to 643 million in 2030 and 784 million in 2045. The IDF also states that because of diabetes, one person in the world dies every five seconds, and it causes a total loss of USD 966 billion (1). In Indonesia, WHO and IDF predict diabetes cases will increase by 2-3 times in 2030 (1-2).

Quality of life has an essential role in human health outcomes. It is the ultimate goal of all health interventions (3,4) WHO states that the definition of "health" is not only the absence of disease in a person but a state of complete physical, mental and social well-being (5). A person's quality of life can be measured by looking at physical and social functioning aspects and feelings towards their physical and mental condition (6). Recently, interest in quality-of-life issues has increased significantly, especially in health-related issues.

Compared to persons who do not have a chronic disease, people with diabetes mellitus have a lower quality of life (7-9). People with diabetes mellitus have challenges accepting and adapting to the disease throughout their lives. Therefore, improving or maintaining a good quality of life is part of the main goal in treating diabetes mellitus. Studies identified factors related to the quality of life of people with diabetes mellitus, including blood sugar levels, complications with other diseases, and psychological, social, and demographic characteristics (3).

The Chronic Disease Management Program (Prolanis) is a health care system with a proactive approach implemented in an integrated manner involving participants, health facilities, and BPJS Kesehatan. This program provided effective and efficient health care services, including medical education and consultations, home visits, reminders, club activities, and health status monitoring. Prolanis aims to support participants who suffer from chronic diseases to achieve their optimal quality of life. Prolanis' targets are all BPJS Kesehatan participants with chronic conditions (Diabetes Mellitus Type 2 and Hypertension) (10).

Previous studies have reported positive public acceptance of Prolanis, as evidenced by an increase in the number of participants, which has tripled since 2014 (11). However, some barriers related to support from policymakers were still found – i.e., limited funding, infrastructure, and human resources, as well as unclear standard operation procedure (SOP) (12). This poor support, possibly caused by limited evidence, directly reported the advantages of Prolanis for their participants. Previous evaluation programs mainly focused on their impact on health costs and the health services system (11,12). Thus, this study is intended to provide the descriptive impact of Prolanis on its participants, particularly on their quality of life, to encourage policymakers to give maximum support to this program.

## **METHOD**

### **The Research Design and Setting**

This research was a quantitative descriptive study with a cross-sectional method conducted from July-October 2021 in one of the Prolanis Communities in Bantul Regency, DI Yogyakarta. The reason for choosing this location was based on data showing 610 diabetes mellitus patients joined the Prolanis community in Bantul Regency.

### **Research Participants**

This study involved 61 patients with diabetes mellitus registered in the Prolanis community, who did not show mental disorders, could communicate well and were willing to participate. The sample was selected by using purposive sampling. The sample calculation was based on a 90% confidence level and a 10% margin error.

### **Research Variables and Instruments**

The primary variable in this study was the quality of life of patients with diabetes mellitus. Researchers used the standardized WHOQOL-BRIEF questionnaire (6) and created by WHO. This questionnaire has good reliability, as indicated by an alpha coefficient of 0.76 and external validity of 93%. In this study, researchers included four aspects (physical, psychological, social, and environmental) in the WHOQOL-BRIEF questionnaire. Social factors: personal relationships, social relationships, and sexual activities. Ecological aspects: have financial resources, freedom, security, physical safety, health and social care, home environment, sharing of information and skills, and engaging in fun activities. All questions were assessed using a Likert scale of 1-5, including intensity, capacity, frequency, and evaluation.

Other variables recorded in this study: eating patterns and socio-demographic characteristics. Dietary data were taken using a questionnaire containing the grouping of foodstuffs based on macro and micro nutrition sources and the frequency of eating weekly.

### **Data Analysis**

Data analysis was done descriptively through cleaning, editing, and coding before further analysis. The analysis was presented in graphical form to make it more informative.

### **Ethical Consideration**

Researchers respect participant confidentiality and only use research data for scientific purposes. Researchers had explained the entire research process to the participants before the study was conducted. The research started when the participants had signed the informed consent.

## RESULTS

### General characteristics

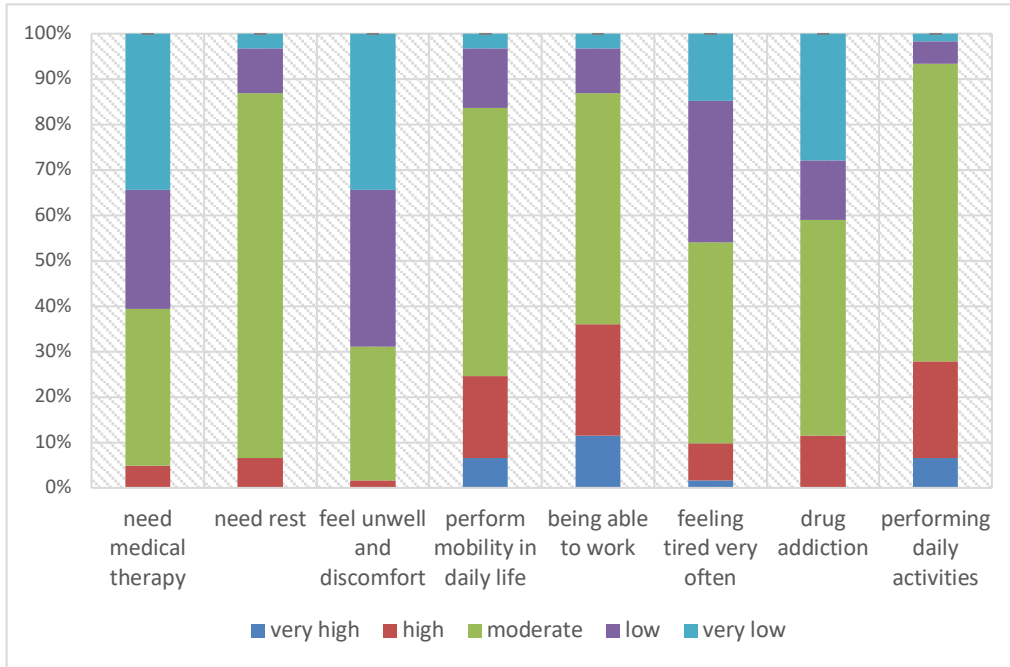
The total participants of this study were 61 patients with diabetes mellitus. Most of the research participants were male, aged over 50 years (elderly), Moslem, not working formally (housewife, retired, not working), highly educated (at least a bachelor's degree), and were in marital status. The comorbidities found in this study: are cholesterol, high blood pressure, gout, stomach acid, heart disease, and tuberculosis. However, for the most part, the study participants had no comorbidities. Most of the participants in this study had a good quality of life and were satisfied with their current living conditions (Table 1).

**Table 1.** Characteristics of Diabetes Mellitus Patients in the Prolanis Group

Variables	Frequency	Percentage (%)
Gender		
Female	33	54
Male	28	46
Age		
<50	17	28
>50	44	72
Religion		
Moslem	57	93
Not Moslem	4	7
Employment status		
Employed	36	59
Unemployed	25	41
Education		
Senior high school or less	23	37
University	38	63
Marital Status		
Married	57	93
Not married	4	7
Comorbidities		
No comorbidities	37	61
Hypertension	14	23
Lung disease	4	7
Gout	3	5
Cholesterol	3	5
Heart Disease	1	2
Quality of life		
Very Good	9	15
Good	32	53
Fair	13	21
Worse	7	12
Self-condition satisfaction		
Very satisfied	8	13
Satisfied	33	54
Moderately satisfied	19	31
Not satisfied	1	12

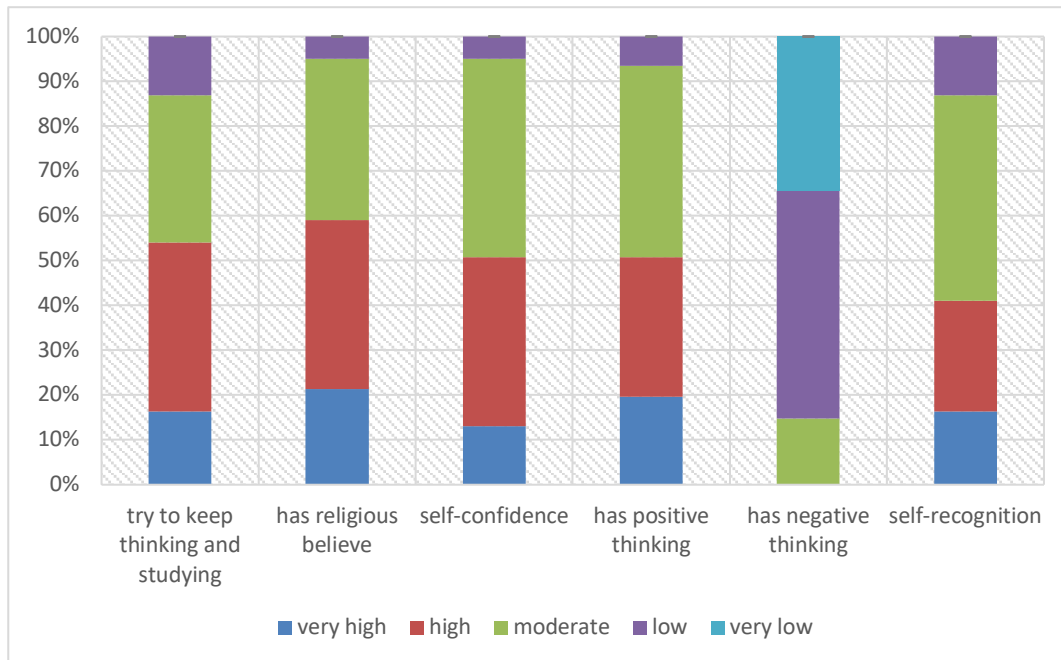
### The quality of life physically, psychologically, socially, and environmentally.

Based on physical categories, most study participants did not need medical therapy, had an adequate sleep, and did not feel pain or discomfort. For the most part, participants thought they could work and carry out mobility daily, although they felt pretty tired and entirely dependent on drugs (Figure 1).



**Figure 1.** The Quality of Life of Diabetes Mellitus Patients by Physical Category

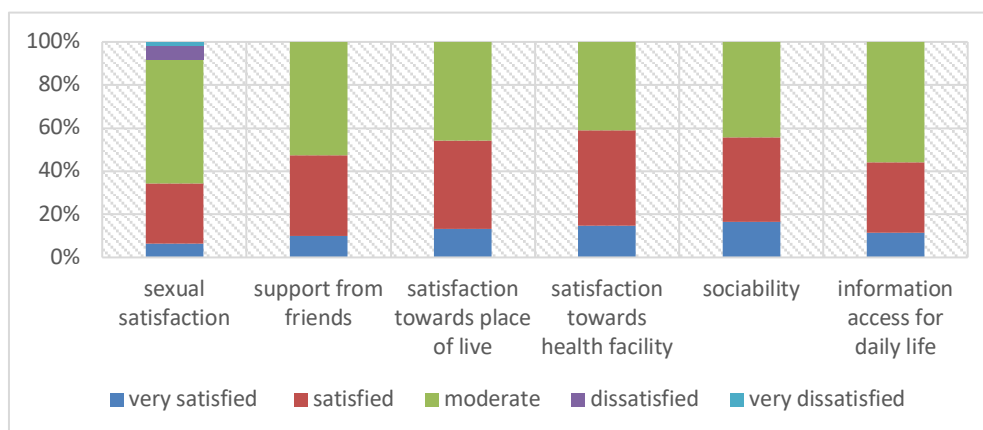
Psychologically, some of the research participants felt they could keep thinking, had good spirituality or belief in religion, were confident, had positive feelings, and were able to provide a self-image (Figure 2).



**Figure 2.** The Quality of Life of Diabetes Mellitus Patients by Psychological Category

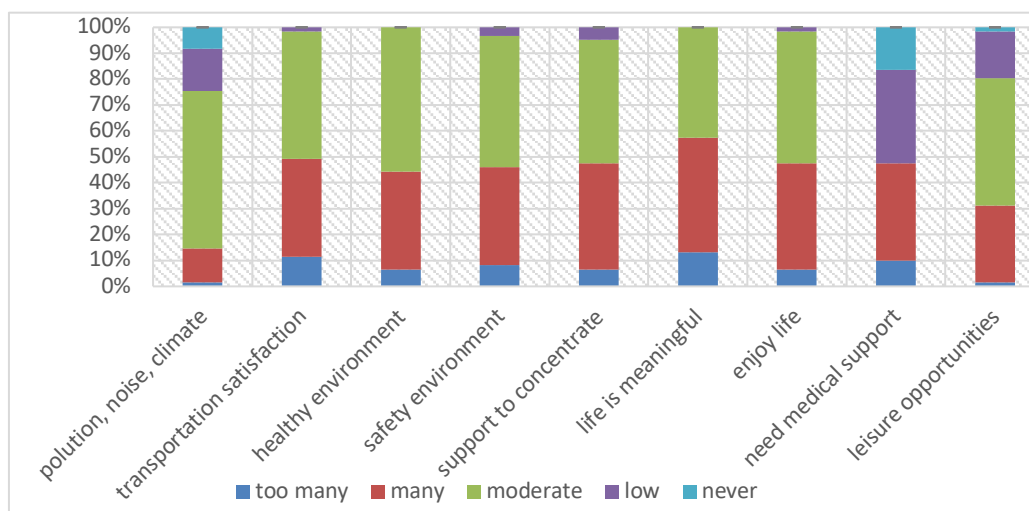
The results of this study indicated that most participants have a level of satisfaction that is not high enough for social quality, including satisfaction with support from friends and other social support, satisfaction with relationships and personal relationships, satisfaction with living

conditions, satisfaction with sexual life, and satisfaction to access information. However, most participants were satisfied with their health services (Figure 3).



**Figure 3.** The Quality of Life of Diabetes Mellitus Patients by Social Category

The study's results related to the description of the quality of life based on environmental factors showed that most participants were in a relatively healthy and safe environment and quite able to enjoy their lives. Most of them can do recreation and fun activities with moderate frequency. However, most also experience mild frequency disturbances from pollution, noise, climate, and traffic (Figure 4).



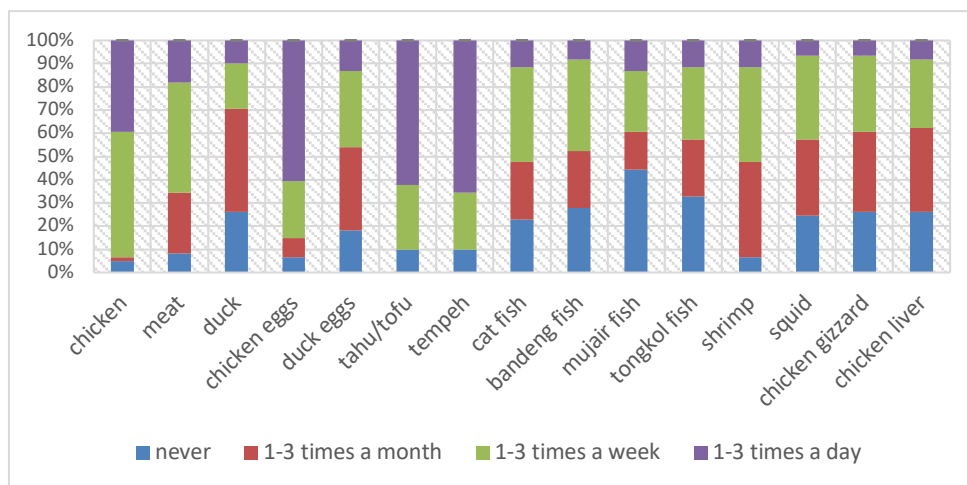
**Figure 4.** Experience of disturbances from pollution, noise, climate, and traffic

### The diet of patients with diabetes mellitus

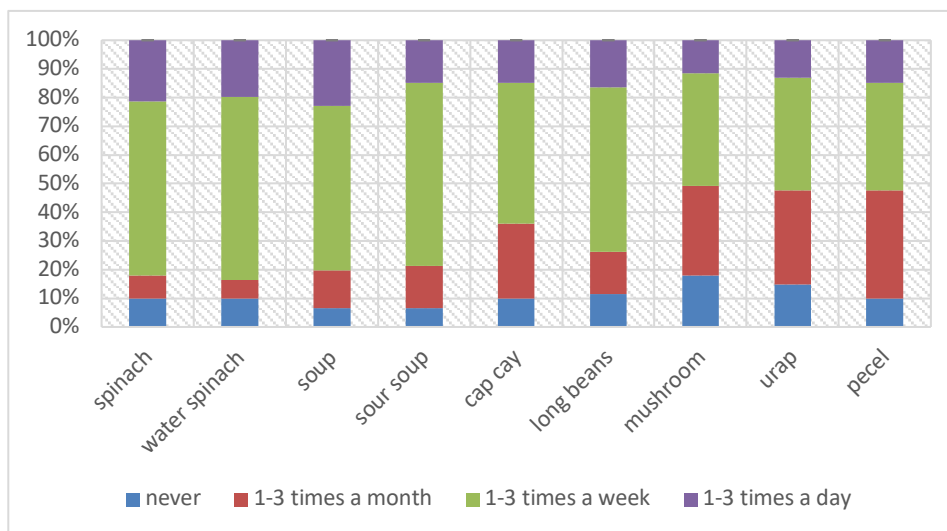
The results showed that the most consumed carbohydrate source by the participants was white rice. Meanwhile, many participants have never again consumed instant noodles. Participants in this study consumed a variety of sources of protein and vegetables. The type of fruit most consumed by participants in this study was banana. Meanwhile, dragon fruit and melon were the most never consumed fruits by participants in this study. Participants in the study were a group that rarely consumed milk and yoghurt, and many never consumed both (Figures 5-9).



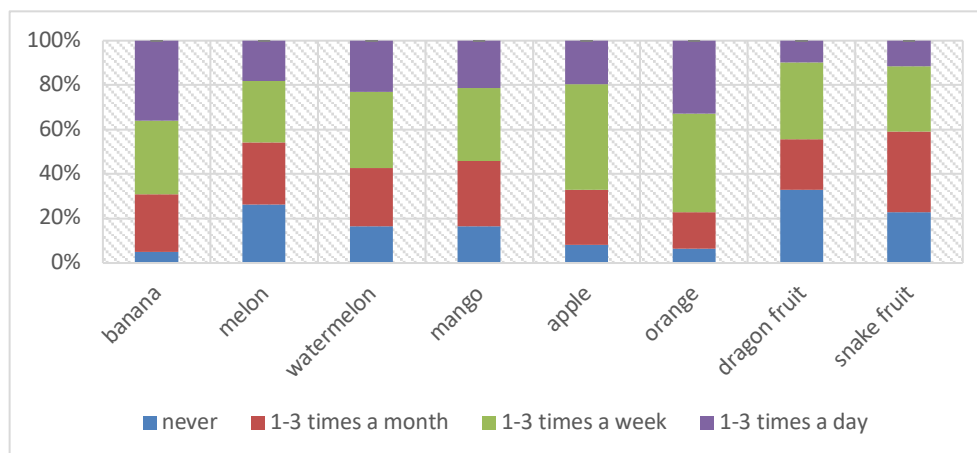
**Figure 5.** Diet of Diabetes Mellitus Patients based on Carbohydrate Sources



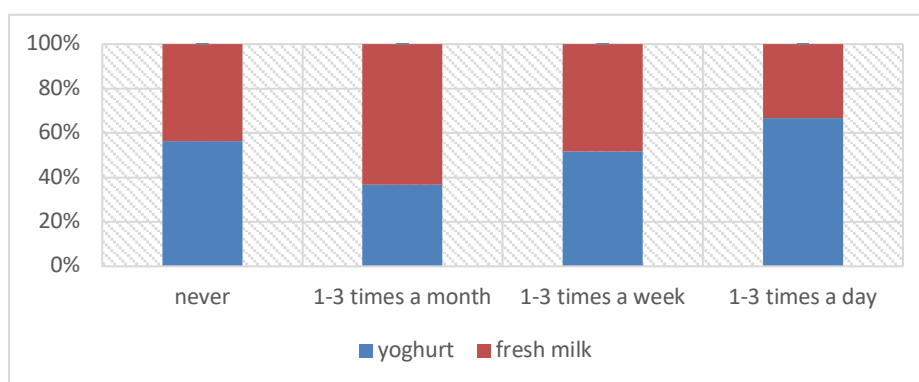
**Figure 6.** Diet of Diabetes Mellitus Patients based on Protein Source



**Figure 7.** Diet of Diabetes Mellitus Patients by Vegetable Group



**Figure 8.** Diet of Diabetes Mellitus Patients by Fruits Group



**Figure 9.** Diet of Diabetes Mellitus Patients by Milk and Yoghurt Group

## DISCUSSION

This study showed that diabetes mellitus patients in the Prolanis group had a good quality of life and level of life satisfaction. However, most of them were elderly (over 50 years of age). Prolanis is a health care system and a proactive approach implemented in an integrated manner involving participants, health facilities, and BPJS Kesehatan. In this context of health care for BPJS Kesehatan participants who suffer from chronic diseases achieve optimal quality of life with effective and efficient health care costs (10). The results of this study are similar to previous studies in the age group over 65 years, which showed that community-based programs such as Prolanis, which encourage activity and involvement of patients in maintaining health, can improve the quality of life of patients with diabetes mellitus (13-14). This study's results differ from a study conducted in Mexico, which reported a low quality of life for people with diabetes mellitus (15). This result is probably because the participants in Mexico were patients in the hospital, while the participants in this study were Prolanis participants in the community.

The assessment results in the physical, psychological, social, and environmental categories indicate good quality and life satisfaction. Participants gave "fair" to "high" scores on all aspects of the assessment. The level of good quality and life satisfaction in this study was influenced by socio-demographic characteristics and clinical status of diabetes mellitus



patients who participated in this study. Including higher education level, good religious spirituality, marital status, and not having comorbidities. The participants in this study also had a picture of a good diet, where none consumed instant food, and all consumed various fruits and vegetables regularly.

The resulting study is also in line with the previous research. Although many are retired or no longer actively working formally, higher education levels symbolize good economic conditions that can improve their mood so that their perceptions of quality and life satisfaction are high (16). At the same time, research also proves that low levels of education are associated with low quality of life in patients with diabetes mellitus (17). The results of previous studies also showed that belief in religion significantly increased the patient's strength in dealing with difficult situations due to the diagnosis of his illness (18). Marital status, which shows family support, is also a factor that significantly affects the quality of life of people with chronic diseases, even more than support from friends or other social environments (19). Another thing that is very important in influencing the quality of life of patients with diabetes mellitus is a comorbid disease (20,21) because its presence can increase psychological stress and or reduce the patient's activity and mobility.

This research is one of the studies on the quality of life and life satisfaction that is rarely carried out in the Prolanis community in Yogyakarta. Therefore, this research is expected to become scientific evidence regarding the importance of conducting similar studies in more numbers so that health workers have good sources to pay more attention to patients' quality and life satisfaction with diabetes mellitus. The researcher admits that this research is limited by an explanatory study approach where all research results are analyzed and presented descriptively without analyzing the relationship on each variable.

## **CONCLUSION**

This study showed the quality and satisfaction of life and a good diet in patients with diabetes mellitus in the Prolanis Community. Although most study participants did not have comorbidities, many still had hypertension and cholesterol. Therefore, the researchers recommend that the Prolanis member be more active in the Prolanis community to maintain the quality of life, life satisfaction, and lifestyle of patients with diabetes mellitus, including by providing a pocketbook, "Healthy Living Guide for Diabetes Mellitus Patients."

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## **Authors' contribution**

TAM did the chapters Introduction, method and result, NAK did the data analysis, and R did language editing and generated the abstract

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This research has not received external funding.

## Conflict of interest

There is no conflict of interest in this research.

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