



(RESEARCH ARTICLE)



Impact of the active involvement in the management of chronic disease program on the blood pressure of hypertensive patients in Oesapa Public Health Center, Kupang City

Ida Ayu Dona Sasmita Maris ^{1,*}, Magdarita Riwu ², Iswaningsih ³ and Regina M. Hutasoit ⁴

¹ Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, Adisucipto St., Penfui, Kupang, NTT, 85001

² Pharmacy Study Program, Bachelor's Program, Faculty of Medicine and Veterinary Medicine Universitas Nusa Cendana, Adisucipto St., Penfui, Kupang, NTT, 85001

³ Department of Pharmacology and Therapy, Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, Adisucipto St., Penfui, Kupang, NTT, 85001

⁴ Department of Biomedicine, Faculty of Medicine and Veterinary Medicine, Universitas Nusa Cendana, Adisucipto St., Penfui, Kupang, NTT, 85001

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Abstract

Hypertension or high blood pressure is one of the chronic diseases with a high prevalence in Indonesia. Therefore, the BPJS (Social Security Organizing Agency) creates a program to treat chronic disease called Prolanis (Chronic Disease Management Program) to improve the quality of life for the elderly. The objective of this study is to determine the impact of active involvement in the management of chronic disease programs on the blood pressure of hypertensive patients in Oesapa public health center, Kupang City. Observational analytical research with a cross-sectional study design is conducted on Prolanis participants at Oesapa Public Health Center. Data is derived from participants' medical records and a questionnaire about the obedience of patients to take the medicine and deep interviews toward 32 research samples that fit in with inclusion and exclusion criteria. Data analysis is conducted by using univariate analysis and bivariate analysis using the coefficient contingency test. The result of the research shows that active involvement in following Prolanis program has no significant impact on the blood pressure of elderly hypertensive patients (p value = 0.087). In conclusion, there is no correlation between the active involvement in following the management of chronic disease program and the blood pressure of hypertensive patients in Oesapa Public Health Center, Kupang City.

Keyword: Hypertension; Prolanis; BPJS; Public Health Center; Kupang City

1. Introduction

Non-communicable diseases, or STDs, remain the leading cause of death worldwide. According to mortality data from the World Health Organization (WHO), approximately 41 million people, equivalent to 74% of all deaths, are caused by STDs. Furthermore, the above data shows that 17 million people die before the age of 70 due to STDs, one of which remains a major concern today, hypertension [1].

According to data from the American Heart Association (AHA), in 2017, the number of people with hypertension reached 9,623 people, consisting of 4,717 men (49%) and 4,906 women (51%) [2]. Based on data from the 2018 Basic Health Research (Riskesdas), the prevalence of hypertension in Indonesia increased by 8.3%, reaching 34.1%, compared to the prevalence of 25.8% according to the 2013 Riskesdas [3]. The prevalence of hypertension measured among the population aged 18 years and over in Indonesia, cases in East Nusa Tenggara (NTT) increased from 2007 to

* Corresponding author: Ida Ayu Dona Sasmita Maris

2018. The data also shows that the number of hypertension patients in NTT was 25,563 and 2,274 in Kupang City [4]. One of the community health centers in Kupang City with the highest number of hypertension cases is the Oesapa Community Health Center. In 2022, data on hypertension patients at the Oesapa Community Health Center reached 4,985, with 2,546 men and 2,439 women. To address the increasing prevalence of hypertension, Indonesia has implemented an initiative called the Chronic Disease Management Program (Prolanis).

Prolanis is a Chronic Disease Management Program created by BPJS Kesehatan. This program was established in 2014. This program aims to improve the quality of life for people with chronic diseases, one of which is hypertension. Prolanis has several work programs consisting of physical exercise, education, consultation, short message service (SMS), and home visits. This work program has a significant impact in helping control blood pressure. This is supported by several studies which stated that the Prolanis program held throughout Indonesia and implemented in every community health center plays an effective role in lowering blood pressure [5-7]. In Kupang itself, one of the community health centers that run this program is the Oesapa Community Health Center.

Oesapa Community Health Center (Puskesmas) is one of the health centers in the Oesapa region that implements the Prolanis (Health Promotion Program). Data from the Oesapa Community Health Center shows a total of 300 patients in January 2023, with more hypertension patients than diabetes mellitus patients. There were 209 hypertension patients and 91 diabetes mellitus patients. Of these Prolanis participants, some were active and some were inactive.

Several factors influence participants' active participation in the Prolanis program. Three main factors influence Prolanis participant engagement. First, predisposing factors, which include knowledge, attitudes, and demographics (such as age, gender, occupation, and education). Then, there are supporting factors, which include the availability of facilities, infrastructure, and resources. Finally, there are motivational factors, which include support from family, health workers, and other personnel who serve as reference groups for community behavior. The active participation of Prolanis participants can also impact on their own health.

Patients who actively participated in Prolanis activities tended to have healthier attitudes and lifestyles, resulting in stable blood pressure. This was achieved in conjunction with the implementation of recommendations provided during Prolanis activities. However, this was inversely proportional to patients who did not actively participate in Prolanis activities, who experienced unstable blood pressure [8]. Similarly, other research found a significant difference, where the group that actively participated in Prolanis had more stable blood pressure control compared to the group that did not actively participate in Prolanis [9].

This contrasts with research conducted by Upik Pebriyani, which showed that active participation in Prolanis did not always stabilize a person's blood pressure [10]. This is likely to be due to factors among the respondents. Respondents had low awareness of actively implementing programs offered by community health centers. This is the causes many patients to experience unstable blood pressure [10]. Most previous studies have shown that actively following Prolanis influences patients' blood pressure, but cases of hypertension continue to increase.

Based on the data presented above, the number of hypertension sufferers at the Oesapa Community Health Center remains relatively high. Therefore, one program needed to address this problem is Prolanis. Prolanis is crucial in addressing this issue because it was developed directly by the Social Security Agency (BPJS) and administered by primary healthcare facilities, namely community health centers (Puskesmas). Its primary goal is to improve the quality of life of elderly people with chronic diseases, particularly hypertension. Prolanis will have a significant impact on hypertension sufferers. However, this also depends on the active participation of elderly people in Prolanis activities.

This study aims to explain the effect of active participation in Prolanis on blood pressure levels in hypertension patients at the Oesapa Community Health Center in Kupang City. This research is necessary given the low participation rate of participants in Prolanis, which makes it difficult to monitor blood pressure levels in hypertensive patients. Regarding the research background, the researchers were interested in examining the effect of active participation in the Chronic Disease Management Program (Prolanis) on blood pressure levels in hypertension patients at the Oesapa Community Health Center, to educate the community and improve services at the Oesapa Community Health Center.

2. Methods

This study was conducted from August 22 to October 20, 2023. The study began with the collection of medical records as secondary data and primary data from informed consent forms. A medication adherence questionnaire and in-depth interviews were conducted with Prolanis participants. A total of 44 potential respondents were recruited, but 32 met

the inclusion and exclusion criteria. Purposeful sampling was used to collect data from a population based on specific objectives and in accordance with the inclusion and exclusion criteria established by the researcher.

The inclusion criteria for this study were hypertensive patients with a diagnosed and measured blood pressure of greater than or equal to 140/90 mmHg, new hypertensive patients registered between June and December 2022 at the Oesapa Community Health Center, Prolanis participants aged 45-65 years registered at the Oesapa Community Health Center, hypertensive patients regularly taking antihypertensive medication, Prolanis patients with complete medical records (name, medical record number, active mobile phone number, blood pressure, and address), and Prolanis participants who voluntarily agreed to be research subjects by signing an informed consent. Exclusion criteria for this study were hypertensive patients with comorbidities, Prolanis participants who could not be contacted and/or did not complete the study, and Prolanis participants who were unable to communicate effectively.

To determine respondents' adherence to antihypertensive medication, the Medication Adherence Rating Scale (MARS-5) questionnaire was used. This questionnaire uses five Likert-type questions, covering forgetting to take medication, changing the dose, stopping medication, deciding to skip a dose, and reducing the dose. Respondents with a score of greater than or equal to 23 were considered compliant, while those with a score of less than 23 were considered non-compliant. The data were then analyzed using the statistical tests used in this study, namely the contingency coefficient test, and SPSS.

3. Results

3.1. Respondent Characteristics

There were 32 respondents in this study. Their characteristics are presented in Table 1 below. Respondent characteristics were obtained based on age. This study included 19 Prolanis participants aged 59-65 years (59.4%). In terms of gender, most respondents were male, 18 (56.2%). Regarding the distance from the participants' homes to the Prolanis location, 32 (100%) lived less than 5 km. Regarding medication adherence, all 32 participants (100%) adhered to their medication.

Table 1 Characteristics of Respondent

Variable	Frequency	Percentage (%)
Age (Years)		
41-51	4	12.5
52-58	9	28.1
59-65	19	59.4
Gender		
Man	18	56.2
Woman	14	43.8
Distance from home		
> 5km	0	0
< 5km	32	100
Medication adherence		
Adherence	32	100
Non-adherence	0	0

3.2. Univariate Analysis

Univariate analysis was conducted to determine the frequency distribution of Prolanis participation and blood pressure among Prolanis participants at the Oesapa Community Health Center. The results are presented in Table 2 and Table 3. Table 2 shows the frequency distribution of Prolanis activities at the Oesapa Community Health Center. There were 26

active Prolanis participants (81.2%) and 6 inactive Prolanis participants (18.8%). Table 3 shows that 28 Prolanis participants had stable blood pressure (88%). Meanwhile, 4 Prolanis participants had unstable blood pressure (12%).

Table 2 Frequency Distribution of Prolanis Activities at the Oesapa Community Health Center

Variable	Frequency	Percentage (%)
Active	26	81.2
Passive	6	18.8
Total	32	100

Table 3 Frequency Distribution of Blood Pressure Conditions at the Oesapa Community Health Center

Variable	Frequency	Percentage (%)
Stable	28	88
Unstable	4	12
Total	32	100

Data presented on Table 4 shows that 24 active Prolanis participants had stable blood pressure and 2 had unstable blood pressure. Meanwhile, 4 inactive Prolanis participants had stable blood pressure and 2 had unstable blood pressure.

Table 4 Tabulation of Prolanis Activity Frequency in Blood Pressure Conditions

		Blood Pressure Condition				Total
		Stable	Percentage (%)	Unstable	Percentage (%)	
Activity	Active	24	92.3	2	7.7	26
	Passive	4	66.7	2	33.3	6

3.3. Bivariate Analysis

Bivariate analysis in this study was used to determine the relationship between Prolanis activity and hypertension control at the Oesapa Community Health Center. The analysis was conducted using a contingency coefficient test with a 95% confidence level ($\alpha \leq 0.05$). The following are the results of the bivariate test (Table 5). It shows the results of the statistical test with a p value = 0.087 ($p > 0.05$) so it is concluded that there is no significant influence between active participation in Prolanis on the blood pressure conditions of Prolanis participants at the Oesapa Community Health Center.

Table 5 Bivariate Test between Prolanis Activity and Blood Pressure Conditions at Oesapa Community Health Center

		Blood Pressure Condition		Nilai <i>p</i>	Nilai <i>r</i>
		Stable	Unstable		
Prolanis Activity	Active	24	2	0.087*	0.290
	Passive	4	2		

4. Discussions

This study aimed to determine the effect of active participation in the Chronic Disease Management Program (Prolanis) on blood pressure levels in hypertensive patients at the Oesapa Community Health Center in Kupang City. This general objective was further subdivided into several specific objectives: to determine the characteristics of hypertensive

patients participating in Prolanis at the Oesapa Community Health Center, to determine the activity level among hypertensive patients participating in Prolanis at the Oesapa Community Health Center, and to determine the blood pressure levels of hypertensive patients participating in Prolanis at the Oesapa Community Health Center in Kupang City.

This study was conducted among Prolanis participants at the Oesapa Community Health Center in Kupang City, with 32 respondents, adjusted according to inclusion and exclusion criteria. The results showed that the majority of respondents were aged 59-65 years (19), and the majority were male (18). Furthermore, the most active respondents were male (26), with 6 respondents being inactive. As for patient characteristics according to blood pressure stability, 28 respondents had stable blood pressure and 4 respondents had unstable blood pressure, and the results of this study also noted that all respondents were compliant in taking antihypertensive drugs.

After statistical testing using the contingency coefficient test, the p-value was not significant, with a p-value of 0.087 ($p > 0.05$). This indicates that active participation in the Chronic Disease Management Program had no effect on blood pressure among Prolanis participants at the Oesapa Community Health Center. This is due to several factors. One contributing factor to the lack of effect of active Prolanis participation on blood pressure among Prolanis participants at the Oesapa Community Health Center is the small sample size in this study. This was due to several respondents being excluded from the sample for not meeting the inclusion and exclusion criteria. In addition to the small sample size, Prolanis participants' adherence to treatment also yielded insignificant results. All participants in this study, both active and inactive, adhered to their medication. This adherence to study showed a significant relationship between adherence to antihypertensive medication consumption and blood pressure [12].

This study also found that the number of hypertension sufferers increased with age, indicated by 4 people (12.5%) in the 41-51 age group, 9 people (28.1%) in the 52-58 age group, and 19 people (59.4%) in the 59-65 age group. This is influenced by the physiological degeneration of the body in dealing with hypertension, which causes stiffness in the blood vessels, making vasodilation difficult. Furthermore, based on gender, there were more male respondents than female respondents. The number of male respondents in this study was 18 people and the number of female respondents was 14 people. This number of respondents is comparable to the study conducted by Nur Inayah et al., where the number of male respondents outnumbered female respondents (21 men and 19 women) [11]. Similar results were also reported a higher number of male respondents than female respondents (14 men and 3 women) [13].

The results of this study also reflect the distance between the participants' homes and the Prolanis locations. All Prolanis participants lived less than 5 km from the Prolanis locations. This is because the Prolanis locations are spread across six clusters in different locations. The distance between residence and the Prolanis location can affect the activities of the elderly [14]. However, the results of the research conducted in this study indicate that distance is not a barrier for Prolanis participants because they have reasons to stay healthy, so they always make time to come to Prolanis.

Based on the study, 26 respondents actively participated in Prolanis. However, six respondents were less active, emphasizing discipline in managing comorbidities. Interviews revealed that inactivity among Prolanis participants was due to several factors, including participants preferring to undergo in-person examinations at the hospital and being busy with work. Other factors included other activities, events, or parties held by Prolanis members that coincided with Prolanis activities. Furthermore, some members forgot the Prolanis schedule and missed the activities. This led respondents to choose not to participate in Prolanis. In addition to these two factors, there was also a contributing factor, namely each respondent's self-awareness.

Low self-awareness also tended to contribute to respondents' inactivity in Prolanis activities. Prolanis participants continued to not participate in Prolanis activities, despite reminders through WhatsApp groups or direct visits from cadres. Interviews showed opposite results compared to respondents who actively participated in Prolanis activities.

Active Prolanis respondents had a high level of awareness about participating in Prolanis activities. Furthermore, strong support and motivation from their families further motivated them to live a healthy lifestyle. This contributed to their enthusiasm for participating in Prolanis activities. Furthermore, active respondents were attracted to Prolanis because they received good health care and were able to interact with other participants. These activities also provided other benefits, such as more stable blood pressure due to continuous monitoring and reminders to take medication regularly, as well as guidance on a healthier lifestyle.

There are several factors contributing to decreased Prolanis activity included busy work or schedules, lack of family support, difficulty walking, and other factors [8]. Another study found that family support and good habits also influenced people with hypertension in maintaining their lifestyle [15]. Awareness and self-motivation are also

important factors in managing hypertension. Patients who were not actively following Prolanis usually obtained medication from a doctor's practice independently, and there was a significant difference between the medication adherence of patients who were actively following Prolanis and those who were not [8].

The blood pressure stability of Prolanis participants in this study was influenced by several factors. One factor affecting blood pressure stability was lifestyle. Interviews revealed that respondents tended to attend parties daily. This led to excessive consumption of foods containing coconut milk, which is high in fat and can cause blood vessel blockages. Coconut milk contains cholesterol, found in LDL, which causes blockages when it mixes with proteins blocked by muscle cells and calcium, resulting in increased blood pressure [16]. High fat diet (coconut milk) could cause the aortic wall to thicken [17]. Another contributing factor to lifestyle is poor sleep quality.

Four respondents (12%) with unstable blood pressure experienced poor sleep quality, which can trigger hypertension. There is correlation between sleep quality and the rate of hypertension recurrence. Poor sleep quality can disrupt the body's metabolic and endocrine systems, which can lead to cardiovascular disorders [18]. Poor sleep quality makes it easier for hypertension sufferers to experience hypertension recurrence due to disruption of stress hormones, namely cortisol and the sympathetic nervous system, which causes increased blood pressure [19]. Apart from sleep quality, physical activity carried out by Prolanis participants also affects blood pressure stability.

One physical activity that seniors can participate in is exercise, which is held during Prolanis activities. According to BPJS guidelines, Prolanis exercise is held at least twice a month and preferably four times a month [20]. However, in this study, Prolanis exercise was only held once a month, making it less effective in lowering blood pressure. One Prolanis respondent interviewed also stated that monthly exercise is less effective in stabilizing blood pressure. Study showed that ineffective Prolanis activities result in uncontrolled blood pressure [21].

This suggests that Prolanis activities cannot determine whether Prolanis participants' blood pressure is stable, as several factors must be considered, such as medication adherence and lifestyle. It is hoped that through active participation in this program, hypertension patients, especially those entering old age, can continue to be closely monitored to ensure their blood pressure remains controlled. Therefore, it is important to address the lack of active participation in Prolanis. There are several limitations on this research. Firstly, this study did not examine external factors that can influence blood pressure in hypertensive patients, such as lifestyle, stress, occupation, environmental factors, diet, and physical activity. Secondly, the number of respondents used in this study was too small and not representative of the overall population.

5. Conclusion

The results of this study indicate that there is no significant effect of active participation on the blood pressure of elderly hypertensive patients at Oesapa Public Health Center in Kupang City (p-value 0.087). The most common characteristics of respondents were those aged 59-65 years (59.4%), male (56.2%), distance from the participant's home less than 5 km to the Prolanis location (100%), and medication adherence (100%). Respondents actively participated in Prolanis were 81.2% among Prolanis respondents.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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