



## Effectiveness of Chronic Disease Management Program in Lowering Blood Pressure in Hypertensive Patients: Literature Review

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### Abstract

Chronic illnesses are a global health issue that kills people. Hypertension is a blood vessel disorder that compromises the body's tissues' oxygen and nutrient supply. In 2025, 1.5 billion people will have hypertension, and 9.4 million will die from it. This research review evaluates the Chronic Disease Management Program's blood pressure-lowering effects in hypertensive patients. A PRISMA Flow Diagram-based literature review. Downloading scientific papers from PubMed, Portal Garuda, and Google Scholar follows SINTA IV and V criteria. This article searches for Prolanis, blood pressure, and hypertension. Search results yielded 103 articles. Using inclusion criteria, 11 research publications were chosen for review. The study found that the chronic disease management program, which included medical consultations, Prolanis participant education, SMS gateway reminders, home visits, club activities (exercise), and health status monitoring, effectively lowered blood pressure in hypertension patients.

## Introduction

Chronic disease is a global health problem that can kill many people. Most of the 70,000 chronic diseases that kill many people are caused by junk food and stress, according to data. Indonesia's health development is facing two heavy burdens. In addition to infectious diseases and malnutrition, there is also a surge in Non-Communicable Diseases (NCDs) such as hypertension, diabetes mellitus, stroke, one of which is obesity. Hypertension is a non-communicable disease. Vascular disorders such as hypertension restrict oxygen and nutrients from reaching the areas that need them. Hypertension is generally undetected. Systolic and diastolic blood pressure that exceeds 140 and 90 mmHg with an interval of five minutes in a calm state indicates hypertension (Puspitosari & Nurhidayah, 2022).

Hypertension will affect 1.5 billion people worldwide by 2025, causing 9.4 million deaths. Basic Health Research (Riskesdas 2018) reported hypertension (34.1%). This figure is up from the 2013 Riskesdas figure (25%). Most hypertension patients in Indonesia are undiagnosed, only 1/3 are diagnosed (Tika, 2021).

Hypertensive patients should regulate their blood pressure as soon as they are diagnosed. Heart disease, stroke, kidney disease, retinopathy, peripheral vascular disease, neurological problems, and others can be caused by uncontrolled hypertension. High blood pressure increases the risk of damage to the heart vessels and large organs, including brain and kidney damage (Lukitaningtyas & Cahyono, 2023).

Hypertensive patients can lower their blood pressure by using drugs and non-drugs. Antihypertensive medications can be used but losing weight, consuming potassium-rich fruits and vegetables, reducing salt and saturated fats, quitting smoking, reducing alcohol, relaxing, and exercising regularly can also help (Warjiman et al., 2021).

BPJS Kesehatan which is managed by the government runs the Chronic Disease Management Program. Prolanis is an integrated health service system and proactive strategy that involves participants, health facilities, and BPJS Kesehatan to maintain the health of chronic disease patients and improve the quality of life at a reasonable cost. Prolanis activities include doctor consultations, participant education, SMS gateway reminders, home visits, and club activities. FKTP encourages patients with chronic diseases to live healthy lives, with 75% of enrolled participants having "good" DM Type 2 and Hypertension results according to clinical criteria to avoid complications (Aodina, 2020).

Based on the description above, it includes the effectiveness of chronic disease management programs in lowering blood pressure in hypertensive patients so that it needs to be identified to prevent emergency care. The purpose of this literature review is to determine the effectiveness of chronic disease management programs in lowering blood pressure in hypertensive patients.

## Methods

A literature review was used in this study. Scientific publications or journals from PubMed, Garuda Portal, and Google Scholar are reviewed using SINTA IV and V criteria (Figure 1). The selected articles are articles published in 2019-2024, available in full text and open access, and examine the effectiveness of chronic disease management programs in lowering blood pressure in hypertensive patients. Keywords for article search: chronic disease management, blood pressure, hypertension.

Literature search and review is a formal and more structured way of identifying, evaluating and organising research works available in the literature for a particular study area. These steps include the following: This makes it possible to include only the best quality as well as only the most relevant quality of research studies in the final review so as to provide a good foundation for further studies or utility.

The first is the identification phase where the researcher starts with searching through libraries and other databases, books, journals or conference proceedings amongst others. Beside this, published articles may be searched in global database such as PubMed, Google Scholar, or Garuda related to the selected topic. At this stage, there is choice of keywords and search terms to make sure that the search includes all the material which might be relevant. For instance, if the topic is environmental Education for the elementary school students, the words like Environmental Education, Primary Education, Sustainable Learning will be used. In this case, the word 'many' may refer to a large number of articles as may be as high as one hundred and three. Yet, this starting sample frequently includes non-related papers or topics or papers that do not meet preliminary quality criteria, e. g. language. For instance, of the 125 articles, if there is any article that is not written in Indonesian or English, that will be eliminated in this phase and only 92 articles will be further scrutinised in the next phase.

After identification is screening in which process is conducted to exclude clearly irrelevant studies after observing the raw articles briefly. For example at this stage works that are not

research papers, manuscripts that are incomplete, or articles which have not been published might be eliminated. This phase also assists in the elimination of additional articles from consideration. Six more articles are omitted because they were not included in the research studies, or were unpublished articles. This allows the researcher to have 86 articles that may contain useful information in the analysis.

The third step is the eligibility phase that involves elimination of the studies that do not fully meet the inclusion criteria. In this phase, the articles are considered more stringently than, for example, in the previous phase, such as the quality of the used methods, relevance to the study question, or time of the studies. In this stage, many articles which do not conform to these details requirements are excluded. Age Moses and his daughter Setting The story of Moses and his daughter takes place in Egypt. For instance, there are 75 articles which are eliminated, perhaps, they may lack on the aspect of elementary-level education or the research techniques used are substandard. Consequently, a number of 11 articles are left, which are considered appropriate for the final revision.

The last of the stages is the inclusion phase whereby all the articles which reach this phase are incorporated in the literature review for the purpose of further scrutiny and integration. These articles are then carefully scrutinised in order to derive conclusions, trends and gaps/voids as contained in extant research. The findings of these selected papers are therefore aggregated for the purpose of achieving greater understanding of the subject matter which can enable other research or can be used to make subsequent studies or to inform practice. Limited inclusion ranges to 11 articles so that the review could be allocated on what are now considered quality articles in the field to support the literature review's findings.

## Result and Discussion

Author	Year	Title	Location	Total Sample	Research Design	Results	Determinant Factor
Rani, T. K., Farhan, F. S.	2021	Efektivitas Senam Prolanis Terhadap Perubahan Tekanan Darah Pada Peserta Senam Prolanis Klinik Cempaka Jakarta Timur	Klinik Cempaka	16	Analytic Quasi Experimental	Based on the results of statistical tests, a significant decrease in blood pressure was obtained ( $p < 0.05$ ), which means that there is an effect of prolanis gymnastics on systolic blood pressure.	Hypertension, exercise, Prolanis, blood pressure
Daryanti, E., Gita, R., dkk	2020	Prolanis Terhadap Tingkat Penurunan Tekanan Darah dan Diabetes Mellitus di Bungursari kota Tasikmalaya	Wilayah kerja puskesmas Bungursari kota Tasikmalaya	37	Ceramah, diskusi, kunjungan kerumah	The results of this activity study indicate that the effectiveness of prolanis activities can affect the patient's condition, namely blood pressure. This is because there are activities that can increase understanding/reminders in patients about the importance of	Prolanis, hipertensio, diabetes mellitus

						hypertension management.	
Ulfā, K., Muflanda, R. dkk	2019	Efektivitas Senam Prolanis Terhadap Penurunan Tekanan Darah Dan Kadar Gula Darah Di Puskesmas	Semdi Unaya	15	Pre-Experimental Design (One Group Pretest Posttest Design)	The results of the study showed that based on the statistical analysis of the paired sample test on systolic blood pressure, a p-value of 0.000 was obtained. While based on the statistical analysis of the paired sample test on diastolic blood pressure, a p-value of 0.000 was obtained.	Prolanis Gymnastics, Blood Pressure, Blood Sugar Levels
Hasibuan, R., Tumanggor, S. R, dkk	2024	Pengaruh Senam Prolanis terhadap Tekanan Darah pada Lansia dengan Hipertensi	Posyandu Lansia Desa Tanjung Pasir, Kecamatan Pangkalan Susu, Kabupaten Langkat	30	Eksperimen semu dengan desain One Group Pre-test Post-test	The test results found that there was an effect of Prolanis gymnastics on reducing systolic blood pressure ( $p = 0.023$ ). However, it was not significant in reducing diastolic blood pressure ( $p = 0.300$ ).	Hypertension, elderly, prolanis gymnastics
Rispawati, B. H., Wibawa, T. E. dkk	2024	Senam Prolanis Menurunkan Tekanan Darah pada Pasien Hipertensi	Desa Jerowaru, Lombok Timur	108	Eksperimen dengan jenis pre-eksperimen dan rancangan penelitian one group pre-test post-test design	The statistical test results were obtained with significant values for meeting 1: systolic $p = 0.001$ and diastolic $p = 0.002$ , meeting 2: systolic $p = 0.002$ and diastolic $p = 0.026$ .	Prolanis Gymnastics, Hypertension, Lowering Blood Pressure
Warjiman, Jamini, T. dkk	2021	Pengaruh Senam Prolanis Terhadap Penurunan Tekanan Darah pada Penderita Hipertensi di Puskesmas Angsau	Wilayah kerja Puskesmas Angsau	30	Kuantitatif metode Quasi Experiment dengan desain pretest posttest non-equivalent control group	The results showed that there was a significant difference between the initial and final systolic pressure in training 2 times/week ( $p = 0.000 < 0.05$ ).	Prolanis Gymnastics, Blood pressure,
Inriani, I., Narwaman, N., Abadi, E.	2021	The Effect of Prolanis Gymnastics on Decreasing	Puskesmas Soropia Kabupaten	30	Kuantitatif dan desain pra-eksperimen	The results showed that the pretest obtained an average systolic blood	Hypertension, Prolanis Gymnastics,

		Blood Pressure in Hypertension Patients in the Coastal Area of the Soropia Public Health Center	en Konawe		pada satu grup pra-pascates	pressure of 160.10 mmHg and diastolic was 94.50 mmHg, and the posttest average systolic blood pressure was 151.47 mmHg and diastolic was 87.07 mmHg. The Wilcoxon test analysis showed that for systolic blood pressure, the p value was 0.001 <0.05 and diastolic blood pressure was 0.001 <0.05.	Blood pressure.
Syamson, M. M., Fitri, N., Hasrul.	2020	Pengaruh senam prolanis terhadap penurunan tekanan darah pada penderita hipertensi	Puskesmas Lawawoi Kabupaten Sidenreng Rappang	10	Kuantitatif, quasy eksperimen dengan pendekatan One Group Pre-post Test Design	The effect of prolanis exercise on reducing blood pressure in patients with hypertension with the Wilcoxon test obtained a p-value = 0.000 smaller than $\alpha = 0.05$ , so $H_0$ is rejected.	Prolanis gymnastics; Blood pressure; Hypertension
Larasati, N., Husna, N.	2019	Pengaruh Prolanis dan Kepatuhan Minum Obat terhadap Tekanan Darah Pasien Hipertensi di Puskesmas Gamping 1	Puskesmas Gamping 1 Yogyakarta	33	Non eksperimental dan bersifat observasional analitik	The results of this study showed no significant relationship between medical consultations and patient blood pressure (Asym. Sig 0.111), no significant relationship between home visits and patient blood pressure (Asym. Sig 0.007), there was a significant relationship between reminder gateway and patient blood pressure (Asym. Sig 0.002), and there was a significant relationship between medication adherence and patient blood pressure (Asym. Sig 0.000).	Blood pressure, hypertension,

Murti, F. S., Kusnanto, H., Istiono, W.	2019	Prolanis Influence on Decreasing Blood Pressure of Hypertension Patients in Puskesmas Pandak II Bantul 2017	Puskesmas Pandak II	96	Penelitian kuantitatif dengan desain retrospektif kohort	Comparison with the treatment group showed significant differences in blood pressure variables, interactions and measurable differences during the study period in the three variables. The decrease in blood pressure in hypertensive patients was better in the Prolanis group than in the Non-Prolanis group.	Lowering blood pressure, hypertension, Prolanis
Alkaff, F. F., Sukmajaya, W. P., et al	2020	Effectivity of Indonesia Chronic Disease Management Program (PROLANIS) to Control Hypertension and its Comorbidities at Primary Health Care	Puskesmas Wates, Kota Mojokerto, Jawa Timur, Indonesia	44	Studi kohort retrospektif observasional	PROLANIS is effective in controlling blood pressure at the Wates Health Center, but is not effective in controlling all comorbidities. Further research is needed to explain the effectiveness of this program nationally.	

Prolanis is an integrated health service method involving participants, health facilities, and BPJS Kesehatan to maintain the health of BPJS Kesehatan participants who have chronic diseases in order to achieve an optimal quality of life and avoid complications with affordable health service rates. The program requires 75% of registered participants who visit primary health facilities to have "good" results on certain disease screenings, especially hypertension that meets clinical guidelines to prevent complications and improve the quality of life of chronic disease patients. Prolanis activities such as medical consultations, education, home visits, reminders, and club sports (gymnastics) (BPJS, 2014).

### Medical consultation

Prolanis participants receive medical consultation regarding the treatment undertaken, treatment methods, and health education. The results of monthly examinations are used to monitor the health of Prolanis participants and provide medical advice. Participants with hypertension underwent blood pressure checks. Prolanis requires an examination because it has been monitoring the health of users since 2020 (Purnamasari & Ningrum, 2023). In the research article, the Asymp value was obtained. Sig is 0.111 (>0.005), which indicates that medical consultation/education does not affect the patient's blood pressure. Prolanis uses medical consultation or education to motivate participants to improve their health and quality of life (Larasati & Husna, 2019).

Another study found that medical consultations attended by 28 people were effective for hypertensive patients with a success rate of 87.5% (Larasati & Husna, 2019). Another study found that medical consultation in prolanis was effective in reducing blood pressure in hypertensive patients with a value of  $P < 0.005$  (Murti, 2017). In other studies, it was also found

that Prolanis is effective in controlling blood pressure through monitoring health status and medical consultation (Alkaff et al., 2020).

Three of the four published studies analyzed showed that consultation had an effect on the blood pressure of Prolanis patients.

### **Education of prolanis participants**

Prolanis education strategy to increase respondents' knowledge. Media-based education increases the purpose of knowledge better than education that is only in the form of lectures (Istiqomah et al., 2022). In the research article, it was found that Prolanis is effective in controlling blood pressure through dietary education. This is done by changing people's diets by reducing saturated fat from processed foods (Alkaff et al., 2020). In line with other studies that the education of prolanis participants which was attended by 28 people was effective against hypertension patients with a success rate of 87.5% (Daryanti et al., 2019). Another study found that group education in prolanis was effective in lowering blood pressure in hypertensive patients with a value of  $P < 0.005$  (Murti et al., 2017).

The three study articles analyzed showed that education had an effect on reducing blood pressure in hypertensive patients who followed Prolanis.

### **Reminders SMS gateway**

WhatsApp reminders encourage Prolanis members to visit regularly. Because of its simplicity, WhatsApp is popular among the public. The software allows Prolanis to track its members and encourage them to take medication and check their health. The research report suggests the use of consultation calendar reminders to encourage people to visit health management institutions frequently and live a healthy lifestyle. We believe this action illustrates that the responsibility of healthcare professionals is to improve the quality of life of patients so that the Prolanis program can help them overcome hypertension and diabetes. In this study, 42.86% of patients had hypertension before the reminder and 14.29% afterwards (Daryanti et al., 2019).

Another study was obtained that *the Gateway remainder* was associated with blood pressure of patients in another trial with Asymp results. Sig = 0.002 ( $< 0.005$ ) (Larasati & Husna, 2019).

Another study found that *the reminder* in the prolanis was effective in lowering the blood pressure of hypertensive patients with a value of  $P < 0.005$ .18

In other studies, it was also found that Prolanis was effective in controlling blood pressure through *reminder activities* in prolanis participants (Alkaff et al., 2020).

According to 4 research articles, it can be concluded that there is a correlation between *reminders* and a decrease in blood pressure in hypertensive patients who follow Prolanis.

### **Home visit**

Healthcare providers conduct blood pressure checks, health education, consultations, and medications during home visits. Regular home visits can improve systolic and diastolic blood pressure control (Fitriani et al., 2021). Asymp Value. The Sig in the study article was 0.007 ( $> 0.005$ ), which suggests there was no significant association between home visits and patients' blood pressure. Prolanis members and their families receive personal and environmental health education during home visits (Larasati & Husna, 2019).

This is in line with previous research that showed poor home visits. This is because this study only conducted one home visit (Daryanti et al., 2019). Another study stated that *home visits* in Prolanis were effective in controlling blood pressure through home visits (Alkaff et al., 2020). Another study found that *home visits* in prolanis were effective when reducing blood pressure in hypertensive patients with a value of  $P < 0.005$  (Murti, 2017).

Based on 4 research articles reviewed, 2 articles were found that said there was no association between attending home *visits* and decreasing blood partners in hypertensive patients. This is because the number of home visits by health workers is still lacking, making it difficult to identify the effect of home visits on changes in blood pressure of hypertensive patients. Two publications reported that the blood pressure of hypertensive patients decreased with home visits. Blood pressure of hypertensive patients decreases with frequent home visits.

### **Club activities (gymnastics)**

Government-sponsored Prolanis gymnastics is aerobic exercise. Prolanis is a proactive health care system and method that integrates participants, health facilities, and BPJS Kesehatan to maintain the health and quality of life of chronic disease patients in order to improve the quality of life and reduce health care costs for BPJS Kesehatan members with chronic conditions (Hasibuan, 2024). This study found that prolanis gymnastics lowered blood pressure before and after therapy at the Kuta Baro Health Center, Aceh Besar Regency with a p value of 0.000.14

This supports previous research that prolanis gymnastics lowers systolic blood pressure but is not diastolic. The lack of impact of prolanis exercises on respondents' blood pressure may be due to the ineffectiveness of gymnastics, which may take 45 minutes to reach the pulse of the target exercise. Reaching the pulse of the exercise will change the tension (Rani, 2021).

Another study found that prolanis gymnastics was able to lower blood pressure with a p-value of 0.001 for systole and 0.002 for diastole at meeting 1 and 0.026 at meeting 2.16

Another study showed that Prolanis gymnastics lowered systolic blood pressure ( $p = 0.023$ ). In the elderly at the old Posyandu in Tanjung Pasir Village, there was no decrease in diastolic blood pressure ( $p = 0.300$ ). The elderly with hypertension can lower their blood pressure with Prolanis exercises (Haasibuan, 2024). Another study found that Prolanis gymnastics was significant in reducing hypertensive blood pressure. Hypertensive patients should do Prolanis exercises twice a week (Warjiman, 2021).

Further research shows that Prolanis gymnastics significantly reduces blood pressure in hypertensive patients ( $P < 0.005$ ) (Murti, 2017). In another trial, Prolanis gymnastics decreased systolic and diastolic blood pressure. Posttest systolic blood pressure dropped from 160.10 to 151.47 mmHg, while posttest diastolic blood pressure dropped from 94.50 to 87.07 mmHg. Prolanis gymnastics stimulates the cardiovascular system, which increases the energy needs of cell tissues and organs. This increase in energy affects the respiratory function of the skeletal muscles as well as stimulates sympathetic nerves, increasing the heart rate. In meeting the needs of the body's cells, the heart pumps faster, thereby lowering heart rate, skunk volume, and arteriovenous vasodilation. Due to reduced cardiac output and peripheral resistance, blood pressure also drops (Inriani, 2020). Another study explains that prolanis gymnastics can lower blood pressure in elderly hypertensive patients, therefore this gymnastics is beneficial (Syamson, 2020).

Based on 8 research articles, it can be concluded that there is a correlation between gymnastics activities and blood pressure reduction in hypertensive patients who follow Prolanis.

### **Conclusion**

A review of 11 articles found an association between Prolanis and blood pressure in hypertensive patients. This study stated that medical consultation, education, home visits, reminders, and prolanis exercises (gymnastics) can lower blood pressure in hypertensive patients who follow Prolanis. The evaluated article shows that gymnastics is one of the most frequently discussed chronic disease management programs and is effective in reducing blood pressure in hypertensive patients. The author's recommendation for hypertensive patients is to learn about Prolanis and their health and follow the program more often to improve their health.



This research can be used as literature and is expected to develop this research with other variables, types, and approaches as well as discuss the program in full.

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