



THE EFFECT OF PEER GROUP EDUCATION ON BLOOD PRESSURE CONTROL IN PATIENTS WITH HYPERTENSION: LITERATURE REVIEW

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ABSTRACT

Hypertension is a chronic disease with a high prevalence and is a major cause of global morbidity and mortality. Low medication adherence and inadequate patient knowledge are the main factors contributing to uncontrolled blood pressure. Peer group-based education has become one of the effective approaches to improving understanding, motivation, and health behavior changes among patients with hypertension. This review aims to comprehensively examine the effect of peer group education on hypertension control, including blood pressure, medication adherence, and lifestyle changes in patients with hypertension. This literature review used the PRISMA 2020 approach. Article searches were conducted through online databases including PubMed, ScienceDirect, and Google Scholar within the 2020–2025 publication period. The inclusion criteria comprised randomized controlled trials (RCTs), quasi-experimental, and experimental studies investigating peer group education interventions in adult patients with hypertension. A total of 7 articles published between 2022–2025 that met the inclusion criteria were critically appraised and analyzed descriptively and narratively to identify the effectiveness of peer group education interventions among patients with hypertension. The findings showed that peer group education significantly contributed to reducing blood pressure, improving medication adherence, and enhancing health behaviors such as dietary patterns, physical activity, and self-management. This intervention also improved patients' knowledge, motivation, and self-efficacy in managing hypertension. Peer group education is an effective intervention for hypertension control because it can improve adherence, promote healthier lifestyles, and reduce blood pressure.

Keywords: blood pressure control; hypertension; lifestyle modification; medication adherence; peer group education

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INTRODUCTION

Hypertension is one of the chronic conditions that poses a serious threat to global public health. This condition is known as a silent killer because it often presents without obvious symptoms, yet it can lead to fatal complications and increase morbidity and mortality rates (World Health Organization, 2023). Globally, the number of people with hypertension has doubled over the last three decades, from 650 million in 1990 to 1.3 billion in 2019, with approximately 33% of adults aged 30–79 years affected (WHO, 2023). In the ASEAN region, an average of 32% of the population has been diagnosed with hypertension, including Indonesia, Malaysia, and the Philippines, which each report prevalence rates of around 35% (WHO, 2023).

In Indonesia, the prevalence of hypertension reaches 34.1% among individuals aged ≥ 18 years, making it one of the non-communicable diseases with the highest burden (Ministry of Health of Indonesia, 2023). In Riau Province, 35.8% of the population experienced hypertension in 2023, and 34,033 cases of hypertension were recorded in Pekanbaru City during the same year based on reports from 21 public health centers (Riau Province Health Profile, 2022). Uncontrolled hypertension, characterized by blood pressure above 140/90 mmHg, is a condition associated with a high risk of various complications. The prevalence of uncontrolled hypertension reached 26% in 2019, and among all patients diagnosed with hypertension, only 7% successfully achieved adequate

blood pressure control (WHO, 2023). Uncontrolled blood pressure increases the risk of myocardial infarction, stroke, heart failure, left ventricular hypertrophy (LVH), arrhythmias, and chronic kidney disease (Burnier & Egan, 2019; Caturano, 2025; Solomon et al., 2023).

The high risk of complications in patients with hypertension is largely caused by non-adherence to therapy. Contributing factors include poor dietary quality (OR 4.04), medication non-adherence (OR 1.83), lack of physical activity (OR 3.20), excessive sodium intake (OR 25.47), and limited availability of effective health education programs (Abdisa et al., 2022; Worku & Gessese, 2024). Non-adherence often occurs due to insufficient patient knowledge; many patients perceive hypertension as harmless because it does not cause symptoms, leading them to discontinue treatment when they feel healthy (Setiadi et al., 2022). Individuals with good knowledge of hypertension tend to be more adherent to medication and achieve better blood pressure control compared to those with limited information (Kurt & Gurdogan, 2022; Chan et al., 2023).

Peer Group Education is one of the effective educational approaches that utilizes peers as a medium for delivering information, shaping attitudes, and promoting health behavior changes (Kramer, 2024). Peers are individuals who share similarities in age, social background, status, interests, and culture, allowing the educational process to occur in a more equal, open, and acceptable environment (Topping, 2022). This approach helps communities understand risk factors and preventive measures, thereby increasing awareness and the adoption of healthy behaviors as the basis for hypertension control at the community level (Topping, 2022). The implementation of peer group education is carried out through structured stages, including planning and needs assessment, recruitment and training of peer leaders, program implementation, monitoring, supervision, and evaluation over a period ranging from 3 weeks to 6 months (Haidari et al., 2017; Wulan Sari et al., 2020).

Various studies have demonstrated the effectiveness of peer group education in hypertension control. Meta-analysis evidence shows that consistent community-based (peer group) interventions significantly reduced systolic blood pressure by an average of 7.26 mmHg and diastolic blood pressure by 2.77 mmHg (Azami-Aghdash et al., 2025). A randomized controlled trial in India demonstrated that peer group education interventions led by community members significantly reduced systolic blood pressure by an average of 6.26 mmHg compared to usual care (Suseela et al., 2022). Other studies also indicate that peer group education improves the quality of life among older adults with hypertension (Istifani et al., 2024) and enhances medication adherence in patients with both hypertension and diabetes (Reddy et al., 2025).

Although several studies have demonstrated the potential of peer group education in hypertension management, systematic reviews summarizing its effects on various aspects of hypertension control, including blood pressure, medication adherence, lifestyle modification, and quality of life, remain limited. Therefore, this literature review aims to comprehensively examine scientific evidence regarding the effect of peer group education on blood pressure control in patients with hypertension, as a foundation for developing evidence-based and effective community nursing interventions to reduce blood pressure and improve long-term adherence among patients with hypertension.

METHOD

This literature review was conducted regularly to identify, review, and analyze scientific articles relevant to the topic of the effect of peer group education on patients with hypertension. The literature review used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021). The literature search process was carried out through reputable electronic databases, including PubMed, ScienceDirect, and Google Scholar, which were selected based on their relevance and credibility in providing scientific articles in the

fields of nursing and health. The keywords used in the search included combinations of Indonesian and English terms, namely: “Peer Group Education,” “Peer Group,” “Hypertension,” “Hypertension,” “Blood Pressure,” “Health Education Hypertension,” and “Hypertension Health Education,” which were combined using Boolean operators AND and OR (Upoyo et al., 2024).

The data collection technique was conducted through a systematic literature search in the electronic databases PubMed, ScienceDirect, and Google Scholar. A total of 1,148 articles were initially identified, and after removing 344 duplicate articles, 804 articles remained for the screening process. The retrieved articles were then screened based on predetermined inclusion and exclusion criteria, resulting in 7 articles that met all eligibility criteria and were included in the final analysis. The articles included in this review were published between 2022–2025. The quality assessment of the articles was carried out independently by two researchers using critical appraisal instruments appropriate to each study design. The entire article selection process was documented in a PRISMA flow diagram to ensure transparency and reproducibility of the review process (Suseela et al., 2022).

Data analysis was conducted descriptively and narratively. Data from the selected literature were analyzed by comparing various types of peer group educational interventions, implementation methods, duration of educational interventions, sample sizes, and measured outcomes such as blood pressure, knowledge, adherence, and self-management behaviors among patients with hypertension. The primary focus of the analysis was directed toward comparing the effectiveness of peer group education with standard interventions in improving clinical outcomes and health behaviors among patients with hypertension, in order to draw comprehensive conclusions regarding the most effective interventions for blood pressure control in hypertensive patients (Upoyo et al., 2024; Suseela et al., 2022; Mustara et al., 2025).

The inclusion criteria in this study consisted of research articles published between 2020-2025, written in either Indonesian or English, and discussing peer group education interventions among adult patients with hypertension aged ≥ 18 years. The selected studies included Randomized Controlled Trials (RCTs), quasi-experimental studies, or other experimental designs. In addition, the articles had to be available in full-text format and accessible either through open access sources or reputable databases with at least SINTA 3 accreditation or indexed in Scopus. The studies were also required to measure outcomes related to blood pressure, knowledge, medication adherence, or self-management behaviors among patients with hypertension. Meanwhile, the exclusion criteria included articles that did not specifically discuss peer group education interventions in hypertensive patients, as well as editorials, opinion papers, letters to the editor, single case reports, and conference abstracts. Articles that were not available in full-text format, duplicate publications, qualitative studies, or purely descriptive studies without clinical outcome data were also excluded from the review.

The article selection stages were carried out in accordance with the PRISMA 2020 flow process. First, initial identification was conducted based on titles and abstracts to exclude articles irrelevant to the research topic. Second, an eligibility assessment was performed through in-depth review of the full articles to ensure that peer group education interventions were clearly implemented and that outcomes such as changes in blood pressure, knowledge, adherence, or self-management behaviors were measured as final research outcomes (Page et al., 2021). Articles that fulfilled all inclusion criteria were then selected as the primary literature for further analysis.

RESULT

Based on the search and selection results, there are 7 journal that met the established inclusion and exclusion criteria. These journals were then further analyzed to provide a deeper understanding of the impact of peer group education on hypertension patients.

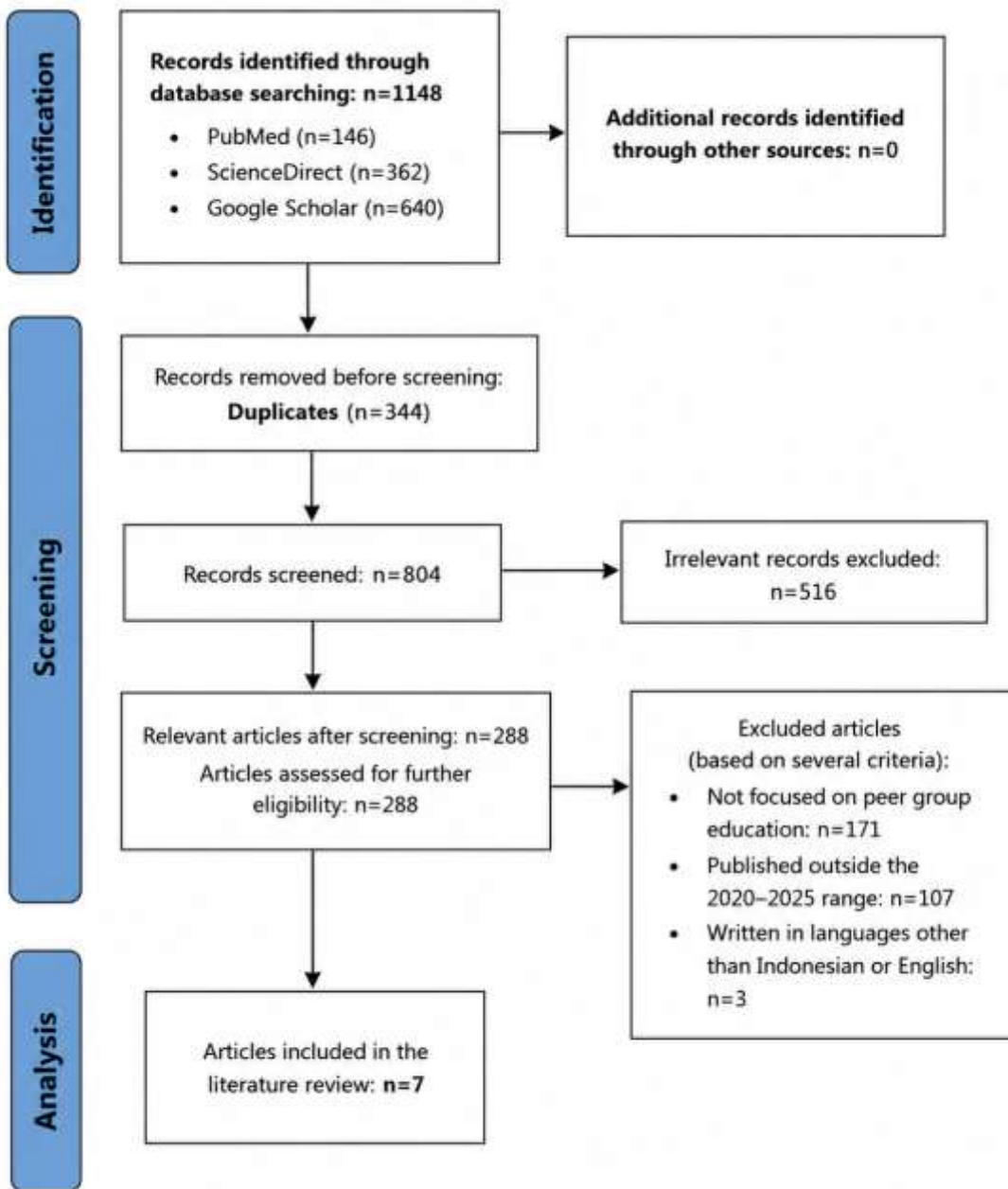


Chart 1. Article Search Process

This literature review analyzes seven studies published between 2022 and 2025, which collectively examine the effects of peer group education on hypertension patients from various perspectives. The seven studies come from various countries, including Iran (Ranjbar et al., 2024), Kenya (Otieno et al., 2023), India (Reddy et al., 2025, Suseela et al., 2022)Indonesia (Azdimah et al., 2024, Upoyo et al., 2024)and the United States (Groves & Browning, 2024). This diverse geographic background provides a comprehensive overview of the implementation and effectiveness of peer group education in hypertension populations across different cultures and health systems.

Table 1.
Analysis Article

Author and Year	Study Title	Type of Study	Objective	Target Population	Research Methods and Sample Size	Research result
1 Ranjbar et al. (2024)	The cost-effectiveness of peer education on medication adherence in the elderly with hypertension: a randomized controlled trial	Randomized Controlled Trial (RCT)	Evaluating the cost-effectiveness of peer group education on medication adherence in elderly with hypertension.	Elderly people with hypertension in Iran	RCT; n = 120 elderly people with hypertension (60 intervention group, 60 control group). The intervention consisted of 8-week peer group education sessions.	Peer group education significantly improved medication adherence in elderly hypertensive patients compared to the control group (p<0.05). Cost-effectiveness analysis showed that the peer education was cost-effective, with significant improvements in adherence.
2 Otieno et al. (2023)	Effect of Patient Support Groups for Hypertension on Blood Pressure among Patients with and Without Multimorbidity: Findings from a Cohort Study of Patients on a Home-Based Self-Management Program in Kenya	Cohort Study	Evaluating the effect of hypertension patient support groups on blood pressure in patients with and without multimorbidity in Kenya	Hypertensive patients in a home-based self-management program in Kenya, including patients with multimorbidity	Cohort study; n = 3,241 hypertensive patients. Patients were divided into those who joined a support group and those who did not. Follow-up was conducted for 12 months.	Joining a patient support group was associated with significant reductions in blood pressure. Patients in support groups experienced better blood pressure control, both in the group without comorbidities and those with multimorbidities (p<0.05).
3 Reddy et al. (2025)	Effectiveness of peer-group therapy using community-based participatory research model on medication adherence among patients of diabetes and/or hypertension: study protocol for a multi-centre cluster randomized trial in rural settings across India (PARTICIPATE study)	Study Protocol – Multi-centre Cluster Randomized Trial	Evaluating the effectiveness of community participatory research-based peer group therapy on medication adherence in patients with diabetes and/or hypertension in rural India.	Diabetic and/or hypertensive patients in rural India	Multi-center cluster RCT; target n = 3,060 patients from 34 clusters. The intervention consisted of 6 months of CBPR-based peer group therapy sessions.	As a study protocol, preliminary results indicate that a CBPR-based peer-group therapy model has the potential to significantly improve treatment adherence. The study design aimed to demonstrate the effectiveness of a peer-based community intervention in a rural setting.
4 Suseela et al. (2022)	Effectiveness of a community-based education and peer support led by women's self-help groups in improving	Cluster Randomized Controlled Pragmatic	Evaluating the effectiveness of community-based education and peer support	Hypertension patients in urban slums of Kerala, India	Cluster RCT; n = 1,218 hypertensive patients from 32 clusters. The intervention	Community education and peer support significantly improved blood pressure control.

Author and Year	Study Title	Type of Study	Objective	Target Population	Research Methods and Sample Size	Research result
	the control of hypertension in urban slums of Kerala, India: a cluster randomized controlled pragmatic trial	Control Trial	led by women's self-help groups in improving hypertension control in urban slums of Kerala, India		consisted of community education and peer support by women's self-help groups for 12 months.	The proportion of patients with controlled blood pressure increased significantly in the intervention group compared to the control group (p<0.001). Treatment adherence and lifestyle changes also improved significantly.
5 Azdima h et al. (2024)	The Effect of DASH (Dietary Approaches to Stop Hypertension) Diet Education Using the Peer Group Method on the Eating Patterns of Hypertension Sufferers in Ketompen Village	Quasi-Experimental (Pre-Post Test with Control Group)	To determine the effect of DASH diet education using the peer group method on the eating patterns of hypertension sufferers in Ketompen Village.	Hypertension sufferers in Ketompen Village, Indonesia	Quasi-experimental; n = 40 respondents (20 in the intervention group, 20 in the control group). The intervention consisted of four DASH diet education sessions using a peer group method over four weeks.	Peer group DASH diet education significantly improved the eating habits of people with hypertension (p<0.05). The intervention group demonstrated greater knowledge and dietary changes compared to the control group.
6 Groves & Brownrigg (2024)	Peer support: a feasibility study for older African American women	Feasibility Study (Pilot RCT)	Evaluating the feasibility and acceptability of peer support in managing hypertension in older African-American women.	Older African-American women with hypertension in the United States	Pilot feasibility study; n = 40 African-American older women (20 in the dyadic peer support intervention group, 20 in the control group). Follow-up was 3 months.	Dyadic peer support has been shown to be feasible and acceptable for African-American older adults. There was a trend toward lower systolic and diastolic blood pressure in the intervention group. This intervention has the potential to be an effective strategy for reducing hypertension disparities in high-risk populations.
7 Upoyo et al. (2024)	The Effect of Online Group Education on Promoting Knowledge, Motivation, Self-Efficacy, Self-Care Behaviors and Preventing Uncontrolled Blood Pressure in	Quasi-Experimental Study	Evaluating the effect of online group education on knowledge, motivation, self-efficacy, self-care behavior, and prevention of uncontrolled	Hypertension patients in Indonesia	Quasi-experimental; n = 60 respondents (30 intervention group, 30 control group). The intervention consisted of six online group education	Online group education significantly improved knowledge (p<0.001), motivation (p<0.05), self-efficacy (p<0.05), and self-care behavior (p<0.05)

Author and Year	Study Title	Type of Study	Objective	Target Population	Research Methods and Sample Size	Research result
	Hypertensive Patients: A Quasi-Experiment Study		blood pressure in hypertensive patients.		sessions using a digital platform over six weeks.	in hypertensive patients. Blood pressure was better controlled in the intervention group compared to the control group.

DISCUSSION

The Effect of Peer Group Education on Medication Adherence

Medication adherence is one of the primary outcomes most frequently examined in the analyzed studies. Ranjbar et al. (2024), in their randomized controlled trial involving 120 older adults with hypertension in Iran, found that peer group education significantly improved medication adherence compared to the control group ($p < 0.05$). The study also demonstrated that peer education interventions were cost-effective, meaning that in addition to being clinically effective, the intervention was economically feasible for implementation within healthcare systems. These findings are particularly important considering that older adults are highly vulnerable to medication non-adherence due to multifactorial issues such as polypharmacy, cognitive decline, and limited social support.

Similarly, Reddy et al. (2025) designed a peer group therapy intervention based on community-based participatory research (CBPR) to improve medication adherence among patients with diabetes and/or hypertension in rural areas. Although this study was still in the form of a research protocol, the multi-centre cluster randomized controlled trial targeting 3,060 participants from 34 clusters highlights the urgency and significant potential of peer group interventions in rural settings. The CBPR approach, which actively involves the community in the research process, is believed to increase the relevance and acceptability of interventions among the target population, thereby influencing long-term adherence levels.

The Effect of Peer Group Education on Blood Pressure Control

Blood pressure control is the primary clinical indicator used to measure the success of hypertension management. Otieno et al. (2023), in a large cohort study involving 3,241 hypertensive patients in Kenya, found that participation in patient support groups was significantly associated with reductions in blood pressure among patients both without comorbidities and those with multimorbidity ($p < 0.05$). This finding is highly significant because it demonstrates that the effectiveness of peer support groups is not limited to patients with a single condition but is also beneficial for clinically complex patient populations.

Suseela et al. (2022), in a study involving 1,218 patients in urban slum areas of Kerala, India, reported a significant increase in the proportion of patients achieving controlled blood pressure in the intervention group compared to the control group ($p < 0.001$). The intervention consisted of community education and peer support led by women's self-help groups, a model that utilized existing social networks within the community to expand the reach of health interventions. This model proved effective in improving blood pressure control while also improving medication adherence and lifestyle behaviors.

Groves and Browning (2024), in their feasibility study involving 40 older African-American women in the United States, reported trends toward reductions in both systolic and diastolic blood pressure among participants who received dyadic (paired) peer support. Upoyo et al. (2024) also found that online group education provided to 60 patients with hypertension in Indonesia significantly prevented uncontrolled blood pressure in the intervention group compared to the

control group. The use of digital platforms as a medium for peer group education opens opportunities to reach patients with mobility limitations or restricted geographic access while maintaining group interaction as the core element of the intervention.

The Effect of Peer Group Education on Behavioral and Lifestyle Changes

In addition to medication adherence and blood pressure control, peer group education has also been shown to influence behavioral and lifestyle changes among patients with hypertension. Azdimah et al. (2024) found that DASH diet (Dietary Approaches to Stop Hypertension) education using the peer group method significantly improved dietary patterns among hypertensive patients in Ketompen Village ($p < 0.05$). The intervention group demonstrated increased knowledge and healthier dietary changes compared to the control group, particularly in fruit and vegetable consumption and sodium restriction. Suseela et al. (2022) also reported significant improvements in lifestyle behaviors, including increased physical activity and reduced salt consumption, among participants receiving community education based on peer support. The involvement of women's self-help groups as facilitators in this study illustrates how community social structures can be optimized as resources in health promotion programs.

Limitations of the Literature Review

This literature review has several limitations that should be acknowledged. First, the number of analyzed studies was relatively limited ($n=7$), so the generalizability of the conclusions should be interpreted cautiously. The analyzed studies also originate from various cultural contexts and healthcare systems, limiting direct comparability across studies. Variations in study design, sample size, intervention duration, and measured outcomes made quantitative synthesis (meta-analysis) impossible. This review was narrative in nature and therefore may contain subjectivity in the selection and interpretation of findings. Furthermore, not all studies conducted long-term follow-up, meaning that the sustainability of peer group intervention effects beyond the study period still requires further investigation.

CONCLUSION

Based on the findings of this literature review, it can be concluded that peer group education plays an important role in patients with hypertension. Education delivered through peer group-based approaches can contribute to reductions in blood pressure, improvements in medication adherence, and lifestyle modifications such as adopting a low-salt diet, increasing physical activity, and reducing smoking and alcohol consumption. Support from peers provides positive impacts on patients with hypertension in undergoing treatment and therapy. This intervention offers positive encouragement, enabling patients with hypertension to develop stronger motivation to adhere to treatment and modify their lifestyles toward healthier behaviors.

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