

Effectiveness of Self-Management Related to Physical Activity on Life Quality in Hypertension

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ABSTRACT

Background: Hypertension is a major cause of disability and death worldwide. Efforts to reduce blood pressure and disease complications can be made by changing lifestyle, controlling the disease, and monitoring blood pressure regularly. Blood pressure management and improved quality of life can be achieved through effective self-management, particularly through physical activity.

Purpose: The purpose of this literature review is to identify the effectiveness of self-management in physical activity in improving the quality of life of patients with hypertension.

Methods: In this study, three international databases, i.e., Dimensions, Scopus, and ScienceDirect, were included. There were initial 605 articles from the last 5 years (2020 to 2024). The inclusion criteria used included English articles, original articles, and full text. Then, after screening using the Prisma guide, 18 articles met the criteria.

Results: The literature review showed that quality of life, physical activity and self-management in patients with hypertension can be improved with digital interventions, support from various parties (family and society, multidisciplinary health workers), and self-management training. There is evidence that exercise such as walking, aerobic exercise, and light strength training can lower blood pressure and improve health status. Social and psychological support are also critical in supporting self-management.

Conclusion: A comprehensive approach, which includes a combination of technology-based interventions, multidisciplinary support and self-management training in physical activity, is needed to improve the quality of life of patients with hypertension. Continuous intervention and support programs can encourage patients to adopt a healthy lifestyle and be motivated to control the disease.

Keywords: hypertension, physical activity, quality of life, self-management

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BACKGROUND

Globally, hypertension is a significant cause of disability and death, significantly contributing to the increasing prevalence of heart disease, diabetes, and kidney failure. World Health Organization (WHO) released that more than 1.28 billion people suffer from hypertension, and this case often occurs in the age group of 30 to 79 years (World Health Organization, 2024). Seven hundred twenty million people do not receive medical care, and the treatment rate in Southeast Asia is below 25% for women and 20% for men, leading to significant inequality in medical care worldwide. Indonesia has a prevalence of hypertension of 40% (World Health Organization, 2023). One in three individuals with hypertension has a high risk of stroke, heart disease, and kidney failure (World Health Organization, 2021). Hypertension is caused by many factors, one of which is physical activity and smoking (World Health Organization, 2023). The International Society of Hypertension recommends lowering blood pressure and disease complications by changing lifestyle, managing diseases, and monitoring blood pressure regularly (International Society of Hypertension, 2020).

Self-management allows individuals to control blood pressure independently and provide a sense of responsibility to themselves (Shibuta et al., 2023). Some people with hypertension have received treatment, but it still lacks self-management, thereby making hypertension continue to increase. There are several factors determining self-management behavior, including emotional aspects such as anxiety and stress, limited knowledge about the disease, lack of self-motivation in maintaining health, lack of resources, low perception of self-control, and minimal social support (Yang et al., 2024). This then leads to the need to design effective behavioral interventions to improve hypertension management for self-control to have a healthy lifestyle, such as exercising independently, known as self-management (Jiao et al., 2022).

Physical activity, in addition to taking antihypertensive drugs, is an essential element in the management and prevention of hypertension (Hardy et al., 2023). There are several types of exercise recommended by the World Health Organization (WHO) to help manage and lower blood pressure, such as walking, running, swimming, and moderate strength training. WHO recommends implementing regular physical activity, but the level of compliance in doing physical activity is still found to be low; this is due to the lack of self-management, which will have a negative impact on blood pressure and life quality (Han et al., 2022; World Health Organization, 2023). Patient activation is an important component in the self-management of patients with multimorbidity that can be used to develop better care approaches in primary health care, enabling the patients to participate more actively in the self-management of their health (Paukkonen et al., 2022).

Quality of life, or individual well-being, either physical, mental or socioeconomic, is closely related to the ability of patients to self-manage a disease (Kundapur et al., 2022). In addition to disease, there are other factors that can trigger a decrease in quality of life, such as psychological factors, social support, and non-compliance in disease management (Du et al., 2022). Patients with a good quality of life are more likely to have controlled blood pressure. A more comprehensive approach is required in hypertension treatment, including disease control and psychological support to improve blood pressure control and patients' quality of life (Lee et al., 2020). Quality of life refers to the result of an effective self-management process that can provide a sense of comfort to the individual (Kundapur et al., 2022). The quality of life of hypertensive patients can be improved with interventions involving social support, education, and management of comorbidities. Several studies have shown that programs that teach patients how to manage hypertension and support lifestyle changes can result in significant improvement in quality of life (Lee et al., 2020).

However, from several findings, many research articles from the last 5 years have focused more on clinical problems, medical interventions and self-management of medication adherence, lifestyle, social support, multidisciplinary collaboration, and the increase of patient activity in hypertension management. In-depth research on how hypertensive patients can manage themselves in managing physical activity and how it affects life quality is rarely found. Therefore, it seems important to do more research in this area to figure out how self-management strategies in physical activity can help to improve the quality of life of hypertensive patients.

Based on the description above, the researcher would like to review articles related to the effectiveness of self-management in physical activity on the quality of life of hypertensive patients.

OBJECTIVE

This study aims to determine the effectiveness of self-management related to physical activity in improving the life quality of hypertensive patients.

METHODS

Search Strategy

The literature search process was carried out through four international databases: Scopus, ScienceDirect, Google scholar and Dimension, using Boolean AND and OR with the keywords: Hypertension AND Self-management AND Physical Activity OR Exercise AND Quality of Life. The search limits were journal article publications in the last 5 years (2020 to 2025), journal articles in full text, and English.

Study Selection

Any unpublished articles (abstracts, letters to the editor, and books) were excluded from the criteria. This review used the PICOS approach: P (hypertensive patients), I (self-management and physical activity), C (control group without intervention), and O (life quality and blood pressure). Qualitative, quantitative, and mixed-methods analyses were used in the study design. The screening process resulted in 605 articles; after removing 26 duplicates and filtering titles and abstracts, 30 articles were found. Nineteen articles were found from full-text screening; it was then continued by assessing their quality using the JBI Tools. As a result, 18 articles were eligible for review. The PRISMA Diagram showed the screening results.

Data Synthesis

Comparing literature that met the quality assessment criteria and inclusion and exclusion allowed the synthesis process of this study. The data referred to the researcher's objective, which is to determine the effectiveness of self-management in physical activity on the quality of life of hypertensive patients.

Data Extraction

Tables created from the data extracts included authors, year and country of publication, study design, sample, intervention, instrument, and study results.

RESULTS

The results of the review included 18 articles from three continents: Europe (Sweden, Spain, and United Kingdom), Asia (China n=5, Iran n=3, South Korea, Japan, Thailand, Tiongkok, Asia) dan United State America=2. This study involved 183.774 people, and one article had 30 participants, 19 of whom were male and 11 females. In the 18 journals, the study designs included 7 randomized controlled trials, 3 cross-sectional, 3 quasi-experimental, 3 cohort studies dan 3 observational study. Hypertension (14 articles), hypertension and diabetes

(2 article), cardiac hypertension (1 article), hypertension in people with disabilities (1 article). Data was collected using several tools, such as blood pressure measurement and questionnaires.

According to the results of the literature review, various self-management interventions are related to physical activity. The results of a review of 9 articles (Andersson et al., 2024; Bozorgi et al., 2021; Dorsch et al., 2025; Gazit et al., 2021; Polsook & Aunguroch, 2024; Shibuta et al., 2023; Sun et al., 2024; Upoyo et al., 2024; Xu et al., 2024) concluded that self-management, physical activity, blood pressure, and life quality can be determined by digital technology-based or application-based education. According to (Sun et al., 2024), digital technology-based or WeChat application-based education can help to change self-management, show better physical activity behavior, and reduce blood pressure, and there are changes in several other aspects of health, such as adherence to treatment and increased frequency of blood pressure control.

The research results from a review of 3 articles. (Huang et al., 2022; Jeihooni et al., 2023; Kordvarkane et al., 2023) showed three types of training models, i.e., the Common sense model of self-regulation (CSM), the Collaborative Disease Management Model (CDM), and the PRECEDE Training Model, has the ability to improve self-management and physical activity and increase patient satisfaction as well as the reduced length of hospital stay; thus leading to the increase in life quality. (Huang et al., 2022), stating that support from various parties or collaborative management can determine self-management behavior, improve blood pressure control, social support, well-being and reduce stress, thus improving life quality.

In addition, there were two articles. (Zhang et al., 2021; Zhu et al., 2021) stating that good self-management support can lower blood pressure through several types of physical activities recommended for hypertensive patients. The app based self-management program significantly reduction in both systolic and diastolic blood pressure $t = 3.953$, $p < 0.001$, along with increased adherence to the self-management program such as physical activity, diet and treatment (Polsook & Aunguroch, 2024). Study by (Upoyo et al., 2024) showed that online group education via WhatsApp can effectively decrease blood pressure while simultaneously increase self-efficacy and self care behavior. These findings highlight the importance of various self-management strategies in improving health outcomes for individuals with hypertension.

DISCUSSION

Effectiveness of Technological and Training-based Self-Management Interventions

The 9 articles mention that digital technology-based interventions can improve self-management and self-activity and lower blood pressure (Andersson et al., 2024; Bozorgi et al., 2021; Dorsch et al., 2025; Gazit et al., 2021; Polsook & Aunguroch, 2024; Shibuta et al., 2023; Sun et al., 2024; Upoyo et al., 2024; Xu et al., 2024) it was stated that digital-based health education through WhatsApp or WeChat can help the health education process to be more accessible, particularly for people who find it difficult to reach. With the help of technology, patients can easily and quickly get health information; as a result, it can improve individual self efficacy and self care behavior. Structured digital interventions can improve patient compliance with medication, diet, and physical activity.

Research conducted by (Xu et al., 2024) mentioned that remote interventions using technology with an intelligent management mode based on the Internet of Things (IoT) are used to monitor one's own health independently, increase engagement, and raise awareness of disease management. Using connected devices and apps, doctors are able to track patients' blood pressure and heart rate in real-time and provide timely feedback and treatment adjustments. This strategy improves the life quality of patients by reducing their dependence on conventional medical institutions, which are often difficult for older patients to access. The results of the study from the article showed that in patients in the intervention group, there was

an increase in self-management, a decrease in blood pressure, and a decrease in the incidence of shortness of breath and chest pain.

The web-based interactive system has also been shown to improve adherence to treatment, which will have a positive impact on blood pressure control and physical activity. This indirectly reduces stress levels and improves well-being (Andersson et al., 2024). Additionally, a study by (Bozorgi et al., 2021) found that a mobile application for self-management over 8 weeks intervention led to increase patient adherence and physical activity of 100 minutes per week, which contributed to a reduction in blood pressure.

Several other findings, namely support the results of these findings ((David et al., 2023) and (Gazit et al., 2021), stating that lifestyle-based interventions supported by m-Health technology can achieve more than twice in achieving 4 or 5 goals of a healthy lifestyle. The results of the article's research showed an improvement in lifestyle, including improved diet quality and physical activity, decreased alcohol consumption and several other types of anthropometries. In addition (Gazit et al., 2021), also stated that self-management programs for hypertension through smartphone applications can help individuals control blood pressure. Also, involvement in the program has a positive correlation with controlling blood pressure; high involvement can reduce the risk of high blood pressure.

Another study (Cheung et al., 2023) stated that technology-based self-management interventions were not always successful in lowering blood pressure in hypertensive patients, whereas Cheung et al. Provided interventions related to support through 4 weekly SMS in self-management, showing no change in blood pressure reduction but a change in the level of medication compliance. Many people stated that weekly SMS could have some benefits in implementing a healthy lifestyle, and individuals could be motivated to implement disease prevention.

The Importance of Multidisciplinary, Social, and Psychological Support for Chronic Disease Management

There are 2 articles discussing about multidisciplinary support (Huang et al., 2022; Inan-Eroglu et al., 2025) stating the importance of multidisciplinary support in managing chronic diseases (CDM) through an approach from various professionals or experts in health, such as doctors, nurses, nutritionists, and psychologists. Here, they can work together to help and implement a more integrated approach by producing good self-management and blood pressure control; thus, it can improve the life quality of patients with chronic diseases, one of which is hypertension (Huang et al., 2022). A study by (Inan-Eroglu et al., 2025), demonstrate that the combined association of diet and physical activity can enhance several important aspects of self-management. Specifically, higher levels of physical activity were linked to a lower risk of developing both type 2 diabetes (T2D) and hypertension.

Psychological well-being acts as a link between self-care knowledge and self-disease management. Older patients with high systolic blood pressure tend to have poor self-management disease. Therefore, it is necessary to improve psychological support programs for hypertensive patients as the knowledge of self-care and psychological health can help better self-management (Shi et al., 2022). The study is supported by (Eghbali et al., 2022), who recommend that long-term psychological interventions are required to improve life quality and help control hypertension as there is a correlation between a lower level of psychological distress and better self-care scores. As stated in a study conducted by (Korenhof et al., 2022), mindfulness-based intervention can improve several important aspects of self-management, including psychological aspects and social support, which can contribute to changes in self-care and individual well-being (Korenhof et al., 2022).

The results of the study (Liu et al., 2024), regarding barriers to management in the

elderly with hypertension and diabetes, found that individual factors and lack of social support became the main causes and difficulties in disease management. For this, interventions are required to manage these obstacles. As stated in a study conducted by (Depping et al., 2021), it was stated that self-help and telephone-based peer counseling are independent management interventions in increasing the acceptance of the disease, and several other aspects such as social support and individual coping strategies can reduce depression, then making the quality of mental life better.

Benefits of Physical Exercise and Self-Management to Control Blood Pressure and Improve Life Quality

Physical activity is critical in hypertension management. There are 4 Physical activities that are recommended in this review, such as walking, swimming, cycling, and strength training (Unda Villafuerte et al., 2024). This exercise can also improve self-management. Physical exercise not only lowers blood pressure but also helps to overcome mental health problems such as depression and anxiety, both of which have an impact on blood pressure. Exercise programs have been included in the health management of elderly patients because, with the support of experienced trainers, patients can exercise safely and effectively (Juan & Xianyi, 2023). In addition physical exercises that improve cardiovascular endurance include swimming, cycling, and strength training, which are also part of the hypertension management program (Unda Villafuerte et al., 2024). In his study (Andersson et al., 2024) showed significant results between physical activity and decreased blood pressure, but the impact on men and women was different; each step reported could reduce systolic blood pressure (SBP) by 0.89 mmHg.

The application MyBpMyLifeApp for diet and physical activity can be effective in individuals with hypertension, in which the results of the research article showed an increase daily step count to 170 steps, sodium intake decreased by 1145 mg, and significantly improved both of them with $p = 0.002$ (Dorsch et al., 2025). Research (Zhu et al., 2021) also found that 78.93% of physical activity could control blood pressure well and showed health utilities or indications of good health, which could improve life quality.

The findings of this article are supported by (Huzmeli et al., 2024), stating that hypertensive patients undergoing inspiratory muscle training - a technique involving breathing exercises with loads adjusted to the individual's maximum inspiratory pressure, showed a significant increase in respiratory muscle strength and an ability to exercise. As a result, it could lower blood pressure and improve life quality. Also, regular exercise can help the cardiovascular system as it is able to pump blood well, lower blood pressure, and reduce the workload of the heart. (Huzmeli et al., 2024) advised patients to set aside 150 minutes each week for moderate physical activities like cycling, swimming, or walking. Overall, inspiratory muscle strength training and other exercise techniques can provide a more comprehensive approach to health management by increasing physical activity.

CONCLUSION

Effective self-management is able to lower blood pressure and improve the quality of life for hypertensive patients with multidisciplinary support and technology-based interventions. Success in hypertension management can be achieved through physical activity, social support, and psychological support. For this reason, to encourage patients to adopt a healthy lifestyle and better manage their condition, it is essential to use a comprehensive approach including various interventions and ongoing support.

CONFLICTS OF INTEREST

The authors declare that there are no relevant conflicts of interest.

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