

Effects of Mindfulness-Based Interventions on Quality of Life Among Patients with Hypertension: A Systematic Review

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ARTICLE INFO	ABSTRACT
<p>Manuscript Received: 28 Feb, 2026 Revised: 14 Apr, 2026 Accepted: 23 May, 2026 Date of Publication: 12 Jun, 2026 Volume: 9 Issue: 6 DOI: 10.56338/mppki.v9i6.10572</p>	<p>Introduction: In modern healthcare when therapeutic approaches have advanced, hypertension remains a challenging long-term medical condition. A major cause of not only cardiovascular but also kidney disease is hypertension. Moreover, hypertension globally and significantly contributes to death rates, becoming a contributing factor to cardiovascular morbidity and mortality. Dealing with chronic disease management, hypertension is truly challenging as patients have uncontrolled blood pressure. This threatens physical health as well as patients' quality of life (QoL). Thus, enhancing hypertensive patients' well-being through interventions is important. Mindfulness-based interventions (MBIs) is a potential non-pharmacological approach to improve hypertensive patients' QoL. Objective: To assess MBIs impacts on hypertensive patients' QoL.</p> <p>Method: This study employed a systematic review methodology following by PRISMA 2020 guidelines. Scopus, ScienceDirect, also ProQuest were the selected databases, including articles published between 2020 and 2024. Referring to the predefined criteria, a screening process was structurally conducted to select the studies. The inclusion criteria focused on MBIs in hypertension, resulting in 8 eligible studies.</p> <p>Results: The findings show that MBIs positively impact the hypertensive patients' QoL, indicating improvements in QoL and other related outcomes. Heterogeneity dealing with study design and outcome measure exists within the selected studies though. Not all studies directly assessed QoL, with some relying on indirect indicators.</p> <p>Conclusion: The potential of MBIs is significant, serving as a complementary non-pharmacological strategy to promote hypertensive patients' QoL. Thus, healthcare providers are expected to apply mindfulness approaches into the holistic management of hypertensive individuals.</p>
<p>KEYWORDS</p> <p>Mindfulness; Quality of Life; Hypertension</p>	

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INTRODUCTION

Hypertension is a chronic disease contributing to cardiovascular disorders development. In the global context, cardiovascular disease itself is one of the major causes of death (1). This study aims to examine the MBIs effects on hypertensive patients' blood pressure and QoL. Those diagnosed with hypertension, prehypertension, or related cardiovascular conditions were the population of interest. The interventions, MBIs, include Mindfulness-Based Stress Reduction (MBSR) and other structured mindfulness programs. The outcomes consist of systolic blood pressure, diastolic blood pressure, heart rate, and QoL. There was no specific active comparator because studies with any comparison group, including usual care or standard treatment, were included in this study. This PICO framework was used to maintain the consistency of the study selection, data extraction, and data synthesis throughout the review process. Hypertension affects approximately 31.1% of adults worldwide or around 1.39 billion individuals, and this number keeps increasing. Two-thirds of these adults live in low- and middle-income countries (2)(3)(4).

Hypertension is one of the main causes of illness and death worldwide, and its incidence continues to increase, especially in developing countries. Hypertension therapy focuses on reducing long-term cardiovascular risk. However, there is growing attention to health-related quality of life (HRQoL), including efforts to promote daily functioning, reduce psychological and physical discomfort, and improve social participation. The impact of hypertension on patients' physical, psychological, and functional independence is significant. Moreover, it affects patients' social and family relationships, which collectively reduce HRQoL. Patients with hypertension tend to have lower HRQoL. This is affected by uncontrolled blood pressure, organ damage, comorbidities, and treatment regimens (5). Therefore, in managing chronic disease, it is crucially important to refer to the concept of QoL. The World Health Organization (WHO) defines QoL as how an individual sees their life condition based on their cultural context and personal values. QoL consists of aspects such as physical health, psychological well-being, social relationships, and environmental factors. Hypertension may negatively affect these aspects and potentially disturb emotional stability, increase stress levels, and decrease life satisfaction (6).

Therefore, non-pharmacological approaches are important as alternatives to help lower blood pressure and improve QoL. One example of these approaches is mindfulness-based practice. Based on the previous studies, the success of MBIs in enhancing hypertensive patients' QoL are inconsistent and recent evidence has not been comprehensively reviewed. These reviews also do not specifically focus on the updated literature from recent years or differentiate between types of MBIs and the outcomes. Mindfulness itself is defined as an individual's full awareness of present experiences with an open and non-judgmental attitude and acceptance towards their experiences. Therefore, this study aims to review recent evidence on MBIs to understand their impact on hypertensive patients' QoL.

Although MBIs have been widely studied globally, their application in Indonesia is still limited. Public awareness of mindfulness as an evidence-based clinical intervention is also still low, and many people view it more as a spiritual or religious than therapeutic practice. In addition, the number of healthcare professionals trained in standardized mindfulness-based programs is still limited, which may make its implementation in clinical settings more difficult. Current hypertension management in Indonesia still prioritizes pharmacological treatment with limited integration of behavioral and psychological interventions. Based on these challenges, it is important to contextualize global evidence on MBIs for hypertension in specific healthcare system settings, including Indonesia.

METHOD

This systematic review applied a well-structured and methodical approach, ensuring the findings reliability and validity. The components of the methodology are as follows:

Research Type

This systematic review followed PRISMA 2020 guidelines, aiming to examine MBIs effects on blood pressure and QoL of individuals with hypertension and cardiovascular-related conditions. A search was comprehensively conducted in electronic databases including Scopus, ScienceDirect, and ProQuest by using predefined keywords related to "mindfulness-based interventions," "hypertension," and "blood pressure." The

selected studies were all published between 2020 and 2024 and were selected based on predefined inclusion and exclusion criteria. The screening process of titles and abstracts were independent. To ensure eligibility, full-text assessment was carried out. Data extraction was conducted systematically using a standardized form, including study characteristics, population, intervention type, and outcomes. The included studies were then analysed using a narrative synthesis approach to summarise findings from different study designs. The study selection process is shown in a PRISMA flow diagram.

Population and Sample/Informants

The population size for each study can be seen in the following table:

No	Author(s)	Country	Sample /Informants
1	Zhang H, et al.	China	60
2	Rabipour, et al.	Iran	34
3	Dada T, et al.	India	60
4	Natarajan et al.	USA	1.918
5	An, E, et al.	USA	36
6	Loucks, et al.	USA	201
7	Alhawatmeh, et al.	Kuwait	74
8	Babak A, et al.	Iran	80

Research Location

The research locations were in China, Iran, India, USA and Kuwait.

Instrumentation or Tools

This study followed the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency and systematization.

Data Collection Procedures

This systematic literature review followed PRISMA 2020 guidelines. To identify relevant peer-reviewed articles the selected studies were searched in three electronic databases: Scopus, ProQuest, and ScienceDirect. The search strategy used a combination of predefined keywords and Boolean operators, including “mindfulness” OR “mindfulness-based interventions” AND “hypertension” OR “blood pressure”. The search was limited to articles written in English and published between 2020 and 2024. The final search was completed in August 2025. The relevance and quality of the studies were assessed using eligibility criteria: (i) primary research articles published within the last five years (2020–2024), (ii) full-text articles available in English, (iii) studies investigating MBIs in adult patients with hypertension, and (iv) studies assessing outcomes related to QoL. Exclusion criteria included review articles (systematic reviews, meta-analyses, and literature reviews), grey literature (such as books, theses, and dissertations), and studies that did not specifically examine the effects of MBIs on QoL in patients with hypertension. The studies were selected based on predetermined inclusion and exclusion criteria. Data extraction and analysis were conducted using thematic synthesis to identify, examine, and combine findings from the included studies systematically.

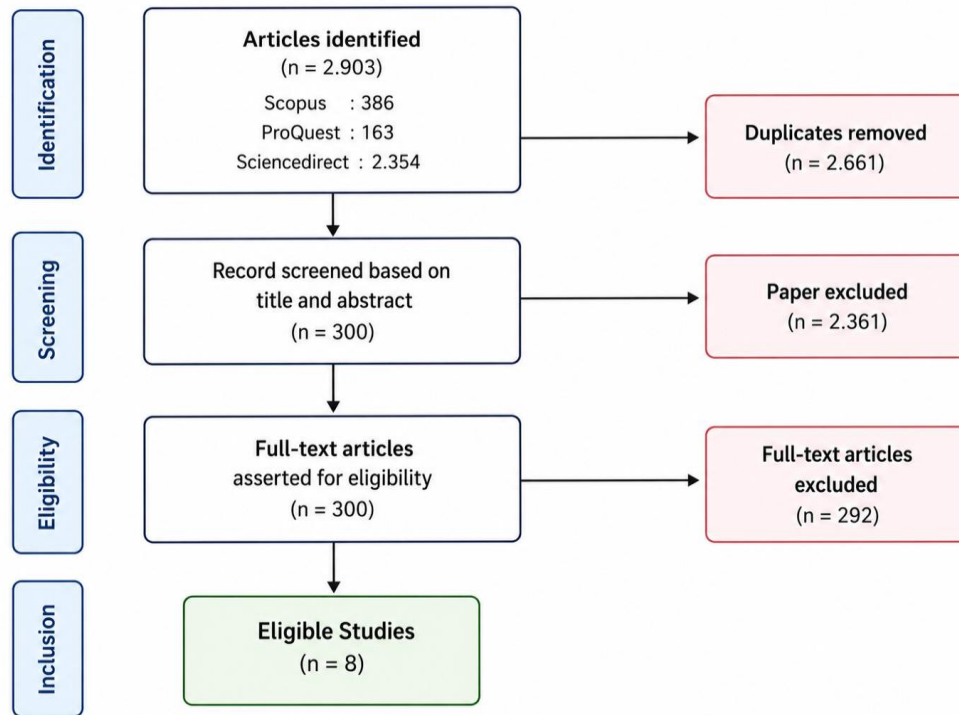


Figure 1. PRISMA 2020 Flow Chart

Of the 2,903 articles selected from Scopus; ProQuest; and ScienceDirect. After removing 242 duplicate records, 2,661 articles were evaluated based on the title and abstract. Following the evaluation process, 2,361 articles were excluded due to irrelevance to the topic. A total of 300 full-text articles were evaluated for eligibility through which 292 were excluded. Finally, eight studies were included in the qualitative synthesis.

RESULTS

Of the 8 articles reviewed, the reviewed studies consistently indicate that MBIs are linked to improvements in chronically ill patients’ QoL. These findings were observed across diverse geographical contexts, although variations in moderating factors were reported.

Table 1. Summary of MBIs and QoL in Patients with Hypertension

No	Author(s)	Year	Study Design	Intervention	Comparator	Durasi (week)	Outcome	QoL Instrument	Key Findings
1	Zhang H, et al. (8)	2024	Randomized Control Trial	Mindfulness-based interventions	Education-based usual care	10	Blood pressure, Self-efficacy, depression	PHQ-9	Decreased blood pressure, increased self-efficacy and decreased depression
2	Rabipour, et al (9)	2024		Mindfulness-based interventions		8			Mindfulness-based stress reduction by

			Randomized Control Trial		Routine care		Systolic Blood Pressure; Diastolic Blood Pressure; and Heart Rate	Not Specified	online significantly reduced Systolic Blood Pressure; Diastolic Blood Pressure; and heart rate in patients with hypertension compared to control group; with effects maintained at follow-up.
3	Dada T, et al (10)	2022	A prospective, parallel-arm, randomized controlled trial (RCT)	Mindfulness-based Stress Reduction	Waitlist control	6	BP QoL	Not Specified	Mindfulness-based stress reduction led to decreased intraocular pressure and cortisol levels; with improved optic nerve perfusion and quality of life.
4	Natarajan, et al (11)	2024	Quasi-experimental study	Guided mindful breathing	No comparator	1.918	Systolic & diastolic BP	Not specified	device-guided mindful breathing for 15 minutes daily significantly reduces systolic and diastolic blood pressure both immediately and over several days in individuals with hypertension .

5	An E, et al (12)	2021	A randomized controlled trial	Mindfulness	Health Promotion Program (HPP)	13	Blood pressure	Not assessed	Findings suggest that mindfulness-based, multimodal programs may help manage blood pressure in adults with hypertension.
6	Loucks, et al (13)	2023	Randomized clinical trial	Mindfulness-Based Blood Pressure Reduction (MB-BP)	Enhanced Usual Care	26	blood pressure, mindfulness level, and lifestyle behaviors	Not Specified	Mindfulness-Based Blood Pressure Reduction (MB-BP) significantly reduced systolic blood pressure by 4.5 mmHg compared with enhanced usual care at 6-month follow-up in adults with elevated blood pressure.
7	Alhawatmeh, et al (14)	2022	Randomized clinical trial	Mindfulness-Meditation	relaxation (eyes closed control)	5	Quality of life (KDQOL-36), perceived stress (PSS), trait mindfulness (MAAS); emotion	Kidney Disease Quality of Life (KDQOL-36)	Mindfulness meditation significantly improved trait mindfulness, emotion regulation, perceived stress, and kidney disease-related quality of life in hemodialysis patients compared with the

				regulation (ERQ)	control group over time			
8	Babak A, et al (15)	2022	Randomized clinical trial	Routine care	12	Blood pressure; QoL	SF-36	The intervention group demonstrated a statistically significant decrease in mean systolic and diastolic blood pressure compared to the control group. Additionally; there were significant improvements in QoL, along with reduced levels of stress, anxiety, and depression.

SF-36 The intervention group demonstrated a statistically significant decrease in mean systolic and diastolic blood pressure compared to the control group. Additionally; there were significant improvements in QoL, along with reduced levels of stress, anxiety, and depression.

Several articles conclude that non-pharmacological mindfulness intervention therapy can improve a person's QoL. Mindfulness intervention can be used as a preventive strategy and form of early support for adults facing hypertension or high blood pressure (16).

DISCUSSION

This section explains the study findings in relation to the existing studies, discusses their practical implications, assesses their strengths and limitations, and provides recommendations for future research.

Interpretation of Key Findings

Several studies have reported the contribution of MBIs in improving psychological outcomes, resulting in better QoL in patients with hypertension. However, the limitation lies in its heterogeneous evidence. For those with hypertension, the blood pressure dysregulation is caused by anxiety, stress, and depressive symptoms. Through mindfulness practices, the causes can be minimized. The MBIs help patients with hypertension to regulate emotion, manage stress, and build self-awareness; which in turn support better blood pressure management. MBSR programs positively impact both psychological state and QoL. The mechanisms are complicated, however, studies focusing on

hypertension show that there are potential improvements dealing with the way to control attention, regulate stress, and balance the autonomic nervous system. The relevance of these mechanisms in hypertension relies on how important the stress-related pathways are in the development and progression of the disease. Thus, MBIs act as a complementary strategy that improve hypertensive patients' psychological state and manage hypertensive patients' blood pressure (17,18). Moreover, for hypertensive patients who undergo hemodialysis, intradialytic hypotension (IDH) can be reduced through mindfulness meditation, contributing to better blood pressure stability and improved QoL. Nevertheless, to validate the effectiveness over time, high-quality studies are necessary (19).

Reports show that MBIs in hypertensive patients improve psychological state and enhance QoL. The interventions help patients to regulate emotions and reduce stress, the two main contributors to blood pressure dysregulation. The interventions are considered as complementary strategies beneficial to promote treatment adherence and long-term disease management in clinical hypertension care. Supporting this, studies reveal that anxiety and depressive symptoms are reduced through mindfulness practices. Therefore, the interventions support psychological outcomes and QoL in patients with hypertension (7,8,9,10,12).

The potential of MBIs in supporting stress reduction and regulating emotions make the interventions notably recognized. MBIs are strongly related with hypertensive patients' stress, emotions, and blood pressure as studies demonstrate the effectiveness of the interventions in promoting awareness, enhancing self-regulation, and reducing psychological distress. These factors are important to control blood pressure, indicating that the improvements on these factors may indirectly result in better health outcomes in hypertensive patients. Hence, MBIs play a role as a non-pharmacological approach that enhances not only hypertensive patients' psychological well-being but also QoL (20,21).

MBIs help hypertensive patients have better lifestyles and lower stress, positively affecting their blood pressure, diastolic blood pressure, and heart rate. Studies prove that there is an association between the development and progression of hypertension with stress management, physical activity, and diet. In order to prevent and manage blood pressure, lifestyle plays a central role. Besides lifestyle factors, self-regulation and stress management, two other important factors, can be improved through MBIs.(9)

In managing hypertension, one of the most commonly used approaches is mindfulness-based interventions (MBIs). MBIs help individuals with hypertension to develop non-judgmental awareness and acceptance of present experiences. This process may change evaluative and analytical patterns of thinking. Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT) are the two most applied MBIs. By reducing interpretation and judgement, MBSR helps individuals to be more aware towards discomfort and focus on physical sensations; thus, it results in better stress regulation. MBSR, based on studies, reduces blood pressure and improves hypertensive patients' physiological regulation (23,24).

Mindfulness is beneficial to help patients with hypertension to regulate emotions and reduce stress, the two factors affecting high blood pressure. Therefore, through mindfulness, patients with hypertension are expected to be aware of worry and anxiety. This awareness helps individuals respond to stress in a more adaptive way. Better self-regulation can reduce physiological stress responses, decrease avoidance behaviours, and improve stress management. Therefore, it can improve treatment adherence and support long-term hypertension management. In conclusion, mindfulness acts as a mechanism that improves psychological well-being and blood pressure control (7,8,9,10,25). The combination of pursed-lip breathing with number counting intervention significantly reduces BP (Blood pressure) and HR (heart rate) in patients with hypertensive urgency (22).

The experimental group in this study received eight-week MBIs. Four structured phrases were used, involving varied mindfulness meditation practices. The findings show that the participants experience reduced depression symptoms and anxiety, improved HRQoL, and also improved self-awareness (26). In other words, MBIs are beneficial for hypertensive patients' emotional regulation and symptom management. Thus, their psychological well-being and QoL are improved. Stress, in hypertensive patients, is important as it may influence not only physiological but also psychological outcomes, such as emotional stability and sleep quality (27). Therefore, interventions that target stress regulation are relevant in hypertension management. It can be concluded that the interventions provide benefits that improve psychological outcomes and QoL towards patients with hypertension (28). Although this review shows the beneficial effects of MBIs for hypertensive patients, the findings cannot be

generalized because some studies involved specific clinical populations such as patients undergoing hemodialysis, who often experience hypertension as a comorbid condition.

Comparison with Previous Studies

The primary focus of previous systematic reviews on MBIs is mental health outcomes such as stress, anxiety, depression, and chronic management in heterogeneous populations. Blood pressure-related outcomes have not been highlighted in these reviews. On the other hand, this study specifically stresses hypertension and blood pressure-related conditions. The conditions include prehypertension and cardiovascular populations, through which a more targeted synthesis of evidence can be provided. Moreover, different from previous reviews that analyze psychological outcomes generally, this study examines both psychological (QoL, stress, anxiety) and physiological outcomes (blood pressure, heart rate). Through the review of both outcomes, this study provides a more comprehensive understanding in terms of the role of mindfulness in hypertension management. This focused scope gives a clearer understanding of the effects of MBIs within the context of cardiovascular health, solving the gap of the previous literature.

Limitations and Cautions

This systematic review has several limitations that should be taken into account. First, the focus is on patients with hypertension, but some studies include broader populations such as patients with cardiovascular or chronic disease as well. This may affect the precision of the hypertension-specific outcomes. Second, this study does not apply risk of bias assessment which affects the reliability and strength of the synthesized evidence since the variations are not evaluated methodically. Third, the comparability of findings within the studies reviewed is limited by heterogeneity in study design, sample size; intervention duration; and outcome measurement tools. Furthermore, the selection bias may happen as a result of the restriction to selected databases and English-written articles. The publication bias may result in overrepresentation of studies with positive findings. Thus, when interpreting the findings, these limitations should be taken into account. To improve the evidence base, future research should use more systematic methodological appraisal and stricter population criteria.

Recommendations for Future Research

In order to benefit patients, both psychologically and physically, future research is expected to combine mindfulness with physical activity in hypertension management and QoL improvement. In addition, through ongoing and sustained physical activity, combined with relaxation therapy, hypertensive patients are able to easily monitor their physical condition. This effective monitoring, in turn, results in controlled blood pressure and improved QoL. By expanding the research, including both mental and physical health, the intervention development can be widely applied, which is essential for maintaining and improving patients' QoL.

CONCLUSION

MBIs have the potential to improve hypertensive patients' QoL because the interventions help to lower their blood pressure as well as anxiety, stress, and depression symptoms. The findings show that mindfulness can be considered as one of non-pharmacological approaches in hypertension and cardiovascular management. However, since the study design, population characteristics, and outcome measures of the selected studies are heterogeneous; the findings should be interpreted with caution. MBIs give positive effects on both psychological and physiological outcomes; however, the interventions cannot substitute the pharmacological treatment. The interventions act as a complementary strategy in comprehensive chronic disease management. Further high-quality and standardized studies are needed to improve the evidence base in this field.

AUTHOR CONTRIBUTION STATEMENT

EDN and MM contributed equally to the development of the research concept. EDN was also involved in the design of the methodology, data analysis, and writing of the initial draft. MM, SFP, and SS provided critical input through the review and revision process. MD, BW and WW contributed to the writing, review, and final editing of the manuscript.

CONFLICT OF INTEREST

The authors declare that there are no relevant conflicts of interest related to this study.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The author confirms that no artificial intelligence technology was used in the development of ideas, data analysis, or scientific content of this research. The use of AI tools, such as ChatGPT and Grammarly, was solely for language editing and technical improvements to enhance readability, without affecting the scientific validity, results, or interpretation of the research.

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