



Review Article

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Community-Based Multicomponent Nursing Interventions For Improving Health Outcomes in Older Adults with Hypertension: A Systematic Review

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Abstract

Background: Hypertension is one of the most prevalent chronic conditions among older adults and is associated with substantial morbidity and reduced quality of life. Multicomponent nursing interventions have been increasingly implemented to improve hypertension management and support patients' overall well-being. **Objective:** To generate current evidence regarding the effectiveness of community-based multicomponent nursing interventions in improving health outcomes, including quality of life, blood pressure control, medication adherence, and self-management among older adults with hypertension. **Methods:** A systematic review was conducted following PRISMA 2020 guidelines. Literature searches were performed in PubMed, Scopus, ScienceDirect, CINAHL, and Google Scholar for studies published between 2020 and 2026. Eligible studies involved older adults (≥ 60 years) with hypertension receiving nurse-led multicomponent interventions. Study quality was assessed using the Joanna Briggs Institute (JBI) appraisal tools. **Results:** Eight studies met the inclusion criteria. The findings consistently showed that multicomponent nursing interventions improved medication adherence, blood pressure control, self-care behaviors, and quality of life among older adults with hypertension. **Conclusions:** Multicomponent nursing interventions appear to be effective in improving hypertension management and quality of life among older adults. Integrating comprehensive nurse-led programs into community and primary healthcare settings may support chronic disease management and promote healthy aging.

Keywords: Hypertension; Older adults; Multicomponent nursing intervention; Quality of life; Self-management.

تدخلات ترميز متعددة المكونات قائمة على المجتمع لتحسين النتائج الصحية لدى كبار السن المصابين بارتفاع ضغط الدم: مراجعة منهجية

الخلاصة

الخلفية: ارتفاع ضغط الدم هو أحد أكثر الحالات المزمنة انتشاراً بين كبار السن ويرتبط بمعدلات مرضية كبيرة وانخفاض جودة الحياة. تم تطبيق التدخلات التمريضية متعددة المكونات بشكل متزايد لتحسين إدارة ارتفاع ضغط الدم ودعم رفاهية المرضى بشكل عام. **الهدف:** توليد أدلة حديثة حول فعالية التدخلات التمريضية متعددة المكونات القائمة على المجتمع في تحسين النتائج الصحية، بما في ذلك جودة الحياة، والتحكم في ضغط الدم، والالتزام بالأدوية، والإدارة الذاتية بين كبار السن المصابين بارتفاع ضغط الدم. **الطرائق:** تم إجراء مراجعة منهجية وفقاً لإرشادات PRISMA 2020. تم إجراء عمليات بحث في الأدبيات في PubMed و Scopus و ScienceDirect و CINAHL و Google Scholar لدراسات نشرت بين عامي 2020 و 2026. شملت الدراسات المؤهلة كبار السن (≤ 60 عاماً) المصابين بارتفاع ضغط الدم وتلقوا تدخلات متعددة المكونات بقيادة الممرضات. تم تقييم جودة الدراسة باستخدام أدوات تقييم معهد جونا بريجز (JBI). **النتائج:** ثمان دراسات استوفت معايير الشمول. أظهرت النتائج باستمرار أن التدخلات التمريضية متعددة المكونات حسنت الالتزام بالأدوية، والتحكم في ضغط الدم، وسلوكيات العناية الذاتية، وجودة الحياة بين كبار السن المصابين بارتفاع ضغط الدم. **الاستنتاجات:** يبدو أن التدخلات التمريضية متعددة المكونات فعالة في تحسين إدارة ارتفاع ضغط الدم وجودة الحياة بين كبار السن. قد يدعم دمج البرامج الشاملة التي يقودها الممرض في بيئات المجتمع والرعاية الصحية الأولية إدارة الأمراض المزمنة ويعزز الشيخوخة الصحية.

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INTRODUCTION

Hypertension remains one of the most common chronic diseases affecting older adults worldwide and represents a major public health concern. The prevalence of hypertension increases significantly with age, and studies indicate that more than 60% of adults over the age of 60 are affected by hypertension [1,2]. This growing prevalence is closely associated with population aging and lifestyle changes, making hypertension a major contributor to morbidity and mortality among older adults. If not adequately

controlled, hypertension may lead to serious complications such as stroke, cardiovascular disease, kidney failure, and other adverse health outcomes [3,4]. Beyond its physical health consequences, hypertension can also significantly affect the quality of life of older adults. Individuals living with hypertension often experience limitations in daily activities, fatigue, and psychological stress related to long-term disease management [5,6]. Studies have shown that factors such as perceived health status, self-care behavior, and social support play important roles in determining quality of life among older adults with

hypertension. Poor disease management may therefore negatively influence both physical and psychosocial well-being in this population [7–9]. Nurses play an essential role in supporting patients with hypertension through health education, lifestyle counseling, medication management, and ongoing monitoring [10,11]. Evidence suggests that nurse-led interventions can improve blood pressure control, medication adherence, and lifestyle behaviors among older adults with hypertension. These interventions typically include patient education, behavioral counseling, and regular follow-up support that help patients better manage their chronic conditions [12–15]. Recently, researchers have increasingly focused on multicomponent nursing interventions, which integrate several strategies such as health education, lifestyle modification, self-management support, and home monitoring. These interventions combine behavioral, educational, and clinical approaches to address the complex health needs of older adults. These interventions aim to address the complex health needs of older adults by combining behavioral, educational, and clinical approaches. Multicomponent strategies may improve patient engagement, encourage healthy lifestyle changes, and enhance adherence to treatment recommendations, ultimately contributing to improved health outcomes [16–18]. Although numerous studies have examined nurse-led interventions in hypertension management, findings regarding their effectiveness in improving quality of life among older adults remain inconsistent. Some studies report significant improvements in physical and psychological well-being, whereas others demonstrate more modest effects depending on intervention components, duration, and patient characteristics [19,20]. Therefore, a comprehensive synthesis of existing evidence is necessary to better understand the effectiveness of multicomponent nursing interventions in this population. Given the increasing prevalence of hypertension among older adults and the growing emphasis on patient-centered care, evaluating the effectiveness of nursing interventions aimed at improving quality of life is essential. Therefore, this systematic review aims to examine and synthesize current evidence regarding the effectiveness of community-based multicomponent nursing interventions in improving health outcomes, including quality of life, blood pressure control, medication adherence, and self-management among older adults with hypertension.

METHODS

Study design and setting

This study employed a systematic review design to identify, evaluate, and synthesize existing evidence regarding the effectiveness of multicomponent nursing interventions in improving quality of life among older adults with hypertension. The review process was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines, which provide a

standardized framework for reporting systematic reviews in health research [21]. The PRISMA approach ensures transparency and methodological rigor in literature identification, screening, and eligibility.

Search Strategy

A comprehensive literature search was conducted across several major electronic databases to identify relevant studies. The databases included PubMed/MEDLINE, Scopus, ScienceDirect, CINAHL, and Google Scholar. The search included studies published between 2020 and 2026 and limited to articles written in English. Keywords and Boolean operators were used to combine terms related to hypertension, older adults, nursing interventions, and quality of life. The search strategy included combinations of the following keywords: ("hypertension" OR "high blood pressure") AND ("older adults" OR "elderly" OR "aging" OR "geriatric") AND ("nursing intervention" OR "nurse-led intervention" OR "multicomponent intervention") AND ("quality of life" OR "QoL") AND ("nursing intervention" OR "nurse-led intervention" OR "multicomponent intervention") AND ("quality of life" OR QoL). All retrieved articles were imported into a reference management system to facilitate screening and remove duplicate records. The study selection process followed four stages in accordance with PRISMA guidelines, as shown in Figure 1.

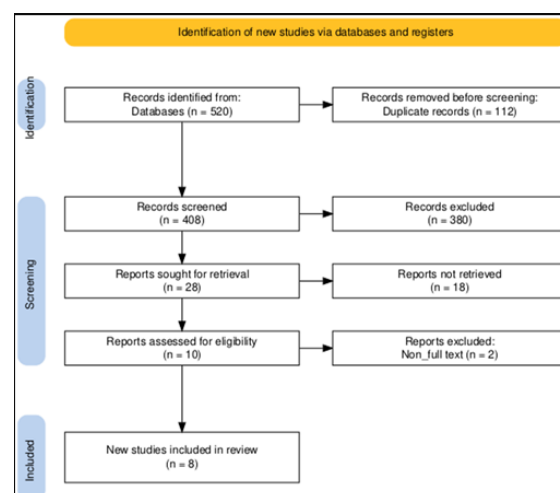


Figure 1: PRISMA analysis.

Eligibility Criteria

The eligibility criteria were established using the PICOS framework (Population, Intervention, Comparison, Outcomes, and Study Design) in Table 1 to ensure appropriate selection of relevant studies. Studies were included if they involved older adults diagnosed with hypertension, evaluated nursing-led or nurse-supported interventions, reported quality of life outcomes, and were original empirical research articles. Studies were excluded if they were review articles, editorials, or conference abstracts; did not involve nursing interventions; did not report quality of life outcomes; and were not available in full text.

Table 1: PICOS Framework

Component	Description
Population (P)	Older adults aged ≥ 60 years diagnosed with hypertension
Intervention (I)	Multicomponent nursing interventions (health education, lifestyle counseling, self-management training, home monitoring, follow-up care)
Comparison (C)	Usual care or standard hypertension management
Outcomes (O)	Quality of life measured using validated instruments (e.g., WHOQOL, SF-36, EQ-5D)
Study Design (S)	Randomized controlled trials, quasi-experimental studies, or controlled clinical trials

RESULTS

Data extraction was conducted using a standardized extraction form to collect key information from each included study. The following data were extracted in Table 2. The reviewed studies consistently demonstrate that nurse-led interventions are effective in improving outcomes among patients with hypertension. Key intervention components, including health education, lifestyle counseling, regular monitoring, and self-

management support, were associated with better blood pressure control, medication adherence, self-care behaviors, and quality of life. These findings suggest that comprehensive nursing interventions play an important role in long-term hypertension management across diverse healthcare settings. The methodological quality of the included studies was evaluated using the Joanna Briggs Institute (JBI) critical appraisal tools—limitations that are common in behavioral and nursing interventions—which are widely used for assessing the quality of clinical and quasi-experimental studies [3].

Table 2: Characteristics of the included studies

Study	Country	Design	Population	Intervention Components	Outcome
Kolcu & Ergun [9]	Turkey	Randomized Controlled Trial	Older adults with hypertension	Nurse-led hypertension management program including education, lifestyle counseling, and follow-up monitoring	Improved quality of life and medication adherence
Rani <i>et al.</i> [42]	Pakistan	Randomized Controlled Trial	Older adults with hypertension	Health education, self-management training, and lifestyle modification support	Improved adherence and quality of life
Miao <i>et al.</i> [6]	China	Randomized Controlled Trial	Adults with hypertension	Community nurse-led hypertension management including education and monitoring	Improved blood pressure control
Yuningsih <i>et al.</i> [57]	Indonesia	Quasi-experimental	Elderly patients with hypertension	Holistic nursing intervention including counseling, lifestyle education, and monitoring	Improved quality of life
Tu <i>et al.</i> [51]	China	Intervention study	Hypertensive adults	Nurse-coordinated transitional care including follow-up and patient education	Improved blood pressure control and reduced readmission
Yang <i>et al.</i> [52]	China	Intervention study	Adults with hypertension	Nurse-led medication self-management program	Improved medication adherence and BP control
Parasuraman <i>et al.</i> [54]	India	Experimental study	Hypertensive adults	Structured nurse-led self-care education program	Improved self-care behavior
Noorollahi <i>et al.</i> [55]	Iran	Randomized Controlled Trial	Hypertensive adults	Family health nurse model including lifestyle counseling and monitoring	Improved BP control and self-management

The assessment considered several domains, including randomization, allocation concealment, outcome measurement, data completeness, and potential bias. Table 3 shows the quality assessment using the Joanna Briggs Institute (JBI) critical appraisal tool, which indicated that the included studies generally demonstrated acceptable methodological quality. Most randomized controlled trials reported clear intervention procedures, reliable outcome measurements, and

relatively complete data reporting. Although some studies did not fully describe allocation concealment or blinding procedures, limitations that are common in behavioral and nursing interventions, the overall risk of bias was considered moderate to low. Therefore, the methodological quality of the included studies was deemed sufficient to support the validity of the findings synthesised in this systematic review.

Table 3: Quality Assessment of Included Studies (JBI Critical Appraisal)

Study	Randomization	Allocation Concealment	Outcome Measurement	Completeness of Data	Overall Quality
1	Yes	Yes	Yes	Yes	High
2	Yes	Unclear	Yes	Yes	Moderate
3	Yes	Yes	Yes	Yes	High
4	No	Not applicable	Yes	Yes	Moderate
5	Unclear	Unclear	Yes	Yes	Moderate
6	Unclear	Unclear	Yes	Yes	Moderate
7	No	Not applicable	Yes	Yes	Moderate
8	Yes	Yes	Yes	Yes	High

DISCUSSION

This systematic review synthesized evidence from eight studies examining the effectiveness of multicomponent nursing interventions in improving

health outcomes among older adults with hypertension. Overall, the findings indicate that interventions integrating several components such as health education, lifestyle counseling, self-management training, and follow-up monitoring can contribute to

improved patient outcomes [5,12,22,23]. These integrated interventions address both behavioral and clinical aspects of hypertension management, which are essential for maintaining long-term disease control among older adults [18,24–31]. One of the most consistently reported components of effective interventions is nurse-led health education [5,6,12]. Educational interventions help patients understand the nature of hypertension, recognize risk factors, and adhere to prescribed treatment regimens [32–34]. A randomized controlled trial conducted demonstrated that a nurse-led hypertension management program significantly improved quality of life and medication adherence among older adults with hypertension. The study highlighted that structured nursing education combined with regular monitoring can enhance patients' knowledge and promote better self-management behaviors [9,35–37]. Education is particularly important for older adults because hypertension management requires long-term lifestyle adjustments, including reduced sodium intake, increased physical activity, and regular blood pressure monitoring [9,12,38–41]. Multicomponent interventions that combine education with behavioral counseling and follow-up support have been shown to enhance patient engagement and encourage sustainable behavioral change. For example, a randomized controlled trial conducted in Pakistan reported that structured health education and self-management training significantly improved medication adherence and quality of life among older adults with hypertension [16,42–45]. Another important component identified in this review is community-based nursing support and monitoring [46–50]. Community nurse-led programs provide continuous follow-up and monitoring, which can improve hypertension management and patient outcomes. A randomized controlled trial conducted in China reported that a community nurse-led hypertension management model significantly improved blood pressure control among patients with hypertension compared with usual care [6,42,51,52]. Likewise, community-based holistic nursing interventions can tackle both the physical and psychosocial dimensions of chronic disease management [53–56]. A quasi-experimental study conducted in Indonesia found that holistic nursing interventions, including lifestyle counseling, patient education, and monitoring, significantly improved the quality of life of older adults with hypertension [17,57–59]. Another critical component of multicomponent interventions is transitional and follow-up care provided by nurses [60–65,9]. Transitional care programs help ensure that patients receive the same level of care when they move from one healthcare setting to another or go home after being in the hospital [66–72]. Evidence suggests that nurse-coordinated transitional care interventions can significantly improve blood pressure control and reduce hospital readmissions among hypertensive patients [48,51,73,74]. Encouraging people to take care of themselves is also a key part of effective nursing care [75–79]. Self-management programs encourage patients to monitor their blood pressure, adhere to

medication regimens, and adopt healthy lifestyle behaviors. Research has shown that nurse-led self-management interventions can improve medication adherence and blood pressure control among patients with hypertension [1,52,80–82]. Self-care education is particularly beneficial for individuals with chronic diseases such as hypertension because it promotes patient empowerment and independence in managing health conditions [83–85]. Structured nurse-led self-care education programs have been shown to significantly improve self-care behaviors among patients with hypertension, thereby supporting better long-term disease management [33,54,86–91]. Another important finding of this review is the role of family and community nursing models in hypertension management [13,56,92–94]. Family health nurse interventions that combine lifestyle counseling, education, and continuous monitoring have been reported to improve self-management behaviors and blood pressure control among hypertensive patients [55,95–99]. Despite the positive results of the studies in this report, there are some limitations to consider. First, the intervention components varied across studies, including differences in program duration, educational strategies, and follow-up mechanisms. These variations may influence the comparability of results across studies. Second, some studies included relatively small sample sizes, which may limit the generalizability of findings. Third, differences in healthcare systems and cultural contexts across countries may affect the implementation and effectiveness of nursing interventions [95,100–103]. Another limitation relates to the measurement of patient outcomes. While several studies assessed quality of life using validated instruments, other studies focused primarily on clinical outcomes such as blood pressure control or medication adherence [104,105]. Variations in outcome measures may affect the comparability of findings and emphasize the necessity of standardized measurement tools in future research. Future research should focus on evaluating the long-term sustainability, effectiveness, and scalability of multicomponent nursing interventions for hypertension management among older adults. Although the included studies consistently reported improvements in blood pressure control, medication adherence, self-care behaviors, and quality of life, most investigations were conducted over relatively short follow-up periods. Consequently, evidence regarding the durability of these benefits remains limited. Large-scale multicenter studies with extended follow-up periods are needed to determine whether the positive outcomes achieved through nurse-led interventions can be sustained across diverse healthcare and community settings [91,103]. Future studies should also evaluate implementation fidelity, cost-effectiveness, and patient acceptability to support the broader integration of community-based nursing interventions into routine primary healthcare services. Furthermore, research should explore the optimal combination of intervention components, including health education, self-management support, family involvement, lifestyle counseling, and follow-up monitoring. Emerging

digital health technologies such as digital therapeutics, mobile health applications, home blood pressure telemonitoring, wearable devices, and artificial intelligence-assisted decision-support systems may further enhance hypertension management. Investigating the integration of these technologies within nurse-led community programs may provide valuable evidence for improving long-term blood pressure control, treatment adherence, self-management capacity, and quality of life among older adults with hypertension [61,95]. Overall, the evidence presented in this review suggests that multicomponent nursing interventions represent a promising strategy for improving hypertension management among older adults. By integrating education, behavioral support, and continuous monitoring, nurses can play a crucial role in promoting self-management, improving treatment adherence, and enhancing overall well-being among patients living with chronic diseases.

Conclusion

This systematic review indicates that multicomponent nursing interventions can play an important role in improving health outcomes among older adults with hypertension. Interventions that combine patient education, lifestyle counseling, self-management training, and regular follow-up monitoring appear to enhance patients' ability to manage their condition, improve treatment adherence, and support healthier lifestyle behaviors. These integrated nursing approaches may contribute to better hypertension control and improved quality of life among older adults. Strengthening the implementation of community-based nursing programs may therefore represent an effective strategy for promoting long-term hypertension management and supporting healthy aging.

Conflict of interests

The authors declare no conflict of interest.

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The authors did not receive any source of funds.

Data sharing statement

All data used in this systematic review were obtained from publicly available sources and are included in the references cited in this article. No new datasets were generated or analyzed beyond the published literature included in the review.

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