



DEVELOPING A MULTILEVEL COMMUNITY NURSING FRAMEWORK TO IMPROVE SELF-MANAGEMENT AMONG OLDER ADULTS WITH HYPERTENSION: A QUALITATIVE META-SYNTHESIS

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ABSTRACT

Hypertension is a leading cause of cardiovascular morbidity among older adults. Although community nursing interventions have improved blood pressure control, most focus on individual behaviour and overlook the interactions among individual, family, community, and healthcare system factors. To synthesize qualitative evidence on determinants of hypertension self-management among older adults and develop a Multilevel Community Nursing Framework. A qualitative evidence synthesis using a meta-synthesis approach was conducted following PRISMA 2020 and ENTREQ guidelines. Five electronic databases were searched for qualitative studies published between January 2018 and June 2026. Study quality was assessed using CASP. Data were analysed using Thomas and Harden's thematic synthesis involving line-by-line coding, descriptive theme development, and analytical theme generation. Six qualitative studies met the inclusion criteria. Six analytical themes emerged: (1) individual capability and health literacy, (2) self-efficacy and behavioural adaptation, (3) family engagement and social support, (4) community participation and social capital, (5) accessibility and responsiveness of primary healthcare services, and (6) technology-assisted community nursing interventions. These themes indicate that successful hypertension self-management is shaped by multilevel interactions extending beyond individual behaviour. The proposed Multilevel Community Nursing Framework provides an evidence-based model for integrating individual, family, community, healthcare, and technological determinants into community nursing practice to improve self-management and blood pressure control among older adults with hypertension.

Keywords: community nursing; hypertension; meta-synthesis; older adults; self-management

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INTRODUCTION

Hypertension is one of the leading causes of cardiovascular morbidity and mortality worldwide and remains a major public health challenge, particularly among older adults. The World Health Organization (WHO) estimates that approximately 1.28 billion adults aged 30–79 years are living with hypertension, yet fewer than half achieve adequate blood pressure control (WHO, 2023). Population ageing has further increased the burden of hypertension because older adults are more vulnerable to vascular aging, multimorbidity, and functional decline, resulting in a higher risk of cardiovascular disease, stroke, and premature mortality (Mills et al., 2020). In Indonesia, hypertension is among the most common chronic conditions affecting older adults and remains a priority for community-based healthcare services (Kemenkes, 2023).

Effective hypertension management requires more than pharmacological treatment. Long-term blood pressure control depends on sustained self-management behaviors, including medication adherence, healthy diet, physical activity, blood pressure monitoring, stress management, and regular healthcare (Gardiner et al., 2017; Morton et al., 2018). However, self-management is influenced by multiple interacting factors, including health literacy, self-efficacy, family support, community resources, and healthcare accessibility. The Individual and Family Self-Management Theory (IFSMT) and the Social Ecological Model (SEM) suggest that successful self-management

results from interactions across individual, interpersonal, community, and organizational levels rather than individual motivation alone (Bauer et al., 2025).

Although community nursing interventions such as nurse-led education, home visits, telehealth, and family-centered care have improved hypertension outcomes, most interventions focus primarily on individual behavior and are implemented separately. Qualitative studies indicate that older adults' self-management is also shaped by family involvement, community participation, cultural context, and the accessibility of primary healthcare services (Khasanah et al., 2024). However, these multilevel influences have rarely been integrated into a comprehensive community nursing framework.

Therefore, this qualitative meta-synthesis aimed to synthesize qualitative evidence on determinants of hypertension self-management among community-dwelling older adults and to develop an evidence-based Multilevel Community Nursing Framework. The proposed framework is intended to guide integrated community nursing interventions that strengthen self-management, improve blood pressure control, and support healthy ageing.

METHOD

Design

This study employed a qualitative evidence synthesis (QES) using a meta-synthesis approach to integrate and interpret findings from primary qualitative studies exploring self-management among older adults with hypertension. The review was conducted in accordance with the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) statement and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021). Thematic synthesis, as proposed by Thomas and Harden, was applied to generate higher-order analytical themes and theoretical insights by systematically integrating findings across qualitative studies. This approach is particularly appropriate for understanding the multidimensional experiences of hypertension self-management among community-dwelling older adults and for informing the development of an evidence-based Multilevel Community Nursing Framework.

Search Strategy

A comprehensive literature search was conducted to identify qualitative studies on hypertension self-management among older adults. Electronic databases searched included PubMed/MEDLINE, Scopus, Web of Science, Embase, and CINAHL Ultimate, with additional manual searches of reference lists from relevant articles. The search was limited to studies published between January 2018 and June 2026. Search terms combined MeSH, Emtree, and free-text keywords related to hypertension, older adults, self-management, community nursing, and qualitative research using Boolean operators (AND and OR). The search strategy was adapted for each database while maintaining equivalent search concepts to ensure a comprehensive and consistent retrieval of relevant studies..

Eligibility Criteria

Eligibility criteria were developed using the PICo framework (Population, Phenomenon of Interest, and Context). Studies were included if they involved community-dwelling older adults (≥ 60 years) diagnosed with hypertension, employed qualitative methodologies (e.g., phenomenology, grounded theory, ethnography, qualitative descriptive, or qualitative content analysis), explored experiences, perceptions, barriers, facilitators, or community nursing interventions related to hypertension self-management, reported original qualitative findings from interviews, focus groups, or observations, and were published in peer-reviewed English-language journals between January 2018 and June 2026. Studies were excluded if they were quantitative or mixed-method studies without extractable qualitative findings, involved participants without hypertension, were conference abstracts,

editorials, reviews, protocols, dissertations, or commentaries, lacked sufficient methodological information, or focused exclusively on pharmacological treatment without addressing self-management experiences.

Study Selection

All retrieved records were imported into EndNote 21 for reference management and duplicate removal. Two reviewers independently screened the studies by reviewing titles, abstracts, and full-text articles according to the predefined eligibility criteria. Any disagreements were resolved through discussion until consensus was reached, with consultation from a third reviewer when necessary. The study selection process was documented using the PRISMA 2020 flow diagram.

Characteristics of Included Studies

The included studies were conducted across diverse community and primary healthcare settings in Asia, Europe, Africa, and North America. Qualitative methodologies included phenomenology, grounded theory, qualitative descriptive design, and qualitative content analysis, with data primarily collected through semi-structured interviews and focus group discussions involving older adults with hypertension, family caregivers, community nurses, and primary healthcare professionals. Across the studies, the findings consistently highlighted key factors influencing hypertension self-management, including health literacy, self-efficacy, medication adherence, family support, community participation, accessibility of primary healthcare services, and the use of digital health technologies. Despite variations in cultural and healthcare contexts, these studies provided complementary evidence that informed the development of the multilevel community nursing framework.

Quality Appraisal

The methodological quality of the included studies was assessed using the Critical Appraisal Skills Programme (CASP) Qualitative Checklist, which evaluates ten domains of qualitative research quality (Long et al., 2020). Each study was appraised independently and rated as Yes, No, or Can't Tell for each criterion. Overall, the studies demonstrated moderate to high methodological quality, with most reporting clear research aims, appropriate qualitative methodologies, rigorous data collection and analysis, and well-supported findings. The domain most frequently underreported was researcher reflexivity, whereas ethical considerations were adequately addressed in most studies. No study was excluded based on the quality appraisal, as all provided sufficient methodological rigor to contribute to the thematic synthesis.

Data Extraction

Data extraction was conducted using a standardized form adapted from the Cochrane Qualitative Evidence Synthesis template. Information extracted from each study included the author and publication year, country, study setting, study objectives, qualitative design, participant characteristics, sampling strategy, data collection methods, analytical approach, key findings, illustrative participant quotations, and methodological quality. The extracted data were systematically compared across studies to identify recurring concepts, similarities, and contextual differences that informed the subsequent thematic synthesis.

Data Synthesis

Data were synthesized using the thematic synthesis approach proposed by Thomas and Harden, involving three iterative stages: (1) line-by-line coding of findings and participant quotations to preserve their original meanings; (2) development of descriptive themes by grouping conceptually related codes into recurring patterns; and (3) generation of analytical themes through higher-order interpretation of the descriptive themes. This process resulted in six analytical themes: (1) individual capability and health literacy, (2) self-efficacy and behavioural adaptation, (3) family engagement and social support, (4) community participation and social capital, (5) accessibility and

responsiveness of primary healthcare services, and (6) technology-assisted community nursing interventions. These themes provided the conceptual foundation for the development of the proposed Multilevel Community Nursing Framework.

Assessment of Confidence in Findings

Confidence in the review findings was assessed using the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative Research) approach, which evaluates four domains: methodological limitations, coherence, adequacy of supporting data, and relevance (Bighelli et al., 2022). Overall, the synthesised findings demonstrated moderate to high confidence. Minor concerns were identified regarding researcher reflexivity and variations in sample size across the included studies; however, these limitations did not substantially affect the credibility or applicability of the review findings.

Ethical Considerations

As this study synthesised findings from previously published qualitative studies, ethical approval was not required. Nevertheless, the review adhered to principles of transparency, academic integrity, and responsible reporting throughout the review process. Only studies reporting appropriate ethical approval or informed consent procedures were included in the synthesis.

RESULT

Study Selection

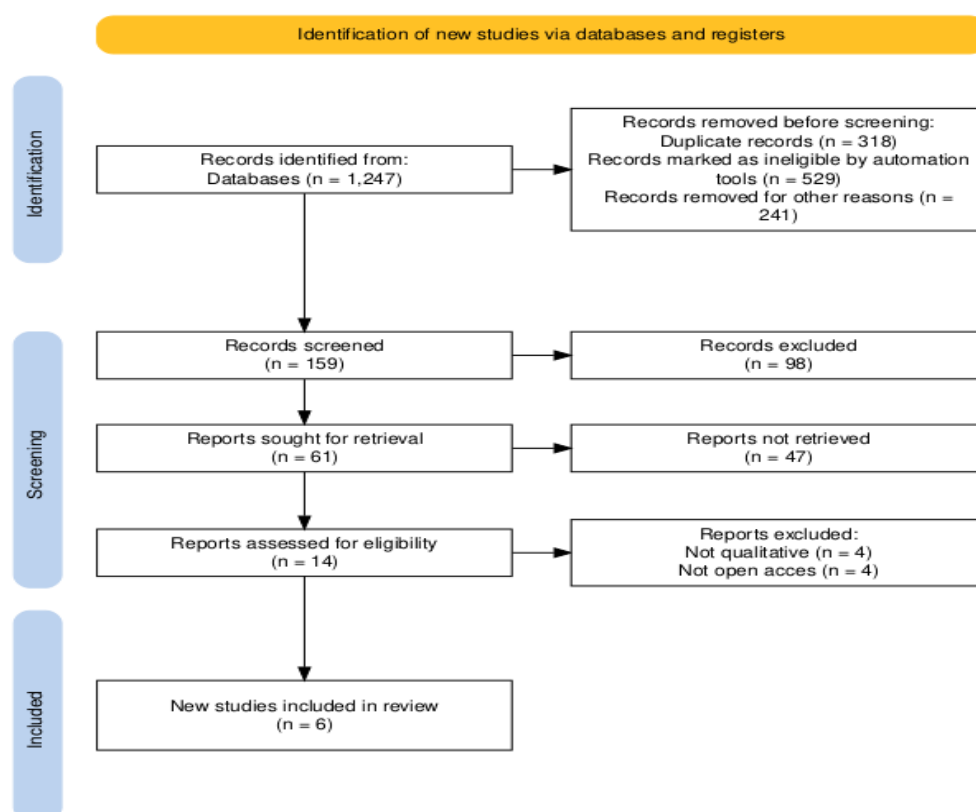


Figure 1. PRISMA 2020 Flow Diagram

The literature search identified 1,247 records from five electronic databases. After removing duplicate records (n = 318), records identified as ineligible by automation tools (n = 529), and records excluded for other reasons (n = 241), 159 records remained for title and abstract screening. Following screening, 98 records were excluded, leaving 61 reports for full-text retrieval. Of these, 47 reports could not be retrieved, and 14 full-text articles were assessed for eligibility. After full-text review, eight studies were excluded because they were not qualitative studies (n = 4) or were

unavailable in full text (n = 4). Ultimately, six qualitative studies met the inclusion criteria and were included in the final qualitative evidence synthesis (Figure 1).

Characteristics of Included Studies

Table 1.
Characteristics of Included Studies

Author (Year)	Country	Design	Participants	Data Collection	Main Focus
(Khasanah et al., 2024)	Indonesia	Qualitative descriptive	Older adults with hypertension, family caregivers, nurses, physicians, and community health volunteers (n = 62)	Semi-structured interviews and focus group discussions	Self-management experiences, barriers, health literacy, family support, and community nursing needs
(Zhang et al., 2022)	China	Qualitative study	Low-income older adults with hypertension (n = 24)	Semi-structured interviews	Perceived challenges and barriers to hypertension self-management
(Van Bussel et al., 2019)	Netherlands	Qualitative descriptive	Older adults with hypertension (n = 15)	In-depth semi-structured interviews	Experiences, concerns, treatment preferences, and shared decision-making in hypertension management
(Xiong et al., 2025)	China	Qualitative study	Older adults with hypertension and primary healthcare providers (n = 36)	Individual interviews	Facilitators and barriers to standardized community hypertension management
(Wen et al., 2025)	China	Qualitative exploratory study	Adults with hypertension receiving community care (n = 22)	Semi-structured interviews	Self-management barriers, medication adherence, and healthcare support
(Liu et al., 2024)	China	Phenomenological study	Older adults with hypertension and diabetes (n = 18)	In-depth interviews	Lived experiences, self-management challenges, family support, and coping strategies

The six included studies were conducted in Indonesia (n = 1), China (n = 3), the Netherlands (n = 1), and China (n = 1), representing diverse community and primary healthcare settings. The studies employed qualitative descriptive, phenomenological, and exploratory qualitative designs, with data primarily collected through semi-structured or in-depth interviews and, in one study, focus group discussions. Participants included older adults with hypertension, family caregivers, community nurses, physicians, and primary healthcare providers. Across the studies, the main focus was on understanding experiences of hypertension self-management, including health literacy, self-efficacy, medication adherence, family support, community participation, accessibility of primary healthcare services, and community nursing interventions. These findings provided the evidence base for the thematic synthesis and the development of the proposed Multilevel Community Nursing Framework.

Quality Appraisal

Methodological quality assessment indicated that all included studies demonstrated moderate-to-high quality according to the CASP Qualitative Checklist. All studies clearly reported their research aims, adopted appropriate qualitative methodologies and research designs, and provided rigorous data collection and analytical procedures. The criterion most frequently underreported was researcher reflexivity, whereas ethical considerations were adequately addressed in nearly all studies. Overall, the methodological quality of the included studies was considered sufficient to support the analysis.

Table 3.
CASP Quality Assessment of Included Studies

CASP Criteria	Khasanah et al. (2024)	Zhang et al. (2022)	van Bussel et al. (2019)	Xiong et al. (2025)	Wen et al. (2025)	Liu et al. (2024)
Clear statement of research aims	Yes	Yes	Yes	Yes	Yes	Yes
Appropriate qualitative methodology	Yes	Yes	Yes	Yes	Yes	Yes
Appropriate research design	Yes	Yes	Yes	Yes	Yes	Yes
Appropriate recruitment strategy	Yes	Yes	Yes	Yes	Yes	Yes
Appropriate data collection	Yes	Yes	Yes	Yes	Yes	Yes
Researcher–participant relationship (Reflexivity)	Unclear	Unclear	Yes	Unclear	Yes	Unclear
Ethical considerations addressed	Yes	Yes	Yes	Yes	Yes	Yes
Rigorous data analysis	Yes	Yes	Yes	Yes	Yes	Yes
Clear statement of findings	Yes	Yes	Yes	Yes	Yes	Yes
Value of the research	Yes	Yes	Yes	Yes	Yes	Yes
Overall Quality	High	Moderate–High	High	High	High	Moderate–High

Findings of the Meta-Synthesis

Thematic Synthesis

The thematic synthesis generated six analytical themes describing the multilevel determinants of hypertension self-management among older adults. These themes demonstrate that successful self-management is shaped by the interaction of individual, interpersonal, community, healthcare system, and technological factors.

Theme 1. Individual Capability and Health Literacy

Health literacy emerged as a fundamental determinant of hypertension self-management. Older adults with adequate knowledge of hypertension, medication use, dietary modification, and blood pressure monitoring demonstrated greater confidence in managing their condition. Conversely, limited health literacy contributed to misconceptions regarding hypertension, poor medication adherence, and inadequate lifestyle modification. Participants emphasised that continuous, culturally appropriate health education provided by community nurses improved their understanding of disease management and facilitated informed decision-making. CERQual confidence: High confidence

Theme 2. Self-Efficacy and Behavioural Adaptation

Self-efficacy was consistently identified as a key driver of sustained self-management behaviours. Participants who believed in their ability to control hypertension were more likely to adhere to medications, maintain healthy dietary practices, engage in regular physical activity, and monitor blood pressure routinely. Behavioural adaptation developed progressively through positive experiences, support from healthcare professionals, and encouragement from family members, whereas fear of complications, physical limitations, and treatment fatigue reduced confidence and long-term adherence. CERQual confidence: Moderate confidence

Theme 3. Family Engagement and Social Support

Family members played an essential role in supporting hypertension self-management through emotional encouragement, medication reminders, assistance with daily activities, and facilitation of healthcare utilisation. Positive family involvement strengthened motivation and treatment adherence, whereas limited family support often resulted in poor self-management behaviours. The findings highlight the importance of involving family caregivers as active partners in community nursing interventions. CERQual confidence: High confidence

Theme 4. Community Participation and Social Capital

Community participation and social capital were important facilitators of sustainable hypertension self-management. Participants described community health volunteers, peer support groups, religious organisations, and neighbourhood activities as valuable sources of health information, emotional support, and motivation for maintaining healthy lifestyles. Trust in community nurses and local healthcare providers further enhanced engagement with community-based health programmes and reinforced positive health behaviours. CERQual confidence: High confidence

Theme 5. Accessibility and Responsiveness of Primary Healthcare Services

Accessible and responsive primary healthcare services were consistently associated with improved self-management. Participants valued regular follow-up, continuity of nursing care, home visits, individualised counselling, and patient-centred communication delivered through primary healthcare facilities. Conversely, limited consultation time, transportation difficulties, medication shortages, and fragmented healthcare services hindered effective hypertension management. CERQual confidence: High confidence

Theme 6. Technology-Assisted Community Nursing Interventions

Technology-assisted interventions, including telehealth consultations, mobile health applications, digital medication reminders, and home blood pressure monitoring, enhanced communication, self-monitoring, and continuity of care. However, participants emphasised that digital technologies were most effective when integrated with ongoing community nursing support and family involvement rather than replacing face-to-face interactions with healthcare professionals. CERQual confidence: Moderate confidence

Table 5.

Summary of Review Findings and CERQual Assessment

Review Finding	Studies Contributing	Methodological Limitations	Coherence	Adequacy of Data	Relevance	Overall Confidence
Individual capability and health literacy	1,2,5,6	Minor concerns	High	High	High	High
Self-efficacy and behavioural adaptation	2,3,5	Moderate concerns	High	Moderate	High	Moderate
Family engagement and social support	1,2,4,6	Minor concerns	High	High	High	High
Community participation and social capital	1,4	Moderate concerns	High	Moderate	High	Moderate
Accessibility and responsiveness of primary healthcare services	1,3,4,5	Minor concerns	High	High	High	High
Technology-assisted community nursing interventions	4,5	Moderate concerns	Moderate	Moderate	High	Moderate

Overall, the synthesized findings demonstrated moderate to high confidence according to the GRADE-CERQual assessment. High confidence was assigned to themes related to individual capability and health literacy, family engagement and social support, and accessibility and responsiveness of primary healthcare services, reflecting strong coherence, adequate supporting data, and high relevance across the included studies. Moderate confidence was assigned to themes concerning self-efficacy and behavioural adaptation, community participation and social capital, and technology-assisted community nursing interventions, primarily due to minor methodological limitations, variability in participant characteristics, and the limited number of studies addressing these topics. Nevertheless, the evidence consistently supports the proposed Multilevel Community Nursing Framework, highlighting the importance of integrating individual, family, community, healthcare system, and technology-based strategies to strengthen hypertension self-management among older adults.

DISCUSSION

This qualitative meta-synthesis demonstrates that hypertension self-management among older adults is influenced by interconnected individual, family, community, healthcare system, and technological factors. The findings extend previous evidence by showing that effective self-management requires multilevel community nursing interventions rather than interventions focusing solely on patient education or medication adherence (Khasanah et al., 2024; Van Bussel et al., 2019; Xiong et al., 2025; Zhang et al., 2022).

Health literacy emerged as the foundation of effective self-management. Older adults with adequate knowledge of hypertension were more likely to adhere to medication, adopt healthy lifestyles, and perform regular blood pressure monitoring, whereas limited health literacy contributed to poor adherence and delayed healthcare utilization. Similar findings were reported by Zhang et al., (2022) and Khasanah et al., (2024), while recent evidence indicates that nurse-led health education significantly improves self-management behaviours and blood pressure control (Jansen et al., 2017; Philip et al., 2021).

Family engagement was another key determinant of successful hypertension management. Family members provided emotional, informational, and practical support that promoted medication adherence, dietary modification, and regular healthcare utilisation. Consistent with previous studies, active family involvement enhances treatment adherence and facilitates sustainable behavioural change among older adults with chronic (Xiong et al., 2025). These findings suggest that family-centred approaches should become an integral component of community nursing programmes.

Community participation and accessible primary healthcare services also played important roles in sustaining self-management. Support from community health volunteers, peer groups, and community nurses strengthened motivation and facilitated continuity of care. Likewise, Van Bussel et al., (2019) highlighted the importance of patient-centred communication, while Xiong et al., (2025) emphasised multidisciplinary collaboration within community-based hypertension management. These findings are consistent with current recommendations advocating integrated, people-centred primary healthcare for chronic disease management (McBenedict et al., 2024; Otieno et al., 2023)

Technology-assisted nursing interventions, including telehealth, digital reminders, and home blood pressure monitoring, further supported communication, self-monitoring, and continuity of care. However, participants emphasized that technology should complement rather than replace direct interactions with community nurses, particularly among older adults with limited digital literacy (Sheppard et al., 2020; Zhou et al., 2021).

The main contribution of this study is the development of a Multilevel Community Nursing Framework that integrates health literacy, family engagement, community participation, primary healthcare responsiveness, and technology-assisted care into a comprehensive model for hypertension self-management. Unlike previous studies that examined these determinants separately, this framework illustrates their interrelationships and provides practical guidance for designing integrated community nursing interventions. Although the number of included studies was relatively limited, the consistency of findings across different settings supports the credibility of the proposed framework. Future research should evaluate its effectiveness in improving self-management, blood pressure control, and quality of life among older adults with hypertension.

CONCLUSION

This qualitative meta-synthesis highlights that hypertension self-management among older adults is influenced by interconnected individual, family, community, healthcare, and technological factors. The proposed Multilevel Community Nursing Framework provides an evidence-based approach for integrating these determinants into community nursing practice to enhance self-management, improve blood pressure control, and promote healthy ageing.

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