Strategy for Integration of Non-Pharmacological Interventions for Hypertension Care in Indonesia

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Abstract. Hypertension is a major health problem in Indonesia, affecting tens of millions of adults and posing the greatest risk factor for cardiovascular diseases such as stroke and heart failure. Currently, hypertension management largely focuses on pharmacological therapy, while non-pharmacological approaches such as light physical activity, hypertension exercises, and relaxation have not been systematically implemented in primary care. Study shows that integrating non-pharmacological therapies such as accupressure and mindfulness-based therapies into community health centers (Puskesmas) has the potential to improve patient compliance, reduce blood pressure, and strengthen holistic and sustainable approaches. Therefore, a multilevel intervention is needed that includes the development of national guidelines, training for health workers and cadres, revitalization of Posyandu Lansia as community intervention centers, and research and health communication based on local culture to encourage the adoption of integrative services at the primary level.
Keywords: accupressure, hypertension, non-pharmacological intervention, mindfulness.

1 Introduction

Population hypertension, or high blood pressure, is one of the leading causes of death worldwide. Hypertension, along with prehypertension and other dangerous high blood pressure conditions, is responsible for 8.5 million deaths from heart attacks, heart failure, and strokes, collectively known as cardiovascular disease (CVD), as well as chronic kidney damage [1]. Controlling hypertension is crucial to prevent long-term complications and acute cardiovascular events. Hypertension is known as the single most significant cause of premature death from cardiovascular disease.

Among the various measurable risk factors, hypertension occupies the most dominant position as the main determinant of stroke occurrence. Hypertension contributes to vascular dysfunction through increased systemic blood pressure that damages the arterial walls, causing atherosclerosis, and increasing the likelihood of cerebral blood vessel rupture [2]. In addition to hypertension, other significant risk factors reported to have high population-attributable risk include lack of physical activity, apolipoprotein B to A1 ratio (ApoB/ApoA1), and waist-to-hip ratio. Therefore, stroke prevention strategies targeting the control of these risk factors, particularly hypertension, are highly relevant and urgently need to be developed comprehensively [2].

Over the past three decades, the number of patients with hypertension worldwide has increased significantly. In Indonesia, an estimated 60–63 million adults suffer from hypertension. According to the 2023 Indonesian Health Survey [3] and the 2011–2021 non-communicable disease (NCD) cohort study, hypertension is the highest risk factor for the fourth leading cause of death, with a percentage of 10.2%. The prevalence of hypertension in Indonesia was 25.8% in 2013, 34.1% in 2018, and 30.8% in 2023. The prevalence based on doctor's diagnosis was 8.4% in 2018 and 8% in 2023. There is a difference of more than 20% between the figures based on measurements and doctor's diagnoses, indicating that public awareness of blood pressure control in Indonesia is still low.

Although hypertension has a high prevalence and serious complications, current management strategies are still dominated by pharmacological approaches. Antihypertensive drugs are the primary treatment, but patient compliance is often low, and many stop medication once they feel “healthy.” Meanwhile, non-pharmacological interventions such as cardiac exercise, mindfulness-

based therapy, acupressure, and other lifestyle changes have been explored as individualized interventions for managing hypertension. Several studies indicate that non-pharmacological therapies, if implemented routinely in primary care settings such as Puskesmas and Pusbindo, can have a significant impact on lowering blood pressure in hypertensive patients [4,5].

However, other non-pharmacological therapies such as acupressure and mindfulness-based therapy, although promising, are still rarely applied systematically in primary care and tend to stand alone without integration with other therapies. Mindfulness can help manage stress and hypertension by increasing self-awareness, regulating emotions, and supporting adaptive thinking in dealing with illness, thereby contributing to a reduction in blood pressure [6]. Meanwhile, acupressure effectively increases body relaxation and lowers blood pressure through the stimulation of specific points that stimulate the release of histamine and endorphins, improve blood circulation, and activate the parasympathetic nervous system, which overall helps reduce the risk of hypertension complications such as stroke [7].

Each of these independent intervention models restricts the potential of synergic advantages from combining various therapies. This fragmented approach highlights a crucial gap in hypertension care, namely the need for a holistic strategy that combines multiple non-pharmacological treatment with evidence-based in a structured manner. With an integrated model, it is expected that patients' long-term outcomes will improve, treatment adherence will be better, and the risk of hypertension complications can be significantly reduced.

2 Methods

This policy brief is based on a review of national and international evidence on hypertension management in older adults, combined with case study findings from three community health centers in South Tangerang City, Indonesia [8]. Secondary data sources included national health surveys, WHO guidelines, and government policies on non-communicable diseases. Primary data were gathered through in-depth interviews with 62 informants, including elderly patients, caregivers, health workers, and volunteers. The analysis focused on identifying structural and behavioral gaps in current hypertension management practices, particularly the limited integration of non-pharmacological interventions such as acupressure, mindfulness-based therapy, and stress reduction strategies within routine care. Emphasis was placed on understanding the disconnection between clinical protocols and real-world implementation at community health centers (Puskesmas), especially among vulnerable elderly populations.

3 Results And Discussion

3.1 Main Issue

Hypertension remains a major challenge for Indonesia's healthcare system, particularly among the productive age group, with prevalence continuing to rise. Globally, hypertension and related high blood pressure conditions are the leading cause of death, responsible for 8.5 million deaths each year from cardiovascular diseases (CVD) such as heart attacks, heart failure, stroke, and chronic kidney damage [1]. In Indonesia, an estimated 60–63 million adults suffer from hypertension, with prevalence based on health surveys increasing from 25.8% in 2013 to 30.8% in 2023, while prevalence based on doctor's diagnosis is much lower, at around 8%, indicating that public awareness of blood pressure control is still low [9,10].

Although the burden of this disease is very high, hypertension management is currently still dominated by pharmacological approaches, while non-pharmacological interventions, such as acupressure, mindfulness-based therapy, and relaxation therapy, have not been implemented in an integrated manner and tend to be stand-alone in primary care. This fragmented approach limits the synergic potential of holistic care, even though the combination of pharmacological and non-pharmacological therapies has been proven effective in lowering blood pressure, reducing the risk of complications, reducing healthcare costs, and improving patients' quality of life. One factor that

prevents the optimization of promotive and preventive hypertension management is the lack of operational policies and implementation guidelines in primary healthcare facilities.

3.2 Study Case

The study was conducted in South Tangerang City, Banten Province, Indonesia, involving both community and healthcare facility settings. Specifically, the research sites included three community health centers in the area which were selected due to their relatively high prevalence rates of hypertension (22.2%, 32.4%, and 41.9%, respectively). Data were collected with a total of 62 informants. [8]

1. Characteristics of hypertension patients

   The study identified older adults with hypertension as a vulnerable group struggling with disease self-management. The research was conducted in three community health centers in South Tangerang City, where hypertension prevalence ranged from 22.2% to 41.9%. A total of 62 informants participated, consisting of 15 older adults with hypertension, 11 family caregivers, 12 primary care nurses, 7 doctors, 3 heads of community health centers, 3 district health officials, and 11 health volunteers.

   Most older adults were women (80.7%), aged between 61–70 years, and had low educational backgrounds (53.3% completed elementary school). The study excluded older persons with confirmed cognitive impairment or systolic blood pressure greater than 220 mmHg or diastolic blood pressure greater than 120 mmHg. The study intentionally excluded participants with extremely high blood pressure, focusing instead on older adults with stable, chronic hypertension. This highlights that the main challenge lies not in short-term clinical control, but in sustaining long-term self-management behaviors and strengthening systemic and family support for hypertension care.

   The participants commonly experienced both physical and emotional challenges, such as dizziness, headaches, joint discomfort, and mood fluctuations. Many older adults demonstrated limited understanding of hypertension and struggled to adopt healthier lifestyles. These difficulties were often linked to the absence of personalized health education and insufficient guidance from healthcare professionals, which left them uncertain about how to manage their condition effectively in daily life.

2. The relationship between knowledge, beliefs, and health behaviors of hypertensive patients.

   A notable finding from the study is the relationship between knowledge, beliefs, and health behaviors among older adults. Many older adults are aware of hypertension, yet they often do not perceive it as serious concern and view it as merely a common part of aging. This inconsistency suggests that interventions should incorporate behavioral strategies and consider religio-cultural contexts that influence health perceptions. These findings highlight the importance of culturally sensitive health communication in primary care settings to ensure that educational efforts resonate with the lived experiences and values of older populations.

3. Management of Hypertension Cases in Primary Health Care Facilities

   The management of hypertension at the primary care level is still dominated by a pharmacological approach. The provision of antihypertensive drugs is the main strategy, but patient compliance is relatively low. Many elderly people stop treatment when they feel their symptoms have improved, or reduce the dose because they are afraid of the side effects of the drugs. Other factors such as forgot to take medication, economic limitations, and difficulty accessing health services also worsen compliance with medical therapy.

   Meanwhile, non-pharmacological intervention such as diet, physical activity, stress management, or accupressure has not been consistently implemented. Older adults tend to rely on traditional treatments, such as herbal remedies or religious-based therapies (e.g., recitation of prayers and supplications) to help control blood pressure. Although these practices provide psychological comfort, their use is often not accompanied by an adequate understanding of their interactions or effectiveness in regard to medical conditions.

   Services at community health centers are generally limited to routine blood pressure checks without follow-up assistance or intensive counseling. The limited number of health workers, long queues, and short consultation times result in suboptimal education. Geographical barriers

and limited physical mobility among the elderly also reduce the frequency of visits to health facilities.

These findings indicate that the hypertension care system for the elderly at the primary level is still curative and episodic in nature, rather than comprehensive and sustainable. Therefore, policies need to be directed towards strengthening the integration of pharmacological and non-pharmacological services, improving behavioral education and family support, and expanding access to community-based services, such as revitalizing the Elderly Health Post (Posyandu Lansia) as a center for monitoring and self-education for hypertensive patients.

4. Competency Disparity and Workload of Primary Health Care Workers

The results of the study show that there is a competency gap and high workload at the primary care level. Nurses and doctors at Puskesmas revealed that they have not received adequate training in geriatric nursing care and behavioral change education for elderly people with hypertension. This condition makes it difficult for health workers to provide individualized and continuous assistance.

In addition, the current service structure at Puskesmas is more focused on curative measures, while promotive and preventive aspects are still neglected. As a result, efforts to prevent disease and promote healthy behaviors among the elderly have not been optimal. These findings provide important evidence for policymakers to strengthen continuous professional development (CPD) programs for primary health workers, especially in the management of chronic diseases in the elderly population.

3.3 Policy Recommendations

Based on the above results, the main problems identified are the low level of understanding among older adults about hypertension, low patient compliance with treatment, and a lack of integration between pharmacological and non-pharmacological therapies in primary care. Therefore, policies are needed to encourage the implementation of evidence-based integrated service models for hypertension management. These policy recommendations focus on strengthening the capacity of health workers and cadres, integrating non-pharmacological therapies such as acupressure and mindfulness, and empowering community-based services through Posyandu.

1. Integration of Non-Pharmacological Therapies in Hypertension Cares at Community Health Centers (Puskesmas)

The Ministry of Health and regional health offices need to develop national guidelines for the integration of evidence-based non-pharmacological therapies, such as acupressure and mindfulness, in the treatment of hypertension at the primary care level. Acupressure, which can be taught to elderly health center cadres or family members of patients, has been shown to help lower blood pressure by stimulating specific points related to the autonomic nervous system, thereby increasing vascular relaxation and reducing physiological stress responses [11]. Meanwhile, mindfulness-based therapies such as conscious breathing exercises, light meditation, or quiet reflection contribute to blood pressure control through reduced psychological stress, increased self-awareness, and adherence to medication and a healthy lifestyle [7].

Various studies show that both approaches are independently effective in helping to stabilize blood pressure and improve the quality of life of hypertensive patients. However, the benefits will be more optimal if they are integrated synergistically, both with each other and as a complement to pharmacological therapy. This integration not only strengthens the clinical aspects, but also expands the dimensions of health services to be more holistic, patient-centered, and sustainable.

2. Strengthening Health Worker Skills through Integrated Training

Continuing professional development (CPD) training is needed for primary health workers and Posyandu on holistic and behavior-based approaches to hypertension management. This training will provide health workers with knowledge about community-based healthy lifestyles, basic acupressure techniques for relaxation and blood pressure control, simple mindfulness facilitation guidelines for the elderly (e.g., breathing focus exercises or guided

relaxation), and empathetic communication and behavioral education appropriate to the religious and cultural context of Indonesian society, which will support the intervention programs sustainable.

3. Revitalizing Posyandu Lansia as Complementary Intervention Centers

   Posyandu Lansia can be developed into community-based non-pharmacological education and therapy centers, with the additional function of serving as Wellness Corners for elderly people with hypertension. Programs can include regular blood pressure checks, weekly exercise and mindfulness sessions, simple acupressure training by health workers, and nutrition and stress management classes for the families of elderly people. This approach is in line with the promotive-preventive paradigm and strengthens self-management capacity at the community level.

4. Support for Research and Innovation in Integrative Therapy Programs

   The government should encourage applied research and pilot projects on the effectiveness of combining mindfulness and acupressure as an integrative intervention in managing hypertension in the community. The results of this research can form the basis for developing evidence-based integrative service models that can be replicated in other regions. In addition, cross-sector collaboration between academics, health facilities, and policymakers can accelerate the adoption of these integrative practices in the national health care system.

5. Culture-Based Communication Strategies and Public Campaigns

   This approach emphasizes a balance between physical health and peace of mind, values that are in line with the philosophy of mindfulness and reflective practices that are familiar in Indonesian culture. With culturally-based communication, public education can be more easily accepted and internalized by patients and their families.

3.4 Research Setting Analyisis

Policy recommendations regarding the integration of non-pharmacological therapies such as acupressure and mindfulness-based therapy in the treatment of hypertension in the elderly are directly relevant to the context of the research conducted in South Tangerang City. This section describes the areas of implementation and institutions that could be the focus of the application and development of such policies.

1. **Point 1:** Integration of Complementary Therapy in Primary Health Care Services (Puskesmas)

   The integration of acupressure and mindfulness interventions can begin in community health centers as primary health care facilities that play a role in the management of chronic diseases. Community health centers can be pilot project sites for the integrated and evidence-based application of pharmacological and non-pharmacological therapies. From here, standard operating procedures (SOPs) and simple clinical guidelines can be developed to ensure the safety and effectiveness of services.

2. **Point 2:** Strengthening the Capacity of Health Workers and Cadres through CPD Programs

   This policy direction is in line with research findings that show a competency gap at the primary care level. The Continuous Professional Development (CPD) program needs to focus on improving the skills of nurses, doctors, and health cadres in providing geriatric hypertension care, basic acupressure techniques, and simple mindfulness facilitation. Collaboration between the Ministry of Health, the South Tangerang City Health Office, and academic institutions needs to be strengthened so that this training can be integrated into the health worker education and training system on an ongoing basis.

3. **Point 3**: Revitalizing *Posyandu Lansia* as Complementary Intervention Centers

   Recommendations to strengthen community-based services can be realized through the revitalization of *Posyandu Lansia*. These places can be developed as centers for elderly health activities, with regular activities such as guided mindfulness sessions, acupressure exercises, and healthy lifestyle education. This approach is in line with the national policy of the Healthy Indonesia with a Family Approach Program (PIS-PK), which emphasizes promotive and preventive aspects in maintaining public health.

4. **Point 4:** Support for Research and Innovation in Integrative Therapy Programs

Research in South Tangerang City can serve as the basis for developing an integrative service model for managing hypertension in the elderly that combines pharmacological therapy, acupressure, and mindfulness. This model can be tested through pilot programs in several community health centers, and if proven effective, it can be adapted nationally as a community-based chronic disease service model.

6. **Point 5:** Culture-Based Communication Strategies and Public Campaigns

   For this intervention program to be sustainable, cross-sectoral synergy is needed between regional leaders, health cadres, primary health care workers, local governments, and other parties that interact directly with citizens. This collaboration is important in order to provide accurate and factual information, while still incorporating local wisdom so that it is accepted by the community.

4 Conclusion

Hypertension in older adults in Indonesia, particularly in South Tangerang City, remains a major challenge, with management predominantly pharmacological and patient compliance low. Older adults with hypertension face difficulties in self-management due to limited knowledge and understanding. Non-pharmacological management such as acupressure and mindfulness has not been consistently implemented in primary care. Competency gaps among healthcare workers and high workloads also limit the effectiveness of patient education and support.

Based on these findings, the integration of evidence-based non-pharmacological therapies into primary care, strengthening the capacity of health workers and cadres through continuous training, revitalizing the Elderly Health Post (Posyandu Lansia) as a community intervention center, and supporting culture-based health research and communication are key strategies for improving hypertension control in the elderly in a holistic, sustainable and in appropriate manner.

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