

Community-based Nursing Intervention Model for Improving Hypertension Patients' Self-Management in West Java Province Indonesia

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Abstract. *Hypertension remains a priority non-communicable disease in Indonesia, with a national prevalence of 34.1% reported in 2018. Nurses, who represent 60-80% of the total health workforce and provide 90% of health services in primary healthcare, have a highly important yet underutilized role in improving public health outcomes. Community health nursing has significant potential to strengthen primary health care, but family nursing-based hypertension management models have not been widely studied. This study aims to develop a community nursing-based hypertension management model to improve primary health care in West Java Province, Indonesia. A descriptive qualitative approach was used by conducting focus group discussions (FGDs) and in-depth interviews. FGDs involved seven community health cadres, while in-depth interviews were conducted with six family members living in the working area of Puskesmas Babakan Sari, Bandung, West Java. The findings revealed three main themes that can improve self-management among hypertensive patients which include support from community health nurses, support from health volunteers, and support from family members. These forms of support are critical to improving the self-management of hypertension in the community. More research is recommended to evaluate the effectiveness of this model in real-world settings.*

Keywords: *hypertension, community-based nursing, family support, social support*

1. Introduction

Hypertension is a major risk factor for cardiovascular disease and remains a significant global public health problem, affecting millions of people and contributing to high morbidity and mortality rates globally (Gupta & Xavier, 2018; Mills, Stefanescu, & He, 2020). Effective management of hypertension requires lifelong adherence to medication, lifestyle modifications, and regular monitoring (Poulter et al., 2020). However, studies show that adherence levels are often suboptimal and many hypertensive patients lack adequate self-management skills (Burnier & Egan, 2019). These challenges are influenced by several factors, including limited access to health resources, inadequate health literacy, and lack of ongoing support (Gutierrez, Bryan, Baquero, & Safford, 2023). These barriers showed the need for accessible, patient-centered interventions designed to empower hypertension patient to take an active role in managing their condition.

Community-based nursing interventions have emerged as a promising approach to address chronic diseases challenges, including hypertension (Massimi et al., 2017). By providing health care in patients' communities, community-based nurses are well-positioned to offer customized support, health education, and resources that can improve patients' self-management capabilities (Beaudin, Chouinard, Hudon, & Hudon, 2024). Such interventions have shown potential in promoting better blood pressure control and improving overall quality of life by integrating care with the patient's daily environment and facilitating a stronger, ongoing relationship between the patient and healthcare

provider. Through regular home visits, telehealth consultations, group education sessions, and other community-based strategies, nurses can provide comprehensive support that empowers patients to understand their condition, adopt healthier behaviors, and improve adherence to treatment plans (Han et al., 2019).

In this study, we explored a community-based nursing intervention model to improve self-management among hypertensive patients in Bandung West Java, Indonesia. Improved self-management ability may result in better blood pressure control and higher quality of life of hypertension patients. This study focuses on developing a model of community-based nursing strategies to improve self-care behaviors and medication adherence among hypertensive patients, that can contribute to hypertension management policies and practices in community settings.

2. Method

2.1 Study Design

This study utilized a qualitative research design to explore the experiences and perspectives of hypertensive patients regarding community-based nursing interventions for self-management. Focus group discussions and in-depth interviews were conducted to gain rich and detailed insights into participants' views and experiences (Creswell, Hanson, Clark Plano, & Morales, 2007).

2.2 Participants

This study involved 24 hypertensive patients living in the working area of Puskesmas Babakan Sari in Bandung, West Java, Indonesia. Participants were purposively selected to obtain diverse perspectives and experiences related to self-management. Eligible participants were adults diagnosed with hypertension, their family members, and community health cadres who had been involved in integrated health service posts for at least three months. All participants gave informed consent before participating in the study.

2.3 Data Collection

The data were collected through two focus group discussions (FGDs) and in-depth interviews. Each FGD involved six participants, with a total of 12 participants across the group discussions. The FGDs were designed to encourage interaction among participants where they could share and compare their experiences with the intervention, as well as discuss challenges and facilitators in self-management.

In addition to the FGDs, in-depth interviews were also conducted with 12 other participants to gather more individualized and detailed information about their experiences with the intervention. A semi-structured interview guide was used for both FGDs and in-depth interviews, which covered topics such as participants' understanding of hypertension, self-management practices, benefits and limitations of the intervention, and recommendations for improvement. All FGDs and interviews were conducted in community environments to ensure participants' comfort and privacy. With the participants' consent, the sessions were audio-recorded and ran between 60 and 90 minutes.

2.4 Data Analysis

Thematic analysis was used to analyze data collected from FGDs and in-depth interviews (Braun, Clarke, & Hayfield, 2022). Audio recordings were transcribed

verbatim, and the transcripts were reviewed multiple times to ensure accuracy and facilitate in-depth exploration of the data. An inductive coding approach was used, which allowed themes to emerge directly from the data rather than being guided by pre-existing theories or frameworks. Initial codes were identified, grouped into categories, and then refined into themes that summarized the participants' experiences and perspectives on the intervention.

To increase the accuracy of the analysis, two researchers independently coded the data and collaboratively discussed and resolved the discrepancies. The themes were finalized through a consensus among the research team and selected illustrative quotes to represent each theme (Braun et al., 2022). This approach ensured the credibility, transferability and dependability of the research findings (Creswell et al., 2007).

2.5 Ethical Considerations

The ethical approval was obtained from the Ethics Committee of Universitas Padjadjaran Number 1064, and participants provided written informed consent before involvement in the study. Confidentiality and anonymity were carefully maintained throughout the study, and participants were informed of their right to withdraw at any time without facing any consequences related to their participation in the intervention.

3. Results and Discussions

The data analysis from the focus group discussions and in-depth interviews identified three main themes identified by participants as critical to improving their self-management of hypertension. These themes were: (1) support from public health nurses, (2) support from health volunteers, and (3) support from family members. The participants also highlighted how these supports enabled them to manage their hypertension more effectively by promoting adherence to medication, facilitating lifestyle adjustments, and fostering motivation for ongoing care.

Support from Community Health Nurses

The participants emphasized the key role of public health nurses in supporting their self-management efforts. They described how nurses provided regular guidance on medication adherence, blood pressure monitoring, and lifestyle modifications, including changes in diet and exercise habits. The accessibility of public health nurses was highly valued, with participants noting that nurses were available for home visits, offering customized support to meet specific needs. One participant stated:

“We need education from community health center nurses. Most people, when managing their hypertension, stop treatment after their blood pressure has normalized, but suddenly their condition worsens, leading to stroke or kidney failure” (Participant P).

Personalized and consistent support from the community health center, nurses was seen as empowering, helping participants develop essential skills for effective self-management.

Support from Health Volunteers

Health volunteers are described as a crucial source of support, especially in providing practical help and encouragement. Mostly, volunteers come from the same community, facilitate group sessions, share health information, and remind participants

about their follow-up appointments and medication schedules. The participants appreciated the support of the health volunteers and felt comfort in their accessibility and understanding of the challenges associated with managing hypertension in a community. One participant said, *“We have integrated posts here [posbindu], we help each other, even though the chairperson and core team are organized from within the community”* (Participant T). This peer-driven approach fosters a sense of community and accountability, which participants felt strengthened their commitment to managing their condition.

“We hold regular meetings once a month with cadres in every sub-region (RW). We discuss that all cadres [health volunteers] to provide information to the community especially older people to do a health check-up at the posbindu so that we can detect the disease and not suddenly have a stroke or severe disease” (Participant M).

The statement from Participant M showed a proactive approach to health management within the community, emphasizing the role of local health volunteers (referred to as "cadres") in disseminating important health information. The monthly meetings with health volunteers (cadres) in each sub-region suggest a strong commitment to maintaining regular communication and coordination among health workers. The focus is on encouraging health volunteers to actively inform community members, particularly older adults, about the importance of health check-ups at the Posbindu (community health posts). This is particularly aimed at preventing sudden and severe health issues, such as strokes or other serious diseases, by detecting potential health problems early on.

Support from Family Members

Family support emerged as a significant contributing factor in self-management, where participants described family members as instrumental in encouraging adherence to treatment plans and lifestyle modifications. Family members can provide assistance with meal planning, accompany participants to medical appointments, and offer emotional support. Many participants expressed that the involvement of family members in their care increased motivation and reduced feelings of isolation in managing their self-management efforts. One participant said:

“I prefer family support first. My husband and I have hypertension and then diabetes mellitus. I take medication regularly but my husband asked why we need to take hypertension medication continuously. I told him that the doctor instructed us to take hypertension medication regularly. Even though my husband prefers herbal medicine, we still take medicine” (Participant K).

The emotional and practical support provided by family members was recognized as essential in helping participants overcome barriers to effective self-management. These findings highlight the importance of supportive networks - including community health nurses, health volunteers, and family members - in empowering hypertensive patients to manage their condition effectively. Collective support from these groups is seen as the foundation for sustainable self-management efforts in the community.

The findings of this study showed the theme of support from a community health nurse that can address a key issue in managing hypertension. The common practice of hypertension patients discontinuing their treatment once their blood pressure normalizes, which often leads to worsened health outcomes, such as stroke or kidney failure. This highlights the importance of continuous education and monitoring in the management of

chronic conditions like hypertension. The need for more structured educational interventions are instrumental in improving patients' knowledge and management of hypertension, thereby preventing severe complications. Hypertensive patients often stop their medications prematurely because they feel symptom-free, underestimating the risks of non-compliance (Ho et al., 2016). Education on the importance of sustained treatment is essential to combat this challenge, particularly for vulnerable populations, such as the elderly.

Studies show that educational interventions can improve hypertensive patients' knowledge about their condition, treatment adherence, and long-term health outcomes (Ampofo, Khan, Ibitoye, & Lung, 2020). A study on hypertension-based patient education found that participants who received education on hypertension were better equipped to manage their blood pressure and understood the risks of non-compliance (Oghide, 2021). The intervention significantly improved participants' medication adherence and their ability to monitor their blood pressure that can prevent complications like stroke or kidney failure (Nayak-Rao & Shenoy). The educational interventions not only promote adherence but also empower patients to take an active role in their health management, which is vital for chronic disease control (Farley, 2020).

Programs that provide continuous education and involve healthcare professionals, such as nurses, in educating patients on the importance of consistent treatment have been shown to reduce hospitalizations and long-term complications (Jafar et al., 2016). In particular, interventions that offer personalized education, such as one-on-one counseling or multimedia educational tools, have proven more effective in fostering behavior change. For example, a study on multimedia-based education for stroke prevention demonstrated that such interventions led to significant improvements in patients' knowledge, attitudes, and behaviors related to stroke prevention, as well as better blood pressure management (Chajae, Pirzadeh, Hasanzadeh, & Mostafavi, 2018).

The need for education highlighted by participants in this study indicating that better patient knowledge and self-management skills are directly associated with improved health outcomes, including reduced risk of stroke and kidney failure. The educational efforts should target both the knowledge gaps related to the risks of hypertension and the importance of adhering to prescribed treatment regimens, as well as providing practical tools for patients to track and manage their condition effectively (Choudhry et al., 2022). The educational interventions are not only essential for the individual but can also contribute to broader public health improvements by reducing the burden of chronic diseases like hypertension.

The integration of community health volunteers (CHVs) in health interventions, as evidenced in the participants interview, underscores the potential of peer-driven models in promoting public health, particularly in hypertension and stroke prevention. This approach fosters a sense of shared responsibility, which not only increases community involvement but also strengthens the sustainability of health interventions. Previous studies have shown that CHVs play a vital role in chronic disease management by facilitating health education, providing emotional support, and acting as liaisons between healthcare systems and the community (Brownstein et al., 2005). In this context, the community-led structure of the Posbindu and its peer-driven meetings aligns with findings that emphasize the importance of grassroots involvement for effective healthcare delivery, especially in underserved populations (Gong, Chen, & Li, 2015). By having community members actively engaged in health promotion, the intervention is more likely to resonate with the local population and achieve long-term behavior change.

The significance of regular meetings, as mentioned by participants, is further supported by the literature on community health education. Regular, structured interactions between community health volunteers and residents provide continuous opportunities for knowledge exchange, skill-building, and the fostering of trust within the community. Such interactions are critical for educating vulnerable groups, such as older adults, about preventive health measures like regular health check-ups, which can help in the early detection of conditions such as hypertension that predispose individuals to stroke and kidney failure (Habeahan, Juniarti, & Mulya, 2024). Furthermore, studies have demonstrated that consistent education on hypertension and stroke risk factors can improve health outcomes and encourage individuals to take preventive actions (Wan et al., 2014). Monthly meetings create a forum for health workers to remind participants of the importance of maintaining treatment regimens and checking their health status, which can prevent the worsening of chronic conditions.

The emphasis on providing information, particularly to older individuals, reflects the unique challenges in managing chronic conditions for older adults. Older adults often face multiple barriers to healthcare, including limited access to medical services and a lack of health literacy (Neupane et al., 2015). Therefore, health education tailored to this group's needs, through trusted local health volunteers, can play a transformative role in improving their health outcomes. A study by Sit, Yip, Ko, Gun, and Lee (2007) found that community-based stroke prevention programs that included consistent education significantly improved patients' knowledge of stroke warning signs and self-management practices. By ensuring that older community members are informed and actively involved in their healthcare, such initiatives can help mitigate the risk of sudden health crises like strokes, which are often a consequence of unmanaged hypertension.

The peer-driven approach also enhances accountability within the community. By empowering health volunteers, who are often community members themselves, to lead health education efforts, the intervention creates a sense of collective responsibility. Research supports the effectiveness of peer-led models in managing chronic conditions such as hypertension, with CHVs being instrumental in improving adherence to treatment and lifestyle changes (Bilha, Burlacu, Siriopol, Voroneanu, & Covic, 2018). This approach can also reduce health disparities by providing accessible, culturally appropriate health information that resonates with local populations (Parmar et al., 2021). As this study highlights, integrating community health volunteers into healthcare delivery can bridge gaps in service accessibility and improve overall community health outcomes, particularly in preventing severe diseases like stroke and kidney failure.

4. Conclusions

This study suggests that the integrated models of support from nurses, community health volunteers, and family members have potential promise for improving self-management among hypertensive patients in the community. Future research is recommended to evaluate the effectiveness of this model on a larger scale and measure its impact on clinical outcomes, such as blood pressure control and adherence to self-care behaviors.

5. Acknowledgments

The author would like to thank the Ministry of Education, Culture, and Research for supporting this study financially.

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