

# Hypertensive patients: self-care experience in rural community

Joko Susanto<sup>1,2</sup>, Makhfudli<sup>3</sup>, Ilkafah<sup>2</sup>, Anastasia Pangestu Mei Tyas<sup>2</sup>, Ah. Yusuf<sup>3</sup>, Iswatun<sup>2</sup>

<sup>1</sup>Doctoral Nursing Study Program, Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia

<sup>2</sup>Nursing Study Program, Faculty of Vocational Studies, Universitas Airlangga, Surabaya, Indonesia

<sup>3</sup>Department of Advanced Nursing, Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia

## Article Info

### Article history:

Received Nov 7, 2023

Revised Jul 30, 2024

Accepted Nov 21, 2024

### Keywords:

Experience  
Health workers  
Hypertensive  
Rural community  
Self-care

## ABSTRACT

Hypertension is a chronic disease that often occurs in the world. Individual involvement in self-care is very important, in controlling blood pressure. The inability to carry out treatment will increase the risk and complications. The aim study is to explore the experiences and behavior of self-management and self-care of hypertension patients. The study is qualitative research with a phenomenological approach. The technique for taking participants was a purposive sampling of ten hypertensive patients. Data was collected using semi-structured interviews and then analyzed thematically based on the methodological framework of constructivist basic theory. Participant statements describing patient experiences in self-care include six themes, namely the cause of recurrences, emotional response, social support, self-care behavior, barriers to self-care, access to health facilities. The support factors of social support from family, health workers, and affordability of health services greatly influence self-care. An adequate support system, especially from nurses, is needed by patients because it will increase active participation so that patients will try to improve their care and skills in self-care.

*This is an open access article under the [CC BY-SA](#) license.*



## Corresponding Author:

Joko Susanto

Doctoral Nursing Study Program, Faculty of Nursing, Universitas Airlangga

Gubeng, Surabaya, East Java 60286, Indonesia

Email: jsusanto@vokasi.unair.ac.id

## 1. INTRODUCTION

Hypertension is one of the most common chronic diseases worldwide [1]. Several studies have found that in India, three out of five people suffer from hypertension, while in the United States, data shows that one in two people suffer from hypertension [2], [3]. Hypertension was found to tend to be higher in men, adults, and the elderly with obesity [4]. Hypertension is an important risk factor for cardiovascular diseases and cerebral vascular accidents and is considered the most prevalent chronic condition because both are the most frequent causes of morbidity and mortality in the world [5]. An important strategy to prevent high morbidity and mortality is to provide proper treatment and management of hypertensive patients [6].

Self-care behavior is the main effort that can be made to control blood pressure in hypertensive patients. With a change in approach with the shift to a more patient-centered approach, it is hoped that patients will play an active role in self-management and change their behavior for long-term self-care in the context of their lives so patients are expected to increase their knowledge, motivation, and skills as well as self-efficacy in their daily lives day [7]. Self-care for hypertension includes medication adherence, maintenance of health status and health promotion, behavioral evaluation, and management of signs and symptoms [8]. The study results found that there was low awareness, adherence to taking medication, and the ability to control blood pressure in hypertensive patients [9]. Previous research also found that only 37.45%

of hypertensive patients had their blood pressure controlled, and 21% adhered to a low-salt diet [3], [10]. Meanwhile, other studies found that patients had limitations in obtaining treatment, even though they had tried to adhere to treatment [11].

Several other studies also found that patients' self-care abilities tend to be low. The low self-care ability of hypertensive patients is caused by comorbidities, education, and low knowledge about self-care [12]. The patient's self-confidence and belief are also factors that influence self-care behavior [13]. Efforts to improve self-care must address the adverse effects of treatment and increase awareness [14]. There has been a lot of research on self-care behavior in hypertensive patients, but in-depth studies on the experience care of hypertensive patients have never been conducted. Therefore, it is important to carry out in-depth identification of hypertensive patients regarding self-care behavior. This study aims to identify the experiences of hypertensive patients in carrying out self-management and self-care.

## 2. METHOD

The study is qualitative research with a phenomenological approach based on a constructivist basic theoretical framework methodology to explore the experiences and behavior of self-management and self-care of hypertension patients. The study developed in a rural area at Lamongan Regency, East Java, Indonesia. The technique for collecting participants used a purposive sampling technique for ten hypertensive patients aged over 40 years, both men and women. Inclusion criteria were patients with grade II and III hypertension, not currently undergoing treatment in the hospital, and a level of dependency in the independent category. Participant characteristics are in Table 1.

Data collection to explore participants' experiences in self-care while suffering from hypertension was carried out using semi-structured interviews. The interview record used audio recording. The researcher then transcribed the interview data and the data was analyzed thematically based on the constructivist grounded theory methodology framework. This research has received permission from the Medical Research Ethics Committee of Muhammadiyah Lamongan University with ethical eligibility number: 117/EC/KEPK/10/2022.

Table 1. Participant characteristics

No	Sex	Maritas status	Accupation
1.	Female	Married	Housewife
2.	Female	Married	Farmer
3.	Female	Married	Farmer
4.	Female	Married	Unemployed
5.	Female	Married	Housewife
6.	Female	Married	Farmer
7.	Female	Married	Housewife
8.	Female	Married	Farmer
9.	Female	Married	Farmer
10.	Female	Married	Housewife

## 3. RESULTS AND DISCUSSION

### 3.1. Results

#### 3.1.1. Theme 1 causes of recurrence

This theme shows that several factors cause the recurrence of hypertension experienced by patients, such as the appearance of physical symptoms and increased blood pressure.

- Subtheme 1.1 Emotional factors: participants stated that their illness relapsed due to mental stress and emotional factors. Participant statements are as follows:

*"I will feel dizzy if my child teases me, so my emotions are high"* (P3)

*"Maybe it's also a result of thinking a lot or something..."* (P2)

- Subtheme 1.2 Fatigue: another factor causing perceived recurrence is fatigue. The following is the informant's statement:

*"I have suffered from hypertension for almost eight years. If I'm too tired, my blood pressure usually goes up"* (P5)

*"When I'm tired, my illness usually recurs... I think there will be sustenance if my child goes to school..."* (P6)

- Subtheme 1.3 Use of contraceptives: some participants thought that their high blood pressure was caused by using contraception.

*"...Maybe my blood pressure is often high, maybe because I'm using a device..." (P9)*

### 3.1.2. Theme 2 emotional response

Participants stated that they experienced various psychological problems due to suffering from hypertension. Five participants felt afraid and three participants felt normal about their hypertension.

*"...I'm worried that my illness will get worse..." (P3)*

*"Sometimes I'm afraid, how can I avoid a relapse...?" (P2)*

*"....I am afraid that my illness will get worse" (P5, P6, P10)*

*"....I feel that this disease is normal..." (P4, P8, and P9)*

### 3.1.3. Theme 3 social support

Participants stated that they always received support from family and health workers while suffering from hypertension. The support provided includes psychological support, equipment, facilities, infrastructure, knowledge, and information.

- Subtheme 3.1 Family support: six participants explained that their families always provide psychological support by providing information and always reminding them to do physical activity, take medication, manage food, and check up on their health. Apart from that, the family also provides instrumental support which is proven to always take the patient for a health check.

*"...I am always supported by my child...my child always takes to the hospital...prepares medicine to take.....reminds me...about diet..." (P9)*

*"Sometimes I get tired of hearing from my family, I keep reminding them, if I seem to get emotional a lot, I'm advised to get checked..." (P3)*

- Subtheme 3.2 Health worker support: health workers always provide informational support (explaining health behaviors that patients should carry out), emotional support (reminding them to always carry out healthy activities and behavior), and instrumental support (providing and explaining how to take medication).

*".....The doctor told me not to eat fatty and salty foods..." (P9, P10)*

*"...I was also advised to take medication regularly...and get enough rest..." (P2)*

### 3.1.4. Theme 4 accessibility of health facilities

The factors of having health insurance coverage and the distance between home and health services greatly influence self-care behavior in hypertensive patients.

- Subtheme 4.1 Distance: the factor that influences patients to carry out health check-ups is the distance between the patient's house and the health service location.

*"...I'll look for something close by... If I have to go to the community health center, it's too far..." (P2)*

*"...I don't have anyone to accompany me because the distance to the Puskesmas is quite far..." (P6)*

- Subtheme 4.2 Health insurance ownership: a factor that also influences patients to undergo health checks is ownership of health insurance.

*"I have a BPJS card, so I'll just do health check-ups at the Puskesmas." (P6)*

*"I want to get better.....because I have BPJS so it's easy to go to the hospital..." (P10)*

### 3.1.5. Theme 5 participants' self-care behaviors

Several participant explanations regarding self-care behavior were carried out when suffering from hypertension.

- Subtheme 5.1 Medication consumption: participants' explanations regarding medication adherence varied. Two participants stated that they did not take medication, while the other two participants stated that they always regularly took medication.

*"...I take medicine regularly.....If I start to feel dizzy, I sleep..." (P3, P6)*

*"If I have a headache but the medicine runs out, I just leave it alone...but if it doesn't get better for a few days, I usually go to the doctor..." (P7, P9)*

- Subtheme 5.2 Rest time: participants stated that adequate rest was one of the behaviors carried out to prevent recurrence. Participants stated that if they felt tired, they would rest.

*"...If my head starts to feel dizzy and I feel tired, I usually sleep..." (P3)*

- Subtheme 5.3 Health check-up: participants will go to a health facility if they feel a relapse.

*"If my head is dizzy, I immediately check with Mr. Iwan (nurse)." (P5)*

*"When I get dizzy I go to the community health center..., sometimes I just realize that the dizziness is uncontrollable..." (P10)*

- Subtheme 5.4 Physical activity: participants considered that physical activity was important to maintain their health. The physical activity that is often done is walking in the morning.

*"I go for a walk every morning, sir..." (P6)*

*"I make time to exercise every day after dawn..." (P7)*

- Subtheme 5.5 Dietary management: participants stated that they avoided fatty foods to maintain their blood pressure, including limiting salty foods and coffee.

*"...I never eat fried food, sir..." (P9)*

*"...I only drink water...I never drink coffee since I got sick..." (P8)*

### **3.1.6. Theme 6 barriers to self-care**

The obstacles felt by several participants in carrying out self-care were feeling like they had recovered, motivational factors, time, and feeling bored.

- Subtheme 6.1 Suggestion of good condition: participants stated that they did not think they were suffering from the disease because they did not feel any bothersome symptoms.

*"...you don't feel sick because you have to stay healthy.....you have to keep working..." (P4)*

*"...I don't feel anything...I don't feel like I'm not sick..." (P7)*

- Subtheme 6.2 Work and busyness: two participants stated that they did not have time to exercise because they were busy working and taking care of children.

*"I'm always busy taking care of my children.....I don't have time to exercise." (P4)*

*"I don't have time to exercise, because I'm busy with work." (P2)*

- Subtheme 6.3 Motivation: low motivation becomes an obstacle for participants to carry out self-care.

*"I want to get better, but I lack interest and don't want to take medicine..." (P3)*

*"I want to get better, but I don't want to take medicine all the time." (P5)*

- Subtheme 6.4 Feeling bored: participants stated that they felt bored taking medication every day.

*"I'm tired of taking medicine, sir..." (P5)*

*"Sometimes I feel bored if I have to take medicine every day." (P10)*

Based on the research results, the experiences of hypertensive patients in self-care consisted of six themes, namely causes of relapse, emotional responses, social support, access to health facilities, self-care behavior, and barriers to self-care as shown in Table 2.

Table 2. Themes and subthemes of the research results

No	Theme	Sub-theme
1.	Causes of recurrence	Emotional factors Fatigue Use of contraceptives
2.	Emotional responses	Psychological effect
3.	Social support	Family support/caregiver support Health worker support
4.	Access to health facilities	Distance from home Ownership of health insurance
5.	Self-care behavior	Medication consumption Rest time Health check-up Physical activity Dietary management
6.	Barriers to self-care	Suggestion of good condition Work and busyness Motivation Feeling bored

### 3.2. Discussion

Actions that must always be minimized recurrence in hypertensive patients by controlling blood pressure. The research results showed that patients considered psychological factors (unstable emotions and lots of thoughts) and the effects of using contraceptives to be one of the causes of relapse. Increased blood pressure and poor ability to control blood pressure are often associated with stress levels. In addition, low levels of non-pharmacological treatment compliance are also associated with the stress experienced by hypertensive patients [15]. Other studies also explain that increased blood pressure is often associated with hormonal contraception [16].

Feelings of fear of the disease as an emotional response are often found in hypertensive patients. However, some patients stated that they felt normal about their disease condition. This fear occurs because the patient is concerned about complications and other diseases due to hypertension. In this regard, support from health workers, perception of severity, and perception of threat influence the emotional response of hypertensive patients [17]. Ultimately, the fear that arises influences the level of clinical and functional vulnerability of individuals suffering from chronic diseases. The onset of chronic disease causes fundamental changes in individuals' maintenance of mental health must continue to be done [18], [19].

Hypertensive patients must always receive social support from family and health workers during independent treatment. The support that must be provided is informational, instrumental, and emotional support. Previous research shows that disease interpretation and disease prognosis are greatly influenced by providing good social support [20]. Increasing medication compliance and regular blood pressure checks are greatly influenced by family support [21]. Family support will influence the patient's coping strategies and mental health status, while the support of health workers greatly influences the patient's emotional response [22], [23].

Ease of access to health service facilities is a factor that plays an important role in health services for hypertension patients. Based on the research results, the distance from home to health services and ownership of health insurance are determining factors in carrying out self-care, namely regular health checks and treatment efforts [17]. In this regard, it can be said that there is a significant relationship between accessibility factors, health service utilization, and health status. Patients who live far from health services can have low health check visits [24]. Another factor that influences visits to health services is ownership of health insurance. Research results show that ownership of health insurance is related to individual involvement in health behavior [25]. In addition, it has been proven that the determining factor in health service utilization is the ownership of health insurance [26].

To continue to maintain their health status, hypertensive patients must always carry out self-care. The research results showed that the self-care behaviors carried out by patients were taking antihypertensive medication regularly, getting enough rest, carrying out regular health checks, regularly doing physical activity, and adjusting diet patterns [27]. Treatment adherence can improve and provide health education interventions [28]. Apart from increasing compliance, providing health education interventions can also improve health literacy [29]. Other studies have also found that providing self-management educational interventions can improve medication adherence [30]. Anxiety factors and health beliefs also influence treatment compliance, so health workers must assess the patient's health beliefs to use as a basis for providing further interventions [31], [32]. Meanwhile, increasing degrees of hypertension I, II, and III and uncontrolled increases in blood pressure are strongly influenced by compliance with taking medication and restrictions on a low-salt diet [33].

One of the important self-care behaviors is physical activity because low physical activity influences the incidence of hypertension [34]. Blood pressure will be stable if you do regular physical activity [31]. Factors that influenced compliance with physical activity are psychological status [35]. Hypertensive patients with good physiological status, for example, without symptoms of depression, have a good level of physical activity, in addition to continuing to regulate their diet [34], [36].

The incidence of prehypertension and hypertension is significantly associated with the consumption of high-salt foods and soft drinks [37]. The results of this study also show that in carrying out self-care, hypertensive patients experience several obstacles. The obstacles faced by patients are feeling that their condition is good, lack of motivation, boredom, busyness, and feeling bored of taking medication [25]. These results are in line with previous research that there are barriers to health behavior due to habits, lack of time, lack of will, or lack of social support [38]. These inhibiting factors are significantly related to treatment adherence [39]. Another study explains that there are obstacles in the use of health services such as access to services, ownership of health insurance, barriers related to distance and transportation, equipment, and staff competence [40].

#### 4. CONCLUSION

The research results describe the patient's experience in self-care consisting of six themes, namely the cause of recurrences, emotional response, social support, self-care behavior, barriers to self-care, access to health facilities. This research implies that health workers, especially nurses, must always provide appropriate interventions based on the factors that cause recurrence and social support. This intervention is an effort to reduce barriers to self-care behavior and improve self-care skills. Improving behavior and self-care skills is expected to be able to control blood pressure in hypertensive patients.




#### REFERENCES

- [1] D. L. Bhatt, R. D. Lopes, and R. A. Harrington, "Diagnosis and treatment of acute coronary syndromes: a review," *JAMA*, vol. 327, no. 7, pp. 662–675, Feb. 2022, doi: 10.1001/jama.2022.0358.
- [2] K. Gupta *et al.*, "Impact of the 2017 ACC/AHA guidelines on the prevalence of hypertension among Indian adults: results from a cross-sectional survey," *International Journal of Cardiology Hypertension*, vol. 7, p. 100055, Dec. 2020, doi: 10.1016/j.ijchy.2020.100055.
- [3] M. D. Chobufo *et al.*, "Prevalence and control rates of hypertension in the USA: 2017–2018," *International Journal of Cardiology Hypertension*, vol. 6, p. 100044, Sep. 2020, doi: 10.1016/j.ijchy.2020.100044.
- [4] R. Godara, E. Mathews, G. K. Mini, and K. R. Thankappan, "Prevalence, awareness, treatment and control of hypertension among adults aged 30 years and above in Barmer district, Rajasthan, India," *Indian Heart Journal*, vol. 73, no. 2, pp. 236–238, Mar. 2021, doi: 10.1016/j.ihj.2021.02.007.
- [5] C. W. Tsao *et al.*, "Heart disease and stroke statistics 2022 update: a report from the American Heart Association," *Circulation*, vol. 145, no. 8, pp. e153–e639, Feb. 2022, doi: 10.1161/CIR.0000000000001052.
- [6] J. Kitt, R. Fox, K. L. Tucker, and R. J. McManus, "New approaches in hypertension management: a review of current and developing technologies and their potential impact on hypertension care," *Current Hypertension Reports*, vol. 21, no. 6, p. 44, Jun. 2019, doi: 10.1007/s11906-019-0949-4.
- [7] Y. Ma, H. Y. Cheng, L. Cheng, and J. W. H. Sit, "The effectiveness of electronic health interventions on blood pressure control, self-care behavioural outcomes and psychosocial well-being in patients with hypertension: a systematic review and meta-analysis," *International Journal of Nursing Studies*, vol. 92, pp. 27–46, Apr. 2019, doi: 10.1016/j.ijnurstu.2018.11.007.
- [8] T. Jaarsma *et al.*, "Self-care research: how to grow the evidence base? (reprint)," *International Journal of Nursing Studies*, vol. 116, p. 103903, Apr. 2021, doi: 10.1016/j.ijnurstu.2021.103903.
- [9] D. B. Shrestha *et al.*, "Prevalence, awareness, risk factors and control of hypertension in Nepal from 2000 to 2020: a systematic review and meta-analysis," *Public Health in Practice*, vol. 2, p. 100119, Nov. 2021, doi: 10.1016/j.puhip.2021.100119.
- [10] A. F. G. Cicero, M. Veronesi, and F. Fogacci, "Dietary intervention to improve blood pressure control: beyond salt restriction," *High Blood Pressure & Cardiovascular Prevention*, vol. 28, no. 6, pp. 547–553, Nov. 2021, doi: 10.1007/s40292-021-00474-6.
- [11] A. K. Tusubira *et al.*, "Self-care practices and needs in patients with hypertension, diabetes, or both in rural Uganda: a mixed-methods study," *The Lancet Global Health*, vol. 8, p. S19, Apr. 2020, doi: 10.1016/S2214-109X(20)30160-1.
- [12] N. Ketata *et al.*, "Prevalence and predictors of hypertension self-care practice in primary health-care facilities in Southern Tunisia," *JMV-Journal de Médecine Vasculaire*, vol. 46, no. 2, pp. 72–79, Apr. 2021, doi: 10.1016/j.jdmv.2021.01.005.
- [13] Z. Khademian, F. K. Ara, and S. Gholamzadeh, "The effect of self care education based on orem's nursing theory on quality of life and self-efficacy in patients with hypertension: a quasi-experimental study," *International Journal of Community Based Nursing and Midwifery*, vol. 8, no. 2, pp. 140–149, Apr. 2020, doi: 10.30476/IJCBNM.2020.81690.0.
- [14] S. S. Arunachalam *et al.*, "Study on knowledge of chemotherapy's adverse effects and their self-care ability to manage - The cancer survivors impact," *Clinical Epidemiology and Global Health*, vol. 11, p. 100765, Jul. 2021, doi: 10.1016/j.cegh.2021.100765.
- [15] M. Burnier and B. M. Egan, "Adherence in hypertension," *Circulation Research*, vol. 124, no. 7, pp. 1124–1140, Mar. 2019, doi: 10.1161/CIRCRESAHA.118.313220.
- [16] C. Shufelt and A. LeVee, "Hormonal contraception in women with hypertension," *JAMA*, vol. 324, no. 14, pp. 1451–1452, Oct. 2020, doi: 10.1001/jama.2020.11935.
- [17] S. F. Zinatmotlagh, F. Nikroy, N. Roustaei, and A. Eslami, "Cognitive factors association with medication adherence among hypertension patients," *Iranian Evolutionary and Educational Psychology*, vol. 4, no. 4, pp. 204–212, Nov. 2022, doi: 10.52547/ieepj.4.4.204.




- [18] Y. Wu *et al.*, "Factors associated with fears due to COVID-19: a scleroderma patient-centered intervention network (SPIN) COVID-19 cohort study," *Journal of Psychosomatic Research*, vol. 140, p. 110314, Jan. 2021, doi: 10.1016/j.jpsychores.2020.110314.
- [19] E. Daneshzad *et al.*, "The effect of the dietary approaches to stop hypertension (DASH) diet on sleep, mental health, and hormonal changes: a randomized clinical trial in women with type 2 diabetes," *Frontiers in Nutrition*, vol. 9, p. 775543, May 2022, doi: 10.3389/fnut.2022.775543.
- [20] Z. Kordvarkane, K. Oshvandi, Y. Mohammadi, and A. Azizi, "Effect of education based on the common-sense model of self-regulation on blood pressure and self-management of hypertensive patients: a clinical trial study," *International Journal of Nursing Sciences*, vol. 10, no. 3, pp. 294–301, Jul. 2023, doi: 10.1016/j.ijnss.2023.06.009.
- [21] W. Shahin, G. A. Kennedy, and I. Stupans, "The association between social support and medication adherence in patients with hypertension: a systematic review," *Pharmacy Practice*, vol. 19, no. 2, p. 2300, Jun. 2021, doi: 10.18549/PharmPract.2021.2.2300.
- [22] G. B. Turan, M. Aksoy, and B. Çiftçi, "Effect of social support on the treatment adherence of hypertension patients," *Journal of Vascular Nursing*, vol. 37, no. 1, pp. 46–51, Mar. 2019, doi: 10.1016/j.jvn.2018.10.005.
- [23] F. Afsahi and M. Kachooei, "Relationship between hypertension with irrational health beliefs and health locus of control," *Journal of Education and Health Promotion*, vol. 9, no. 1, p. 110, 2020, doi: 10.4103/jehp.jehp\_650\_19.
- [24] K. Okuyama, K. Akai, T. Kijima, T. Abe, M. Isomura, and T. Nabika, "Effect of geographic accessibility to primary care on treatment status of hypertension," *PLOS ONE*, vol. 14, no. 3, p. e0213098, Mar. 2019, doi: 10.1371/journal.pone.0213098.
- [25] O. Korzh, A. Titkova, Y. Fylenko, and Y. Lavrova, "Evaluation of health-promoting self-care behaviors in hypertensive patients with concomitant chronic kidney disease in primary care," *Primary Health Care Research & Development*, vol. 23, p. e48, Aug. 2022, doi: 10.1017/S1463423622000299.
- [26] A. P. Hobbins *et al.*, "Do people with private health insurance attach a higher value to health than those without insurance? Results from an EQ-5D-5 L valuation study in Ireland," *Health Policy*, vol. 124, no. 6, pp. 639–646, Jun. 2020, doi: 10.1016/j.healthpol.2020.03.005.
- [27] J.-S. Shim, J. E. Heo, and H. C. Kim, "Factors associated with dietary adherence to the guidelines for prevention and treatment of hypertension among Korean adults with and without hypertension," *Clinical Hypertension*, vol. 26, no. 1, p. 5, Dec. 2020.
- [28] M. M. Gutierrez and R. Sakulbumrungsil, "Factors associated with medication adherence of hypertensive patients in the Philippines: a systematic review," *Clinical Hypertension*, vol. 27, no. 1, p. 19, Dec. 2021, doi: 10.1186/s40885-021-00176-0.
- [29] N. A. Lukman, A. Leibing, and L. Merry, "Self-care experiences of adults with chronic disease in Indonesia: an integrative review," *International Journal of Chronic Diseases*, vol. 2020, no. 1, p. 1379547, Aug. 2020, doi: 10.1155/2020/1379547.
- [30] F. Delavar, S. Pashaeypoor, and R. Negarandeh, "The effects of self-management education tailored to health literacy on medication adherence and blood pressure control among elderly people with primary hypertension: a randomized controlled trial," *Patient Education and Counseling*, vol. 103, no. 2, pp. 336–342, Feb. 2020, doi: 10.1016/j.pec.2019.08.028.
- [31] N. Świątowska-Lonc, J. Polański, W. Tański, and B. Jankowska-Polańska, "Impact of satisfaction with physician–patient communication on self-care and adherence in patients with hypertension: cross-sectional study," *BMC Health Services Research*, vol. 20, no. 1, p. 1046, Dec. 2020, doi: 10.1186/s12913-020-05912-0.
- [32] W. Wiarsih, N. M. Jannah, and J. Sahar, "Health behavior and medication adherence in hypertensive client," *Indonesian Journal of Global Health Research*, vol. 2, no. 2, pp. 103–110, May 2020, doi: 10.37287/ijghr.v2i2.75.
- [33] D. M. de Terline *et al.*, "Poor adherence to medication and salt restriction as a barrier to reaching blood pressure control in patients with hypertension: cross-sectional study from 12 sub-Saharan countries," *Archives of Cardiovascular Diseases*, vol. 113, no. 6–7, pp. 433–442, Jun. 2020, doi: 10.1016/j.acvd.2019.11.009.
- [34] J. M. Nagata *et al.*, "Physical activity and hypertension from young adulthood to middle age," *American Journal of Preventive Medicine*, vol. 60, no. 6, pp. 757–765, Jun. 2021, doi: 10.1016/j.amepre.2020.12.018.
- [35] W. Yan *et al.*, "Physical activity and blood pressure during pregnancy: mediation by anxiety symptoms," *Journal of Affective Disorders*, vol. 264, pp. 376–382, Mar. 2020, doi: 10.1016/j.jad.2019.11.056.
- [36] V. V. Dickson, J. Fletcher, and B. Riegel, "Psychometric testing of the self-care of hypertension inventory version 3.0," *Journal of Cardiovascular Nursing*, vol. 36, no. 5, pp. 411–419, Sep. 2021, doi: 10.1097/JCN.0000000000000827.
- [37] M. Nejadshafiee, K. Bahaadinbeigy, M. Kazemi, and M. Nekoei-Moghadam, "Telenursing in incidents and disasters: a systematic review of the literature," *Journal of Emergency Nursing*, vol. 46, no. 5, pp. 611–622, Sep. 2020, doi: 10.1016/j.jen.2020.03.005.
- [38] C. de Mestral, S. Khalatbari-Soltani, S. Stringhini, and P. Marques-Vidal, "Perceived barriers to healthy eating and adherence to dietary guidelines: nationwide study," *Clinical Nutrition*, vol. 39, no. 8, pp. 2580–2585, Aug. 2020, doi: 10.1016/j.clnu.2019.11.025.
- [39] N. K. Choudhry *et al.*, "Medication adherence and blood pressure control: a scientific statement from the American Heart Association," *Hypertension*, vol. 79, no. 1, pp. e1–e14, Jan. 2022, doi: 10.1161/HYP.0000000000000203.
- [40] A. M. Shaheen, K. M. Hamdan, M. A. Albqoor, and D. H. Arabiat, "Perceived barriers to healthcare utilization among Jordanian families: a family centered approach," *Applied Nursing Research*, vol. 54, p. 151313, Aug. 2020, doi: 10.1016/j.apnr.2020.151313.

## BIOGRAPHIES OF AUTHORS






**Joko Susanto**    is a lecturer at the Faculty of Vocational Studies, Universitas Airlangga, Surabaya, Indonesia. He received a Bachelor's degree in Nursing from Universitas Gadjah Mada Yogyakarta and a Master of Medical Family degree from the Universitas Sebelas Maret, Surakarta. His research focuses on public health, family, geriatric and gerontic nursing. He can be contacted at email: jsusanto@vokasi.unair.ac.id.






**Makhfudli**    is a lecturer at the Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia. He received a Master's degree in Tropical Disease Medicine, Faculty of Medicine, Universitas Airlangga after researching Tuberculosis. He graduated from the Universitas Airlangga Postgraduate Program: Doctoral Education Program, Faculty of Medicine whose main interests are Community Health Nursing, Family, and Gerontic. His research focuses on community health, family, and gerontic nursing. He can be contacted at email: makhfudli@fkip.unair.ac.id.






**Ilkafah**    is a lecturer at the Faculty of Vocational Studies, Universitas Airlangga, Surabaya, Indonesia. Her received a Bachelor's degree in Nursing from Universitas Brawijaya, Malang and a Master of Nursing from the Universitas Airlangga Surabaya. Her research focuses on quality of care, ethics in nursing, nursing documentation, and caring in nursing. She can be contacted at email: ilkafah@vokasi.unair.ac.id.






**Anestasia Pangestu Mei Tyas**    is a lecturer at the Faculty of Vocational Studies, Universitas Airlangga, Surabaya, Indonesia. Her received a Bachelor's degree in Nursing from University of Muhammadiyah Surabaya and a Master of Nursing from the Diponegoro University. Her research focuses on pediatric nursing, management nursing, and fundamental of nursing. She can be contacted at email: anestasia.pangestu@vokasi.unair.ac.id.



**Ah. Yusuf**    is a Full Professor and Senior Researcher at the Faculty of Nursing, Airlangga University, Surabaya, Indonesia. He has published more than sixty scientific articles in Scopus indexed journals. He has written several books on mental health and psychiatric nursing. His research focuses on public health, mental health, and psychiatric nursing. He can be contacted at email: ah-yusuf@fkip.unair.ac.id.



**Iswatun**    is a lecturer at the Faculty of Vocational Studies, Universitas Airlangga, Surabaya, Indonesia. She received a Bachelor's degree in Nursing from Universitas Airlangga and a Master of Medical Family degree from the Universitas Sebelas Maret, Surakarta. Her research focuses on public health, family, and gerontic nursing. She can be contacted at email: iswatun@vokasi.unair.ac.id.