Jurnal Info Kesehatan
Vol. 22, No. 2, June 2024, pp. 387-394
P-ISSN 0216-504X, E-ISSN 2620-536X
DOI: *10.31965/infokes.Vol22.Iss2.1639*
Journal homepage:*https://jurnal.poltekkeskupang.ac.id/index.php/infokes*

RESEARCH **Open Access**

Factors Contributing to Hypertension Self-Care Management Behavior in Elderly Rural Residents

Irwina Angelia Silvanasari [1a*], Achmad Ali Basri[1b], Nurul Maurida[1c], Trisna Vitaliati[1d]

[1] Faculty of Health Sciences, Universitas dr. Soebandi, Jember, East Java, Indonesia

[a] Email address: irwina.angelia@gmail.com
[b] Email address: ners.achmad.ali@gmail.com
[c] Email address: nurul.maurida@gmail.com
[d] Email address: trisnavital7@gmail.com

Received: 1 June 2024 Revised: 29 June 2024 Accepted: 30 June 2024

Abstract
The behavior of hypertension self-care management in the elderly is very important to be applied to reduce the prevalence of hypertension in rural areas. This study aims to analyze the factors associated with hypertension self-care management behavior in the elderly in rural areas based on the Protection Motivation Theory (PMT). The research design uses analytic observational with a cross-sectional approach. The sample in this study was 150 elderly people with hypertension who lived in rural areas. The independent variables are perceived vulnerability, perceived severity, perceived reward, response efficacy, self-efficacy, and intention. The dependent variable is hypertension self-care management behavior. Data collection uses the PMT and HSMBQ questionnaires. Bivariate analysis used the Spearman correlation test and multivariate analysis used linear regression with a significance level = 0.05. Bivariate test results found that perceived vulnerability ($r=0.615$ and $p<0.05$), perceived severity ($r=0.497$ and $p<0.05$), perceived reward ($r=0.598$ and $p<0.05$), efficacy response ($r=0.510$ and $p<0.05$), self-efficacy ($r=0.477$ and $p<0.05$), and intention ($r=0.513$ and $p<0.05$) related to hypertension self-care management behavior. Multivariate test results found that the PMT model associated with hypertension self-care management behavior includes perceived vulnerability ($p<0.05$), perceived severity ($p<0.05$), perceived reward ($p<0.05$), and self-efficacy ($p<0.05$). The value of R square = 0.519 indicates that the PMT model can predict 51.9% of self-care behavior. The dominant factor that can increase hypertension self-care management behavior is the perception of vulnerability. Nurses should be able to provide health education to improve hypertension self-care management behavior.

Keywords: Hypertension, Self-care Management, Elderly, Protection Motivation Theory.

Corresponding Author:

Irwina Angelia Silvanasari
Faculty of Health Sciences, Universitas dr. Soebandi, Jember, East Java, Indonesia
Email: irwina.angelia@gmail.com

1. INTRODUCTION

Hypertension increases with age (Pangribowo, 2022). We can often find hypertension in those who are aging (Guasti et al., 2022). Hypertension is a degenerative disease and is included in the main risk factors for other degenerative diseases. Hypertension can also cause death in the elderly (Nurhidayati et al., 2018). Cardiovascular diseases are also caused by hypertension (Harmili et al., 2021).

The prevalence of hypertension tends to be higher in rural areas. This condition requires focused and real implementation in controlling the incidence of hypertension in rural areas (Ranzani et al., 2022). Prevalence of elderly people with hypertension in Indonesia increased by 63.2% at the age of 65-74 years (Pangribowo, 2022). East Java Province is included in the province with the highest incidence of hypertension (Kemenkes RI, 2018). Previous research conducted on elderly people with hypertension in rural areas found that the average blood pressure for elderly people is more than 156/93 mmHg (Silvanasari et al., 2022).

Self-care management is an action initiated by oneself and carried out on behalf of oneself to maintain one's health. Actions to maintain health can include planning, implementing and evaluating actions for better lifestyle changes (Gobeil-Lavoie et al., 2019). One of the indicators in hypertension self-care management behavior is medication adherence (Rizkia, 2022). Adherence to treatment in the elderly with hypertension was lower than the adult age group. Elderly with hypertension only take medication if they feel something is uncomfortable in their body (Nurhidayati et al., 2018). Behavioral indicators of hypertension self-care management in addition to medication adherence include self-integration, self-regulation, interaction with health workers, and blood pressure monitoring (Rizkia, 2022). Self-integration is related to choosing the type and amount of food, physical activity undertaken, managing emotions, and consuming cigarettes and alcoholic drinks (Omoronyia et al., 2021). The habit of drinking coffee is quite high in society and also has an impact on increasing blood pressure (Syarif & Mivtahurrahimah, 2024). Changing lifestyle can be done as an effort to control hypertension (Iriana et al., 2022). Improper management of hypertension in individuals can also result from a poor level of knowledge (Darwis et al., 2023). Understanding related to optimal hypertension treatment in the elderly is of course very important in reducing the burden of disease and reducing mortality due to hypertension (Lee et al., 2019).

Many health theories can be related to human behavior, including how to treat hypertension in the elderly. One of the theories that underlies this behavior is Protection Motivation Theory (PMT) from Rogers. Protection motivation is the intention to carry out the recommended behavior and results from two assessment processes, namely threat assessment and coping assessment. Protection motivation can be obtained by increasing perceptions of severity and vulnerability and decreasing perceived rewards from maladaptive behavior. Protection motivation can also be obtained by increasing response efficacy and self-efficacy from adaptive behavior. This intention then leads the individual to carry out decisions, face difficulties, and succeed or fail (Conner & Norman, 2005).

2. RESEARCH METHOD

The study employed an analytic observational design with a cross-sectional approach and was conducted in June 2023 at the Jenggawah Community Health Center in Jember Regency, East Java Province. The population consisted of 240 elderly individuals with hypertension, and a sample of 150 was selected through simple random sampling. Inclusion criteria were elderly aged 60 and above, regular participants in elderly Posyandu activities, and diagnosed with hypertension; individuals with dementia were excluded.

Independent variables included perceived vulnerability, perceived severity, perceived reward, response efficacy, self-efficacy, and intention, based on the Protection Motivation Theory (PMT). The dependent variable was hypertension self-care management behavior. Data collection instruments comprised a researcher-designed PMT questionnaire with 21 questions and the Hypertension Self-Management Behavior Questionnaire (HSMBQ) with 40 questions. Both instruments demonstrated validity and reliability.

Data analysis involved univariate analysis of respondent characteristics, bivariate analysis using the Spearman correlation test, and multivariate analysis using linear regression, due to the non-normal distribution of the data. The study was ethically approved by the KEPK University of dr. Soebandi in April 2023 (ethical certificate number 088/KEPK/UDS/III/2023). Informed consent was obtained from all participants, and confidentiality was maintained. Enumerators assisted with data collection, providing explanations and help as needed. SPSS software was used for data processing and analysis, ensuring robust statistical evaluation of the factors associated with hypertension self-care management behavior.

3. RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondent Characteristics (N=150)

Characteristics of Respondents	N	%
Age		
60-70 years	117	78%
71-80 years	31	20.7%
>80 years	2	1.3%
Gender		
Male	66	44%
Female	84	56%
Occupation		
Employee	72	48%
Unemployed	78	52%
Duration of hypertension		
1-5 years	95	63.3%
>5 years	55	36.7%
Total	150	100%

Table 1 shows that most of the elderly with hypertension are aged 60-70 years (78%), are female (56%), do not work (52%) and have suffered from hypertension for 1-5 years (63.3%).

Table 2. Spearman Correlation Test Results based on Protection Motivation Theory (N=150)

Variable	Spearman Correlation						
	Perceived vulnerability	Perceived Severity	Perceived Reward	Efficacy Response	Self-efficacy	Intention	Hypertension self-care management behavior
Perceived vulnerability	NA	0.551**	0.677**	0.684**	0.364**	0.522**	0.615**
Perceived Severity	0.551**	NA	0.358**	0.433**	0.205*	0.279**	0.497**
Perceived Reward	0.677**	0.358**	NA	0.713**	0.585**	0.628**	0.598**
Efficacy Response	0.684**	0.433**	0.713**	NA	0.493**	0.644**	0.510**
Self-efficacy	0.364**	0.205*	0.585**	0.493**	NA	0.457**	0.477**
Intention	0.522**	0.279**	0.628**	0.644**	0.457**	NA	0.513**
Hypertension self-care management behavior	0.615**	0.497**	0.598**	0.510**	0.477**	0.513**	NA

*$p < 0.05$; ** $p < 0.01$*

Table 2 shows that the bivariate analysis of perceived vulnerability (r=0.615 and p<0.05), perceived severity (r=0.497 and p<0.05), perceived reward (r=0.598 and p<0.05), efficacy response (r=0.510 and p<0.05), self-efficacy (r=0.477 and p<0.05), intention (r=0.513 and p<0.05) with hypertension self-care management behavior in the elderly. The relationship between perceived vulnerability, perceived reward, response efficacy, and intention with hypertension self-care management behavior was in the strong category (r=0.50-0.75).

Table 3. Linear regression (N=150)

Model	Unstandardized coefficients		Standardized coefficients	T	p-value
	B	Std Error	Beta		
Constant	11.826	8.204		1.442	0.152
Perceived vulnerability	2.176	0.591	0.312	3.679	0.000
Perceived Severity	3.401	0.906	0.251	3.754	0.000
Perceived Reward	2.390	0.995	0.213	2.403	0.018
Self-efficacy	1.936	0.928	0.146	2.086	0.039

Table 3 shows the regression equation where hypertension self-care management behavior = 11,826 + 2,176 perceived vulnerability + 3,401 perceived severity + 2,390 perceived reward + 1,936 self-efficacy. If the perceived vulnerability, perceived severity, perceived reward and self-efficacy have high scores then the self-care management behavior will also be high. The dominant factor is perceived vulnerability because it has a standard coefficient beta of 0.312 where this value is higher than other independent variables.

Table 4. Models overview

Model	R	R square	F	*p-value*
1	0.721	0.519	39.139	0.000

Table 4 shows a summary of the model that has an R-square of 0.519, which indicates that the strength of the relationship between the independent variables (perceived vulnerability, perceived severity, perceived reward, and self-efficacy) is 51.9%, of which the remaining 48.9% is influenced by other factors. The results of the F value of 39,139 with a value of p = 0.000 indicate that there is a simultaneous influence between perceived vulnerability, perceived severity, perceived reward, and self-efficacy with hypertension self-care management behavior in the elderly in rural areas.

Demographic characteristics

Most of the elderly with hypertension are aged 60-70 years (78%). An increase in blood pressure occurs with aging. There is a relationship between age and self-management skills in hypertensive patients (Tursina et al., 2022). Elderly people aged under 65 years tend to have better hypertension self-care practices than elderly people over 65 years old (Konlan & Shin, 2023).

Most of the elderly with hypertension are female (56%) and do not work (52%). Previous research found that women in the pre-elderly age (45-54 years) each year have an average increase in systolic blood pressure of 0.94. The increase in systolic blood pressure is higher in populations with low incomes (Kohler et al., 2022). Women over the age of 65 years are more prone to suffer from hypertension than men (Tursina & Silvanasari, 2022). Elderly with hypertension who are not working certainly do not have income independently and depend on their family. The absence of income and dependence on the family will also have an impact on the health status of the elderly with hypertension (Benu et al., 2023). Women who do not work

have a higher risk of suffering from hypertension, this is because they have lower physical activity than those who work (Gusty & Merdawati, 2020). Elderly with hypertension who are not working are certainly not optimal in fulfilling their hypertension self-care management behavior such as choosing the right and various hypertension diets.

Most of the elderly have suffered from hypertension within the last 1-5 years (63.3%). Long suffering from hypertension which is still less than 5 years can also be caused because they only suffer from this hypertension when they enter old age. This is consistent with the results of this study which also stated that most of the elderly who were respondents in this study were in the early age range of entering the elderly (60-74 years).

PMT model relationship with hypertension self-care management behavior in the elderly in rural areas

All factors in PMT were bivariate, however when a multivariate test was performed not all factors could predict self-care behavior in the elderly. The PMT model related to hypertension self-care management behavior includes vulnerability of perceived, severity of perceived, reward of perceived, and self-efficacy.

An individual's perception of their illness influences their self-care management behavior (Maninet & Desaravinid, 2023). Perceived vulnerability, perceived severity, and perceived reward are included in the threat assessment. Perceived vulnerability can be defined as a preventive behavior against hypertension. Fear of the elderly will appear if they feel vulnerable to certain diseases. A low perception of susceptibility would lead to low compliance in carrying out hypertension therapy (Prabawati et al., 2022).This perception of vulnerability can motivate elderly people with hypertension to behave adaptively.

Perceived severity of an illness is a predictor of treatment compliance, low salt diet, and abstinence from drinking alcoholic beverages (Pahria et al., 2022). Perceived severity can be defined as the behavior of seeking health assistance caused by the severity of the illness. The elderly in this case want treatment so that more serious complications from hypertension do not occur. The severity of the disease can threaten the health status of the elderly.

Perceived rewards consist of intrinsic rewards (inner satisfaction) and extrinsic rewards (social rewards). This perception of reward can increase maladaptive behavior (Conner & Norman, 2005). If the elderly with hypertension are satisfied with their current condition, then the elderly tend not to improve their hypertension self-care management behavior optimally. The same thing applies to social rewards, if the elderly with hypertension get praise from family or friends regarding their health behavior, then the elderly will feel their behavior is optimal and have no desire to further improve their self-care management behavior.

Self-efficacy is a person's belief in their own ability to carry out the expected behavior (Tan et al., 2021). Self-efficacy can be a factor in adaptive behavior change. Previous findings also found that self-efficacy has a relationship with hypertension management behavior (Rasdiyanah et al., 2022). High self-efficacy tends to be related to effective self-management (Chrismilasari et al., 2024). Elderly with hypertension who have high self-efficacy will be able to behave optimally in hypertension management such as routinely monitoring their blood pressure and being able to maintain a good diet.

The PMT model can predict 51.9% of self-care behavior. The dominant factor that can increase hypertension self-care management behavior is the perception of vulnerability. Community nurses can conduct health education for the elderly with hypertension by emphasizing the vulnerability of the elderly to suffering from a disease. Elderly who understand that they are susceptible to disease will have good self-integration, such as considering diet, normal weight, physical activity, and emotional control. Elderly with hypertension will also have self-regulation (such as planning to control blood pressure), interactions with nurses, monitoring of blood pressure, and adherence to good rules.

Education is a factor that can influence a person's treatment compliance (Kurnia et al., 2023). It is important for elderly people with hypertension to get adequate information on how to do proper self-management of hypertension. Education regarding this matter can be provided by community nurses in every activity of the elderly Posyandu every month. This optimization of Posyandu activities for the elderly is in line with previous findings that community-based interventions related to chronic disease management programs can improve survival rates for those living in rural areas in Indonesia (Susanto et al., 2022). Promotion of healthy lifestyles can be carried out by the government to reduce hypertension rates (Mahiroh et al., 2019). Community nurses can also provide this education to families who care for elderly people with hypertension. Community nurses can choose appropriate health education methods and media according to culture so that the information provided can be fully received by elderly people with hypertension (Silvanasari et al., 2023).

This research has several limitations. This research not being able to control potential confounding variable. Factors such as education, economic status, or access to healthcare services could also affect hypertension self-care management behavior but are not included in this analysis. The analysis uses Spearman correlation and linear regression, while these methods provide a good understanding of the relationship between variables, there may be other statistical methods that could provide additional or deeper insights into the observed relationships.

4. CONCLUSION

The PMT model related to hypertension self-care management behavior includes perceived vulnerability, perceived severity, perceived reward, and self-efficacy. The PMT model can predict 51.9% of self-care behavior. The dominant factor that can increase hypertension self-care management behavior is the perception of vulnerability. It is important to increase the understanding of elderly people with hypertension in rural areas regarding perceptions of vulnerability, perceptions of severity, perceptions of appreciation, and self-efficacy of elderly people related to hypertension. This can be done by community nurses in elderly Posyandu activities which are routinely carried out every month. Health workers can also partner with families, religious leaders, or local community leaders to help increase the understanding of the elderly regarding this matter. Nurses should also be able to provide health education to improve hypertension self-care management behavior. Recommendations for further research are adding the role of the family related to hypertension self-care management in the elderly.

REFERENCES

Benu, F. Z., Hinga, I. A. T., & Bunga, E. Z. H. (2023). Correlation between Socio-economic Factors and Stress with Hypertension Cases during the Covid-19 Pandemic. *Poltekita: Jurnal Ilmu Kesehatan*, *16*(4), 436-442. https://doi.org/10.33860/jik.v16i4.1626

Chrismilasari, L. A., Machelia, S., Nursery, C., & Negara, C. K. (2024). Self-efficacy and support from family self-care for individuals with high blood pressure. *Jurnal Eduhealth*, *15*(01), 53–60. https://doi.org/10.54209/jurnaleduhealth.v15i01

Conner, M., & Norman, P. (2005). *Predicting health behaviour*. London: Open University Press

Darwis, Wijayaningsih, K. S., & Ratna. (2023). Knowledge Regarding Management of Hypertension among Teachers at State Senior High School in Paccerakang Village. *Poltekita: Jurnal Ilmu Kesehatan*, *17*(1), 76–80.

Gobeil-Lavoie, A. P., Chouinard, M. C., Danish, A., & Hudon, C. (2019). Characteristics of self-management among patients with complex health needs: a thematic analysis

review. *BMJ open*, *9*(5), e028344. https://doi.org/10.1136/bmjopen-2018-028344

Guasti, L., Ambrosetti, M., Ferrari, M., Marino, F., Ferrini, M., Sudano, I., Laura, M., Iris, T., Riccardo, P., & Cosentino, M. (2022). Management of Hypertension in the Elderly and Frail Patient. *Drugs & Aging*, *39*(763), 763–772. https://doi.org/10.1007/s40266-022-00966-7

Gusty, R. P., & Merdawati, L. (2020). Perilaku Perawatan Diri Dan Faktor-Faktor Yang Berhubungan Dengan Pasien Hipertensi Di Padang Self-Care Behaviour Practices and Associated Factors Among Adult Hypertensive Patients in Padang. *Jurnal Keperawatan*, *11*(1), 51–58.

Harmili, H., Margo, N., Kesuma, E. G., & Utami, S. (2021). Analisis Tingkat Pengetahuan dengan Perilaku Diet Hipertensi pada Lansia. *Journals of Ners Community*, *12*(2), 151-156.

Iriana, P., Yardes, N., Sudrajat, A., Mahanani, M. S., & Malau, P. H. (2022). Knowledge as a Factor Associated with Lifestyle in Controlling Hypertension. *Jurnal Info Kesehatan*, *20*(2), 183–193. https://doi.org/10.31965/infokes.vol20.iss2.930

Kemenkes RI. (2018). Hasil Riset Kesehatan Dasar Tahun 2018. *Kementrian Kesehatan RI*, *53*(9), 1689–1699.

Kohler, I. V., Sudharsanan, N., Bandawe, C., & Kohler, H.-P. (2022). Aging and hypertension among the global poor—Panel data evidence from Malawi. *PLOS Global Public Health*, *2*(6), e0000600. https://doi.org/10.1371/journal.pgph.0000600

Konlan, K. D., & Shin, J. (2023). Determinants of Self-Care and Home-Based Management of Hypertension: An Integrative Review. *Global Heart*, *18*(1). https://doi.org/10.5334/gh.1190

Kurnia, A. D., Hariyati, S., Melizza, N., Al Husna, C. H., Amatayakul, A., & Handoko, A. (2023). Personal factors related to self-care management among people with hypertension at primary health care: A cross-sectional study. *Jurnal Keperawatan Padjadjaran*, *11*(3), 203–213. https://doi.org/10.24198/jkp.v11i3.2340

Lee, J. H., Kim, K. Il, & Cho, M. C. (2019). Current status and therapeutic considerations of hypertension in the elderly. *Korean Journal of Internal Medicine*, *34*(4), 687–695. https://doi.org/10.3904/kjim.2019.196

Mahiroh, H., Astutik, E., & Pratama, R. A. (2019). The Association of Body Mass Index, Physical Activity and Hypertension in Indonesia. *Jurnal Ners*, *14*(1), 16–22. https://doi.org/10.20473/jn.v14i1.12811

Maninet, S., & Desaravinid, C. (2023). Relationships between illness perception, functional status, social support, and self-care behavior among Thai people at high risk of stroke: A cross-sectional study. *Belitung Nursing Journal*, *9*(1), 62–68. https://doi.org/10.33546/bnj.2434

Nurhidayati, I., Aniswari, A. Y., Sulistyowati, A. D., & Sutaryono, S. (2018). Penderita Hipertensi Dewasa Lebih Patuh daripada Lansia dalam Minum Obat Penurun Tekanan Darah. *Jurnal Kesehatan Masyarakat Indonesia*, *13*(2), 4–8.

Omoronyia, O. E., Okesiji, I., Uwalaka, C. H., & Mpama, E. A. (2021). Reported self-management of hypertension among adult hypertensive patients in a developing country: A cross-sectional study in a nigerian tertiary hospital. *African Health Sciences*, *21*(3), 1191–1200. https://doi.org/10.4314/ahs.v21i3.28

Pahria, T., Nugroho, C., & Yani, D. I. (2022). Factors Influencing Self-Care Behaviors in Hypertension Patients With Complications. *Vascular Health and Risk Management*, *18*(July), 463–471. https://doi.org/10.2147/VHRM.S366811

Pangribowo, S. (2022). *Lansia Berdaya, Bangsa Sejahtera*. Pusdatin.

Prabawati, R. A., Widjanarko, B., & Prabamurti, P. N. (2022). Faktor - Faktor yang Berhubungan dengan Kepatuhan Penderita Hipertensi dalam Melaksanakan Terapi di

Puskesmas Bandarharjo. *Media Kesehatan Masyarakat Indonesia*, *21*(6), 405–410.

Ranzani, O. T., Kalra, A., Di Girolamo, C., Curto, A., Valerio, F., Halonen, J. I., Basagaña, X., & Tonne, C. (2022). Urban-rural differences in hypertension prevalence in low-income and middle-income countries, 1990-2020: A systematic review and meta-analysis. *PLoS Medicine*, *19*(8), 1–19. https://doi.org/10.1371/journal.pmed.1004079

Rahmatia, E., & Syisnawati, S. (2022). Hubungan Efikasi Diri dengan Perilaku Manajemen Hipertensi. *Jurnal Gema Keperawatan*, *15*(2), 320-322.

Rizkia, N. (2022). *Gambaran Perilaku Manajemen Diri Pasien Hipertensi pada Masa Pandemi Covid-19*. Universitas Indonesia.

Silvanasari, I. A., Maurida, N., & Vitaliati, T. (2022). Karakteristik Hipertensi pada Lansia yang Tinggal Bersama Keluarga. *Jurnal Penelitian Kesehatan Suara Forikes*, *13*.

Silvanasari, I. A., Maurida, N., Vitaliati, T., & Basri, A. A. (2023). Karakteristik Perilaku Manajemen Perawatan Diri Hipertensi pada Lansia di Daerah Rural. *Nursing Sciences Journal*, *7*(2), 1–8.

Susanto, T., Kusuma, I. F., Purwandhono, A., & Sahar, J. (2022). Community-based intervention of chronic disease management program in rural areas of Indonesia. *Frontiers of Nursing*, *9*(2), 187-195.

Syarif, S., & Mivtahurrahimah, M. (2024). The Relationship between Drinking Coffee and Hypertension in Several Countries: Systematic Review and Meta-Analysis. *Jurnal Info Kesehatan*, *22*(1), 16–23. https://doi.org/10.31965/infokes.vol22.iss1.1438

Tan, F. C. J. H., Oka, P., Dambha-Miller, H., & Tan, N. C. (2021). The association between self-efficacy and self-care in essential hypertension: a systematic review. *BMC Family Practice*, *22*(1), 1–12. https://doi.org/10.1186/s12875-021-01391-2

Tursina, H. M., Nastiti, E. M., & Sya'id, A. (2022). Faktor-Faktor Yang Mempengaruhi Self Management (Manajemen Diri) pada Pasien Hipertensi. *Jurnal Keperawatan Cikini*, *3*(1), 20–25. https://doi.org/10.55644/jkc.v3i1.67

Tursina, H. M., & Silvanasari, I. A. (2022). Peningkatan self management pada penderita hipertensi dengan penggunaan Hypertension Self Management Diary (HSMD). *NURSCOPE*, *8*(2), 18–25.