INTEREST: Jurnal Ilmu Kesehatan

Vol. 12, No. 1, May 2023

https://doi.org/10.37341/interest.v12i1.714

Original Research

Family Support on Blood Pressure in Elderly Hypertension: A **Literature Review**

Muthia Ridha Rahayu^{1*}, Rita Benya Andriani², Ros Endah Happy Patriyani³

¹ Student of Nursing Professional Education, Poltekkes Kemenkes Surakarta, Indonesia

Background: Hypertension is a non-communicable disease that mostly occurs in the elderly and can cause serious complications such as stroke and heart disease. One factor that can help manage hypertension in the elderly is family support. This support plays a role in improving adherence to medication, maintaining a healthy diet, and reducing stress that can affect blood pressure. This study aims to examine the relationship between family support and blood pressure management in hypertensive elderly based on a literature review.

Methods: This study used the literature review method with guidelines from Grove and Gray EBP. Articles were searched through Google Scholar, Ebsco, and Elsevier databases with the keywords "family support," "hypertension," and "elderly." Articles were screened using the PICOS Framework to ensure relevance to the research topic.

Results: Analysing 10 articles that met the selection criteria, we found that good family support contributed to improved medication adherence, hypertension diet adherence, and improved quality of life for the elderly. The most influential forms of support include emotional, social, instrumental, and financial support.

Conclusion: Family support plays a significant role in the management of blood pressure in hypertensive elderly. Elderly people who get emotional, social, instrumental, and financial support from their families show better blood pressure control and higher quality of life. Families can provide optimal support for the elderly with hypertension by offering emotional, informational, instrumental, and appreciation support to improve adherence to medication and maintain a healthy lifestyle.

ARTICLE HISTORY

Received: April 24th, 2025 Accepted: April 24th, 2025

KEYWORDS

elderly, family support, hypertension;

CONTACT

Muthia Ridha Rahayu

muthiaridharahayu@gmail.com

Student of Nursing Professional Education, Poltekkes Kemenkes Surakarta. J1. Letjen Sutoyo, Mojosongo, Surakarta, Indonesia.

Cite this as: Rahayu, M. R. ., Adriani, R. B. ., & Patriyani, R. E. H. (2023). Family Support on Blood Pressure in Elderly Hypertension: A Literature Review. Interest: Jurnal Ilmu Kesehatan, 12(1), 68-82. https://doi.org/10.37341/interest.v12i1.714

INTRODUCTION

The elderly are a population group that experiences various physiological, psychological and social changes that can affect their health. One of the major health

^{2,3} Department of Nursing, Poltekkes Kemenkes Surakarta, Indonesia

challenges faced by the elderly is non-communicable diseases, such as hypertension. Hypertension is a chronic condition characterised by an increase in blood pressure that exceeds normal limits, namely systolic pressure ≥140 mmHg and diastolic pressure ≥90 mmHg. This disease can increase the risk of various serious complications such as stroke, heart failure, chronic kidney disease, and cognitive impairment (Zhou et al., 2021).

WHO reports that the number of elderly people globally continues to increase with projections reaching 1.5 billion by 2050. Riskesdas data, (2018) shows that the prevalence of hypertension in people over 60 years old reached 63.3% ((Ministry of Health of the Republic of Indonesia, 2018). This high rate indicates that hypertension is one of the major health problems that needs more attention, especially in terms of prevention and effective management.

Hypertension in the elderly can be triggered by various risk factors including genetics, a diet high in salt and fat, obesity, lack of physical activity, psychosocial stress, and smoking and alcohol consumption (Q. Zhang et al., 2021). Other factors are environmental and social aspects, such as support from family, which play a major role in the management of elderly blood pressure. Elderly people who get good emotional and social support tend to have more blood pressure controlled compared to those who lack support from their families (Ainiyah et al., 2023).

Family support has an important role in managing hypertension in the elderly through various forms of assistance such as emotional, appreciative, informational, and instrumental support. Emotional support includes providing motivation and attention by family members so that the elderly feel cared for and valued in undergoing treatment. Informational support includes education on the importance of a healthy lifestyle, medication adherence, and stress management. Instrumental support involves providing medical needs such as medicines, access to health services, and managing the diet and physical activity of the elderly (Susianti et al., 2022).

The majority of elderly people face various challenges in undergoing hypertension therapy including lack of understanding of the disease, side effects of drugs, and difficulties in accessing health facilities. In this condition, family support is instrumental in improving the elderly's adherence to treatment and motivating them to maintain a better diet and physical activity. Research shows that older people who receive good family support are more compliant in undergoing hypertension therapy and have a better quality of life (Bowling et al., 2021).

Family support is useful to help reduce stress and anxiety levels that can worsen hypertension conditions. Elderly people who feel valued and get attention from their families have higher motivation to maintain their health. This psychosocial factor is very important because poorly managed stress can cause an increase in blood pressure and worsen the condition of the elderly with hypertension (Presilia et al., 2020).

A healthy diet is very influential in the management of blood pressure in the elderly. Families can play a role in helping the elderly choose foods that are low in salt, fat, and encourage consumption of foods rich in fibre and nutrients. Familybased interventions have been shown to be effective in helping the elderly maintain a healthy lifestyle and avoid complications due to hypertension (Tutpai et al., 2021).

This study offers a novel perspective by integrating emotional and psychosocial dimensions into the analysis of family support for hypertension management among the elderly. Unlike previous research that mainly emphasizes medication adherence, this study highlights the critical role of emotional, informational, and appreciation support in reducing stress and enhancing treatment motivation. It also explores how family involvement influences dietary behavior and lifestyle modification in hypertensive elderly patients.

The study underscores the importance of perceived self-worth and familial attention as key psychosocial factors that contribute to better blood pressure control. This comprehensive approach provides new insights for developing culturally relevant, family-based interventions in elderly care, particularly in the Indonesian context. The description above shows the phenomenon of providing family support in the management of elderly blood pressure.

This study aims to examine more deeply the relationship between family support and blood pressure in elderly hypertension based on literature review. This study can provide greater insight into the importance of the family's role in supporting the elderly with hypertension and can be a reference for health workers in improving family-based interventions.

MATERIALS AND METHODS

This research is a literature review study conducted by collecting, reviewing, evaluating, and synthesising the results of previous research relevant to this research topic. Literature review is used to identify existing scientific evidence and provide further understanding of the relationship of family support to blood pressure in elderly hypertension. Article searches were conducted through Elsevier, EBSCO, and Google Scholar databases using the keywords "family support," "hypertension," and "elderly".

The search was conducted with Boolean operators (AND, OR, NOT) adjusted to the Medical Subject Heading (MeSH). The articles searched were the results of research that had been published in the last five years (2019-2023). PICO formulation as follows **Population (P):** Elderly with hypertension; **Intervention (I):** Family support in hypertension management; Comparison (C): Hypertensive elderly without family support; and Outcome (O): Changes in blood pressure and adherence to treatment. The inclusion and exclusion criteria of the study were as follows:

Table 1. Inclusion and Exclusion Criteria

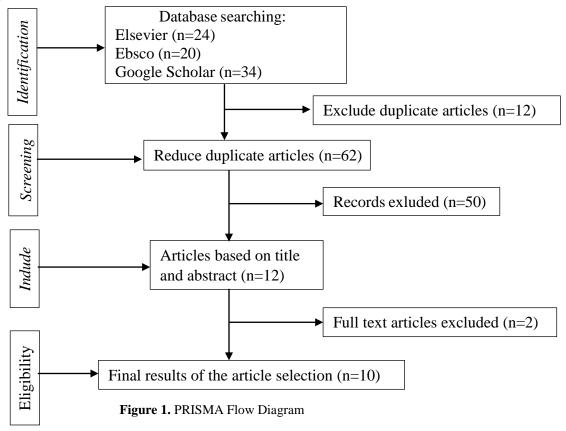
Criteria	Inclusion	Exclusion
Population	Elderly with hypertension	Other than the elderly
Intervention	Family support in the management of hypertension	In addition to family support interventions
Comparison	No special comparison	No comparison
Outcome	The relationship of family support to blood pressure in elderly hypertension	-
Study Design	Cross-sectional, descriptive correlative	Systematic review, meta- analysis, cohort study, RCT, quasi- experimental

Criteria	Inclusion	Exclusion
Year of Publication	2019-2023	Before 2019 or after 2023
Language	English and Indonesian	Besides English and Indonesian

Screening was conducted independently by three researchers with backgrounds in nursing and public health, followed by a discussion session to reach consensus on article eligibility. To ensure consistency and reduce bias, a calibration process was carried out prior to screening, in which the researchers jointly reviewed a sample of articles and discussed inclusion criteria, interpretation of key terms, and scoring procedures. The quality of the selected articles was then assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools.

Only studies that achieved a minimum quality threshold of 50% were included in the final analysis. This process ensured methodological rigor and enhanced inter-rater reliability in the study selection and appraisal stages (Dahlan, 2021). Articles that met the criteria were analysed using a descriptive approach. The data extracted included research methods, sample size, instruments used, and research results.

Articles were categorised based on the Evidence-Based Practice level according to the research pyramid. Research reporting followed PRISMA guidelines by presenting a summary of the main findings, limitations of the study, and implications for nursing practice and future research. The PRISMA diagram was used to illustrate the article selection process from identification to the articles used in this review.



RESULTS

This study examines the relationship between family support and blood pressure in elderly hypertension based on the analysis of 10 research articles. The articles used consisted of 1 national article and 9 international articles obtained from Google Scholar, Ebsco, and Elsevier. The publication year of the articles used ranged from 2019 to 2023. Most of the studies in this literature used descriptive correlation methods with a crosssectional approach (9 studies) and one study used a qualitative phenomenological approach (Hendri Kurniawan & Br Sinukaban, 2023).

The research variables in the articles analysed include family support and hypertension treatment adherence, family support and dietary program adherence, family support and elderly quality of life, and family support and elderly behaviour (Siti Urifah et al., 2022; Gertrudis Tutpai et al., 2021). The samples used in this research article were elderly people with uncomplicated hypertension who were more than 50 years old and lived with their families. The total number of respondents from all articles was 702 people with an average of 61 respondents per study (Ninin Irani, 2019).

The analytical methods used in this study include the Chi-Square test for crosssectional research designs and the Colaizzi method for qualitative research with a phenomenological approach (Harkensia et al., 2022). The research instruments included a family support questionnaire and hypertension treatment adherence, a diet programme adherence questionnaire, a family support questionnaire and elderly quality of life, a Family Support System (FSS) questionnaire, and an elderly family knowledge and relationship questionnaire (Dinda Nurannisa et al., 2022). The results showed a significant relationship between family support and blood pressure of the elderly with hypertension. Family support was shown to influence the elderly's health behaviour, adherence to medication, hypertension diet, and their quality of life (Mike Susianti et al., 2022).

The results of the study confirm that family support plays an important role in managing the blood pressure of hypertensive elderly people, both through emotional, instrumental, and social aspects (Nina Sumarni et al., 2021). Good family support can increase elderly compliance in undergoing treatment and encourage them to adopt a healthy lifestyle, such as eating healthy foods and regularly checking blood pressure to health facilities. Psychosocial aspects of family support also play a role in providing motivation and comfort for the elderly in dealing with their hypertension.

Tabel 2. Ringkasan Pustaka

Author	Year	Volume, Number	Title	Method (Design, Sample, Variables, Instruments, Analysis)	Results	Database	Level EBP
Hendri Kurniawan, Evita Dora Br Sinukaban	2023	Volume 2 Nomor 2	The Relationship Between Family Support and Elderly Behavior in Hypertension Control in the Working Area of Tiga Balata Health Center	D: cross-sectional S: 33 hypertensive patients Three Balata Health Centre V: family support and elderly behaviour, hypertension I: questionnaire A: Chi-Square	The results show the relationship between family support and elderly behaviour towards hypertension from the results of the <i>chi-square</i> test with a p value of 0.001; <0.05 and the value of the relationship of 0.573 which means positive and strong relationship. Towards the relationship between family support and elderly behaviour towards hypertension with a positive relationship direction and strong closeness.	Google scholar	V
Siti Urifah, Nasrudin Nasrudin, Devin Prihar Ninuk, Heri Widodo	2022	Volume 2 Nomor 3	Family Support and Increasing Hypertension Diet Behavior Among Elderly	D: cross sectional S: 23 elderly people suffering from hypertension V: family support, dietary behaviour, hypertension I: - A: Chi-square	The results of this study showed that most of the elderly were 60-70 years old and the majority were women. In addition, half of the respondents had good family support and 78.3 percent of them had good hypertension diet behaviour. The results of the statistical analysis test showed that there was a relationship between family support and dietary behaviour in hypertensive elderly with a p value of= 0.014 (p < α = 0.05).	Google scholar	V

Author	Year	Volume, Number	Title	Method (Design, Sample, Variables, Instruments, Analysis)	Results	Database	Level EBP
Gertrudis Tutpai, Ermeisi Er Unja, and Florentina Nura	2021	-	Family Support for Controlling Blood Pressure of Elderly Patients in Health Facilities During the Covid-19 Pandemic in Banjarmasin	D: cross-sectional S: 50 elderly people with hypertension V: family support, hypertension I: questionnaire A: Chi-square	Based on the results of the study, it can be concluded that there is a relationship between family support and the health control of elderly patients in carrying out health control to health facilities. Family support is needed by elderly patients to always routinely control blood pressure in health facilities during the pandemic today. Health workers, especially nurses, are expected to participate in family empowerment efforts to improve health service efforts especially elderly patients with hypertension.	Google scholar	V
Ninin Irani	2019	Volume 1 Nomor 1	Analysis Relationship Family Support and Health Cadre with Elderly Hypertension Practice in Controlling Health at Primary Health	D: cross-sectional S: 285 hypertensive elderly aged >60 years. V: family and health cadre support, hypertension I: questionnaire A: chi-square	There is a relationship between family support for the elderly with hypertension in health control.	Google scholar	V

Author	Year	Volume, Number	Title	Method (Design, Sample, Variables, Instruments, Analysis)	Results	Database	Level EBP
			Care Mranggen Demak	·			
Dinda Nurannisa, Rizka Febtrina, M. Zul 'Irfan, Dendy Kharisna	2022	Volume 19 Nomor 5	Family Support Increases the Hypertension Medication Adherence in the elderly at Public Health Center of Simpang Tiga Pekanbaru	D: descriptive correlation with cross-sectional S: 112 older people with hypertension, aged > 55 years, living with family and able to read and write. V: family support, medication adherence, hypertension I: Morisky Medication Adherence Scale (MMAS) questionnaire A: chi-square	Based on the analysis, it can be seen that the relationship between family support and adherence to taking hypertension medication in the elderly at Puskesmas Simpang Tiga Pekanbaru, the results of the Chi-Square statistical test showed that the p value was 0.002 (p value <0.05), meaning that the results of this study indicate a correlation between family support and adherence to taking hypertension medication in the elderly at Puskesmas Simpang Tiga Pekanbaru.	Elsevier	V

Author	Year	Volume, Number	Title	Method (Design, Sample, Variables, Instruments, Analysis)	Results	Database	Level EBP
Sumiyati, Ariani, M. Syikir, Suherman	2022	Volume 6, Nomor 2	The Relationship of Family Support with the Quality of Life of The Elderly WHO Have Hypertension	D: cross-sectional S: 68 elderly people suffering from hypertension V: support family support, quality of life, hypertension I: - A: chi-square	Based on the research that has been done, it is concluded that there is a significant relationship in 4 domains of family support (emotional support, informational support, instrumental support, appreciation support) for the elderly suffering from hypertension and there is a significant relationship between appreciation support and the quality of life of the elderly suffering from hypertension.	EBSCO	V
Icca Presilia, Joni Haryanto, Puji Astuti	2020	Volume 3 Issue 1	Factors Associated with Perceived Family Support among Elderly with Hypertension	D: cross-sectional S: 22 elderly hypertensive V: perceived family support, hypertension I: Family support questionnaire used FSS (Family Support System, knowledge and family relationship questionnaire for the elderly A: chi-square	Based on the results of this study, the researcher argues that family support in the elderly with hypertension is influenced by age, gender, education, occupation, knowledge, family relationship of the elderly, so it is recommended for families to increase family support so that blood pressure increases. in the elderly stable.	Ebsco	V

Author	Year	Volume, Number	Title	Method (Design, Sample, Variables, Instruments, Analysis)	Results	Database	Level EBP
Mike Susianti, Rini Asnawati, Sintia Karim Polapa	2022	Volume 2 Issue 1	Relationship between Family Social Support and Quality of Life for Hypertensive Elderly in Tenggela Village, Tilango District	D: cross-sectional S: 58 hypertensive elderly aged 60-74 years old V: family support, elderly quality of life, hypertension I: Questionnaire A: chi- square	Based on the results of research and discussion of the relationship between family social support and the quality of life of the elderly with hypertension in Tenggela Village, Tilango District. from 2 parameters, namely family social support with the quality of life of the elderly with hypertension as follows: a. Family social support for the elderly with hypertension in Tenggela Village, Tilango Subdistrict received good family support as many as 51 respondents (87.9 per cent) and less family social support as many as 7 respondents (12.1 per cent). b. The quality of life of hypertensive elderly in Tenggela Village, Tilango District, has a good quality of life as many as 52 respondents (87.9 per cent) and poor quality of life as many as 6 (10.3 per cent). c. The relationship between family social support and the quality of life of elderly hypertensive patients in Tenggela Village. From the results		V

Author	Year	Volume, Number	Title	Method (Design, Sample, Variables, Instruments, Analysis)	Results	Database	Level EBP
				of the study, using the Chi-square test obtained a p value of 0.001 because the p value> 0.005.			
Linur S. Harkensia, Suryane S. Susanti, Teuku Tahlil	2022	Volume 14 Nomor 4	Family Support in Controlling Hypertension among the Elderly in Lhokseumawe City: A Descriptive Phenomenologic al Study	D: qualitative research with a phenomenological approach. S: families living with 55-65 year olds with hypertension without compilation V: family support, hypertension I: interview guidelines, voice recordings A: Colaizzi method	Family support in controlling hypertension in the elderly includes responding to hypertension with traditional health services, spending time with the elderly, allowing the elderly to freely choose their preferred activities, and prioritising worship activities.	Google scholar	VI
Nina Sumarni, Citra Windani Mambang Sari, Dadang	2021	Volume 8 Issue 03	Relationship Between Family support And Compliance In Implementing Diet Programs	D: descriptive correlative research design S: 51 elderly hypertensive V: family support, dietary programme	The results of the analysis of the <i>Chi-Square</i> statistical test data obtained <i>p-value</i> = 0.000 which means that there is a relationship between family support and dietary adherence in patients with hypertension with a	Google scholar	V

Author	Year	Volume, Number	Т	itle	Method (Design, Sample, Variables, Instruments, Analysis)	Results	Database Level EBP
Purnama			For People Hyperte	Elderly With nsion	adherence, hypertension I: questionnaire family support and dietary adherence A: chi-square	Contingency Coefficient value of 0.585, the previous result where the results of the patient's family support are high then the patient will be more compliant than low family support, with a p-value of p = 0.000 (p <0.05). Meanwhile, according to the results of research, the level of family support is higher than the level of help from friends and individuals other than family and friends. The results of the study that family support is very closely related to adherence in treatment hypertension	

DISCUSSION

The results showed that the elderly who received good family support had more controlled blood pressure compared to those who did not get family support. Family support not only helps in physical aspects, but also emotionally and socially, which contributes to the overall well-being of the elderly (Ainiyah et al., 2023). The studies analysed also showed that older people who received family support were more likely to follow medical advice, including regular control to health facilities. The majority of studies showed that stable blood pressure was associated with adherence to medication and a healthier diet (Susianti et al., 2022).

Family support in various aspects, such as emotional, instrumental, and informational, plays a role in improving elderly compliance with medication. Elderly people who receive emotional support are better able to manage stress related to hypertension. Families who provide attention, accompany during health control, and provide moral encouragement have been shown to help the elderly in dealing with their hypertension condition (Riasmini et al., 2023).

Instrumental support such as the provision of medicines, transport to health facilities, and assistance in maintaining a healthy diet are also very important. Studies show that older people who have families who are active in providing medical needs are more compliant with hypertension medication and diet therapy (Bowling et al., 2021; S. Zhang et al., 2020). Informational support plays a role in providing a better understanding of hypertension and how to manage it.

Families who provide information related to healthy eating patterns and the importance of regular medication can increase elderly awareness of their health conditions. Appreciation support, such as providing motivation, praise, and respect for the efforts of the elderly in maintaining their health, also has a very positive impact on elderly compliance in carrying out treatment (Chen et al., 2022; Mahmood et al., 2020; Manurung & Sari, 2020; McManus et al., 2021; Presilia et al., 2020). Elderly people who feel valued tend to be more enthusiastic in undergoing treatment.

This study provides valuable insights into the importance of family support in the management of hypertension in the elderly. The findings can form the basis for further research with a longitudinal design to explore the long-term impact of family support on elderly blood pressure. In clinical practice, the results of this study can be used to develop family-based intervention programmes aimed at improving elderly adherence to hypertension treatment.

Health workers are expected to educate families about their role in helping the elderly manage hypertension more effectively. Limitations of the study include the majority of studies used in this analysis have a cross-sectional design, so it cannot explain causal relationships directly. In addition, the samples used in each study varied, which may affect the generalisability of the results.

CONCLUSION

Family support has been shown to play an important role in helping older people manage their blood pressure. Elderly who get support in the aspects of emotional, instrumental, informational, and appreciation tend to be more compliant with treatment and have a better quality of life. Families can then be more active in providing support to the elderly with hypertension, both in the form of emotional, instrumental, and informational.

ACKNOWLEDGEMENT

Director of Poltekkes Kemenkes Surakarta who has facilitated this research.

REFERENCES

- Ainiyah, N., Zuhriyah, N., Zahroh, C., Damawiyah, S., Kusumawati, D. R., Afiyah, R. K., Budury, S., & Fitriasari, A. (2023). Influence of self-motivation and health locus of control on adherence to medication among hypertension patients. Jurnal *Keperawatan Indonesia*, 26(1), 11–19. https://doi.org/10.7454/jki.v26i1.2526
- Bowling, C. B., Lee, A., & Williamson, J. D. (2021). Blood pressure control among older adults with hypertension: Narrative review and introduction of a framework for improving care. American Journal of Hypertension, 34(3), 258-266. https://doi.org/10.1093/ajh/hpab002
- Chen, T., Shao, F., Chen, K., Wang, Y., Wu, Z., Wang, Y., Gao, Y., Cornelius, V., Li, C., & Jiang, Z. (2022). Time to clinical benefit of intensive blood pressure lowering in patients 60 years and older with hypertension: A secondary analysis of randomized clinical trials. JAMA Internal Medicine, 182(6), 660-667. https://doi.org/10.1001/jamainternmed.2022.1657
- Dahlan, S. (2021). Statistik untuk kedokteran dan kesehatan (6th Ed.). Epidemiologi Indonesia.
- Hendri Kurniawan, & Br Sinukaban, E. D. (2023). The relationship between family support and elderly behavior in hypertension control in the working area of tiga Balata Health Center. International Journal of Public Health Excellence (IJPHE), 2(2), 471–474. https://doi.org/10.55299/ijphe.v2i2.356
- Mahmood, S., Jalal, Z., Hadi, M. A., & Shah, K. U. (2020). Association between attendance at outpatient follow-up appointments and blood pressure control among patients with hypertension. BMC Cardiovascular Disorders, 20(1), 1–11. https://doi.org/10.1186/s12872-020-01741-5
- Manurung, R., & Sari, J. Y. (2020). Hubungan dukungan keluarga dengan kepatuhan diet pada pasien gagal ginjal kronik di Rumah Sakit Umum Imelda Pekerja Indonesia (RSU IPI) Medan Tahun 2019. Jurnal Ilmiah Keperawatan Imelda, 6(1), 1–9. http://jurnal.uimedan.ac.id/index.php/JURNALKEPERAWATAN
- McManus, R. J., Little, P., Stuart, B., Morton, K., Raftery, J., Kelly, J., Bradbury, K., Zhang, J., Zhu, S., Murray, E., May, C. R., Mair, F. S., Michie, S., Smith, P., Band, R., Ogburn, E., Allen, J., Rice, C., Nuttall, J., ... Yardley, L. (2021). Home and online management and evaluation of blood pressure (HOME BP) using a digital intervention in poorly controlled hypertension: Randomised controlled trial. The BMJ, 372, 1–13. https://doi.org/10.1136/bmj.m4858
- Ministry of Health of the Republic of Indonesia. (2018). The result of Riskesdas 2018. Ministry of Health of the Republic of Indonesia.

- Presilia, I., Haryanto, J., & Astuti, P. (2020). Factors associated with perceived family support among elderly with hypertension. *International Journal of Nursing and* Health Services (IJNHS) Th, 3, 26–32. https://doi.org/10.35654/ijnhs.v3i1.178
- Riasmini, N. M., Achjar, K. A. H., Hartini, T., Khatimah, H., C.Gomez, E., & Riyanto, R. (2023). A continuity of care model based on family empowerment improves the family's ability in managing hypertension among elderly. Jurnal Kesehatan *Prima*, 17(2), 78. https://doi.org/10.32807/jkp.v17i2.1183
- Susianti, M., Asnawati, R., & Polapa, S. K. (2022). Relationship between family social support and quality of life for hypertensive elderly in Tenggela Village, Tilango District. *Journal of Community Health Provision*, 2(1), 1–12.
- Tutpai, G., Unja, E. E., & Nura, F. (2021). Family support for controlling blood pressure of elderly patients in health facilities during the Covid-19 pandemic in Banjarmasin. KnESciences, 2021, 268–277. Life https://doi.org/10.18502/kls.v6i1.8614
- Zhang, Q., Huang, F., Zhang, L., Li, S., & Zhang, J. (2021). The effect of high blood pressure-health literacy, self-management behavior, self-efficacy and social support on the health-related quality of life of Kazakh hypertension patients in a low-income rural area of China: A structural equation model. BMC Public Health, 21(1), 1–10. https://doi.org/10.1186/s12889-021-11129-5
- Zhang, S., Wu, S., Ren, J., Chen, X., Zhang, X., Feng, Y., Zhou, X., Zhu, B., Yang, J., Tian, G., Jiang, Y., Guo, Z., Li, Y., Wang, T. D., Kario, K., Zhang, W., & Cai, J. (2020). Strategy of blood pressure intervention in the elderly hypertensive patients (STEP): Rational, design, and baseline characteristics for the main trial. Contemporary Clinical Trials, 89, 1–9. https://doi.org/10.1016/j.cct.2019.105913
- Zhou, B., Perel, P., Mensah, G. A., & Ezzati, M. (2021). Global epidemiology, health burden and effective interventions for elevated blood pressure and hypertension. Nature Reviews Cardiology, 18(11), 785-802. https://doi.org/10.1038/s41569-021-00559-8