

How to Cite

Widjaja, G., & Sijabat, H. H. (2021). The challenge of managing hypertension in the elderly with a healthy lifestyle and medical treatment. *International Journal of Life Sciences & Earth Sciences*, 4(1), 44-52. <https://doi.org/10.31295/ijle.v4n1.1757>

The Challenge of Managing Hypertension in the Elderly with a Healthy Lifestyle and Medical Treatment

Gunawan Widjaja

Universitas Krisnadwipayana, Indonesia

Corresponding author email: widjaja_gunawan@yahoo.com

Hotmaria Hertawaty Sijabat

Universitas Krisnadwipayana, Indonesia

Email: sjabathotmaria@gmail.com

Abstract---*As humans get old, diseases come one by one. One of them is hypertension from level one to level two and three, which takes much attention and effort. This study aims to understand the challenges of managing hypertension in the elderly with a healthy lifestyle and drug treatment. To answer this problem, we have examined dozens of papers published in international journals between 2010 and 2020 to get the latest data. Next, we examine the phenomenological approach, which includes a data coding system and in-depth interpretation before concluding typical findings that are valid and have high reliability. This study relies on secondary data, and we searched with the help of technology in some electronic publications. Based on the data findings and discussion, we can summarize the findings: Normal blood pressure in the elderly (elderly) tends to be higher, that is, < 150 mmHg for systolic pressure and < 90 mmHg for diastolic pressure. This is because the blood vessels in the elderly tend to be stiffer, so the heart requires higher pressure to pump blood throughout the body.*

Keywords---*challenges, healthy lifestyle, hypertension, manage care, seniors.*

Introduction

A person suffering from hypertension is usually detected through a blood pressure test which identifies a high pulse rate with a systolic pressure of more than 140 mmHg and a diastolic pressure factor of above 90 mmHg (Perez & Chang, 2014). In the elderly or 65 years and over, hypertension is characterized as a systolic pressure factor of 160 mmHg and a diastolic pressure factor of 100 mmHg. The problem of hypertension is a common medical issue that is typical in agricultural countries. Hypertension that is not treated immediately will affect the development of degenerative diseases, such as heart disease, end-stage renal failure, and peripheral blood vessel infections (Babatsikou & Zavitsanou, 2010).

Of all patients with hypertension, 90-95% report essential hypertension, which is unclear. If this is not handled as expected, the current state of affairs is likely to escalate. Hypertension, diabetes, smoking are proven risk factors for stroke. Thus, hypertension is the most dangerous risk factor for stroke—the risk of stroke increases with increasing the systolic pressure factor of more than 115 mmHg. Robust control of circulating pressure can reduce the risk of stroke 1-3 times. Based on WHO information, out of half of the known hypertension sufferers, only 25% received treatment, and only 12.5% received treatment overall. The rest is unexpected and suspected due to negligence and misunderstanding of hypertension sufferers (Pedersen et al., 2016).

It is predicted that by 2025, hypertension cases, especially in horticultural countries, will increase by about 80%, from 639 million cases in 2000 to 1.15 billion cases. This assumption depends on the number of people with hypertension and the current increase in people (American Heart Association, 2017). Currently, the number of people with hypertension in Indonesia is estimated at 25 million people. Transcendence in metropolitan and usual districts goes from 17-21%, and only 4% is hypertension controlled (Latifin et al., 2020). The strength in adults is 6-15%, and most of the adults who experience adverse effects of hypertension do not think of becoming a victim of hypertension with their overall goal of becoming severe hypertension because they do not avoid and do not even

have the best clue about the risk factors, and 90% are primary hypertension, various data on degenerative contamination begin to increase. The most dangerous is if the patient is unwilling and indifferent to hypertension (Astuti & Soewondo, 2019).

According to Sofiana et al., (2018), stroke is the highest cause of death in Indonesia (17.4%), followed by TB (7%), hypertension (8.8%), injury (5.5%), and neonatal death (6.5%). The promotion of healthy lifestyles should be increased to reduce the frequency of these causes of death in the future. Individuals tend towards cheap foods that are poor in fiber, high in fat, high in sugar, including much salt in Indonesia. This unhealthy diet contributes to hypertension. Approximately 90-95 percent of individuals with hypertension do not appear to have had the opportunity to learn more about their disease-specific system (Al-oqla et al., 2015). It is unknown how they acquire hypertension, which is a problem for those who suffer from it. 1 to 8 For people with hypertension who are also obese, treatment includes a low-cholesterol diet or a high-fiber diet combined with a low-energy diet. In just two weeks, patients can reduce their blood pressure by a few points by following a proper diet. The drop in blood pressure becomes pronounced over time. According to the Mayo Clinic, systolic blood pressure can drop as much as 14 mmHg (Scharf et al., 2019).

Hypertensive patients ought to burn through bunches of natural products, vegetables, and low-fat food sources so they can bring down circulatory strain. Way of life changes can be weight reduction if overweight, restricting liquor utilization, practicing routinely, decreasing salt utilization, maintaining a good utilization of sodium, calcium, magnesium, and stopping smoking. Moreover, hypertension victims should likewise have the information and mentality of acquiescence to have the option to change the administration of hypertension in day-by-day life (Gilbert, 2021).

Hypertension and infections

Hypertension is often referred to as the silent executioner because it is unpredictable without protest. After all, it is the single leading supporter of coronary heart disease, kidney failure, and stroke in Indonesia. According to Tiara (2020), the relationship between obesity and the incidence of hypertension is very close to hypertension. The prevalence of hypertension in Indonesia is 34.1%. This increase is inversely proportional to the dominance of hypertension in Riskesdas 2013 of 25.8%. It is estimated that only 1/3 of hypertension cases in Indonesia are studied; the rest are unknown. Agusnanto (2013), said that the factors related to hypertension at the Cut Nyak Dhien Meulaboh Regional General Hospital, West Aceh Regency in 2013. Furthermore, if a person has hypertension and is not controlled, it will be the single leading supporter of heart disease, stroke, and kidney failure. "Every 20/10 mm Hg increase in blood will increase the risk of coronary disease many times (Flack & Adekola, 2020).

According to Yen (2020), in his study "Advice for Health, hypertension can be prevented by controlling harmful habits such as smoking, unwanted eating patterns (less consumption of vegetables and organic products, excessive use of salt), obesity, lack of movement, and exercise, alcohol use, and stress. The success of controlling blood pressure to achieve goals has been shown to reduce the occurrence of stroke by 30-40% and the frequency of heart disease by 20% (Ibrahim & Damasceno, 2012). The use of salt should be considered; it is recommended 5 to 6 grams per day. Unfortunately, in daily practice, one is never sure how much salt is used. Apart from eating salt, sure-fire tips to reduce hypertension must be completed. Prabantini (2010), proposes to eat more vegetables, organic products, slightly saturated fat, fish, and less sugar. This should be followed by regular 30 minutes of daily exercise.

Need to control

As we mentioned above, high blood pressure or hypertension is a silent "killer" because it often attacks without symptoms. Some patients only know they have hypertension after complications arise. Complications of hypertension can cause heart disease, stroke, to kidney disorders (Savitri, 2017). Assuming a person suffers from hypertension, the work to be done is to control the pulse. The public is advised to check their blood pressure at the nearest health office (Maitland et al., 2010). Patients with hypertension are expected to immediately visit a specialist to get treatment and the efforts that must be made to control hypertension. If the person has received medicine and already knows how much pulse rate should be lowered, then continue to take the drug even though the blood pressure has reached the goal. The point is that every patient must control and consult with a medical doctor.

As many experts have mentioned, hypertension is a persistent disease that cannot be reversed. However, it can be controlled with a religious approach. Thus, if a person's circulatory tension has reached its goal, it does not mean that he has recovered, but it has been overcome (Garcia-Tsao et al., 2017). If controlled, it is believed that heart disease, stroke, and kidney failure will reduce the risk. "Interestingly, if we can overcome the tension of blood circulation, the

risk of stroke and escape from a stroke will be reduced by 40 to 30%. The government's efforts to monitor hypertension locally improve welfare, early detection, and executive cases (Schiffirin et al., 2016).

Hypertension day

Through the commemoration of World Hypertension Day, which is celebrated every 17 May and with various global themes, World Hypertension Day 2021, everyone should be aware and understand their right to check blood pressure accurately to control their health and live longer. The theme of preventing and controlling hypertension properly for long, healthy life will undoubtedly make us all more aware and understanding (Al-Yahya et al., 2011). Likewise, every lecture to build public attention to prevent and control hypertension starts with family. The general public is encouraged to do a pulse check for free or at the health administration office once a month. Moreover, in the millennial era, netizens can be more aware through this site; residents can find pulse rate classes by contributing information on past blood circulation pressure. Not only that, but it also contains information and instructions related to the prevention and control of hypertension. The Bureau delivered this news of Communication and Community Service, Ministry of Health of the Republic of Indonesia. Likewise, the government can encourage women to be more aware of the fate of hypertension (Mahendradhata et al., 2017).

Hypertension and orderly

Circulatory tension is undoubtedly not an unusually difficult condition. Heart rate can be different after some time depending on various things, ranging from what activities are carried out, the food consumed, the hours of examination, to a person's age (Dhanachandra Singh et al., 2014). Under high and general heart rate conditions, systolic blood circulation tension will increase and exit until a person is 70 or 80 years old (Febrianti et al., 2019). At the same time, the diastolic squeeze variable will continue to increase until the age of 55 or 65 years. Even though the way continues to lengthen, the old beats are also faint. The goals behind hypertension in the more established are currently being examined. Regardless, experts admit that increasing age has the potential to cause narrowing of the pathway. This hardening reduces the flexibility of large blood vessels and the aorta, so hypertension in old age is likely to occur and continue to be dangerous for sufferers (Hu et al., 2020). The decreased versatility of the mind-boggling passageways and the aorta is related to changes in the plasma protein renin in the body. Subsequently, the body experiences fluid upkeep and cannot discard salt from the body fittingly. In the more seasoned, this condition can extend the occasion of hypertension (Visser, 2010).

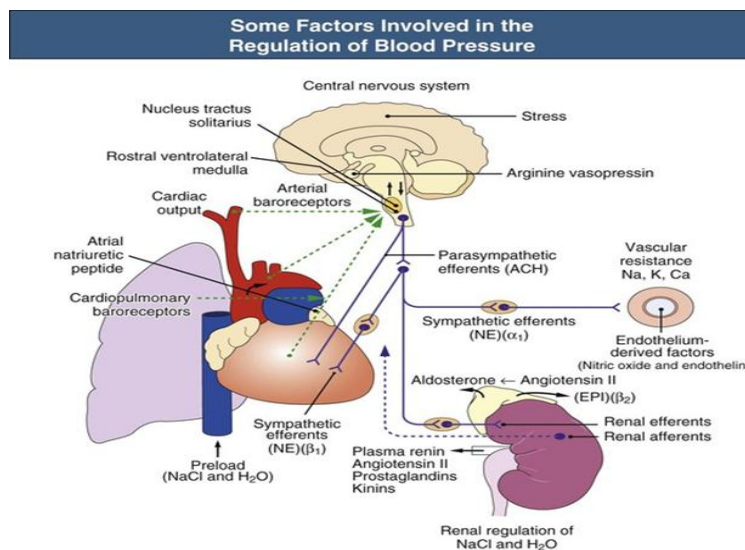


Figure 1. Factors in blood pressure
Source: Medika Gallery

Secluded systolic hypertension

In more depth, the understanding of systolic hypertension that is rarely heard is one type of hypertension that is also common in older people, especially women (Doehner et al., 2018). His systolic blood pressure rises to 140 mmHg or more in this condition, while his diastolic pulse rate is below 90 mmHg. Overt systolic hypertension can occur due to certain diseases, such as adrenal organs and overactive thyroid, failed aortic valves, kidney disease, or resting problems such as obstructive rest apnea (Byrd et al., 2020). In the elderly, this condition is mainly caused by hardening the plentiful supply of aorta around the heart. This stiffness in the aorta can occur because the flexibility of the blood vessels usually decreases with age. This condition can increase the risk of fat storage within the supply line barrier, causing narrowing or blockage of blood vessels or atherosclerosis. Atherosclerosis makes blood vessels thick and congested. When this happens, the diastolic blood pressure will generally fall, while the systolic pressure factor increases (Myers et al., 2009).

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Figure 2. Blood pressure reading
Source: Medika Gallery

Method

As people age, illnesses appear one by one. One of them is hypertension, which ranges from mild to severe and requires much attention and effort. This research aims to learn more about the difficulties of controlling hypertension in the elderly with a healthy lifestyle and medication (King et al., 2007). We looked at hundreds of articles published in international publications between 2010 and 2020 to obtain the most up-to-date information to address this issue. The phenomenological method is next examined, which involves a data coding system and in-depth analysis before making conclusions as typical results that are both valid and reliable. We used technology to look through a variety of internet publications for secondary data for our research. This study was designed qualitatively and followed other healthy paper writing reports (Marshall et al., 2013; Sgier, 2012).

Result and Discussion

Planning and budgeting

Overcoming the challenges of managing hypertension in the elderly with a healthy lifestyle and drug treatment is not easy (Nguyen et al., 2012; Loef & Walach, 2012). Management of hypertension in old age is normal contamination with age. Hypertension increases with age, affecting about 70% of older people. By 2030, it is estimated that 1 in 7 people in the world will be 65 years old. The controlled clinical basis of different non-serious treatments has shown that circulatory strain control reduces cardiovascular events in elderly patients, even those older than 70 years (Mitchell et al., 2010). Despite encouragement in clinical thinking, rates of hypertension control remain low, especially in more established individuals. Technology and science are getting easier so that strategies to treat hypertension in older people become easier. Things are unique about older people, and they require extra testing regularly. In this population, lifestyle changes are solid, but it is hard to stay alert. There are a variety of antihypertensive drugs available, with thiazide diuretics being the best-known first-line treatment. In this population, beta-blockers and alpha-blockers are generally not recommended. To achieve treatment goals, most people who are more experienced will need some antihypertensive medication. So it can be said that the struggles and challenges of managing hypertension require seriousness, especially at an older age (Oliva, 2019).

Understanding the methodology and challenges of hypertension management as applied to the treatment of hypertension in the elderly in Indonesia can help providers of ideas and dissemination of helpful content to identify better the growing need to address this condition in the elderly. The reason is that the number of people with hypertension in Indonesia is expected to increase drastically in the coming years. The implementation of high blood pressure management programs is an essential factor in extraordinary implementation efforts that need to be considered when caring for the elderly. Due to the prevalence of elderly individuals with well-managed hypertension, defined as an external blood pressure of 140/90 mm Hg, it is estimated to be only 30%. Discontinuous systolic hypertension - systolic 140 mm Hg; diastolic 90 mm Hg—more common in the elderly and may be due to increased vascular solidity due to arteriosclerosis or nitric oxide deficiency—vasodilation. The things that happen to the body if hypertension occurs in older people are severe migraines, dizziness, blurred vision, illness, ringing in the ears, unpredictable heartbeat, confusion, fatigue, chest pain, difficulty breathing, urinating blood, and pounding sensation on the chest, neck or ears (Chapman, 2015).

Hacihasanoglu & Gözüm, (2011), study on the effect of patient schooling and home observation of taking medication consistency, hypertension control, healthy lifestyle tendencies, and BMI in a crucial medical care climate was essential. A study group of 120 people was used in the Turkey-led exam (40 Group A, 40 Group B, 40 controls). All members were confirmed to have hypertension and took medication for at least one year before the start of exploration. Meetings A and B had six-month-to-month instruction meetings, facility visits, and two home visits several times. From the brief description above, we can understand that managing hypertension is closely related to weight loss, and a healthy lifestyle can help elderly hypertensive patients. This is following what was suggested by the World Health Organization (2018) with a review of a technical package for cardiovascular disease management in hospitals where this world body relates this to a healthy lifestyle provided through regular consultations (Riebe et al., 2003; Jakanovic et al., 2017).

Considerations for treatment

A Greek essayist, Ioannidis (2018), succeeded in analyzing and treating hypertension in the 2017 ACC/AHA proposal and became a practical guide for the American College of Cardiology/American Heart Association (ACC/AHA). They recently distributed, advocates a critical improvement in the treatment of hypertension. In the United States, the rate of individuals confirmed to have hypertension has increased from 32% to 46 percent. Through overhauled treatment for subsequent lower pulse rates until a circulatory strain, such as the presence of a cardiovascular infection (CVD), diabetes, or a 10-year risk of more than 10% of creating CVD, should be used for direct antihypertensive prescription use. It can be concluded that hypertensive patients can be treated through management with regular medication. This follows research Laxmaiah et al. (2015), with the study of determinants of socio-economic status & demographic position of hypertension, knowledge, practice, and risk behavior by ethnicity in India. To get an appropriate BP measurement, the ACC/AHA record also suggests beginning the assessment of an older patient with known or associated hypertension with three BP estimations, remembering to account for the standing posture (Gradman et al., 2010; Harrison et al., 2007). The patient should find out why the blood pressure is high. It is necessary to evaluate any organ damage. Other CVD risk factors or coexisting illnesses, as well as any possible treatment adherence obstacles, should be identified.

Putting together and heading

According to Faizal et al. (2016), the effect of Ambon banana consumption on reducing blood pressure in the elderly with hypertension in Samarinda. According to them, the spread of vascular hypertension continues to increase, basically due to the aging population, significantly the increase in the population aged over 80 years. The future for those 80 years and over living in the OECD meeting of countries is nine years in contrast and about six years during the 1970s. In France, 33% of the 80+ total population (1.25 of 3.80 million individuals) suffer a significant loss of independence and thus an extended need for highly durable assistance with daily life exercises. Loss of independence, residence in NH, or significant intellectual impairment are consistent prohibition measures (or lead to rejection) of clinical introductions considering the clinical importance of prescribing for persistent disease (Edition, 2013; Chiong et al., 2008).

Furthermore, according to Suiroaka (2012), degenerative diseases and the treatment of vascular hypertension, quite possibly the most widely recognized condition in more mature adults, are of particular concern for the treatment of this condition. There is evidence that the more established conditions are constant for the general population, and the endurance of cardiovascular treatment is not significantly different from that seen in RCTs.

Pharmacotherapy should be considered in more established patients who develop advanced or fatal infections, dementia, extreme delicacy or complete dependence, and those who are receiving dangerous drugs or mixtures thereof (Lake, 2012).

Observing and evaluation

Rajpura & Nayak (2014), medication adherence in the more established individual encounters with hypertension: looking at the effects of understanding disease, treatment perspective, and seriousness of the condition. Controlling hypertension is the basis for avoiding essential and optional cardiovascular infections. One possible explanation for the disillusionment of clinical preliminaries for moving into everyday practice is the powerlessness of adherence to antihypertensive drugs. This study looked at how infection knowledge, medication beliefs, and disease problems affect medication adherence in a more established group of people with hypertension. In more experienced hypertensive individuals, a better perspective on the disease and more complex disease problems lead to poorer medication adherence. A favorable view of treatment is also significant in influencing adherence behavior in hypertensive patients. The meaning of the patient's perspective on disease and prescribing must be understood in mediation and projects focused on expanding adherence. The same thing was also studied by Obreli-Neto et al. (2015), with a financial evaluation study of a pharmaceutical treatment program for people with diabetes and hypertension in the elderly in primary health care through a controlled clinical trial review for 36 months.

Evidence from Gholamnejad et al. (2019), that self-realization impacts self-care in older hypertensive patients. In the treatment of hypertension, more established individuals who know about their latent capacities and work in disease control and people who rely on otherworldly forces have good results. Healthcare specialists should pay attention to approaches to support and advance instruction on the importance and benefits of senior self-care. In line with the above, the study of Agudelo et al. (2019), regarding safe-based observational examinations in two Cuban cities assessed the treatment and control of hypertension. In the Cuban cities of Cardenas and Santiago, most patients received pharmacological treatment, with 49% receiving a mixture of at least two drug classes. Controlled hypertension was found in 58% of people with differentiated hypertension (95% certainty range from 55 to 61). Controlling hypertension varies by health district and is associated with post-essential instruction, non-obesity, and white nationality (Miranda et al., 2016).

Conclusion

This section will conclude from a series of studies that aim to discuss the challenges of managing hypertension in the elderly with a healthy lifestyle and regular medication through a review of dozens of secondary data from health journals. We believe this study has answered the problem where we describe how to understand hypertension in the elderly. Some challenges often suffer from hypertension, where 80 percent of victims die without knowing and understanding that they are suffering from hypertension. To answer this, we have described the steps of good planning and finance in treating hypertension. The next step is the implementation process, where the patient must carefully take care of themselves and often evaluate and check and assess so that the intended management is following health standards (Rantanen et al., 2017).

Acknowledgments

We authors received support and feedback from academics and colleagues working on similar tasks in conducted research. Similarly, we thank the Minister of education and culture, who has supported this study with financial support.

References

- Agudelo, E. L., Salvá, A. R., Piñera, A. D., Roche, R. G., De Vos, P., Battaglioli, T., & Van der Stuyft, P. (2019). Assessment of hypertension management and control: a registry-based observational study in two municipalities in Cuba. *BMC cardiovascular disorders*, 19(1), 1-10.
- Agusnanto, M. (2013). *Faktor–Faktor Yang Berhubungan Dengan Hipertensi di Rumah Sakit Umum Daerah Cut Nyak Dhien Meulaboh Kabupaten Aceh Barat Tahun m2013* (Doctoral dissertation, Universitas Teuku Umar Meulaboh).
- Al-oqla, F. M., Sapuan, S. M., Ishak, M. R., & Nuraini, A. A. (2015). Decision making model for optimal reinforcement condition of natural fiber composites. *Fibers and Polymers*, 16(1), 153-163.

- Al-Yahya, E., Dawes, H., Smith, L., Dennis, A., Howells, K., & Cockburn, J. (2011). Cognitive motor interference while walking: a systematic review and meta-analysis. *Neuroscience & Biobehavioral Reviews*, 35(3), 715-728. <https://doi.org/10.1016/j.neubiorev.2010.08.008>
- Astuti, T. S. R., & Soewondo, P. (2019). Analisis Kesiapan Pembiayaan Hipertensi, Diabetes Melitus dan Gangguan Jiwa dalam Mendukung Program Indonesia Sehat dengan Pendekatan Keluarga (PIS PK) Tahun 2018-2020. *Jurnal Ekonomi Kesehatan Indonesia*, 3(1).
- Babatsikou, F., & Zavitsanou, A. (2010). Epidemiology of hypertension in the elderly. *Health Science Journal*, 4(1), 24.
- Byrd, J. B., Bisognano, J. D., & Brook, R. D. (2020). Approach to Secondary Hypertension. In *Practical Cardiology* (pp. 135-147). Springer, Cham.
- Chapman, S. (2015). Symptoms, diseases and aberrant behaviours attributed to wind turbine exposure.
- Chiong, J. R., Aronow, W. S., Khan, I. A., Nair, C. K., Vijayaraghavan, K., Dart, R. A., ... & Geraci, S. A. (2008). Secondary hypertension: current diagnosis and treatment. *International journal of cardiology*, 124(1), 6-21. <https://doi.org/10.1016/j.ijcard.2007.01.119>
- Dhanachandra Singh, K., Jajodia, A., Kaur, H., Kukreti, R., & Karthikeyan, M. (2014). Gender specific association of RAS gene polymorphism with essential hypertension: a case-control study. *BioMed research international*, 2014.
- Doehner, W., Ural, D., Haeusler, K. G., Čelutkienė, J., Bestetti, R., Cavusoglu, Y., ... & Ruschitzka, F. (2018). Heart and brain interaction in patients with heart failure: overview and proposal for a taxonomy. A position paper from the Study Group on Heart and Brain Interaction of the Heart Failure Association. *European journal of heart failure*, 20(2), 199-215.
- Edition, F. (2013). Diagnostic and statistical manual of mental disorders. *Am Psychiatric Assoc*, 21.
- Faizal, B., Herlina, N., & Muflihatin, S. K. (2016). Pengaruh Konsumsi Buah Pisang Ambon (*Musa Paradisiaca* Var. *Sapientum* Linn) terhadap Penurunan Tekanan Darah pada Lansia Penderita Hipertensi di Wilayah Kerja PUSKESMAS Sidomulyo Samarinda.
- Febrianti, E., Asrori, A., & Nurhayati, N. (2019). Hubungan Antara Peningkatan Kadar Asam Urat Darah Dengan Kejadian Hipertensi Di Rumah Sakit Bhayangkara Palembang Tahun 2018. *Jurnal Analisis Kesehatan*, 8(1), 17-21.
- Flack, J. M., & Adekola, B. (2020). Blood pressure and the new ACC/AHA hypertension guidelines. *Trends in cardiovascular medicine*, 30(3), 160-164. <https://doi.org/10.1016/j.tcm.2019.05.003>
- Garcia-Tsao, G., Abraldes, J. G., Berzigotti, A., & Bosch, J. (2017). Portal hypertensive bleeding in cirrhosis: Risk stratification, diagnosis, and management: 2016 practice guidance by the American Association for the study of liver diseases. *Hepatology*, 65(1), 310-335.
- Gholamnejad, H., Darvishpoor-Kakhki, A., Ahmadi, F., & Rohani, C. (2019). Self-actualization: Self-care outcomes among elderly patients with hypertension. *Iranian journal of nursing and midwifery research*, 24(3), 206.
- Gilbert, M. B. (2021). *Surviving Adolescence: Helping Teens Endure the Roller-Coaster Ride*. Rowman & Littlefield Publishers.
- Gradman, A. H., Basile, J. N., Carter, B. L., Bakris, G. L., & American Society of Hypertension Writing Group. (2010). Combination therapy in hypertension. *Journal of the American Society of Hypertension*, 4(2), 90-98. <https://doi.org/10.1016/j.jash.2010.03.001>
- Hacihasanoglu, R., & Gözümlü, S. (2011). The effect of patient education and home monitoring on medication compliance, hypertension management, healthy lifestyle behaviours and BMI in a primary health care setting. *Journal of clinical nursing*, 20(5-6), 692-705.
- Harrison, D. G., Gongora, M. C., Guzik, T. J., & Widder, J. (2007). Oxidative stress and hypertension. *Journal of the American Society of Hypertension*, 1(1), 30-44. <https://doi.org/10.1016/j.jash.2006.11.006>
- Hu, H., Cheng, J., Lin, S., Wang, S., & Chen, X. (2020). Calcified Aortic Valve Disease in Patients With Familial Hypercholesterolemia. *Journal of Cardiovascular Pharmacology*, 76(5), 506-513.
- Ibrahim, M. M., & Damasceno, A. (2012). Hypertension in developing countries. *The Lancet*, 380(9841), 611-619. [https://doi.org/10.1016/S0140-6736\(12\)60861-7](https://doi.org/10.1016/S0140-6736(12)60861-7)
- Ioannidis, J. P. (2018). The proposal to lower P value thresholds to .005. *Jama*, 319(14), 1429-1430.
- Jokanovic, N., Wang, K. N., Dooley, M. J., Lalic, S., Tan, E. C., Kirkpatrick, C. M., & Bell, J. S. (2017). Prioritizing interventions to manage polypharmacy in Australian aged care facilities. *Research in Social and Administrative Pharmacy*, 13(3), 564-574. <https://doi.org/10.1016/j.sapharm.2016.06.003>
- King, D. E., Mainous III, A. G., & Geesey, M. E. (2007). Turning back the clock: adopting a healthy lifestyle in middle age. *The American journal of medicine*, 120(7), 598-603. <https://doi.org/10.1016/j.amjmed.2006.09.020>

- Lake, C. R. (2012). *Schizophrenia is a Misdiagnosis: Implications for the DSM-5 and the ICD-11*. Springer Science & Business Media.
- Latifin, K., Purwanto, S., & Wahyuni, D. (2020). Aplikasi Keperawatan Komplementer “Cupping” Dalam Mengontrol Hipertensi di Masa Pandemi COVID-19. *Applicable Innovation of Engineering and Science Research (AVoER)*, 374-377.
- Laxmaiah, A., Meshram, I. I., Arlappa, N., Balakrishna, N., Rao, K. M., Reddy, C. G., ... & Brahmam, G. N. V. (2015). Socio-economic & demographic determinants of hypertension & knowledge, practices & risk behaviour of tribals in India. *The Indian journal of medical research*, 141(5), 697.
- Loef, M., & Walach, H. (2012). The combined effects of healthy lifestyle behaviors on all cause mortality: a systematic review and meta-analysis. *Preventive medicine*, 55(3), 163-170. <https://doi.org/10.1016/j.ypmed.2012.06.017>
- Mahendradhata, Y., Trisnantoro, L., Listyadewi, S., Soewondo, P., Marthias, T., Harimurti, P., & Prawira, J. (2017). The Republic of Indonesia health system review.
- Maitland, M. L., Bakris, G. L., Black, H. R., Chen, H. X., Durand, J. B., Elliott, W. J., ... & Cardiovascular Toxicities Panel, Convened by the Angiogenesis Task Force of the National Cancer Institute Investigational Drug Steering Committee. (2010). Initial assessment, surveillance, and management of blood pressure in patients receiving vascular endothelial growth factor signaling pathway inhibitors. *Journal of the National Cancer Institute*, 102(9), 596-604.
- Marshall, B., Cardon, P., Poddar, A., & Fontenot, R. (2013). Does sample size matter in qualitative research?: A review of qualitative interviews in IS research. *Journal of computer information systems*, 54(1), 11-22.
- Miranda, A. M., Steluti, J., Fisberg, R. M., & Marchioni, D. M. (2016). Association between polyphenol intake and hypertension in adults and older adults: A population-based study in Brazil. *PloS one*, 11(10), e0165791.
- Mitchell, G. F., Hwang, S. J., Vasani, R. S., Larson, M. G., Pencina, M. J., Hamburg, N. M., ... & Benjamin, E. J. (2010). Arterial stiffness and cardiovascular events: the Framingham Heart Study. *Circulation*, 121(4), 505-511.
- Myers, T. J., Bolmers, M., Gregoric, I. D., Kar, B., & Frazier, O. H. (2009). Assessment of arterial blood pressure during support with an axial flow left ventricular assist device. *The Journal of heart and lung transplantation*, 28(5), 423-427. <https://doi.org/10.1016/j.healun.2009.01.013>
- Nguyen, C. T., Wagenführ, A., Dai, V. H., Bremer, M., & Fischer, S. (2012). The effects of thermal modification on the properties of two Vietnamese bamboo species, Part I: effects on physical properties. *BioResources*, 7(4), 5355-5366.
- Obreli-Neto, P. R., Marusic, S., Guidoni, C. M., Baldoni, A. D. O., Renovato, R. D., Pilger, D., ... & Pereira, L. R. L. (2015). Economic evaluation of a pharmaceutical care program for elderly diabetic and hypertensive patients in primary health care: a 36-month randomized controlled clinical trial. *Journal of managed care & specialty pharmacy*, 21(1), 66-75.
- Oliva, R. V. (2019). A review on the status of hypertension in six Southeast Asian Countries. *Hypertension*, 5(2).
- Pedersen, M. W., Ruter, A., Schweger, C., Friebe, H., Staff, R. A., Kjeldsen, K. K., ... & Willerslev, E. (2016). Postglacial viability and colonization in North America's ice-free corridor. *Nature*, 537(7618), 45-49.
- Perez, V., & Chang, E. T. (2014). Sodium-to-potassium ratio and blood pressure, hypertension, and related factors. *Advances in nutrition*, 5(6), 712-741.
- Pinto, F., Suwiyoga, I. K., Widiyana, I. G. R., & Yasa, I. W. P. S. (2017). Health behavior and status related to mother's death in Timor-Leste. *International Research Journal of Engineering, IT and Scientific Research*, 3(4), 57-65.
- Prabantini, D. (2010). *A to Z makanan pendamping ASI*. Penerbit Andi.
- Rajpura, J., & Nayak, R. (2014). Medication adherence in a sample of elderly suffering from hypertension: evaluating the influence of illness perceptions, treatment beliefs, and illness burden. *Journal of Managed Care Pharmacy*, 20(1), 58-65.
- Rantanen, P., Parkkari, T., Leikola, S., Airaksinen, M., & Lyles, A. (2017). An in-home advanced robotic system to manage elderly home-care patients' medications: A pilot safety and usability study. *Clinical therapeutics*, 39(5), 1054-1061. <https://doi.org/10.1016/j.clinthera.2017.03.020>
- Riebe, D., Greene, G. W., Ruggiero, L., Stillwell, K. M., Blissmer, B., Nigg, C. R., & Caldwell, M. (2003). Evaluation of a healthy-lifestyle approach to weight management. *Preventive medicine*, 36(1), 45-54. <https://doi.org/10.1006/pmed.2002.1126>
- Savitri, D. (2017). *Diam-diam mematikan, cegah asam urat dan hipertensi*. Anak Hebat Indonesia.
- Scharf, E. L., Graff-Radford, J., Przybelski, S. A., Lesnick, T. G., Mielke, M. M., Knopman, D. S., ... & Vemuri, P. (2019). Cardiometabolic health and longitudinal progression of white matter Hyperintensity: The Mayo Clinic Study of aging. *Stroke*, 50(11), 3037-3044.

- Schiffrin, E. L., Campbell, N. R., Feldman, R. D., Kaczorowski, J., Lewanczuk, R., Padwal, R., & Tobe, S. W. (2016). Hypertension in Canada: past, present, and future. *Annals of global health*, 82(2), 288-299. <https://doi.org/10.1016/j.aogh.2016.02.006>
- Sgier, L. (2012). Qualitative data analysis. *An Initiat. Gebert Ruf Stift*, 19, 19-21.
- Sofiana, L., Puratmadja, Y., Sari, B. S. K., Pangulu, A. H. R., & Putri, I. H. (2018). Pengetahuan Tentang Hipertensi Melalui Metode Penyuluhan. *Jurnal Pemberdayaan: Publikasi Hasil Pengabdian Kepada Masyarakat*, 2(1), 171-176.
- Suiraoaka, I. P. (2012). Penyakit degeneratif. *Yogyakarta: Nuha Medika*, 45-51.
- Tiara, U. I. (2020). Hubungan Obesitas Dengan Kejadian Hipertensi. *Journal of Health Science and Physiotherapy*, 2(2), 167-171.
- Visser, M. (2010). *Since Eve Ate Apples Much Depends on Dinner: The Extraordinary History and Mythology, Allure and Obsessions, Perils and Taboos of an Ordinary Mea*. Open Road+ Grove/Atlantic.
- Yen, T. S. (2020). *Nasehat buat Sehat (Cover Baru ISBN LAMA)*. Gramedia Pustaka Utama.