

**LIFESTYLE IN CONTROLLING HYPERTENSION AND ITS ASSOCIATED FACTORS**

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**ABSTRACT**

Hypertension is a silent killer that can result in stroke, kidney failure, heart failure, chronic disability, and death. An unhealthy lifestyle becomes a significant risk factor for hypertension. Lifestyle modifications such as salt limitation, stop smoking, decreased alcohol intake, stress management, and weight control are crucial in controlling hypertension. The Study aims to determine the lifestyle of hypertensive patients in managing hypertension and the factors related to it. A cross-sectional study was conducted. Purposive sampling yielded a sample of 30 persons. Patients having a history of hypertension, using hypertension medication, and aged 30-45 years were eligible. An online questionnaire that had passed validity and reliability tests was used to collect data. Univariate and bivariate analyses are used. The study findings revealed that 43.3% of respondents have a bad lifestyle and 56.7% have a healthy lifestyle when it comes to regulating hypertension. The majority of respondents were female (63.3%), worked (96.7%), married (83.3%), had a moderate education (70%), less than 43 years old (60%), had normal body weight (60%), had hypertension for less than 5 years (90%), and had uncontrolled blood pressure (66.7%). Furthermore, education level and body weight were found to be associated with lifestyle in controlling hypertension, although gender, age, working status, marital status, duration of hypertension, and blood pressure were not. Lifestyle modifications can be emphasized in hypertension control programs by raising hypertensive patients' awareness.

**Keywords:** Lifestyle, Hypertension, Risk Factors

**INTRODUCTION**

Hypertension is the most common cause of death worldwide, affecting more than a billion people. It accounts for roughly 50% of all coronary artery disease and stroke-related mortality worldwide (World Heart Federation, 2023). World Health Organization, (2023) reported Around 1.28 billion people

aged 30-79 years old worldwide have hypertension, with two-thirds living in low- and middle-income countries, and 46% unaware of their condition. Furthermore, only 42% of adults with hypertension have been diagnosed and managed (World Health Organization (WHO), 2023). People with hypertension in Asia

reported poor adherence to hypertension medication (Kang et al., 2020). The American Heart Association (AHA) defines hypertension stage one as systolic blood pressure consistently ranging from 130 to 139 mmHg or diastolic 80 to 89 mmHg (American Heart Association, 2023). Hypertension is a silent killer that can result in stroke, kidney failure, heart failure, chronic disability, and death (World Heart Federation, 2023). People with high blood pressure are more likely to have additional risk factors for cardiovascular disease, such as; smoking, dyslipidemia, and diabetes) and damage to target organs (Blacher et al., 2016).

In Indonesia, there were 63,309,620 cases of hypertension and 427,218 deaths attributed to hypertension; the prevalence of hypertension in people under the age of 18 increased from 25.8% in 2013 to 34.1% in 2018, and age groups 31-44 years (31.6%), 45-54 years (45.3%), and 55-64 years (55.2%) all had hypertension (P2PTM Kemenkes RI, 2019). Based on Basic Health Research of the Republic of Indonesia (Riskesdas) 2018, the prevalence of hypertension in Banten Province is 29.47% (Litbangkes, 2019). Tangerang Regency is one of the regencies with the highest number of hypertension cases in 2019 with a total of 622,060 cases (Banten Health Office, 2020). In 2019, hypertensive patients visited the Binong Health Center 6,227 times out of 11,290 times (55.15%) (Banten Health Office, 2020). According to a preliminary survey conducted in the Binong Health Center area in 2019, there are 6,806 (51.04%) people in Binong Subdistrict who suffer from hypertension. Furthermore, five of the fourteen people whose blood pressure was monitored had excessive blood pressure. It was also

discovered that at least one person in each family smokes, and interests such as sports are rarely done due to a lack of time and being overburdened at work. All households consume salted fish, fried tempeh and tofu, chips, fried meals, and instant noodles regularly.

Despite of hypertension is simple to identify and treat with low-cost medicines, more studies found considerable gaps in diagnosis and treatment. There are about 580 million people with hypertension (41% of women and 51% of men) who are ignorant of their illness because they were never diagnosed (Zhou et al., 2021). Lifestyle changes like eating a healthier diet, stopping smoking, and being more active are crucial to lower blood pressure, although some people may still need to take medicines (World Health Organization (WHO), 2023). Health issues, lifestyle, and family history are all risk factors for high blood pressure, with age and family history being some of the unavoidable risk factors (Centers for Disease Control & Prevention (CDC), 2023).

The author wants to find out what factors are associated with the lifestyle of hypertensive patients in controlling hypertension. This study aims to determine the lifestyle of hypertensive patients in controlling Hypertension and the factors related to it.

## LITERATURE REVIEW

Ristiani et al. (2023) discovered that respondents' compliance with hypertension treatment was still low. Age, education, duration of hypertension, and family support all have an impact on hypertension treatment adherence, meanwhile, gender does not affect hypertension treatment (Ristiani et al., 2023). According to the study findings, family history,

ethnicity, and age are among the factors that cannot be changed and impact the prevalence of hypertension in the elderly, while several other variables can be changed to lower the prevalence of hypertension in the elderly: obesity, stress, physical activity, and dietary habits (Rumahorbo et al., 2020). Those who had received an education have been found to have used their literacy skills to get health information or to assist themselves in maintaining their medications (Tan et al., 2019). The study by Eka et al. (2022) discovered that stress is associated with hypertension in middle-aged and elderly Binong residents (Eka et al., 2022).

The global emphasize for non-communicable diseases is to reduce the prevalence of hypertension by 33% from 2010 to 2030 (World Health Organization (WHO), 2023). Based on the background and the phenomena that occur, the authors conducted a study to determine the lifestyle of hypertensive patients in controlling hypertension and the factors related to it, in the target area of the Binong Health Centre.

The study findings are expected to be an input for hypertensive patients in controlling hypertension risk factors related to lifestyle and become an insight for community Health centre in optimizing health promotion programs and health behavior in controlling hypertension.

## RESEARCH METHODOLOGY

This study was carried out in one of the villages served by the Binong Health Center between May and June 2020. The descriptive correlational with cross-sectional approach was used in this study. This study's population included up to 51 people with hypertension. Purposive sampling was used to select 30

respondents who met the criteria of having (history of) hypertension, using hypertension medication, and aged between 30-45 years. There are some challenges in collecting the data from the respondents such as the limitation of information about personal phone numbers owned by public health centers because this study was carried out at the beginning of Covid 19 pandemic. The study in 2010 showed that with  $n=20$ , the Central Limit Theorem (CLT) works well for all levels of skewness (Nixon et al., 2010).

Ethical approval was obtained from the ethics committee of the nursing faculty with No. 027/KEP-FON/III/2020/rev1. The study was carried out by ethical principles such as autonomy, confidentiality, beneficence, and non-maleficence. Data collection used an online questionnaire that had passed validity and reliability tests, with Cronbach's Alpha 0.756-0.867. There are eight questions about the respondents' characteristics. Meanwhile, the questionnaire for the lifestyle in controlling hypertension consists of 21 questions, including exercise habits, salt consumption, smoking, alcohol consumption, stress management, and weight control. Univariate and bivariate analyses are used. Chi-square is used for bivariate analysis.

## RESULT

This study's findings are presented in the table below (Table 1-3). Table 1 contains the respondent's characteristics. More than half of the respondents (63.3%) were female, 60% of them were under 43 years old, 83% were married, 96% of them were employed, and 70% in a moderate level of education. Additionally, 60% of respondents had normal body weight, 90% of respondents had

long-term hypertension (> 5 years), and 66.7% of respondents had uncontrolled blood pressure.

**Table 1. Characteristics of Respondents with Hypertension in Binong Health Center Area (n=30)**

Characteristics	Frequency (n)	Percentage (%)
<b>Gender</b>		
Man	11	36.7
Woman	19	63.3
<b>Aged</b>		
≤ 43 years old	18	60
> 43 years old	12	40
<b>Occupation</b>		
Employed	29	96.7
Unemployed	1	3.3
<b>Education Level</b>		
Low (primary)	3	10.0
Moderate (junior and high school)	21	70.0
High (university)	6	20.0
<b>Marital status</b>		
Married	25	83.3
Widow/widower	2	6.7
Single	6	10.0
<b>Blood pressure</b>		
Controlled (BP (<130/80 mmHg))	10	33.3
Uncontrolled (≥130/80 mmHg)	20	66.7
<b>Long-term hypertension</b>		
< 5 years	27	90.0
≥ 5 years	3	10.0
<b>Body Mass Index</b>		
Obese	4	13.3
Overweight	8	26.7
Normal	18	60.0

**Table 2. Respondent Lifestyle in Controlling Hypertension (n=30)**

Category	Frequency (n)	Percentage (%)
Bad	13	43.3
Good	17	56.7

Table 2 showed that 56.7% of those in this study had healthy lifestyles that helped them control their blood pressure. This lifestyle is based on the habit of exercise, salt and alcohol consumption, smoking status, and stress management.

Table 3 displays the correlation between a person's lifestyle and the associated factors. There was a correlation between education level and lifestyle in managing hypertension with a p-value of 0.028. Furthermore, there

was also a correlation between BMI and lifestyle in managing hypertension ( $p = 0.028$ ). Meanwhile, there was no correlation between gender, occupation,

marital status, age, long-term hypertension, and hypertension status with lifestyle in managing hypertension.

**Table 3. Analysis Correlation of Lifestyle in Controlling Hypertension and Its Associated Factor (n=30)**

Characteristics	Lifestyle in Controlling Hypertension				p-value
	Bad		Good		
	N	%	N	%	
<b>Gender</b>					
Male	4	13.33	7	23.33	0.708
Female	9	30	10	33.33	
<b>Occupation</b>					
Unemployed	1	3.33	0	0	0.433
Employed	12	40	17	56.66	
<b>Marital status</b>					
Married	10	33.33	15	50	0.665
Widowed	1	3.33	1	3.33	
Single	2	6.66	1	3.33	
<b>Education</b>					
Low (primary)	3	10	0	0	0.028
Moderate (junior and high school)	6	20	15	50	
High (university)	4	13.33	2	6.66	
<b>Age</b>					
≤ 43 years old	9	30	9	30	0.599
> 43 years old	4	13.33	8	26.66	
<b>Long-term hypertension</b>					
< 5 years	11	36.66	16	53.33	0.565
≥ 5 years	2	6.66	1	3.33	
<b>Hypertension Status</b>					
Controlled (BP (<130/80 mmHg))	5	16.66	5	50	0.750
Uncontrolled (≥130/80 mmHg)	8	26.66	12	40	
<b>Body mass index (BMI)</b>					
Obese	4	13.33	0	0	0.028
Overweight	4	13.33	4	13.33	
Normal	5	16	13	43.33	

## DISCUSSION

Hypertension, together with pre-hypertension and other dangerously high blood pressure levels, is responsible for 85 million deaths worldwide from ischaemic heart disease, stroke, renal disease, and other vascular diseases (Zhou et al., 2021). More than half of respondents have a good lifestyle in

controlling hypertension, this can be attributed to respondents' characteristics such as the level of education, employed status, long-term hypertension, and BMI status of respondents. Study findings show that the higher the respondent's education level, the better the lifestyle in controlling hypertension.

According to the study by Tan et al., (2019), those who had received an education have been found to have used their literacy skills to get health information or to assist themselves in maintaining their medications. People with a higher level of education are more open-minded, have more material and psychosocial resources, and have better health literacy (Ristiani et al., 2023).

According to the study, respondents who do not work and who have suffered hypertension for more than five years, have a bad lifestyle in controlling hypertension. According to a study by Kämpfen & Maurer (2016), retirement was related to decreased levels of general physical activity, particularly among those who retired from physically demanding employment (Kämpfen & Maurer, 2016). So, working status can encourage more physical activity than not working. Furthermore, those who do not work have a higher rate of mental health problems than those who do (Pieh et al., 2020). In addition, when patients first become diagnosed with hypertension, they express being scared, frightened, puzzled, depressed, and/or agitated, and they go through an emotional journey that ranges from initial shock to final acceptance (Rahman et al., 2015). Furthermore, the longer a person has hypertension, the lower the level of compliance, because the more tired they are of treatment, the more they disregard procedures, and the cure rate is lower than expected; in some cases, hypertensive patients have other coexisting medical conditions (Listiana et al., 2020; Ristiani et al., 2023). It underlies someone who has not had hypertension for a long time is still eager to carry out control, treatment, and lifestyle modifications in controlling hypertension.

In addition, respondents with normal BMIs tend to have a good lifestyle in controlling hypertension. Because a normal BMI is often maintained by a healthy diet and adequate physical activity. A study by Valenzuela et al. (2020) revealed that decreasing body weight to a normal level in people who are overweight or obese, as well as limiting sodium intake, can help lower blood pressure (Valenzuela et al., 2020). The most common reasons given by those with hypertension for changing or maintaining their lifestyle were avoiding illness progression, feeling in control, avoiding huge medical expenses in future years for complications management, and the pleasant effects of being active (Tan et al., 2019). Factors that encourage patients to continue treating their hypertension include the desire to avoid future health problems caused by hypertension, the desire to avoid increasing the amount of medicine, and the belief that this illness has only a little impact on their daily activities (Rahman et al., 2015). Mental health promotes healthy behaviour in hypertension management (Pieh et al., 2020).

Modifications of healthy lifestyles are critical for the prevention and management in controlling high blood pressure. Lifestyle intervention remains a cornerstone for the management of hypertension independently of the medical treatment received (Valenzuela et al., 2020). The proper management of blood pressure is influenced by several lifestyle choices, such as engaging in regular exercise, maintaining a healthy weight, and following a healthy diet, as well as other factors that may have an impact, like preventing psychological stress and circadian stimulation (Valenzuela et al., 2020). A study by Menanga et al.,

(2016) discovered that eating habits and lifestyle changes along with good anti-hypertensive medication adherence are both independently related to controlled hypertension. Even when used in conjunction with a drug regimen containing three or more medications (as in the case of people with tolerant hypertension), exercise may significantly decrease blood pressure (Valenzuela et al., 2020). According to Cosimo Marcello et al., (2018), evidence lifestyle adjustments can help prevent and treat hypertension, with a focus on sodium intake, alcohol, smoking cessation, diet pattern, and degree of physical activity.

Since social factors like education affect access to a wide range of material and immaterial resources like income, safe neighbourhoods, or healthier lifestyles, all of which protect or improve health, social factors like education are the root causes of both good and bad health (Lawrence et al., 2018). The key components of both individual and societal well-being are education and health. The primary factor in the failure to control hypertension has been determined to be poor adherence. It is now vitally important for health programs to educate people about the significance of taking continuous antihypertensive medication (Khanam et al., 2014). The key to successful management is education for patients, which should always include thorough instructions regarding salt limitations, controlling weight, quitting smoking, sufficient management of sleep apnea, and physical activity. Patients are required to be reminded and informed at every appointment that these changes must be maintained permanently to treat their diseases effectively (Iqbal & Jamal, 2023).

The most common recommendation for treating the growing issue of obesity-related hypertension is to make lifestyle changes that encourage weight loss (Rahmouni, 2014). Activation of the renin-angiotensin-aldosterone system, stimulus of the sympathetic nervous system, abnormal levels of some adipokines, like leptin, or cytokines acting at the blood vessels endothelial level are just a few potential pathogenic processes that may contribute to the onset of elevated blood pressure in obese individuals (Vaněčková et al., 2014). In obese people, insulin resistance, vascular changes, and stimulation of the renin-angiotensin-aldosterone system have all been proposed as pathogenic processes that may contribute to the onset of hypertension (Rahmouni, 2014). While excessive weight loss alone is sufficient for avoiding and managing high blood pressure, additional effective preventive measures, such as a relative decrease in risky substances like cigarettes and alcohol, consumption of salt, and lack of exercise, should also be taken into account (Poorolajal et al., 2017).

The study showed that losing weight can significantly lower the incidence rate of hypertension. As a result, excessive weight loss is a crucial strategy for managing hypertension and will be enough to reach the overall goal of a relative decrease in the incidence of high blood pressure. Recommendation from AHA suggests Consume more fruits and vegetables and whole grains, reduce sodium intake to less than 2,400 mg per day, and exercise at least 3 to 4 times weekly for an average of forty minutes each session (Go et al., 2015; Van Horn et al., 2016). Zhou et al., (2021) explained the adoption of the Dietary Approaches to Stop

Hypertension (DASH) eating plan, which is rich in potassium and calcium, dietary sodium reduction, physical activity, and moderation of alcohol consumption. Salt intake has a potential impact on the development of hypertension. Combinations of two (or more) lifestyle modifications can achieve even better results (Zhou et al., 2021). According to Poorolajal et al., (2017), a modest decrease in salt intake (4.4 g/day) for a minimum of four weeks will result in significant drops in blood pressure of 4.18 mm Hg for the systolic blood pressure and 2.06 mm Hg for diastole blood pressure. The results of the study show that losing weight can significantly lower the incidence rate of hypertension. As a result, excessive weight loss is a crucial strategy for managing hypertension and will be enough to reach the overall goal of a 25% relative decrease in the incidence of high blood pressure. When preparing for the avoidance and management of hypertension, other recognized risk factors for the condition should be taken into account (Poorolajal et al., 2017).

The family plays an important role in controlling hypertension, not only in shaping a good lifestyle in preventing hypertension but also in supporting family members who suffer from hypertension. A study conducted by (Nainggolan et al., 2021) discovered an association between family knowledge and behavior in hypertension control. According to the evidence, a family-centered intervention based on high-protein, low-glycaemic diets can lead to an 11 kg weight loss that is nearly maintained for six months (Nainggolan et al., 2021). Additionally, it is advised that obese hypertensive patients combine calorie restriction with exercise to control blood pressure levels

(Poorolajal et al., 2017). By constantly monitoring blood pressure, managing weight, exercising frequently, managing diet, controlling stress, and maximizing the operation of Posbindu (a service post of the Community Health Centre for the Elderly), health professionals who work with families and older people may be able to avoid hypertension (Rumahorbo et al., 2020).

## CONCLUSION

This study found the lifestyle that control hypertension in the community of Binong are education and BMI. The higher education level makes the better lifestyle in controlling hypertension. Education plays important things related to the access to a wide range of material and immaterial resources like income, safe neighbourhoods, or healthier lifestyles, all of which protect or improve health. The normal BMI tend to have a good lifestyle in controlling hypertension, but additional effective preventive measures, such as a relative decrease in risky substances like cigarettes and alcohol, consumption of salt, and lack of exercise, should also be considered in controlling blood pressure.

## SUGGESTION

Combinations of at least two lifestyle modifications can achieve even better results in controlling hypertension. In addition, the role of the family can be optimized in shaping a good lifestyle to prevent hypertension and support family members who suffer from hypertension.



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