
ANALYSIS OF FACTORS INFLUENCING TO THE INCIDENCE OF HYPERTENSION IN PATIENTS OF HOSPITALIZED IN HOSPITAL NACIONAL GUIDO VALADARES (HNGV), TIMOR LESTE

Joaquim Pinto¹, Hermina dos Santos², Ana do Rosario de Jesus Leite³, Acacio de Jesus⁴, Gregorio Belo⁵, Miguel Soares⁶

Faculty of Medicine and Health Sciences, National University of Timor Loro Sa'e

pintotio123@gmail.com¹, aqaino@gmail.com²

Received: 16-12-2022

Accepted: 18-12-2022

Published: 22-12-2022

ABSTRACT

Introduction: Hypertension is a cardiovascular disease that cannot be diagnosed until blood pressure is set to suppress 140/90 mmHg. Hypertension accounts for 7.5 million deaths and 12.8% of deaths worldwide. According to HNGV (2015), inpatients at HNGV were 229 aged 15-45. Compared to 2016, hypertension is the highest, and this disease can affect children aged 1-45 years, productive age with a total of 963 people. In 2017, it was reported that 283 people with hypertension were hospitalized at the age of 5-45 years. This study aimed to determine the influence of smoking behavior factors on the incidence of hypertension, the influence of alcohol consumption factors on the incidence of hypertension, and the effect of stress factors on hypertension.

Methods: The research design used is quantitative analytic with a cross-sectional approach. The population in this study were hypertensive patients hospitalized at HNGV, internally male and female, with a total of 32 populations. The sample used was a non-probability sampling technique with a purposive sampling technique. The research instrument uses validity and reliability tests. **Result:** Based on research conducted on male and female HNGV internal customers, smoking behavior factors positively affect the incidence of hypertension. This is indicated by a significance test value of 0.041, which is less than 0.05, the alcohol consumption factor also has a positive effect on the incidence of hypertension with a significance test value of 0.022, which is less than 0.05, and the stress factor also has a positive effect. Effect on the incidence of hypertension with a significance test value of 0.041, which is smaller than 0.05. **Conclusion:** There is an influence between smoking behavior, alcohol consumption and stress on the incidence of hypertension in internal and internal HNGV women.

Keyword: Hypertension, Factor, Incidence, In-Patient.

Corresponding Author: Joaquim Pinto

E-mail: pintotio123@gmail.com



INTRODUCTION

According to the World Health Organization (WHO, 2016), hypertension is a cardiovascular disease that cannot be diagnosed when systolic/diastolic blood pressure reaches 140/90 mmHg or more (Fitri, 2015). This disease is a disease that causes cardiovascular disease (Nguyen et al., 2016). An estimated 1 in 4 American adults has hypertension. Currently, 600 million people with hypertension worldwide, and 3 million die annually. Worldwide, hypertension is up to around 7.5 million deaths or 12.8% of the world's total. Data from WHO shows the incidence of hypertension is found in Africa. As many as 46% of all cases in the world are women and men (WHO, 2016), also according (Organization, 2013) (Yonata & Pratama, 2016), showed ed 972 patients with hypertension worldwide or 26.4% of the world's population suffer from hypertension. This case can

increase by around 29.2% in 2025. Of the 972 million people who suffer from hypertension, there are 333 million people in developed countries, namely America, Australia, Germany, Canada and in an additional 639 from newly developing countries, such as Indonesia

Hypertension is one of the most common adult chronic diseases for which treatment is available (Ward & Schiller, 2013). The disease is available across all races, sexes, ages and groups but has a much higher prevalence among blacks and concomitantly higher mortality from sequelae. The risks associated with hypertension include fatal and non-fatal outcomes involving the brain, heart, and kidneys (Williams et al., 2014). Although the development of cerebrovascular and cardiovascular complications from hypertension has been frequently described, in recent years, less attention has been paid to coexisting renal disease (Manuntung & Kep, 2019). Hypertension is systolic blood pressure above 140 mmHg and diastolic blood pressure equal to or above 90 mmHg (Fatani et al., 2021). Many factors, such as age, genetics, gender, smoking, alcohol consumption, nutritional status, and sleep patterns cause hypertension (Oikonomou et al., 2022).

Also, according to the National Strategy of the Ministry of Health of Timor Leste (Depkes-TL, 2011-2030), states that in 2005 the number of residents of Timor Leste over 60 years increased to 52,950 and in 2030 increased to 119,150, from 5.38% the population increased by 6.05%. On the other hand, many rural areas have major problems getting primary health care due to lack of transport, geographical distance, poor road conditions and physical disabilities. Chronic disease is a very increased and permanent need for individuals, families and communities because there is no ability (SAFITRI, 2020). Poor health care due to lack of transportation, geographical distance, poor condition of roads, and poor conditions and physical disabilities. Chronic illness is a greatly increased and permanent need for individuals, families, and communities because there is no ability. Poor health increases the ability of the elderly population, and a report from the Guido Valadares National Hospital in 2015 shows that the number of hypertensive patients hospitalized from 15 to 45 years of age is 229 (136 males and 93 females). In 2016, the number of inpatients was 603 (362 men and 241 women).

Table 1. Classification of Blood Pressure (BP) by the American Society of Hypertension and the International Society of Hypertension

Classification	Systolic (mmHg)	Diastolic (mmHg)
Optimal	<120	<80
Normal	120-129	80-84
Normal High	130-139	85-89
Class 1 hypertension	140-159	90-99
Class 2 hypertension	160-179	100-109
Class 3 hypertension	>180	>110
Systolic isolated hypertension	>140	<90

Source: ASH and ISH, 2013

Table 2. BP classification by WHO and ISH 2016

Classification	Systolic (mmHg)	Diastolic (mmHg)
Severe hypertension	>180	>110
Moderate hypertension	160-179	100-109
Hypertension Friend	140-159	90-99
Restrictive hypertension	120-149	90-94
Systolic borderline hypertension	120-149	< 90
Systolic isolated hypertension	>140	< 90
Normal	< 135	< 85

Source: WHO and ISH, 2016

Factors contributing to the incidence of hypertension caused by the interaction of risk of stress, obesity, nutritional status, lifestyle (preventable) and uncontrolled factors are genetics, age, gender and ethnicity (Triyanto, 2014).

METHOD

This descriptive, correlative and descriptive study uses quantitative and qualitative methods together to produce a deeper understanding of the quantitative results with a cross-sectional study approach due to analyzing correlations affecting risk factors and effects utilizing cumulative data accumulation. and the same time (HR, 2018). The number of hypertensive male and female inpatients hospitalized from 23 January to 23 February 2020 was selected using random sampling. The patient inclusion criteria were all inpatients with a diagnosis of hypertension at the time of data collection, with as many as 32 patients.

Before data collection, ethical clearance was obtained from the Technical and Ethical Committee of the National Institute of Health for Ethical Review. Confidentiality is maintained during the research. Data was collected using a questionnaire focused on stress, attitudes toward smoking and alcohol consumption. Questioners were coded and scored based on never (score N=0), sometimes (score S=1), often (with F=2), and routine (score R=3) and entered into the statistical package for social sciences (SPSS) and analyzed using frequency distribution, percentage distribution, cumulative distribution, correlation and regression.

RESULTS AND DISCUSSION

1. Frequency Distribution

The research results are presented according to stress, smoking attitudes and alcohol consumption, as below:

Table 3. Frequency Distribution According to Respondent Characteristics

Characteristics	F	%
Age		
<20	3	9,0
21-40	8	25,0
41-60	15	47,0

Joaquim Pinto¹, Hermina dos Santos², Ana do Rosario de Jesus Leite³, Acacio de Jesus⁴, Gregorio Belo⁵, Miguel Soares⁶

Analysis of Factors Influencing to The Incidence of Hypertension in Patients of Hospitalized In Hospital Nacional Guido Valadares (HNGV), Timor Leste

>60	6	19.0
Gender		
Man	26	81.0
Woman	6	19.0
Education		
Primary school	11	34,4
Re-high school	3	9,4
Secondary school	15	46,9
University	3	9,4
Profession		
agricultural culture	8	25.0
Housewife	6	18,8
Student	1	3,1
Public employer	11	34,4
Journalism	1	3,1
Driver	1	3,1
Driver's assistant	1	3,1
fisherman	2	6,3
A businessman	1	3,1
History		
Not	21	65,6
Yes	11	34,4
Classification		
level 1	4	12.5
grade 2	17	53,1
grade 3	11	34,4

Source: Results of data analysis, 2020

Table 4. Frequency Distribution of Average Consumption of Cigarettes, Alcohol and Stress Factors

	variable Σ _ cigarette consumption (X1)	Σ varies _ alcohol consumption (X2)	Σ Stress factor variable (X3)
N	32	32	32
Is lost	0	0	0
Means	14.81	16,47	27.59

Source: Results of data analysis 2020

2. Multiple Linear Regression Analysis

It uses multiple linear analysis to determine the relationship and influence of each independent variable (X 1) smoking behavior, (X 2) alcohol consumption, (X 3) stress and the dependent variable (y) hypertension. Then this is the result and establishes a relationship between the independent and dependent variables based on the analysis and using SPSS software version 2 3.00 for windows.

Table 5. Results of Multiple Linear Regression Analysis

Independent variable	Beta Coefficient	S Grade Significance of t-test	Conclusion
Constant	0.244		
Smoking attitude (x1)	0.197	0.041 < 0.05	There is influence
Alcohol Consumption (x2)	0.293	0.022 < 0.05	There is influence
stress	0.397	0.006 < 0.05	There is influence
F test significance value = 0.000 R value = 0.724			
R-Square value = 0.525			

Source: 2019 Data Analysis Results

The significance value of the t-test for the smoking behavior variable is 0.041, which is less than the value of 0.05; it can be said that the smoking behavior variable (X1) has a significant effect on the hypertension variable (Y). The significance value of the t-test for the alcohol consumption variable is 0.022, which is less than the value of 0.05. It can be said that the alcohol consumption variable (X2) has a significant effect on the hypertension variable (Y). The significance value of the t-test for the stress variable is 0.006, which is less than 0.05. It can be said that the stress variable (X3) has a significant effect on the hypertension variable (Y).

3. Correlation Test Results I

Table 6. Results of correlation test results between smoking behavior and hypertension i

Correlation of opinion behavior			
		behavior _ smoking _X1	Hypersensitivity I _Y
behavior _ smoking _X1	Pearson correlation	1	0.508 **
	Sig. (2-tails)		0.003
	N	132	132
Hypersensitivity I _Y	Pearson correlation	0.508 **	1
	Sig. (2-tails)	0.003	
	N	312	132

**. Significant correlation at the level of 0.01 (2-tailed).

Source: Results of 2019 data analysis

Table 7. Correlation Test Results of Alcohol Consumption with Hypertension

Correlation of alcohol consumption			
		Consume the _Alcohol _X2	Hypersensitivity I _Y
Consume _Alcohol _X2	Pearson correlation	1	,540 **
	Sig. (2-tails)		,001
	N	132	132
Hypersensitivity I _Y	Pearson correlation	0.540 **	1
	Sig. (2-tails)	0.001	
	N	132	132

**. Significant correlation at the level of 0.01 (2-tailed).

Source: Results of analysis data 2019

Table 8. Results of Correlation Test I Stress with Hypertension I

Stress Correlation		Stress_X3	Hypersensitivity I_Y
Stress_X3	Pearson correlation	1	,441 *
	Sig. (2-tails)		,011
	N	132	132
Hypersensitivity I_Y	Pearson correlation	,441 *	1
	Sig. (2-tails)	,011	
	N	132	132

*. Significant correlation at the level of 0.05 (2-tailed).

Source: 2019 data analysis results

a. Effect of Smoking Behavior Factors on Hypertension

The results of research in the interior room of HNGV men and women to 32 respondents showed that the mean value of smoking behavior was 14.81%. And the results of the analysis verify the hypothesis that smoking behavior has a significant effect on hypertension with a correlation coefficient of 0.943 because Cronbach's Alpha value is greater than 0.6. Thus, there is a relationship between smoking behavior and the risk of cardiovascular disease. Excessive smoking behavior, there is a high risk of smoking consequences which depends on the number of cigarettes per day.

According to a statement (Mustolih et al., 2017), smoking is one of the factors associated with hypertension because cigarettes contain nicotine. Cigarette consumption can cause nicotine which is absorbed into the small blood vessels in the lungs and brain. Nicotine in the brain can signal the adrenal glands to release or release epinephrine or adrenaline, causing vasodilation and forcing the heart to work hard, thereby increasing arterial pressure.

Based on the study's results, table 6 shows that smoking behavior correlates with hypertension with a moderate Pearson Correlation coefficient with a value of $r = 0.508$ and a Sig. P value of <0.05 with a value of 0.03 indicates a significant relationship between the independent and dependent variables.

b. Effect of Alcohol Consumption Factors on Hypertension

As reported (Tritama, 2015), people who always consume alcohol above the limit can rapidly change their blood pressure because alcohol has a carbon monoxide effect that can increase the blood's acid. Excessive alcohol consumption, or 3x/day, as much as 7%, is a cause of hypertension.

The research results in the interior room of HNGV men and women to 32 respondents showed that the mean value of the alcohol consumption factor was 16.47%. And the results of the analysis of the verification factor for the hypothesis that alcohol consumption has a significant effect on hypertension with a correlation coefficient of 0.855 because the Cronbach's Alpha value is greater than 0.6.

There is a relationship between alcohol consumption and a high risk of developing the cardiovascular disease with many witnesses. The factor of greater alcohol consumption is that

there is a high risk due to high alcohol consumption depending on the amount of daily consumption.

Based on the study's results, table 7 shows that there is the truth that the alcohol consumption factor correlates with hypertension with the results of the Pearson Correlation coefficient, which is moderate with a value of $r = 0.540$ and a Sig. P value of <0.05 with a value of 0.001 indicates a significant relationship between the independent variables and the dependent.

c. Effect of Stress Factors on Hypertension

The results of research in the interior room of HNGV men and women to 32 respondents showed that the mean value of the stress factor was 27.59%. And the analysis results of the verification of the stress hypothesis factor have a significant effect on hypertension with a correlation coefficient of 0.768 because the Cronbach Alpha value is greater than 0.6.

There is a relationship between stress factors and a high risk of cardiovascular disease with many witnesses. Excessive stress factors have a high risk of high-stress consequences depending on the stress conditions of the day.

Based on the results of the study, table 8 shows that there is the truth that the stress factor correlates with hypertension with a moderate Pearson Correlation coefficient with a value of $r = 0.441$ and a Sig. P value of <0.05 with a value of 0.011 indicates a significant relationship between the independent and dependent variables. As statement (Azizah & Dwi Hartanti, 2016), stress is a condition that is not as specific as suffered by someone due to emotional, physical and environmental effects. If an individual's behavior disorder occurs, it can temporarily cause stress, and if it occurs continuously, it can affect an increase in blood pressure

CONCLUSION

The incidence of hypertension is significantly influenced by smoking behavior, alcohol consumption and stress factors. In addition, these three factors are also influenced by other factors such as excessive salt consumption, not doing sports activities and other unhealthy lifestyle behaviors.

REFERENCES

- Azizah, R., & Dwi Hartanti, R. (2016). *Hubungan antara tingkat stress dengan kualitas hidup lansia hipertensi di wilayah kerja Puskesmas Wonopringgo Pekalongan*.
- Fatani, N., Dixon, D. L., Van Tassell, B. W., Fanikos, J., & Buckley, L. F. (2021). Systolic Blood Pressure Time in Target Range and Cardiovascular Outcomes in Patients With Hypertension. *Journal of the American College of Cardiology*, 77(10), 1290–1299. <https://doi.org/https://doi.org/10.1016/j.jacc.2021.01.014>
- Fitri, D. R. (2015). Diagnose enforcement and treatment of high blood pressure. *Jurnal Majority*, 4(3).
- HR, H. S. C. (2018). *Metodologi Penelitian Kesehatan dan Pendidikan*. Penebar Media Pustaka.
- Manuntung, N. A., & Kep, M. (2019). *Terapi perilaku kognitif pada pasien hipertensi*. Wineka Media.
- Mustolih, A., Trisnawati, E., & Ridha, A. (2017). Faktor yang berhubungan dengan kejadian hipertensi pada perokok pasif (studi kasus pada keluarga perokok aktif di Desa Bukit Mulya Kecamatan Subah Kabupaten Sambas Kalimantan Barat). *Jumantik*, 2(4).
- Nguyen, T. T., Nguyen, T. V, Vu, T. T., & Nguyen, H. N. (2016). PCV76 - Cost of Treatment Hypertention Inpatients in Vietnam. *Value in Health*, 19(7), A649–A650. <https://doi.org/https://doi.org/10.1016/j.jval.2016.09.1744>
- Oikonomou, E. K., Spatz, E. S., Suchard, M. A., & Khera, R. (2022). Individualising intensive systolic blood pressure reduction in hypertension using computational trial phenomaps and machine learning: a post-hoc analysis of randomised clinical trials. *The Lancet Digital Health*, 4(11), e796–e805. [https://doi.org/https://doi.org/10.1016/S2589-7500\(22\)00170-4](https://doi.org/https://doi.org/10.1016/S2589-7500(22)00170-4)
- Organization, W. H. (2013). *A global brief on hypertension: silent killer, global public health crisis: World Health Day 2013*. World Health Organization.
- SAFITRI, A. (2020). *Studi Literatur: Asuhan Keperawatan Keluarga Penderita Skizofrenia Dengan Gangguan Konsep Diri: Harga Diri Rendah Kronis*. Universitas Muhammadiyah Ponorogo.
- Tritama, T. K. (2015). Konsumsi alkohol dan pengaruhnya terhadap kesehatan. *Jurnal Majority*, 4(8), 7–10.
- Ward, B. W., & Schiller, J. S. (2013). Peer reviewed: prevalence of multiple chronic conditions among US adults: estimates from the National Health Interview Survey, 2010. *Preventing Chronic Disease*, 10.
- WHO, I. (2016). *Blood Pressure Prevalence*. WHO ISH. http://www.who.int/gho/ncd/risk_factors/blood_pressure_prevalence_text/en/ asesu iha dia 12-08-2018 horas 21: 10 OTL
-

Joaquim Pinto¹, Hermina dos Santos², Ana do Rosario de Jesus Leite³, Acacio de Jesus⁴, Gregorio Belo⁵, Miguel Soares⁶

Analysis of Factors Influencing to The Incidence of Hypertension in Patients of Hospitalized In Hospital Nacional Guido Valadares (HNGV), Timor Leste

Williams, S. F., Nicholas, S. B., Vaziri, N. D., & Norris, K. C. (2014). African Americans, hypertension and the renin angiotensin system. *World Journal of Cardiology*, 6(9), 878.

Yonata, A., & Pratama, A. S. P. (2016). Hipertensi sebagai faktor pencetus terjadinya stroke. *Jurnal Majority*, 5(3), 17–21.



© 2022 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).