

## Original Articles

### **Analysis of The Prevalence of Alcohol Consumption in Hypertension Patients at The Gleno Inpatient Public Health Center Ermera Municipality, Timor-Leste**

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**Abstract**

**Background;** Arterial hypertension is a chronic disease where the blood pressure in the arteries is persistently above the normal value (systolic pressure > 140 mmHg or diastolic pressure is > 90 mmHg). The worldwide number of hypertension deaths reaches 9.4 million deaths. Hypertension data recorded at Gleno Inpatient Health Centre (IHC) in 2019 reaches 810 patients.

**Objective;** This study aimed to analysis on alcohol consumption with prevalence of hypertension.

**Methods;** This quantitative research used correlation approach, the samples were the patients who make an appointment and intern in Gleno IHC, the sampling technique was non-probability, the purposive sampling technique based of the inclusion criteria and the instrument was a questionnaire.

**Results;** Sample size on study were 46 respondents. Based on the results of correlation statistical analysis Spearman Rank indicates the p-value was 0.001, which is lower than 0.05. This test showed a significant relationship between the consumption of alcohol with the occurrence of hypertension in Gleno IHC. Never the less, the result of the correlation test (r) was 0.473. Which means having the most high impact of alcohol consumption with an opportunity of 0.473 times. Which result in the most severe hypertension disease in Gleno IHC.

**Conclusion;** This research indicated that the relationship is positive and significant between the alcohol consumption and the prevalence of hypertension in Gleno Inpatient Health Centre, municipality of Ermera. This result can be used as a good input to improve the health promotion program and better service for hypertension patients at this health centre.

## INTRODUCTION

The World Health Organization defines hypertension as a condition associated with high blood pressure in the blood vessel with systolic pressure  $\geq$  140 mmHg and diastolic pressure  $\geq$  90 mmHg (Maswibowo, 2018). The closest neighboring country to Timor-Leste such as Australia reports that hypertension according to the Guidelines for Diagnosis and Management of Hypertension in Adults (2016) is very high including Indonesia.

On the other side, the vice General Director of Non-Contagious Disease and Mental Health WHO in Timor-Leste, Svetlana Axelrod, announces that excess alcohol intake is a principal factor that causes some diseases in Timor-Leste such as Cardiovascular disease, pulmonary cancer, chronic disease, and diabetes (MoH TL, 2018). Although the government of Timor-Leste through the ministry of health has made efforts to find solutions to the problem of alcohol consumption and hypertension management. But this problem has not been resolved according to the goals and expectations.

The World Health Organization reports that 9.4 million people die every year out of a total of 17.5 million people with hypertension. It is estimated that by 2025 the number will increase by 1.5 billion people (Makremas, 2018). According to WHO data, all around the world, almost 972 (26.4%) people suffer from hypertension disease. In 2025 it possibly increases to around 29.9% in the developing country which is almost 333 billion and in the developed country almost 639 billion (Suranti, 2017).

The annual statistical report (January to December) of the health information system by the Ministry of Health of Timor-Leste showed that hypertension is spread from 6 hospitals, such as; Hospital Regional Eduardo Ximenes Baucau 36 cases, Malian referral hospital 7 cases, Covalima referral hospital 34 cases, Maubisse referral hospital 20 cases, *Hospital Nacional Guido Valadares* (HNGV) 167 cases and *Hospital Regional Oecuse* 19 cases (SIS, 2016).

While hypertension disease listed 435 medical patients in the period 2015 by Minister of Health from 5 Referral Hospital included HNGV in Dili. The prevalence of mortality cases of patients with hypertension disease were 47 cases, such as National Hospital of Guido Valadares in Dili were 41 mortality cases and 6 another from five Referral Hospitals (MoH, 2015). The hypertension cases in period 2017 that were listed in Inpatients Health Centre (IHC) in Gleno Ermera Municipality were 93 medical patients included 49 men and 44 women. In 2018 listed hypertension cases increased more than 898 cases, these cases included 411 men and 487 women. The majority of cases were from age 40 to 70 years old as many as 665 medical patients, and minor cases with ages under 39 years old were 199 medical patients. Again in 2019 listed hypertension cases were 810 medical patients (IHC, 2020).

The prevalence of hypertension has also been associated with salt consumption, age, sex, and low-income factors. While approximately one-third of the Australian population have been told by a doctor that they have high blood pressure, only half were reported to be taking their prescribed medication (Anderson C. et al, 2016). The researcher conducts this research as basic information to find the solution to decrease the prevalence of hypertension. This study aimed to analysis on alcohol consumption with the prevalence of hypertension.

## **METHODS**

### ***Study Design***

This was a quantitative study with a correlation approach.

### ***Settings***

The study settings were located on the Inpatient Health Center (IPHC) Gleno, Ermera municipality. The study was conducted from September 30 to October 14, 2020, in InPatient Health Center (IPHC) in Gleno, Ermera municipality.

### ***Research Subject***

The participants of this study were people who use alcohol and were diagnosed with hypertension currently they got treatment in the In-Patient Health Center (IPHC) Gleno. The total population was 86 patients. All the population included in this study had been and is currently being treated at this health center, when this study is ongoing. The sample size was obtained 46 respondents with non-probability sampling on purposive sampling type with Solving calculation formula.

#### **Inclusive criteria**

1. Patients who consume alcohol & have hypertension, come for a consultation at the GlenoCHC, Ermera Municipality.
2. Patients who can speak Tetum
3. Patients who can read and write

#### **Exclusion criteria**

1. Patients who consume alcohol and do not have hypertension.
2. Patients with hearing and speech impairments.
3. Patient < 25 years old

### ***Instruments***

The instruments used in this study were categorized into two types, as follows: questions related to alcohol use and the second related to the issue of hypertension. In detail, can be seen in the following text: **Alcohol use:** the instrument used is a checklist that uses a Likert Scale from 1 to 5 was adopted from previous research and already test the validity with the  $r$  test  $>$   $r$  table (0,297) and reliability  $X: 0,956$  and  $Y: 0,942$  or  $> 0,6$ . The checklist used here contains 20 questions (attached). **Hypertension:** the instrument used is the same as the previous section, namely a checklist that uses a Likert Scale from 1 to 5. The checklist used here contains 6 questions.

### ***Data Collection***

The operational definition of alcohol consumption variable is that alcohol is a psychoactive and addictive substance that causes an increase in arterial blood pressure. There are 20 questionnaires with parameters: always routine: 4, always:3, sometimes:2, and never:1, then the assessment is categorized into very heavy ( $>80$ ), heavy (60-79), moderate (40-59), and light (20-39).

Variable hypertension was defined as a condition in which the systolic pressure increased more than 140 mmHg or the diastolic pressures increased more than or equal to 90 mmHg. There are 6 questions: always routine:4, always:3, sometimes: 2, and never:1, with ratings categorized as very severe ( $>80$ ), severe (60-79), Moderate (40-59), and light (20-39).

### **Data Analysis**

The analysis used in this study has statistical Spearman Rank correlation which means the value of p-value 0.001 is < 0.05 and used bivariate and univariate analysis.

### **Ethical Consideration**

This study protocol was submitted to *Instituto Nacional de Saúde* (INS) and gained ethical approval with certificate number 1393/MS-INS/DE/IX/2020 and the data collection process obeyed the Helsinki declaration principles, namely *Informed Consent*, Anonymity and Confidentiality

## **RESULTS**

This section disseminates the finding obtained from alcohol use and hypertension with the univariate and bivariate analyses.

### **Characteristics of Respondents**

Table 1. Characteristics of respondents by age, gender, education level, and profession

No	variable	f	%
<b>1</b>	<b>Age (n=46)</b>		
	28-37	7	15.2
	38-47	18	39.1
	48-57	14	31.4
	58-78	7	15.2
<b>2</b>	<b>Gender (n=46)</b>		
	Man	32	69.6
	Female	14	30.6
<b>3</b>	<b>Education Level (n=46)</b>		
	Primary school	7	15.2
	Pre secondary school	9	19.6
	Secondary School	16	34.8
	University	14	30.4
<b>4</b>	<b>Profession (n=46)</b>		
	Government employees	15	32.6
	Housewife	5	10.9
	Agriculture	7	15,2
	Police	0	0
	Private	19	41.3

Source: Results of data collection at CHC Gleno in 2020

Table 1 indicated that characteristics of the respondents who consume alcohol and suffer from hypertension are more in their productive age (38-47 years old) amounted 18 (39.1%). Man consumes alcohol and suffers from hypertension 32 (69.6%), which means 2 times the prevalence than women which reached 30.6%. Of those who consume alcohol and suffer from hypertension are high school educated 16 (34.8%), people who work in the private sector consume more alcohol & eventually suffered from hypertension 19 (41.3%).

## Univariate Analysis

### Alcohol Consumption

Table 2. Frequency distribution based on alcohol consumption

	Frequency	Percent	Valid Percent	Cumulative Percent
Light	9	19.6	19.6	19.6
Moderate	14	30.4	30.4	50.0
Serious	13	28.3	28.3	78.3
Heavier	10	21.7	21.7	100.0
Total	46	100.0	100.0	

Source: Results of data collection at CHC Gleno in 2020

According to table 2, respondents majority inform that alcohol consumption with moderate category 14 people (30.4%), and minority respondents informed that alcohol consumption in the light category 9 (19.6%).

### Occurrence of Hypertension

Table 3. Frequency distribution based on the occurrence of hypertension

	Frequency	Percent	Valid Percent	Cumulative Percent
Light	11	23.9	23.9	23.9
Moderate	11	23.9	23.9	47.8
Serious	16	34.8	34.8	82.6
Heavier	8	17.4	17.4	100.0
Total	46	100.0	100.0	

Source: Results of data collection at CHC Gleno in 2020

According to table 3, respondents majority inform that the occurrence of hypertension with serious category 16 (34.8%), and minority respondents inform that occurrence of hypertension with heavier category 8 (17.4%). In this part showed the relationship between alcohol consumption with the occurrence of hypertension.

Table 4. Cross-tabulation between alcohol consumption with the occurrence of hypertension

Alcohol consumption	Hypertension								Total		Correlation Spearman Rank	
	Light		Moderate		Serious		Heavier		F	%	Coefficient	P-value
	F	%	F	%	F	%	F	%				
<b>Light</b>	6	13.0	1	2.2	2	4.3	0	0.0	9	19.6	0.473	0.001
<b>Moderate</b>	3	6.5	4	8.7	5	10.9	2	4.3	14	30.4		
<b>Serious</b>	2	4.3	4	8.7	5	10.9	2	4.3	13	28.3		
<b>Heavier</b>	0	0.0	2	4.3	4	8.7	4	8.7	10	21.7		
<b>Total</b>	11	23.9	11	23.9	16	34.8	8	17.4	46	100		

Source: Results of data collection at CHC Gleno in 2020

Based on the results of the Spearman Rank Correlation analysis (table 4) showed the p-value is 0.001 and the results of the Rank Correlation Coefficient is 0.473. Relationship Rank Coefficient 0.473 shows that the alternative hypothesis (Ha) is accepted and that the test shows a positive and significant relationship between alcohol consumption and hypertension. Then there is a strong relationship between alcohol Consumption with the Occurrence of hypertension in inpatient health Centre in Gleno, Ermera Municipality in 2020 and show a positive and significant relationship

## **DISCUSSION**

Judging from the results that have been shown above, the indications are very varied. It turns out that the age variables ranging from the youth to the elderly all consume alcohol and the result is that they suffer from hypertension. However, at the age 38-47, by 39,1% it turned out to be prominent in using alcohol and eventually suffering from hypertension. At this age, they were in the group who usually started various activities including the responsibility of earning a living. Then their friendship is accompanied by consuming alcohol (Makaremas, 2018). Then ultimately have a negative impact on their health by suffering from hypertension. Then the concept of Wijaya (2013) states that one of the risk factors is age, where the older you get, the higher the risk of suffering from hypertension is true. When viewed from the level of education, hypertension patients are more in those who have advanced secondary school by 34,8%. In fact, for people whose education increases, their knowledge becomes better, so that they actually avoid consuming alcohol and they can also maintain a healthy lifestyle.

### **Alcohol Consumption**

Alcohol drinkers have relatively higher arterial pressure compared to people who are not. They also have a high risk of stroke accidents and heart failure (Sudarman, 2017). Alcohol that increases sympathetic nerve activity can stimulate the secretion of Corticotrophin Releasing Hormone (CRH), which increases blood pressure or hypertension in people who actively consume alcohol for an indefinite period. We see table 2 above shows that the majority of alcohol consumption is 14 (30,4%) in the “Moderate”. The frequency of the “serious” category was 13 (28,3%) respondents. This indicates that not a few people are also starting to lead to heavy alcohol consumption, and will have a very serious negative impact on their health. So, it is following the concept of Sudarman (2017) which states that the behavior of consuming alcohol every day in large quantities will have various negative impacts on health, on physical, psycho-neurological, and social.

### **Prevalence of Hypertension**

The results of this study also collect data that is very factual or real in the field, especially for patients who come for treatment at the Gleno Community Health Center. Hypertension sufferers from respondents mostly reached a moderate level 16 (34,8%). This does not rule out the possibility for them leading to a more serious level, if not accompanied by preventive measures or prompt treatment

from individuals with hypertension or health workers. This condition strongly supports the theory put forward that if there is no immediate action it will also lead to serious complications for the patient (Triyanto, 2014) such as cerebrovascular acidity, myocardial infarction, kidney failure, and eye disease.

The results also detected that 21.7% of patients with hypertension were in the very severe category, this could be categorized as stage three hypertension. So it is evident that treatment management is very much needed as stated by Sari (2017) that antihypertensive drugs must be used. So it is appropriate for patients to come for treatment at the Gleno Community health center to get immediate assistance for their illness. It is also necessary to combine individual awareness to change a healthy lifestyle to reduce alcohol consumption and try to do routine check-ups at health facilities. In addition, health workers are also obligated to carry out early detection of hypertension in the community and to reduce the number of cases which is increasing day by day.

### **The Relationship between Alcohol Consumption and Hypertension**

The result of this research in accordance with previous research or statement was said that alcohol influence the incidence of hypertension and too frequent consumption can increase blood pressure. Alcohol can also increase acid in the blood so that it makes the blood thicker. This thick blood can increase the heart's effort to circulate all the body (Hasanudin, 2014). Based on the limitation in terms of the human resource, financial and time, so that, the researcher was focused the study on the patients who have alcohol consumption and hypertension indicated at the Gleno CHC, Ermera municipality.

### **LIMITATION**

This study only assesses analysis on alcohol consumption and the prevalence of hypertension. Further research is needed to assess the behavior of respondents on hypertension prevention directly in their lives

### **CONCLUSION**

This research indicated that the relationship is positive and significant between analysis on alcohol consumption and the prevalence of hypertension in Gleno Inpatient Health Centre, municipality of Ermera. These results can be used as a good input to improve the health promotion program and better service for hypertension patients at this health center.

### **AUTHOR CONTRIBUTION**

Joaquim G. de Carvalho : Conceptualization, methodology, writing-original draft, supervision, and formal analysis

Domingos Soares : Investigation, data duration, funding acquisition and writing-review and editing  
Antonio da Costa : Visualization, project administration, software, validation, and resources

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## **CONFLICT OF INTEREST**

There was no conflict of interest regarding this study and publication, especially with sponsoring agency and contributing authors.

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