

## BODY MASS INDEX (BMI) AMONG PATIENTS WITH HYPERTENSION

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### ABSTRACT

**Background:** Hypertension or high blood pressure is still a high cause of death in the world. One factor in the occurrence of hypertension is poor nutritional status. Measurement of nutritional status is by knowing body mass index.

**Purpose:** To describe the body mass index (BMI) values in patients with hypertension.

**Methods:** Descriptive with cross sectional approach with consecutive sampling. The number of samples was 40 respondents. Data retrieval is measurement of blood pressure, height and weight. Data analyzed and made by frequencies and percentages.

**Results:** The highest number of hypertension was in the age range of 60-74 years old and the highest gender in this research is women and hypertension in grade I with overweight body mass index values (35%), normal body mass index (62.5%).

**Conclusion:** This study shows that hypertensive patients at Public Health Centre (*Puskesmas Pasundan Garut*) was show a high body mass index (BMI) value. By early detection to prevent of further severe complications and management of hypertension can be done to improve the quality of life.

**Keyword:** Body Mass Index (BMI), Hypertension

### INTRODUCTION

Non-communicable diseases are the leading cause of death globally, killing more people each year than all other causes consisting mainly of disease cardiovascular, cancer, diabetes mellitus and chronic lung disease (World Health Organization, 2013). One non-communicable disease is hypertension or another term, high blood pressure. Hypertension is a chronic disease with blood pressure above normal (Kabo, 2010). Old age is one of the risk factors for the occurrence of cardiovascular system disorders such as high blood pressure, or another term, hypertension. This happens because of a decrease in body function with age. Complications that can occur in patients with hypertension include coronary heart disease, stroke, kidney failure and others. Hypertension risk factors are one of them nutritional status by measuring body mass index (Lestari & Lelyana, 2010). Risk factors that cause primary hypertension are age, obesity, salt and Consumption consumption of fatty foods (Syahrini, 2012). Body mass index is a

risk factor Defined for several causes of death, including hypertension, heart Ischemic disease, stroke. The average body mass index has increased by several percent per decade, and has mass triggered concerns about the effect of increasing body index on health. However, some uncertainties remain, what is the relationship between body index mass and mortality. In people with hypertension the value of the body's index *overweight* can increase the risk of being even more severe. One method for measuring anthropometry mass is by measuring the body index (Sheila, 2012). For this reason, it is necessary to know value the body index to prevent more severe complications in patients with hypertension and the quality of life for patients with hypertension. Based on the above, the researchers are interested in conducting research on the description of body mass index values (BMI) in hypertensive patients at the Pasundan Health Center Garut.

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**RESEARCH METHODS**

This research method is descriptive with approach *cross sectional*. The sampling method used is non probability sampling. The sample is all hypertensive patients according to the criteria carried out in 2016 in the work area of Pasundan Garut

Health Center. Data retrieval is by measuring blood pressure with a sphygmomanometer, weight Body with a weighing apparatus with a capacity of 120 kg and height with a meter for height *microtoise*, before the measurement is carried out the tools are calibrated.

**RESEARCH RESULTS**

The results of the study in table 1 show that the highest sex among respondents were 25 men (62.5%) and 15 women (37.5%). Whereas according to age group, the most respondents were age range 60-74 years as many as 27 people (67.5%). While the second largest respondent was 45-59 years old (9%) and the smallest number of respondents aged 75-90 years was 4 people (1%).

**Tabel 1 Characteristics of Respondents N=40**

Characteristics	N	%
<b>Gender</b>		
Male	15	37,5
Female	25	62,5
<b>Age</b>		
45-59	9	22,5
60-74	27	67,5
75-90	4	1
<b>Total</b>	<b>40</b>	<b>100</b>

Table 2. show age distribution, gender based on degree of hypertension. In the table shows the highest degree of hypertension is the number of respondents male sex numbered 16 people (40%) and women as many as 11 respondents (27.5%). With the age range Highest at the age of 60-74 years as many as 17 respondents (4.2%), the second most respondents were 8 in the age range of 45-59 (2%) and at least the age range of 75-90 (0.5%). Whereas in the second degree of hypertension the same as grade I, namely in the respondents male sex as many as 9 people (22.5%) and in women 4 people (1%). Whereas for respondents with hypertension in grade II based on the highest age at the age of 60-74 years as many as 10 people (2.5%), the second most were 75-90 as many as 2 respondents (0.5%).

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**Tabel 2. The Distribution by Age, Gender and Grade of Hypertension N=40**

	Grade of Hypertension					
	Grade-I Hypertension		Grade-II Hypertension		Total	%
	n	%	n	%	N	
<b>Gender</b>						
Female	16	40	9	22,5	25	62,5
Male	11	27,5	4	1	15	28,5
<b>Age</b>						
45-59	8	2	1	0,25	9	2,25
60-74	17	4,2	10	2,5	27	6,7
75-90	2	0,5	2	0,5	4	1
<b>Total</b>	<b>27</b>	<b>67,5</b>	<b>13</b>	<b>23,5</b>	<b>40</b>	<b>100</b>

Table 3 shows the distribution of body index based on hypertension degrees and the highest, namely *overweight* massas many as 14 respondents (35%), normal BMI values at degree I were 8 respondents (20%) and degree II as many as 5 (1.25 %). While respondents who had the BMI values of underweight and obesity were respectively 1 respondent 2.5 (%). The highest sex was in the first degree of hypertension, namely women as many as 16 respondents (40%) as well as hypertension II degrees as many as 9 respondents (22.5%).

**Table 3. The Distribution by Grade Of Hypertension And The Body Mass Index (BMI) N=40**

Grade of Hypertension	The Body Mass Index (BMI)									
	Underweight		Normal		Overweight		Obesity		Total	%
	n	%	n	%	n	%	n	%	N	%
Grade-I	1	2,5	8	20	14	35	1	1,1	24	26
Grade-II	0	0	5	1,25	11	27,5	0	0	16	3,95
<b>Total</b>	<b>1</b>	<b>2,5</b>	<b>13</b>	<b>10</b>	<b>25</b>	<b>10</b>	<b>1</b>	<b>1,1</b>	<b>40</b>	<b>100</b>

**DISCUSSION**

In this study the most hypertensive patients were male. research Previous has shown that there is no link between high blood pressure and gender. There is no relationship between age and gender in the elderly with hypertension (Ratnaningrum, 2015). Respondents in this study showed nutritional status *overweight*. The main factors of hypertension are age, obesity or *overweight* (Mendez, Ulloa, & Bixby, 2008). However, there are respondents with

nutritional status *underweight* of 1 person. So that other risk factors may be the cause of hypertension, both age due to a decrease in function and poor nutritional status.

The results showed that the most hypertensive patients were body index With nutritional status *massoverweight*. *Overweight* is one of the causes of disorders Cardiovascular such as hypertension. The causes of cardiovascular disorders are high prevalence of unhealthy eating habits and lifestyle;

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along with high prevalence of being overweight, as well as obesity. There is a relationship between excessive BMI, and high fat consumption (Awosan, Ibrahim, Essien, Yusuf, & Okolo, 2014).

Previous studies have shown that high fat and alcohol consumption is a risk factor that influences the incidence of hypertension among the elderly (Malonda, Dinarti, & Pangastuti, 2014). Not only consumption of fat and alcohol, lifestyle such as smoking is one of the factors in the occurrence of hypertension. Smoking is one of the substances causing high blood pressure (Mann, Zipes, Libby, & Bonow 2014).

Other causes of hypertension include one of the factors, namely the mass relationship between the body index and blood plasma or another term, *plasma aldosterone concentration* (PAC). Where as hypertension sufferers *overweight* can experience deposits excessive fator visceral adiposity. This body index is very clear in patients primary hypertensive *overweight*, and shows a pathophysiological relationship between Mass visceral adiposity and aldosterone secretion (Rosi, Belfiore, Bemini, Fabris, Caridi, Ferri, & Palumbo, 2008; Nuraini, 2015; Archilona, Seno, & Puruhita, 2014).

The BMI values in this study were quite mass large in hypertensive patients with body index values *overweight*. Body index is Mass associated with back blood pressure in both men and women (Sihombing, Aprilia, Purba, & Sinurat. 2010). The relationship between hypertension and obesity varies including its complex etiology. This study showed that hypertension sufferers of grade I and II had the body index values Highest in *mass overweight* and one of them was obese. Previous studies have shown a relationship between obesity and tension with the incidence of hypertension (Korneliani & Meida, 2012).

Risk factors that have a significant correlation are education level, history smoking, BMI (Body Mass Index) and *waist circumference* (Malonda, Dinarti, & Pangastuti, 2012; Adnyani, 2014). An important role that can affect hypertension is an increase in body weight. Another study showed that nutritional status with the body index *overweight* mass most was in

men, both grade I and degree II (Nurrahmi, 2012; Sari, & Mulia, 2017; Haq, 2017).

Body mass index is also related to systolic and diastolic blood pressure. There is a significant relationship between body index and systolic blood pressure and also relationship massa significant between diastolic blood pressure (Dien, Mulyadin & Kundre, 2014).

The implications of this study are very close to nursing. Nurses are the arms of hypertensive patients whose duty is to help improve the quality of life. One of them can carry out comprehensive care for hypertensive patients, with regular measurements of body weight, height and improving nutritional status or body mass index (BMI) so that the role of nurses can be optimal in improving health status. Nurses can promote a healthy lifestyle in people with hypertension. The limitation of this study is that the number of samples is too small given the limited time of the study and the fact that the causes of hypertension unknown are more. It is expected that further research can take more respondents

#### CONCLUSION AND SUGGESTIONS

This study shows that hypertensive patients at the Pasundan Garut Health Center show the highest body mass index (BMI) values in degrees of *overweight*. The results of this study are expected to be taken into consideration as a reference regarding the description of body index values to prevent mass more severe complications due to hypertension. Suggestions for further research are expected to add other variables, namely regarding the type of nutrient content consumed and behavior Smoking in patients with hypertension. By knowing the body index value, can be Mass early prevention of more severe complications and management of hypertension done to improve the quality of life better.

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