

# 20. Characteristic people with hypertension in Yogyakarta special region during the first year of Covid-19 pandemics

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## ***Characteristic People With Hypertension in Yogyakarta Special Region During The First Year of Covid-19 Pandemics***

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### **ABSTRACT**

*Since 2017, hypertension was the top first disease in the Yogyakarta Special Region (DIY). It cannot be ignored because hypertension is an entrance for other degenerative diseases. Along with the COVID-19 pandemic at the beginning of 2020 raising our curiosity whether there has been a change in the incidence of hypertension in DIY during this year, then what are its characteristics. This study explores the characteristics of people with hypertension by age group and gender in the first year of the COVID-19 pandemic in the Yogyakarta Special Region. A descriptive study was employed in this study, with the main source was the secondary data from the Yogyakarta Special Region health office, the year 2020. Analysis was conducted by univariate tabulation. Data from the Yogyakarta provincial health office shows that in 2020 there will be an increase of more than eight thousand cases of hypertension. In general, this increase was lower than the increase in the previous two years. In 2020, the highest incidence of hypertension was found in women in the age range of 60-69. Meanwhile, in the (15-19) age group, the majority of cases happened in men. This study shows that during 2020, which was the COVID-19 pandemic, the incidence of hypertension increased but not as high as the previous two years. The majority of hypertension occurred in the 60-69 age group, with the majority in men.*

**Keywords:** Hypertension, Pandemic, Yogyakarta

## INTRODUCTION

“Blood pressure is the force exerted by circulating blood against the walls of the body’s arteries, the major blood vessels in the body. Hypertension is when blood pressure is too high. Blood pressure is written as two numbers. The first (systolic) number represents the pressure in blood vessels when the heart contracts or beats. The second (diastolic) number represents the pressure in the vessels when the heart rests between beats. Hypertension is diagnosed if, when it is measured on two different days, the systolic blood pressure readings on both days is  $\geq 140$  mmHg and/or the diastolic blood pressure readings on both days is  $\geq 90$  mmHg” (1). The World Health Organization (WHO) states that around 90% of countries are still reporting one or more disruptions to essential health services due to this pandemic situation. Countries are making efforts to continuously improve services safely. The pandemic has impacted access to care for other health problems. Another problem is the presence of health workers assigned to COVID-19 services and also the temporary closure of health care facilities due to certain situations due to the impact of the pandemic (2).

In a scientific brief, WHO stated that hypertension is a chronic non-communicable disease that has been identified as a risk factor for SARS-CoV-2 infection and COVID-19 the prognosis will be severe and worsen, such as having to undergo intensive care or death can occur. The results presented at the WHO scientific brief are that almost all available evidence shows that hypertension increases the risk of severe COVID-19 (requiring intensive care, clinical severity or complications or death) (3).

The results of the *Riset Kesehatan Dasar* (Basic Health Research) in 2018 show that the prevalence of the population in Indonesia with high blood pressure is 34.11%. The prevalence of high blood pressure in females (36.85%) is higher than that of males (31.34%) (4). In a pandemic situation, the three highest comorbidities in COVID-19 patients in Indonesia are hypertension (52.1%), diabetes (33.6%), and other cardiovascular diseases (20.9%) (5).

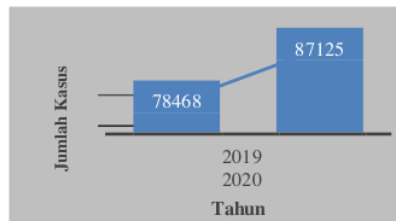
Hypertension is a disease that often appears in the Special Region of Yogyakarta. In 2020, hypertension ranks first in the top ten diseases in DIY. The prevalence of hypertension in DIY based on the results of the *Riset Kesehatan Dasar* (Basic Health Research) in 2018 is 11.01% (bigger than the national figure of only 8.8%) (6).

## METHODS

This study explores the characteristics of people with hypertension by age group and gender in the first year of the COVID-19 pandemic in the Yogyakarta Special Region. A descriptive study was employed in this study, with the main source was the secondary data from the Yogyakarta Special Region health office, the year 2020.

## RESULT AND DISCUSSION

The results of the analysis are described in the following graphs and tables:



**Picture 1. Prevalence of Disease Prevalence of Hypertension in the Special Region of Yogyakarta in 2019 and 2020**

Based on Picture 1, hypertension sufferers in the Special Region of Yogyakarta in 2020 have risen from 2019 as many as 8,657 cases. This rise is lower than the risen in the previous two years. The risen in hypertension cases in 2020 was affected by the COVID-19 pandemic which caused people to be afraid and worried about checking their health conditions at hospitals, clinics, and health centers for the reason of being afraid of contracting COVID-19, so that many diseases are not well controlled, including hypertension (7).

**Table 1. Prevalence of Hypertension Cases by Age and Gender in Residents in the Special Region of Yogyakarta in 2020**

Characteristics	Hypertension				N
	Male		Female		
	n	%	n	%	
Age group (year old)					
15-19	72	69,9	31	30,1	103
20-44	2333	29,8	5485	70,2	7818
45-54	5191	25,4	15273	74,6	20464
55-59	3706	26	10517	74	14223
60-69	9169	33,4	18253	66,6	27422
70+	6551	38,3	10544	61,6	17095

Based on Table 1. Hypertension sufferers in the Special Region of Yogyakarta in 2020, it can be seen that the occurrence of hypertension in males is dominated by the age group 15-19 tahun (69,9%). Meanwhile, the female gender is dominated by the age group 45-54 years (74.6%).

**Table 2. Hypertension Prevalence Based on Old and New Cases in Inhabitant of the Special Region of Yogyakarta in 2020**

Hypertension					
Characteristics	New		Old		N
	n	%	n	%	
Age group (year old)					
15-19	43	41,7	60	58,3	103
20-44	1664	21,3	6154	78,7	7818
45-54	2625	12,8	17839	87,2	20464

Hypertension					
Characteristics	New		Old		N
	n	%	n	%	
55-59	1556	10,9	12667	89,1	14223
<b>60-69</b>	2861	10,4	24561	89,6	<b>27422</b>
70+	1980	11,6	15115	88,4	17095
<b>Gender</b>					
Male	3943	14,6	23079	85,4	27022
<b>Female</b>	6786	11,3	53317	88,7	<b>60103</b>

Based on Table 2. data on hypertension sufferers in the Special Region of Yogyakarta in 2020, it can be seen that the prevalence of hypertension is dominated by the age group 60-69 years (27,422 cases). Judging from gender, it can be seen that the majority of hypertension sufferers are dominated by the female gender (60,103) cases.

In new cases, hypertension sufferers were dominated by the age group of 15-19 years, that is 43 people or 41.7%. Whereas in the old case, hypertension sufferers were dominated by the age group of 60-69 years as many as 24,561 people or 89.6%.

Based on table 1, it can be seen that in 2020, the highest case of hypertension was found in females in the age range of 60-69 years. While in the age group (15-19) the most cases occurred in males.

Age is a unit of time that measures the existence of an object or creature, both living and dead. The most influential factor on hypertension because of age, the higher the risk of hypertension. It is often caused by natural changes in the body that affect the heart, blood vessels, and hormones (8)

In general, hypertension sufferers are people aged 40 years and over, but it is also possible for young people to suffer from hypertension. Based on the results of the study, it was found that hypertension in Yogyakarta Province in 2020 also suffered a lot in the age group 15-19 years with the majority being male. This study is in line with that conducted by Shaumi and Achmad (2019) that many adolescents aged 11-19 years suffer from hypertension (9). This is because they have less than 5 hours of sleep per day. This study also states that sleep quality is related and has an effect on the case of hypertension in adolescents. Poor sleep quality can affect the increase in blood pressure because poor sleep quality can change the hormone cortisol and changes in the autonomic nervous system with increased sympathetic activation or decrease parasympathetic so that blood pressure increases.

This study also agrees with research conducted by Yusrizal, et al (2016) that male adolescents have blood pressure that tends to be higher than female adolescents (10). This is due to hormonal factors such as androgen and testosterone hormones that play a role in regulating blood

pressure (11). Androgen hormone is strongly suspected as a mediator of hypertension and cardiovascular disease. Another fact is that less ET-1 is produced by vascular endothelial cells in females than in males. The presence of androgens in men is known to stimulate the production of ET-1. Androgens play a role in the occurrence of hypertension. In this case, hypertension occurs probably due to the influence of renal renin-angiotensin. Testosterone is also known to activate the renin-angiotensin system, which causes an increase in blood pressure (12).

Gender is a term that refers to a person's biological status, consisting of physical appearance that distinguishes between male and female, such as genetic structure (sex chromosomes), sex hormones, internal and external sex organs. Based on the results of the study, it was found that hypertension in Yogyakarta Province in 2020 also suffered a lot by the female sex with the elderly age group (60-69 years).

This study is in line with research conducted by Saparina (2019) that hypertension is more common in females than males (8). This is also supported by research conducted by Choi, et al (2017) that women over the age of 60 suffer from hypertension more than males (13).

Hypertension is more common in males than females. This is because the male has a lifestyle that tends to increase blood pressure, such as smoking. However, females are also at risk of suffering from hypertension after entering menopause, where menopause is mostly suffered by elderly females. In a female who experiences menopause, in these conditions, hormonal changes occur, that is a decrease in the ratio of estrogen and androgen which causes an increase in the release of renin, which can trigger an increase in blood pressure (14).

## CONCLUSIONS AND SUGGESTIONS

Hypertension sufferers in the Special Region of Yogyakarta, in 2020 there was a risen from 2019 as many as 8657 cases. This rise was lower than the increase in the previous two years. The risen in hypertension cases was lower than in the previous two years. It is known that in 2020, the highest cases of hypertension is found in females in the age range of 60-69 years. While in the age group (15-19) the most cases occurred in males.

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