

Original Article

## Covid-19 Transmission Risk Management for Hypertensive Patients in Indonesia

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### ABSTRACT

**Background:** Individual behavior in the face of the COVID-19 pandemic is characterized by disruptions or shifts in lifestyle. Covid-19 is more likely to cause extreme symptoms or serious problems in people with some medical conditions (chronic noncommunicable diseases). Hypertension is a non-communicable chronic condition induced by an unhealthy lifestyle. According to data from the national covid-19 distribution map, hypertension is the comorbid condition with the highest number of covid-19 patients.

**Methods:** This study uses a descriptive analysis with a non-experimental framework as its process (cross-sectional). According to the study's goals, research participants used secondary data from the Covid-19 Indonesia distribution map in 2020/2021.

**Results:** The number of confirmed cases is about 10,000 residents in July 2020, and it will continue to rise until May 2021, when it will reach 1,400,000 cases. Hypertension, which accounts for 50.1 percent of covid-19 cases, is one of the most common comorbidities. Diabetes mellitus affects 36.6 percent of people, the heart 17.2 percent, and 10 percent of pregnant women. Lung and kidney disease affect about 5% of people, other respiratory diseases affect 2.2 percent, and cancer, immune disorders, asthma, liver, and tuberculosis affect less than 2% of people.

**Conclusion:** Patients with hypertension should be mindful of the risk of contracting Covid-19. Because of the extent of the losses incurred by the Covid-19 pandemic, different parties must work together to avoid and manage it.

**Keywords:** Management, Risk, Hypertension, Covid-19

### INTRODUCTION

Covid-19 is a disorder that affects people of all ages and genders. Covid-19, but in the other hand, is considered to be more likely to attack people who have such medical conditions. Covid-19 is more likely to cause complications and more serious symptoms in this population. Shortness of breath, chest pain, and a high fever are not always serious Covid-19 symptoms in people infected with the Corona virus. Any people who are infected with Covid-19 only have mild flu-like symptoms. Even if they have been positively infected with Covid-19, some people experience no symptoms at all. According to WHO and the Ministry of Health of the Republic of Indonesia, the elderly and people with some medical conditions, such as people with chronic noncommunicable diseases, are more likely to experience extreme symptoms and serious complications as a result of Covid-19 (1)

Covid-19 cases are widespread across the world, and the pandemic has lasted more than a year. According to WHO data as of May 12, 2021, there were 158,651,638 confirmed positive cases worldwide, with 3,299,764 cases dying. In Southeast Asia, a total of 26,660,141 cases were reported positive, with 322,390 deaths. There were 1,723,596 reported positive cases in Indonesia, with 47,465 deaths. Out of the ten member countries in Southeast Asia, Indonesia has the second highest case (2)

Covid-19 was first discovered in Indonesia on March 2, 2020. During the COVID-19 pandemic, people with comorbidities are one of the groups most at risk of contracting the virus (3). Hypertension, diabetes, and heart disease are indeed a several of the comorbidities. (4) (5). As a result, the

government, through the Ministry of Health, is paying close attention because if COVID-19 is confirmed, the person's clinical condition may deteriorate, raising the risk of death (6). Hypertension is the most common form of comorbid disease in Indonesia, out of the 12 that were studied (7). Hypertension continues to be an issue in both developed and developing countries. The high prevalence of hypertension in Indonesia may be recognized. Myocardial infarction, also known as the silent killer, is the most prevalent consequence of hypertension in Indonesia. Continuous therapy is required in the treatment of hypertension. Where it may be deduced that the patient must continue to take their medicines on a regular basis in order to avoid further difficulties (8). Non-Communicable Diseases (NCDs) are generally chronic in nature, lowering the immune system of the sufferer over time and making them vulnerable to infections, including those caused by the COVID-19 virus (9). One of the most common comorbidities in Coronavirus disease-19 (COVID-19) is hypertension, which is linked to a poor prognosis for the infection (10). To help reduce the risk of complications from hypertension, risk management is required.

The aim of this study is to classify cases of hypertension in confirmed Covid-19 patients and to implement risk management for the population at risk of infection. The findings are likely to be one of the factors considered by stakeholders when making decisions on how to reduce the risk of transmission in population groups with comorbidities.

## METHODS

According to the study objectives, research subjects used secondary data from data WHO, WHO SEAR, dan Data Covid 19 Nasional period of Time since end of March 2020 – May 2021 (Covid19.go.id). In this research, secondary data for Covid-19 will be displayed. This analysis of this study is non-experimental and is a descriptive analytic study (cross sectional). In terms of case numbers and those with comorbid diseases, the study's population included everybody in the world, Southeast Asia, and Indonesia, as well as those with comorbid diseases found in May 2021.

## RESULTS

Data on Covid-19 in Indonesia was obtained based on the research findings. As of May 2021, the following data on the total number of cases will be shown in Figure 1.

Figure 1 shows that the number of Covid-19 cases is steadily rising month after month. In July 2020, the number of cases seemed to have risen, but it was still below the 100,000-case threshold. The number of cases continues to rise until May 2021, when it will surpass 1,400,000 nationwide.

Figure 2 shows the number of Covid-19 cases depending on comorbid conditions. Hypertension is the comorbid condition with the largest number of sufferers from other forms of comorbidities, as seen in Figure 2. Hypertension (50.1%), Diabetes mellitus (36.6%), Heart (17.2%), Pregnancy (10%), Lung and Kidney Disease (5.2%), Other Respiratory Diseases (2.2%), Cancer, Immune Disorders, Asthma, Liver, and Tuberculosis (TB) (less than 2%), Cancer, Immune Disorders, Asthma, Liver, and Tuberculosis (TB) (less than 2%).

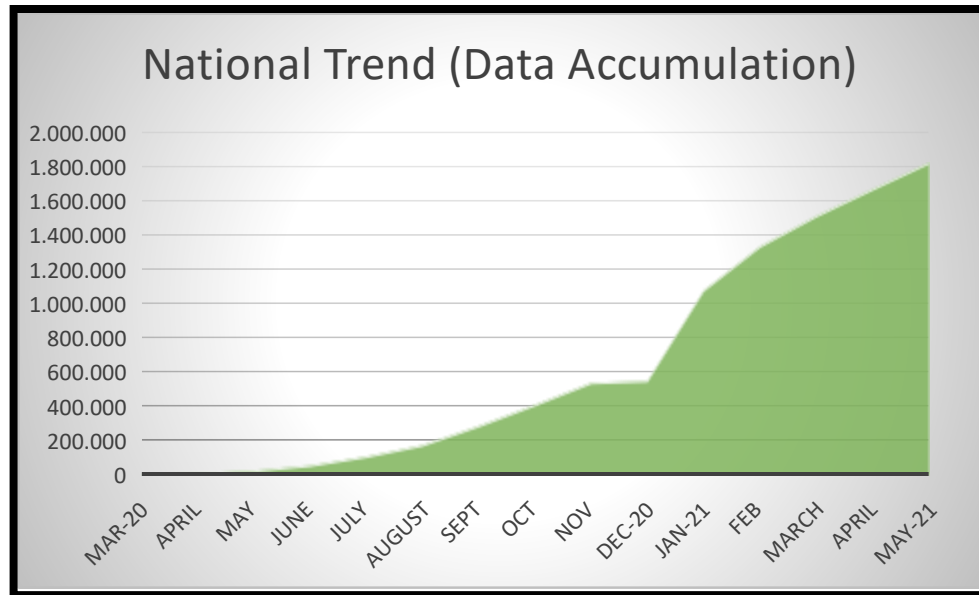


Figure 1, there is a significant expectation of Covid-19 case ta in Indonesia  
Source: Covid-19 distribution map (7)

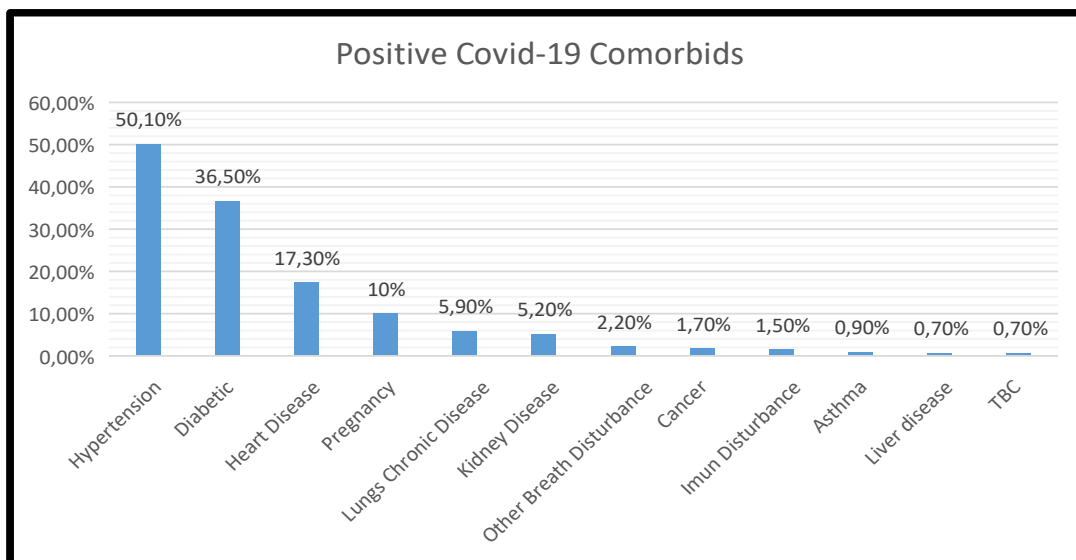


Figure 2. Comorbid condition Covid-19 Positive  
Source: Covid-19 distribution map (7)

## DISCUSSION

Coronavirus disease-19 (COVID-19) has been declared a global pandemic by the World Health Organization (WHO) because it has become viral and is increasingly spreading across the world. The majority of cases that result in death are due to comorbidities. Coronavirus disease-19 (COVID-19) patients are more likely to die if they have hypertension, which is one of the most common comorbidities. While hypertension cannot be cured, it can be managed with medication (11)

Uncontrollable risk factors for hypertension include gender, age, and genetics, while controllable risk factors include a balanced lifestyle that includes a high-fat, high-cholesterol diet, excessive salt consumption, smoking habits, consuming alcohol, a lack of exercise, being overweight, and being depressed. The age factor has an effect on blood pressure rise (12)

### A. Risk assessment depending on the dimensions that must be assessed

#### 1. The frequency at which losses occur

##### a. National Loss

The aggregate losses around the country are the easiest to quantify. Since this measure is macro in nature, it is only used by large-scale economic players or the government when planning (revising) the APBN. One method is to use the reference Gross Domestic Product (GDP), which is a year's worth of total output in a country. According to the Central Statistics Agency (BPS), Indonesia's annual per capita Gross Domestic Product (GDP) is USD 4,174.9 or IDR 59.1 million in 2019. (exchange rate IDR 14,156 per USD). Indonesia's GDP in 2019 will be IDR 15,833.9 trillion, with a population of 267 million. (13)

#### 2. Economic Loss

Layoffs, the occurrence of PMI Manufacturing Indonesia, decreased imports, increased prices (inflation), and losses in the tourism sector resulted in a decline in occupancy have all had an effect on the Indonesian economy as a result of the pandemic (14). The real effect of Covid on the economy that can be seen right now is the occurrence of layoffs. Many workers have been fired, and

several businesses have been threatened with bankruptcy. A total of 114,340 businesses have laid off or laid off employees, affecting a total of 1,943,916 workers, with the formal sector accounting for 77% of the total and the informal sector accounting for 23%. (15)

### 3. Sectoral Loss

The state budget would be impacted by national economic declines. And on April 1, 2020, the Minister of Finance, Sri Mulyani, made corrections (16). However, the aggregate statistic cannot always be used by business actors. This is due to the fact that not all businesses suffer the same losses. Certain industries, in particular, profit from social constraints. As a result, calculations must be made based on the business sector, followed by individual company calculations (corporation) (13)

### 4. Individual Loss and Corporate (Business People)

Individuals and businesses are collectively responsible for the execution of all of the above loss estimates. Countries suffer 'losses' as revenue falls - mostly due to taxes - as spending rises due to the need to cope with crises, provide social safety nets, and care for sick people, deploying more medical and personnel, paying interest on new loans, and so on. However, the losses will be offset by future (tax and non-tax) revenue, ensuring that the state will break even or make a profit, unless there is leakage, bribery, or corruption of state assets during implementation. (13)

### 5. Other Potential Downside

Aside from the losses that can be measured above, non-business causes can also cause losses. For instance, if economic hardships have resulted in a rise in crime and the destruction of commercial properties. As is well known, over 30 thousand inmates have been released due to fears of Covid-19 spreading in overcrowded jails. (13)

## 2. The Severity or Severity of The Loss

Comorbidities have significant indications for the disease outcome of COVID-19 (17). One of the most common comorbidities in COVID-19 patients is hypertension. In COVID-19 patients with ARDS, hypertension is also normal. Although it is uncertain if uncontrolled hypertension is a risk factor for contracting COVID-19, blood pressure monitoring is still recommended to minimize disease burden. (18)

Patients with comorbidities such as cardiovascular disease, diabetes, asthma, chronic respiratory disease, and malignancy have a higher mortality rate in severe cases (19). Specific comorbidities have been linked to an increased risk of infection and worse outcomes, including the development of increased severity of lung injury and mortality, according to research from Johns Hopkins University. According to one study, the most common comorbidities were hypertension (30%), diabetes (19%), and coronary heart disease (8 percent) (20). Corona patients with congenital disorders like diabetes and hypertension, as well as patients with weakened immunity, have higher care costs for corona or Covid-19. Treatment cost an average of Rp. 184 million, ranging from Rp. 2.4 million to Rp. 446 million. The government has set aside IDR 695.2 trillion for dealing with the covid-19 pandemic. The health budget was allocated Rp. 87.55 trillion out of this total. The high costs of treating corona or covid-19 patients are followed by fear of corona's worst side effects during treatment (21)

### B. Handling Covid-19 in the Presence of Hypertension: Risk Management

Non-Communicable Diseases (NCDs) are usually chronic in nature, lowering the immune system of the sufferer over time and making them vulnerable to infection, including infections caused by the COVID 19 virus. PTM patients are a COVID 19 fragile and comorbid category. Hypertension is a condition that is directly linked to one's actions and lifestyle, so it can be treated by altering one's behavior to lead a healthier life (9).

Here are several attempts to reduce the risk of Covid-19 transmission in hypertension patients:

#### 1. Health and clean life style

Regularly monitoring blood pressure, keeping food safe by reducing sugar, salt, and fat intake,

avoiding sweet foods, consuming more fruits and vegetables, maintaining an ideal body weight, and engaging in regular physical activity such as cycling or performing everyday activities at home are all ways to start living a clean and healthy lifestyle.

#### 2. Early detection

For people who have risk factors, early detection in the form of measuring blood pressure can be performed once a month, while stable people will have to scan at least once in a span of 6 months to 1 year.

#### 3. Medication and screening

This is followed up by a referral to a First Level Health Service Facility (FKTP) so that hypertension can be avoided and monitored right away. The main keys to identifying cases as early as possible so that effective procedures can be carried out are screening and early identification of accurate and normal blood pressure measurements.

#### 4. Discipline in carrying out 3M movement

To prevent transmission of Covid-19 from one person to another, everyone must wear a mask, keep a safe distance, and wash their hands. Good people without comorbidities and people with comorbidities must work together to protect themselves and the world in order to stop the pandemic from spreading.

#### 5. Health promotion

One way to reduce the prevalence of hypertension is to provide public health education. (7). To increase awareness and encourage the public to suppress the chain of spread of the Corona Virus, health education related to prevention and control of the spread of COVID-19 is required. (22)

Because of the large number of covid-19 cases of hypertension as a comorbid condition, sufferers of hypertension should be conscious of the risk of covid-19 transmission. Because of the extent of the losses incurred by the Covid-19 pandemic, different parties must work together to avoid, manage, and monitor it. Both parties must make efforts to live a safe life and take steps to avoid the spread of covid-19.

This study will include an initial summary of the risks and risk management for dealing with Covid-19, with hypertension being one of the factors that makes an individual

more susceptible to Covid-19. Covid-19 patients with hypertension are predicted to be identified through further studies. or other unique comorbidities dependent on the area or demographic factors of each province in Indonesia, so that treatment and follow-up can be tailored to the community's actual needs.

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