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Research

Overview of Covid-19 Patient Mortality in Gowa Regency in 2021

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ABSTRACT

The Covid-19 Case Fatality Rate in the World is 2.07% and Indonesia is 3.31% as of 7 September 2021. There are 2,129 people who died from Covid-19 in South Sulawesi Province with Gowa Regency ranking 2nd with the highest number of cases. This study aims to provide an overview of the mortality of Covid-19 patients in Gowa Regency in 2020. This quantitative type of research with a descriptive design uses Secondary Data Analysis (ADS). The population is 51 people with the sampling technique using total sampling. variables in this study include age, gender, and place of residence. The results obtained are cases of death due to Covid-19 are dominant in men (64.7%), elderly people with an age range of 46-55 years (33.3%), and domiciled in Somba Opu District (54.9%). %). Further research can be done using more complex variables. Researchers recommend to the local government to maximize care for patients who are male and elderly. In addition, tighten the mobility of people in densely populated areas so that the death rate does not increase.

1. Introduction

The World Health Organization (WHO) China Country Office found a case of pneumonia in Wuhan City, Hubei Province, China, on December 31, 2019. After identification, it was known that the etiology of the cause of the case was the novel coronavirus. In the initial course of the Covid-19 virus, WHO designated this condition as a Public Health Emergency of International Concern (PHEIC) on January 30, 2020. Cases are increasing and the rate of spread to various countries is accelerating, causing WHO to set a pandemic status on March 11, 2020 (Ariawan et al., 2020)

Based on Covid-19 data from the Center for System Science and Engineering (CSSE) from Johns Hopkins University, the number of confirmed positive cases of Covid-19 from around the world at the end of 2020 was 83.58 million people, this number continues to increase until it reaches 603.7

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million people on August 31, 2022. Not only that, the total number of deaths due to Covid-19 on a global scale has also increased rapidly, namely on December 31, 2020 by 1.88 million people, and reached 6.4 million people on August 31, 2022 (South Sulawesi Response to Covid-19, n.d.)

In Indonesia, the total increase in confirmed positive Covid-19 cases has also increased very rapidly from the end of 2020 to August 2022. Based on the data obtained, there were 743,198 people who were positive for Covid-19 on December 31, 2020 and increased to 6.3 million people on August 31, 2022. Meanwhile, the number of patients who have died also continues to increase, namely 22,138 people at the end of 2020 and reached 157,156 people who died on August 31, 2022 (South Sulawesi Covid-19 Response, n.d.). Based on the results of the analysis, the percentage of Case Fatality Rate (CFR) globally reached 3.4. Meanwhile, the value of Covid-19 in Indonesia reached 8.9%. This shows that the CFR value in Indonesia is higher than the CFR value globallyCFR is the number of deaths divided by the number of people confirmed positive. This CFR value describes the severity and risk of death due to Covid-19 which can be used as an evaluation of efforts to handle the Covid-19 pandemic (Setiati, S., & Azwar, 2020).

The high and increasing number of deaths is the basis of the researcher's interest in finding out the characteristics of people who die from Covid-19, especially in Gowa Regency, South Sulawesi Province. This is because the number of positive cases of Covid-19 in South Sulawesi Province as of September 10, 2021 was 106,777 people with 2,129 deaths. In addition, throughout 2020, there were 2,046 people who were confirmed positive in Gowa Regency and the latest data shows that the number of cases has increased rapidly to reach 8,504 people which makes Gowa Regency the district with the 2nd highest number of cases in South Sulawesi Province (South Sulawesi Tanggap Covid-19, n.d.).

This is the background so that the researcher aims to see the distribution of the frequency of characteristics of death cases due to Covid-19 in Gowa Regency by raising the title of the research "Overview of Mortality of Covid-19 Patients in Gowa Regency in 2021".

2. Method

This research is a type of quantitative research with a descriptive design that uses the Secondary Data Analysis (ADS) method. This research aims to draw or descriptive about a situation objectively using numbers, starting from data collection, interpretation of the data and its appearance and results. This research lasted for 5 days starting from September 10-15, 2021 in Gowa Regency, South Sulawesi Province. The data collected in this study were 51 subjects who had died. The stages in this research start from the approval of the title, data collection permit, data collection, data processing and analysis, interpretation, to dissemination of research results in the form of journals.

The variable in this study is the mortality of COVID-19 patients in Gowa district in 2021 which includes age, gender, and place of residence. The data is sourced from secondary data from the Gowa Regency Health Office. The results of this study were analyzed univariately to find out the picture of mortality of Covid-19 patients. Presentation of data in the form of frequency distribution tables.

3. Results & Discussion

Based on the analysis of secondary data that has been obtained, we can find out and see the picture of mortality of Covid-19 patients in Gowa Regency in 2021 which includes distribution based on month, age group, gender, and residence consisting of sub-districts and sub-districts/villages. The results of the analysis we obtained can be described as follows:

Table 1. *Distribution of the Number of Deaths of Covid-19 Patients in Gowa Regency in 2021*

Variable	Frequency (f)	Percentage (%)
Moon		
April	5	9,8%
May	5	9,8%
June	9	17,6%
July	10	19,6%
September	6	11,8%
October	7	13,7%
November	3	5,9%
December	6	11,8%
Age Group		
Toddlers (0-5 years)	1	2%
Early adults (26-35 years)	1	2%
Late adults (36-45 years)	5	9,8%
Early Elderly (46-55 years)	17	33,3%
Late elderly (56-65 years old)	15	29,4%
Senior (>65 years)	12	23,5%
Gender		
Man	33	64,7%
Woman	18	35,3%
District		
Bajeng	3	5,9%
West Bajeng	1	2%
Barombong	3	5,9%
Biringbulu	1	2%
Bontomarannu	6	11,8%
Pallangga	4	7,8%
Parangloe	1	2%
Pattalassang	2	3,9%
Somba Obu	28	54,9%
Snout Height	1	2%
Tompobulu	1	2%

Based on table 1, of the 51 people who died, the highest number of deaths occurred in July as many as 10 people (19.6%) and the lowest number of deaths occurred in November as many as 3 people (5.9%). The highest number of deaths occurred in July 2021. This is related to the increase in population mobility during the Eid homecoming. Based on this, we know that the government has implemented a policy of banning homecoming, but the community still implements the tradition of going home for Eid, which has caused a surge in Covid-19 cases up to 600 cases every day, so it can be concluded that the policy of banning homecoming in 2021 is less effective (Utomo et al., 2021).

The distribution of the number of deaths of patients due to Covid-19 based on their age group is classified according to the Ministry of Health of the Republic of Indonesia in 2009 which includes toddlers, children, early adolescents, late adolescents, early adults, early adults, early adults, and seniors. The number of deaths by age group of 51 people was dominated by the early elderly age group of 17 people (33.3%) and the least age group of toddlers, which was only 2%.

Age has become a benchmark, both a benchmark in leveling education, behavioral development, the distribution of employment rights, and so on. Age has become so important because each age group has different abilities to carry out activities. Age grouping is one way to make it easier to find out various accesses, such as education, health, rights and obligations and several other accesses. Patients who are positive for coronavirus infection can also have severe and aggravating symptoms if the patient has a comorbid disease. Comorbidities such as heart, hypertension, and diabetes mellitus can increase the risk of death in COVID-19 patients. This certainly presents anxiety and anxiety in the elderly with comorbid diseases (Tobing & Wulandari, 1980).

Studies show that the highest mortality in covid-19 patients occurs in the early elderly age group. In accordance with the research on the analysis of the influence of mortality rates due to covid, it is explained that there are individual factors that affect the occurrence of death in the elderly because in the elderly the aging process is characterized by a decrease in immunity, thus causing the body to be more susceptible to disease (Sari et al., 2020).

Other studies also show that the death rate in the elderly aged 60 years and above has reached 15.93%, which is caused by a decrease in immunity with age (Tobing & Wulandari, 1980). In addition, other studies related to finding groups at high risk of being infected with the coronavirus, according to the WHO organization, stated that the highest risk of being infected with the coronavirus occurs in the elderly due to a declining immune system so that it is easy to get infected with the disease (Siagian, 2020).

Research on the prevention of covid-19 for the elderly at the Husnul Khutmah Pekanbaru Nursing Home was carried out so that there would be no deaths in the elderly because the pandemic has the highest mortality rate in the elderly, because it has an immune function and high vulnerability (Erlin, 2021). Regarding another study entitled Coronavirus Disease 2019 in elderly patients: characteristics and prognostic factors based on 4-week follow-up, this study used univariate Cox Regression to analyze risk factors in elderly COVID-19 patients and resulted in the possibility of death occurring in the elderly (Wang, 2020).

In connection with this, there is also a study conducted in Daegu/Gyeongsangbuk-do province of Korea related to risk factors for death and respiratory support in elderly patients hospitalized with Covid-19 in Korea showing that risk factors for death in elderly covid patients include severe early presentation, laboratory abnormalities, especially high CRP (Lee et al., 2020). Another study conducted in China related to risk factors that predict mortality rates in elderly patients is age and fever, because the initial body temperature of the elderly is low so that they are susceptible to disease and are at high risk in the elderly (Leung, 2020).

Another factor that causes the elderly to experience death in covid patients is in accordance with research conducted in China on the relationship between prealbumin at baseline and COVID-19-related mortality in elderly patients and it is proven that prealbium is an independent risk factor

for death in elderly covid patients (Zuo et al., 2020). Another study in China is also related to risk factors that affect the prognosis of elderly patients infected with COVID-19: a clinical retrospective study in Wuhan, China found that the factors that cause mortality in elderly covid patients were comorbidities, increased levels of C-reactive protein and blood urea nitrogen, and lymphopenia during hospitalization (Gao et al., 2020).

Based on table 1, it shows that there are more male patients than women. There were 33 deaths of men or 64.7% and 18 people who were female with a percentage of 35.5%.

Global data shows that the mortality rate of Covid-19 cases is higher among men compared to women. Most countries with available data show the ratio of male and female case deaths to be higher than 1.0 or range to 3.5 in some cases. Previous research from India has also shown that there are striking gender differences in access to healthcare. Women are less likely to be hospitalized than men (Dehingia & Raj, 2020).

This study is in line with the research of Hennah Peckham et al. (2020) which shows that sex differences in the prevalence and outcomes of infectious diseases occur at all ages, with a higher overall burden of bacterial, viral, fungal and parasitic infections in men. Previous coronavirus outbreaks have shown the same gender bias.

The Hong Kong SARS-CoV-1 epidemic showed an age-adjusted relative mortality risk ratio of 1.62 (95% CI = 1.21, 2.16) for males. The MERS outbreak in Saudi Arabia in 2013 - 2014 showed a case fatality rate of 52% in men and 23% in women (Peckham et al., 2020).

Epidemiological findings reported in different parts of the world show higher morbidity and mortality in men than women. Biological differences in the immune system between men and women can affect the ability to fight infections including SARS-2-CoV-2.

Generally, women are more resistant to infection than men. Gender-based immunological differences are driven by sex hormones and X chromosomes, and also most of these differences in mortality rates are due to gender behaviors (lifestyle), i.e. higher rates of smoking and alcohol consumption in men compared to women (Bwire, 2020).

A report on 3,200 Covid-19-related deaths from Italy shows a higher mortality rate in men than women, at more than 70% of deaths. A multinational health research database using the TriNetX Network showed that among 14,712 male and female patients with confirmed Covid-19 men were older, more likely to be hospitalized, and had a prevalence of hypertension, diabetes, coronary heart disease, obstructive pulmonary disease, nicotine dependence, and heart failure. Men also have higher overall causes of death than women. In addition, the cumulative likelihood of survival was significantly lower among men after adjusting for age, comorbidities, and use of angiotensin-modifying enzyme inhibitors (ACEIs) or angiotensin receptor blockers (ARBs).

In addition to gender differences in immune, hormonal, and gene responses, there are also psychological, social, and behavioral components that affect the development of Covid-19. Compared to women, men tend to engage in higher-risk behaviors that have the potential to contract Covid-19. Polls taken at the beginning of the first wave of Covid-19 cases in the United States showed gender differences in the perceived severity of the pandemic. Another study in the U.S. found that men were more likely to underestimate the severity of the virus's potential to harm them. Additionally, compared to women in many countries, including the United States, men tend to have

higher rates of behaviors related to Covid-19 infection and death, including higher rates of tobacco use and alcohol consumption (Griffith et al., 2020).

Although the number of male cases is no different from the number of female cases, men have about twice the risk of dying from Covid-19, leading to a variety of hypotheses, from lifestyle to chromosomal differences. Hypotheses based on known risk factors changing with sex and age seem to be the most likely explanation for the observed differences. These include differences in employment, lifestyle (including smoking and alcohol use), medical comorbidities, or drug use (Verkuil et al., 2020).

In the research variables conducted by Anggun et al. (2020), it was found that there was a significant relationship between gender and public knowledge in South Kalimantan regarding Covid-19 prevention.

Based on the results of the study, it can be concluded that people with female sex tend to have better knowledge about Covid-19 prevention when compared to men. This is because people with the female gender have more time to read or discuss with their environment regarding the prevention of Covid-19 (Wulandari et al., 2020).

Based on the results of the analysis, there are 11 out of 18 sub-districts that have cases of death due to Covid-19 with details of 31 out of 167 affected sub-districts/villages. Somba Opu District accounted for the highest number of deaths, which was 28 people and there were 5 sub-districts that only had 1 death case due to Covid-19, including Bajeng Barat, Biringbulu, Parangloe, Tinggimoncong, and Tompobulu Districts.

Based on this, we know that the number of deaths dominates in densely populated sub-districts and large levels of community mobilization. The population profile of Somba Opu sub-district shows that 19.95% of the population distribution in Gowa Regency rests on this sub-district. Somba Opu District is also the sub-district with the largest population, namely 130,126 people with a density level of 4,632 people/km2 (Wikipedia somba opu district). In addition, Paccinongang village is the 4th largest village in Somba Opu district, which covers an area of 2.32 km3 (Gowa Regency).

The results of this study are in line with research conducted by Katarzyana el all in 34 European countries in 2021, this study concludes that the size of the population, the number of foreign travelers, and the mobility of the community have a significant influence on the number of daily deaths due to Covid-19 (Jabłońska et al., 2021). A similar study was also conducted by Jennifer Viezzer and Daniela Biondi in Brazil in March 2021. They concluded that based on the results of the analysis using Spearman and Kendall coefficients, there was a strong correlation (> 0.50) between the death rate due to Covid-19 and urbanization factors which included population and demographic density (Liang et al., 2020).

In 2021, Habni Hamara, et al. also analyzed the influence of population density on deaths due to Covid-19 in DKI Jakarta Province and concluded that these two variables are interrelated (Azmaty, H. H., Permana, H. A., Agustina, L., Ramdhani, M. F., Zaqi, N. A. R., & Yuhan, 2021). Population density and large population numbers lead to increased concentrations of harmful chemical compounds called Nitrate (NO2). This compound is sourced from motor vehicle emissions in traffic areas.

Based on research conducted by Donghai Liang et all in the United States in 2020, it was found that long-term exposure to NO2 can affect the severity of Covid-19 cases resulting in an increased risk of death in patients (Liang et al., 2020).

In addition, a study in Italy conducted by Marco Dettori, et all also examined the relationship between air pollution and the death rate due to Covid-19 and concluded that Particulate or PM10 sourced from anthropogenic such as motor vehicles, biomass burning, and fuel burning that generally dominate in urban areas can increase the risk of death from Covid-19 (Liang et al., 2020).

4. Conclusion

The overview of Covid-19 Patient Mortality in Gowa Regency in 2021 is known to occur more in men (64.7%), elderly people in the age range of 46-55 years (33.3%), and domiciled in Somba Opu District (54.9%). This research is very effective and efficient during the Covid-19 pandemic because it uses secondary data as a data source. The lack of variation in the variables studied is a shortcoming in this study. This picture of patient mortality due to Covid-19 can be developed by using more complex variables such as comorbid diseases, self-isolation efforts, the level of treatment received by patients, and so on in order to obtain more descriptive results in the future. The researcher recommends to the Gowa Regency government to maximize treatment for male and elderly patients. In addition, it is also necessary to tighten the mobility of people who live in densely populated areas, especially Somba Opu District. The community is expected to continue to tighten the implementation of health protocols and pay attention to the condition of their respective families, especially the elderly. For further research, it is expected to analyze other variables in order to provide a more complex picture of mortality.

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