

ORIGINAL ARTICLE

Case Description of COVID-19 (Coronavirus Disease19) in Kediri Regency, East Java Province, Indonesia 2020-2021

Wulandari Suryaningsih Swadayanti

Program Study of Magister Epidemiology, Faculty of Public Health, Universitas Airlangga, Surabaya 60115, Indonesia

ABSTRACT

Introduction: Kediri Regency ranks 6th highest active case of COVID-19 in East Java with a total of 283 active cases with a CFR of 7.785%. The COVID-19 situation is still very high risk. This study aims to describe COVID-19 cases in Kediri Regency in 2020-2021 based on person, place, and time. **Materials and Methods:** This type of research is descriptive observational research with secondary data from the Kediri Regency District Level Health Office. Descriptive analysis was conducted to describe COVID-19 cases based on three determinant variables in descriptive epidemiology. **Results:** The majority of COVID-19 cases attacked women in 2020 and 2021, as many as 55.80% and 55.25% with the highest age category attacking the same age category, namely the early elderly with a total of 23.96% and 19.20%. The highest death cases attack the same age category, namely the late elderly with a total of 34.90% and 31.45%. The areas with the highest cases were in the working area of the UPTD Puskesmas Ngasem with 10.32% and 8.54%. Meanwhile, the highest cases of COVID-19 in 2020 occurred in December amounting to 48.88% and in 2021 the highest occurred in July amounting to 41.55%. **Conclusion:** All of the variables showing the same correlation with previous studies, only 1 variable is not appropriate, namely gender. Suggestions that can be given are the implementation of Restrictions on the Implementation of Community Activities, the implementation of the 5M health protocol should proceed, and increasing the achievement of COVID-19 vaccination.

Keywords: COVID-19, Person, Place, Time

Corresponding Author:

Wulandari Suryaningsih Swadayanti, B.P.H.
Email: wulandari.suryaningsih.swadayanti-2020@fkm.unair.ac.id
Tel: +6282238483737

INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is an infectious disease that has never been identified in humans. This disease is caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) with general signs and symptoms such as acute shortness of breath, namely fever, cough, and shortness of breath. The average incubation period of the disease is 5-6 days, and the longest incubation period is 14 days. In severe cases, the disease can cause pneumonia, acute respiratory syndrome, kidney failure, and death (1). COVID-19 spreads through droplets. This transmission occurs when a person is in close proximity (within 1 meter) of a person with respiratory symptoms such as coughing or sneezing, so there is a risk of droplets entering the mucous membranes (mouth and nose) or conjunctiva (eyes). Transmission can also occur through droplet contaminated objects and surfaces

near a person infected with COVID-19. So that the transmission of the COVID-19 virus can occur through direct contact with infected people and indirect contact with surfaces or objects used by infected people (2).

COVID-19 was first discovered in Wuhan, China which became the focus of world attention due to the outbreak of a febrile respiratory disease caused disease by the 2019-nCoV corona virus (3,4). COVID-19 by the World Health Organization (WHO) has been declared a pandemic in the world, and in Indonesia it is classified as a national disaster under Presidential Decree No. 12 of 2020 (1,5). Indonesia reported its first case on March 2, 2020. The number of confirmed cases as of December 31, 2020 was 743,198 cases with 109,963 active cases. The highest number of confirmed cases was reported from DKI Jakarta (183,735), East Java (84,152), and West Java (83,579) (2). East Java ranks second with the highest number of active COVID-19 cases, and Kediri Regency ranks no. 6 with the highest active cases in East Java with a total of 283 active cases with a CFR (Case Fatality Rate) of 7.785% (6).

So far, the COVID-19 situation remains very fragile at the global and national levels so that it has an impact on

daily life, health and the global economy (7). To suppress the spread of the virus and to contain the pandemic, one of the policies implemented is to impose Large-Scale Social Restrictions in accordance with Minister of Health Regulation Number 9 of 2020 concerning Guidelines for Large-Scale Social Restrictions in the context of Accelerating the Handling of COVID-19 (1). In addition, the implementation of the health protocol, namely washing hands, wearing masks, maintaining distance, staying away from crowds and reducing mobility, is an effort to help prevent the transmission of the COVID-19 virus (8).

Kediri Regency as an effort to prevent and control COVID-19 and pay attention to the increasing number of cases of COVID-19 transmission, the Kediri Regent issued a policy through the Kediri Regent Circular Number 440/060/21 which stipulates Restrictions on the Implementation of Community Activities during the Pandemic. The public is advised to remain disciplined in implementing health protocols, a healthy lifestyle or a Clean and Healthy Living Behavior such as regular rest, consuming fruits and vegetables, and exercising to increase body resistance in preventing the spread of COVID-19 (9). Based on the facts above, the researcher aims to describe cases of COVID-19 in Kediri Regency East Java Province Indonesia in 2020-2021.

MATERIALS AND METHODS

The type of research used is descriptive observational research. The research was conducted in Kediri Regency, East Java in January-February 2022 with the data source obtained from secondary data from the Kediri Regency District Level Health Office. Descriptive analysis was carried out in this study to describe COVID-19 cases in Kediri Regency in 2020-2021 (January-December) based on three determinant variables in descriptive epidemiology, namely people, place and time.

RESULT

There were 2,412 cases of COVID-19 in Kediri Regency in 2020 with a CFR of 7.96%, while in 2021 an increase of 11,715 cases with a CFR of 8.63%. Based on descriptive epidemiology, there are three determinant variables of a disease, namely Person, Place, and Time.

Person

According to Figure 1, it indicates COVID-19 cases in Kediri Regency have increased significantly from 2020-2021, both male and female. However, the most cases occurred in women with 55.80% in 2020 and 55.25% in 2021.

COVID-19 cases in Kediri Regency have experienced a significant increase from 2020-2021 in all age categories. The highest cases attack in the same age category, namely the early elderly (46-55 years) as many

The Distribution of COVID-19 Cases by Gender in Kediri Regency in 2020-2021

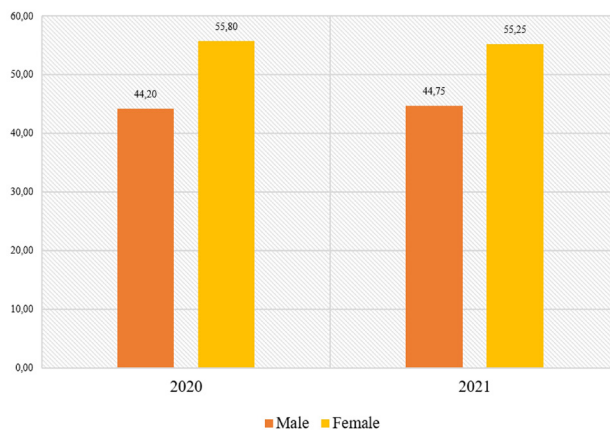


Fig. 1: Distribution of cases by gender

as 23.96% in 2020, while in 2021 it is 19.20% (Figure 2). Based on Figure 3, it shows that the highest number of cases of death due to COVID-19 in 2020 was in the late elderly age category (56-65) amounting to 34.90%, and in 2021 it attacked in the same age category, namely the late elderly with a total of 31.45%.

The Distribution of COVID-19 Cases by Age Category in Kediri Regency in 2020-2021

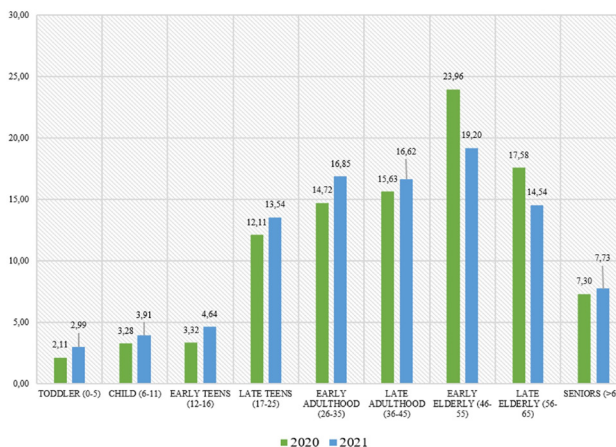


Fig. 2: Distribution of cases by age category

Distribution of Death Cases Due to COVID-19 by Age Category in Kediri Regency in 2020-2021

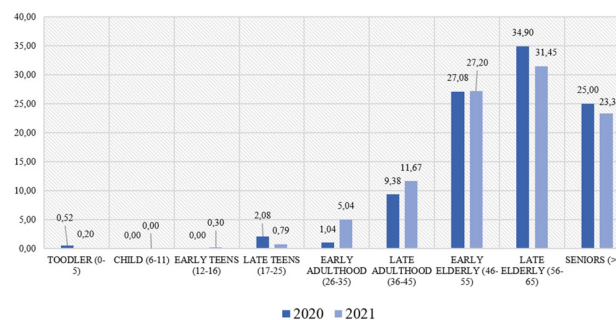


Fig. 3: Distribution of death cases due to COVID-19

Place

Figure 4 shown the distribution of COVID-19 cases in 2020-2021 based on the distribution of cases in 37 working areas of Puskesmas in Kediri Regency. It shows that confirmed cases in 2020 experienced a significant increase in 2021 in all regions. The highest confirmed cases were in the working area of the UPTD Puskesmas Ngasem is 10.32% in 2020 and 8.54% in 2021.

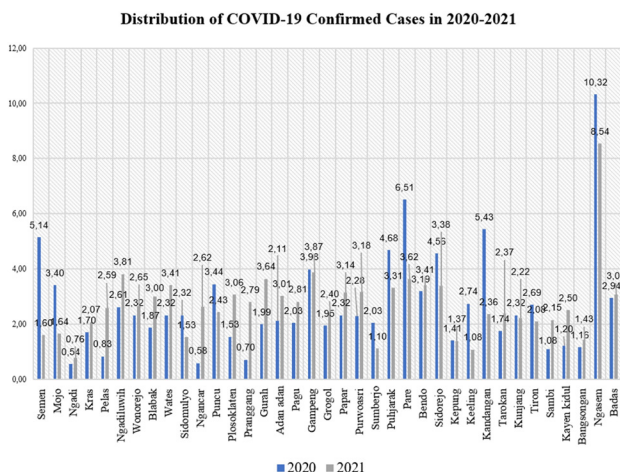


Fig. 4: Distribution of confirmed COVID-19 cases by puskesmas work area in Kediri Regency.

Time

COVID-19 cases have increased from 2020 to 2021. The highest number of cases in 2020 was in December at 48.88%, while in 2021 the highest cases occurred in July at 41.55% (Figure 5).

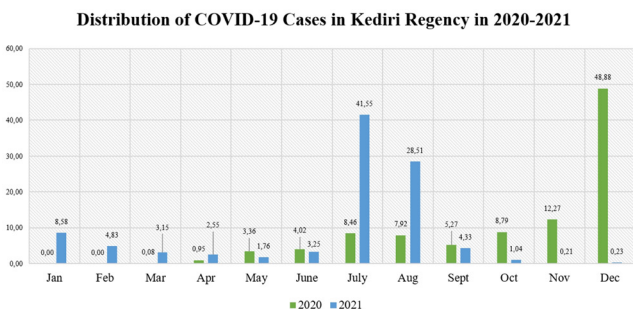


Fig 5: Distribution of COVID-19 cases in 2020-2021.

DISCUSSION

In descriptive epidemiology, the determinant / frequency of a disease can change according to changes in epidemiological variables consisting of person, place and time (10). Based on the results obtained, it can be seen that COVID-19 attacks equally in both men and women. However, based on the results obtained, it shows that COVID-19 in Kediri Regency attacks women more. This is in contrast to a study conducted by the Chinese CDC which stated that COVID-19 was most common in men (51.4%) (11). The study conducted by Min Jin et al (2020) also showed that out of 425 patients

with COVID-19, 56% were male. Another study of 140 patients also found that 50.7% were male (12). Men are more susceptible to being exposed to COVID-19 because men leave the house more because of work factors. In addition, other factors are chromosomal factors and hormones in men. Women have an X chromosome and the hormone progesterone, which plays a role in providing innate and adaptive immunity. Women usually have better knowledge of COVID-19 risk factors than men. In addition, the higher prevalence of active smokers in men is thought to trigger an increase in ACE2 receptor expression (13). Binding to the ACE2 receptor here will help the SARS-CoV2 virus enter the host cell, and overexpression of ACE2 in humans will increase the severity of the COVID-19 infectious disease (14).

Cases of COVID-19 in Kediri Regency mostly attack the early elderly age group (46-55 years). This is supported by research from the Chinese Center for Disease Control and Prevention, which found that most COVID-19 cases occurred between the ages of 30 and 79 (87%), and the fewest were younger than 10 years (1%) (10). In addition, it is supported by research conducted by Ernawati, which shows that in Pati Regency the most cases of COVID-18 attack the age group 46-59 years with a total of 637 people (36.59%) (15).

Cases of death due to COVID-19 also mostly attack the late elderly age group (56-65 years). That's because it's well known that older age or people with genetic disorders are at higher risk for more severe disease, and older age is also associated with mortality (16). In addition, mortality may also be affected by the patient's congenital disease. The incidence was 10.5% in those with cardiovascular disease, 7.3% in those with diabetes, 6.3% in those with chronic respiratory disease, 6% in those with hypertension, and 5.6% in those with cancer (1). Based on the study of Sudharsanan et al (2020), the highest CFR was in Italy, Spain and the Netherlands while the lowest CFR occurred in Switzerland, France, United States and Germany. Some of the factors that cause this difference in several countries are the timely identification and treatment of COVID-19, the quality of health care especially for the treatment of chronic conditions, and the main one is the readiness of health facilities for COVID-19 treatment (17).

Based on the working area of the Puskesmas in Kediri Regency, the results show that more cases of COVID-19 in 2020 and 2021 will occur in the working area of the UPTD Puskesmas (Primary Public Healthcare) Ngasem Kediri Regency. The working area of the Ngasem Health Center is in the Ngasem District which is the most populous sub-district with a population density of 2,726 people/km² (18). This is one of the strong influences on the high number of COVID-19 cases in Kediri Regency. Supported by research conducted by Ernawati which states that there is a strong influence of population density on the high number of COVID-19 cases with

a correlation coefficient (R) of 0.890, so that the high number of COVID-19 sufferers in Pati Regency is 79% influenced by the population density factor (value of 79%). $R^2 = 0.793$ (15). The results of the study by Wong and Li (2020) also show that there is a strong positive relationship between population density and the number of COVID-19 cases. The high population density makes social distancing even more difficult to implement (19). For the distribution of COVID-19 cases in 2020 and 2021, the results show that there is a significant increase in cases and deaths from 2020 to 2021. In 2020, the highest cases occurred in December. Meanwhile, in 2021, the highest cases occurred in July. This is due to the increased mobility of the people during that month. The high mobility of the community is due to the fact that this month is the Eid Al-Fitr holiday as well as the Christmas and New Year holidays. The government has issued a policy of eliminating Eid Al-Fitr homecoming, but this is not enough to suppress population movements. When the homecoming ban was enforced, mobility in shopping centers increased by 34.14%, in parks it rose to 20.43% and in retail and recreation areas it increased by 1.43%. This high mobility rate along with the emergence of the more contagious Delta variant caused a significant increase in cases for 9 weeks after Eid (20). This is because travelers have the potential to become carriers from areas that have been exposed to COVID-19, so they can become sources of transmission and expand areas of exposure to COVID-19. The likelihood of the virus infecting more people is increasing, so the epicenter of COVID-19 may be due to high levels of back-and-forth traffic in an area. As it turns out, East Java and Central Java, the regions estimated to have the most returnees, are now the new epicenters of COVID-19 transmission and occupy the top 5 regions in Indonesia with the most positive cases (21).

CONCLUSION

COVID-19 cases in Kediri Regency experienced a significant increase in cases and death cases from 2020 to 2021. Based on the distribution of cases by person, the highest COVID-19 cases occurred in women and the early elderly age group, with the highest case of death occurred in the late elderly age group. Based on the distribution of cases by place, the highest cases occurred in the working area of the UPTD Puskesmas Ngasem. Based on the distribution of cases by time, the highest COVID-19 cases in 2020 were in December and in 2021 the highest occurred in July. All variables showed the same correlation with previous studies, but one variable that did not match was gender.

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