THE EPIDEMIOLOGY OF COVID-19 IN PANDEYAN UMBULHARJO, YOGYAKARTA CITY IN 2021

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Abstract

Background: COVID-19 is an acute respiratory infection caused by the Coronavirus, known as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). The emergence of COVID-19 has affected the health conditions of all countries, especially Indonesia. Efforts to prevent and control the spread of cases include conducting epidemiological investigations. Indonesia uses community health centres as primary health services to prevent transmission through surveillance systems such as epidemiological investigations. This research describes the epidemiological of COVID-19 in the Pandeyan region of Umbulharjo Yogyakarta City from June to August 2021. **Objective:** This study aims to describe the epidemiology of COVID-19 cases in the Pandeyan, Umbulharjo Yogyakarta City from June to August 2021. **Method:** This was quantitative descriptive research using secondary data from epidemiology investigation. The population in this study was all people who were the target of Epidemiology Investigation in Pandeyan, Umbulharjo, in June-August 2021, namely 477 perople. The sample was taken by total sampling. The instrument used was the Epidemiological Investigation Form (PE) result. **Results:** The most cases of COVID-19 were women, namely 271 (56.81%), with the most extensive age range being 26-35 years, namely 94 cases. The most cases of COVID-19 were found in RW 6, Pandenyan (107 cases). In July 2021, 260 cases were reported; the highest cases were on June 30, 2021. **Conclusion:** COVID-19 cases are often found in RW 6, Pandeyan, Umbulharjo. In July 2021, as many as 260 cases were reported, and a spike in daily cases was observed on June 30, 2021.
Keywords: COVID-19, Epidemiological Investigation, Yogyakarta

Introduction

COVID-19 is a health problem that has become a concern throughout the world. This disease is an acute respiratory infection caused by Coronavirus called Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). This disease was first reported in December 2019 in Wuhan, China (1) According to WHO, the spread of COVID-19 was very fast throughout the world and caused a pandemic with a total number of reported cases of approximately 17.1 million people in early August 2021, and was reported to cause deaths of around 700 thousand people (2,3).

COVID-19 was first reported in Indonesia on March 2, 2020. The latest case data was reported in Indonesia on May 6, 2020. The confirmed cases were 104,432, with a total of 4,975 deaths, and the percentage was 4.8% (4). The World Health Organization (WHO) has confirmed COVID-19 as a global pandemic and in Indonesia and is determined as national disaster. Several studies also show that the death rate for COVID-19 varies, with some stating it was 2.84% and other studies saying it was 15% and 33%. The severity of COVID-19 is also influenced by the body's immune system, age, and several comorbid diseases (5).

Based on COVID-19 data as of June 2021, in the Yogyakarta area, there were 5,639 confirmed cases reported, with a spike in cases of up to 145.6% (6). Efforts that can be made to prevent and control the broader spread of cases are Epidemiological Investigations (EI). This EI was carried out to anticipate more severe incidents in the Yogyakarta area, especially in Umbulharjo District and Umbulharjo Village. Pandeyan Village is an agglomeration area with an increasingly sizeable built-up area. This area comprises seven villages divided into 13 RWs and 53 RTs (7). The level of building density indirectly affects the transmission of the COVID-19 virus (8) EI functions to anticipate so that disease can be anticipated early and does not cause fatalities. Knowing the epidemiological situation of COVID-19 in urban areas during the previous pandemic will provide lessons for determining policies and intervention measures to prevent further transmission. Therefore, this study describes the epidemiological investigation of COVID-19 cases in the Pandeyan region of Umbulharjo Yogyakarta City from June to August 2021.

Method

This research design was quantitative descriptive using secondary data of epidemiological investigation and profile data of the work area of the health center. The population in this study were all people who were the target of EI in Pandeyan, Umbulharjo, in June-August 2021, namely 477. The sample was taken by total sampling. The instruments used were the secondary data from Epidemiological Investigation Form (EI).

This study utilises authorised secondary data obtained from the appropriate sources. Given that the study does not include invasive human subjects, ethical clearance is unnecessary.

Results

Results of investigations into COVID-19 cases in June-August 2021 in the Pandeyan area Umbulharjo, the number of cases based on female gender (n=271) or 56.81%, male (n=206) or 43.19%. During the period of June-August 2021, the age group of 26-35 years exhibited the highest incidence of cases, followed by the age groups of 36-45 years and 56-65 years. Conversely, the 5-year age group had the fewest number of cases.
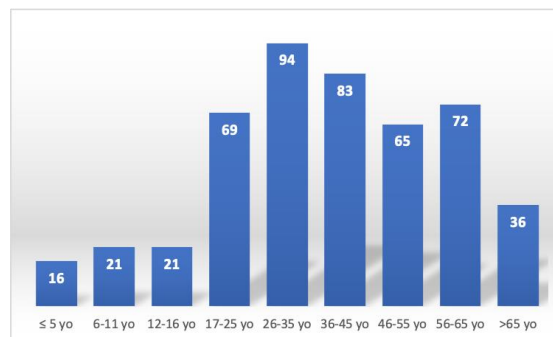

Figure 1. Distribution of COVID-19 Cases According to Age in June-August in the Pandeyan, Umbulharjo 2021

Based on residence in the Pandeyan region, Umbulharjo shown in Figure 2, RW 6 has the highest number of cases (n=107) compared to other RWs. Next, RW6, RW 8 and RW 2 were arranged as the top 3 areas that had the highest COVID-19 cases at that time. The RWs with the lowest COVID-19 cases were RWs 42 and 28 with 1 and 2 cases respectively in the same measurement period
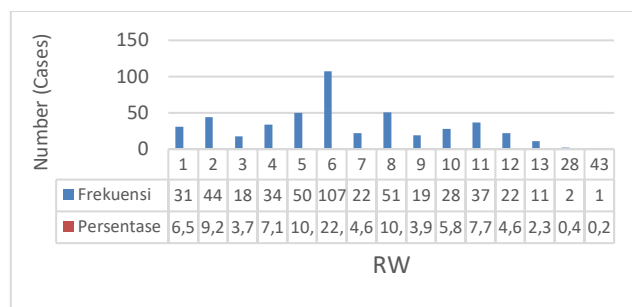
Figure 2. Distribution of COVID-19 Cases Based on Residence in June-August in the Pandeyan Region Umbulharjo in 2021

In June-August 2021, during a 3-month observation period, the month of July 2023 saw the highest number of instances, totalling 260. In June 2021, there were 144 cases, whereas in August 2021, there were 73 cases (Figure 3).
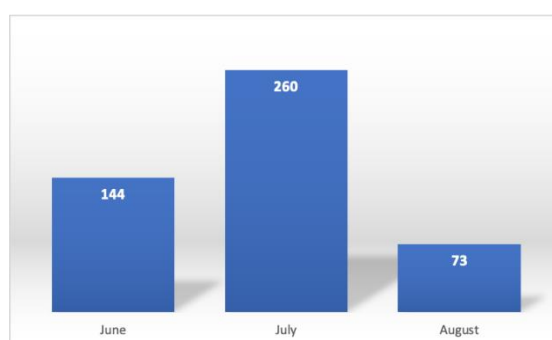

Figure 3. Distribution of COVID-19 Cases in June-August in the Pandeyan Region in 2021

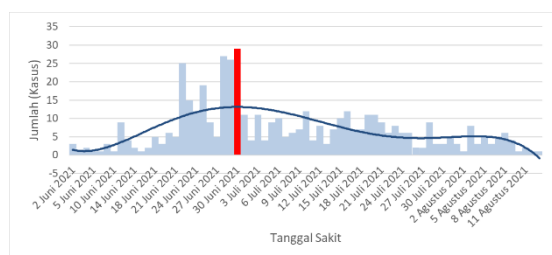The highest daily cases of COVID-19 were found on June 30, 2021 (Figure 4).

Figure 4. Distribution of Daily COVID-19 Cases in June-August in Pandeyan, Umbulharjo 2021

Discussion

Epidemiological investigations are carried out to identify the nature of the causes, sources, and modes of transmission, as well as factors that can influence the emergence of an outbreak. This investigation was carried out to prevent outbreaks or epidemics and break the chain of transmission so that it is reduced to a minimum (9)This epidemiological investigation will produce several data including knowing the descriptive picture of an event, especially an extraordinary event. By knowing the descriptive picture of the incident, precise action can be taken in accordance with real evidence and evidence.

The distribution of COVID-19 cases based on gender in June-August in Pandeyan sub-district in 2021 was predominantly female. This is also in line with previous research that during a pandemic,

women have a higher vulnerability (10) However, the claim that women are disproportionately impacted by COVID-19 is unfounded. Currently, the transmission of this virus does not discriminate based on gender(11). COVID-19 affects individuals indiscriminately, irrespective of their gender, age, or other demographic factors. Nevertheless, evidence indicates that the severity of disease and mortality rates associated with COVID-19 may differ among genders. Preliminary research indicates that males are more prone to experiencing greater severity compared to females (12). Several elements that can impact this include biological variations, such as the immune system and hormones, as well as health behaviours and lifestyle choices.

Based on the age range, most cases were found between the ages of 26-35. According to previous research, there is a relationship between age and the number of individuals infected with COVID-19; this is due to mobility, transmission, and compliance with health protocols for this age group of the population, which tends to be undisciplined (13,14). The movement of individuals is a significant component that contributes to the age-related difference. Younger individuals typically display heightened levels of social engagement, characterised by frequent contacts in social environments, hence increasing the likelihood of being exposed to the virus (15). Their vigourous lifestyles and frequent social interactions may enhance the probability of encountering infected individuals or contaminated surfaces.

The spread of COVID-19 is significantly influenced by transmission dynamics, which also contribute to the observed age-related patterns of infection. Specific demographic cohorts may have a higher propensity for engaging in behaviours that contribute to the transmission of the virus, such as disregarding physical distancing protocols or failing to consistently utilise personal protective equipment. Furthermore, the efficacy of preventive interventions, like as wearing masks and practicing hand cleanliness, may differ across various age groups (16).

In addition, adherence to health standards plays a crucial role in determining the vulnerability of certain age demographics. Younger persons may display a proclivity for non-compliance with recommended guidelines, since they may regard themselves to have a lower susceptibility to serious sickness (17). This view can lead to a relaxed approach in implementing preventative measures, hence significantly enhancing the probability of virus transmission among individuals in this age group.

The association between age and COVID-19 infection rates can be explained by the interaction of movement patterns, transmission dynamics, and the amount of adherence to health protocols among different age groups (18). Comprehending these aspects is essential for customising public health interventions and communication methods to successfully tackle the various difficulties presented by different age demographics in the context of the ongoing epidemic.

The area with the highest number of COVID-19 cases in June-August was RW 6, with the highest total cases being 107 (22.43%). Various possibilities influence the high number of cases in this area. This is appropriate if seen from the field conditions in RW 6; Kalurahan Pandeyan has a reasonably high population density with houses close together. Densely populated urban areas cause faster disease transmission with more compact and complex distribution chains (19). Previous research shows that population density in an area can influence the number of cases that appear (20).

There are fluctuations in the findings of COVID-19 cases; in June-July, cases increased (n=260). A decrease in cases occurred in August (n=73). The highest daily cases were found on June 30, 2021. Variations in the number of cases based on time could be due to *testing and tracing capacity and* vaccination coverage, which could reduce the incidence of COVID-19 at that time (21,22).

The obstacles during epidemiological investigation include complex patients who do not want to be contacted, and some even underestimate COVID-19. Health facilities provide limited medicine for patients; there still needs to be more implementation of self-isolation procedures, where confirmed patients are still found but do not carry out isolation, and there are misunderstandings about self-

isolation. Many people also need to report positive cases, so reports come in late, and the treatment is less effective (23).

COVID-19 has caused many people to feel that their economic activities have been hampered and caused a decline in the community's social welfare level. This can be seen from the many people laid off due to the COVID-19 pandemic, the loss of job vacancies, and the fact that many people have become unemployed. The impact seen from the immediate conditions was that many people found their income reduced due to the implementation of PPKM, so all activities were limited; the implementation of PPKM also caused many workforce reductions and even the closure of workplaces due to losses. Especially for street vendors whose source of income comes from students or college students, their income has experienced a significant decline. So, this impacts the declining economy and poverty in society. Then, there is another critical impact, namely that it can be seen from the data and analysis results that there was a decrease in COVID-19 cases in August 2021 and that the number of COVID-19 cases was suppressed when early detection was carried out.

Conclusion

According to the OTW, COVID-19 cases in region COVID-19 cases are most often found in RW 6 with a total of 107 cases. In July 2021, 260 cases were reported, and daily cases experienced a spike on July 30, 2021.

Mitigation measures that can be taken include providing education, health promotion, vaccination, and implementing the 5 M's: wearing a mask, maintaining distance, washing hands, limiting mobility, and avoiding crowds.

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