

Original Research Article

Characteristics of confirmed COVID-19 patients receiving treatment at Sanglah hospital for January-February 2022

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ABSTRACT

Background: The ongoing mutation of the COVID-19 virus causes an increase in transmission and a decrease in vaccine effectiveness. COVID-19 cases since the end of 2021 have continued to increase, and data on the characteristics of patients with confirmed COVID-19 at Sanglah hospital for this period is not yet available. Therefore, this study aims to determine the characteristics of confirmed COVID-19 patients who received treatment at Sanglah hospital from January to February 2022.

Methods: This study is a descriptive study using a cross-sectional approach taken from medical record data.

Results: There were 276 COVID-19 patient subjects with an average age of 53 years, consisting of 51.1% male and 48.9% female. Most occupations are private employees, 29.0%. The 39.5% of patients had mild symptoms, and 5.8% had critical symptoms. Cough (51.8%) and fever (40.6%) were the main clinical symptoms, and chronic kidney disease was the most common comorbidity at 16.7%. As many as 46.0% of COVID-19 patients have received vaccines at least 2x, and 2.9% of patients are previous COVID-19 survivors.

Conclusions: The characteristics of confirmed COVID-19 patients who received treatment at Sanglah hospital in January and February 2022 were more male than female, with the most jobs as private employees. Most patients have mild to moderate symptoms with a chief complaint of cough. Almost half of the patients have been vaccinated at least 2x. Most of them are not COVID-19 survivors.

Keywords: SARS-COV-2, Characteristics of COVID-19, Clinical symptoms, Vaccination status, Sanglah hospital

INTRODUCTION

Currently, a health crisis has hit the whole world due to the spread of the novel coronavirus 2019 (2019-nCoV) or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes COVID-19 disease. COVID-19 is a disease caused by a virus that is highly contagious and has catastrophic effects globally, resulting in more than 3.8 million deaths worldwide. COVID-19 has emerged as the most significant global health crisis since the influenza pandemic in 1918.¹

This virus is thought to have originated in bats and was transmitted to humans via an unknown intermediate animal in Wuhan, Hubei province, China. The first cases of this viral disease with predominantly respiratory symptoms were reported in late December 2019. SARS-CoV-2 rapidly spread around the world in a short period. The world health organization (WHO) declared COVID-19 a global pandemic on March 11, 2020.²

The first COVID-19 case in Indonesia was announced on March 2, 2020, about four months after the first case in

Wuhan, China. The first case in Indonesia was found in as many as 2 cases and continues to grow. The peak of the first COVID-19 cases in Indonesia occurred in January 2021, with the number of daily cases reaching 14,000 new cases. The second peak of cases occurred in July 2021, with the daily number of new cases going to 51,000 new cases with the death rate reaching 2000 cases per day. Indonesia will likely face a third wave of COVID-19 cases due to increased cases since January and February 2022. February 16, 2022, recorded a new record for the most daily confirmed cases of COVID-19 throughout the COVID-19 pandemic in Indonesia, which was 64,718 cases.³

The emergence of the Omicron variant of COVID-19 is estimated to be the cause of the increase in COVID-19 cases in Indonesia in 2022. Although the number of new cases added per day in early 2022 exceeds the peak addition of cases in mid-2021, the number of deaths per day in 2022 is lower than the peak of the second wave of COVID-19 in 2021, which reached 2000 deaths per day. Early studies reported that the omicron variant has 30 spike protein changes that enhance its dispersibility but do not have the same virulence and severe health effects as the delta variant.⁴ The most common symptoms of COVID-19 are fever, cough, malaise, and loss of sensation of taste and smell. There are slight differences in COVID-19 symptoms caused by different variants of COVID. A study by Menni et al reported that loss of smell was less common in patients with omicron variant COVID than delta variant infection (16.7% vs. 52.7%, OR 0.17; 95% CI 0.16-0.19, $p < 0.001$). The sore throat was more common in the omicron than in the delta variant (70.5% vs. 60.8%, OR 1.55; 95% CI 1.43-1.69, $p < 0.001$). The proportion of hospital admissions was found to be lower in the omicron variant infection than in the delta variant (1.9% vs. 2.6%, OR 0.75; 95% CI 0.57-0.98, $p = 0.03$).⁵

Due to the increasing number of COVID-19 cases in Indonesia due to the emergence of the Omicron variant in early 2022, further research is needed to determine the characteristics of COVID-19 patients. For this reason, we are interested in researching and analyzing the clinical profile and characteristics of COVID-19 patients undergoing treatment at Sanglah hospital for January-February 2022.

METHODS

This research was conducted at Sanglah Hospital from January 1, 2022-March 10, 2022, starting with theme design, research implementation, data collection and analysis, results, and discussion. This study is a descriptive study using a cross-sectional approach.

The research data compiled include gender, age, occupation, clinical data, degree of symptoms of COVID-19, clinical signs, comorbid diseases, vaccination status, and survivor status. The data was obtained through the medical records of patients with confirmed COVID-19

who received treatment at Sanglah hospital from January 1, 2022, to February 28, 2022. The data will be processed and analyzed using SPSS 25 software. The analytical test used is the descriptive analysis test.

The population of this study was confirmed patients with COVID-19 whose diagnosis had been established using nasopharyngeal and oropharynx RT PCR swabs with an age of more than 18 years. The sample of this study were patients at Sanglah hospital who underwent treatment with a confirmed diagnosis of COVID-19 in January-February 2022 who were more than 18 years old and met the inclusion criteria and did not have the exclusion criteria. Determination of sample size is done by the total sampling method.

The inclusion criteria for this study were patients diagnosed with COVID-19 based on the RT-PCR swab results of the nasopharyngeal oropharynx and received treatment at Sanglah hospital Denpasar in January-February 2022 and aged more than 18 years according to the ID card. The exclusion criteria for this study were patients with incomplete medical record data.

RESULTS

From this study, the total number of confirmed COVID-19 patients at Sanglah hospital Denpasar for January-February 2022 was 276. Table 1 shows confirmed COVID-19 patients who received treatment at the Denpasar Sanglah hospital for January-February 2022 based on gender. The highest proportion was male, with 51.1% (141 people), while the female gender was 48.9% (135 people).

Table 1: Characteristics of research samples based on gender.

Gender	Frequency	Percentage (%)
Man	141	51.1
Woman	135	48.9

The distribution of COVID-19 patients was mainly in the elderly aged 60-79 years, as many as 93 people (33.7%), followed by aged 40-59 years, 87 people (31.5%), and aged 18-39 years, 80 people (29%). The youngest age of COVID-19 patients is 18 years, and the oldest generation is 94 years.

Table 2: Characteristics of research samples based on age.

Age (Years)	Frequency	Percentage (%)
18-39	80	29
40-59	87	31.5
60-79	93	33.7
>80	16	5.8

Based on Table 3, confirmed COVID-19 patients who received treatment at Sanglah hospital Denpasar for the

period January- February 2022 based on their occupations were dominated by private employees as many as 80 people (29%), followed by the group of patients who did not work 51 people (18.5%). The last number is the student group, as many as 13 people (4.7%).

Table 3: Characteristics of research samples based on occupation.

Occupation	Frequency	Percentage (%)
Private	80	29
Does not work	51	18.5
Housewife	41	14.9
Self-employed	33	12
Farmer	17	6.2
Retired	17	6.2
Civil servant	16	5.8
Student	13	4.7

Confirmed COVID-19 patients who received treatment at Sanglah hospital Denpasar for the period January-February 2022 based on the severity were dominated by patients with mild symptoms as many as 109 people (39.5%), and patients with moderate symptoms 98 people (35.5%). Patients with critical degrees accounted for the least proportion, namely 16 people (5.8%).

Table 4: Characteristics of research samples based on severity.

Severity	Frequency	Percentage (%)
No symptoms	0	0
Mild	109	39.5
Moderate	98	35.5
Severe	53	19.2
Critical	16	5.8

Based on Table 5, confirmed COVID-19 patients who received treatment at Sanglah hospital Denpasar from January-February 2022 were based on clinical symptoms dominated by cough (51.8%), shortness of breath (45.7%), and fever (40.6%). The most rarely complained symptoms were muscle pain, headache, and anosmia (0.4%).

Table 5: Characteristics of research samples based on clinical symptoms.

Clinical symptoms	Frequency	Percentage (%)
Cough	143	51.8
Shortness of breath	126	45.7
Fever	112	40.6
Sore throat	28	10.1
Weak	37	13.3
Nauseous	13	4.7
Flu	12	4.3
Diarrhea	6	2.2
Headache	1	0.4
Muscle pain	1	0.4
Anosmia	1	0.4

This study found that 162 of the 276 confirmed COVID-19 patients at Sanglah hospital Denpasar who received treatment from January to February 2022 had comorbid illnesses (58.7%). Kidney disease was the most common comorbid found in 46 people (16.7%), followed by cancer in 32 people (11.6%) and diabetes mellitus in 20 people (7.2%). The least comorbid found was HIV infection as much as one person (0.4%).

Table 6: Characteristics of research samples based on comorbid diseases.

Comorbid diseases	Frequency	Percentage (%)
Primary hypertension	11	4.0
Heart disease	11	4.0
Kidney disease	46	16.7
Cancer	32	11.6
Lung disease	12	4.3
DM	20	7.2
Nerve disease	7	2.5
Sepsis	11	4.0
SLE	4	1.4
HIV	1	0.4

Vaccination status of confirmed COVID-19 patients who received treatment at Sanglah hospital Denpasar for January-February 2022 as many as 127 people (46%) had been vaccinated twice, while those who had not been vaccinated at all were 104 people (37.7%).

Table 7: Characteristics of research samples based on vaccination status.

Vaccination status	Frequency	Percentage (%)
Not yet vaccinated	104	37.7
1-time vaccination	27	9.8
2-time vaccination	127	46
Unknown	18	6.5

This study found that most confirmed COVID-19 patients receiving treatment at Sanglah hospital, Denpasar, from January to February 2022 were not COVID-19 survivors (268 people/97.1%). The re-infected COVID-19 survivors were found in 8 people (2.9%).

Table 8: Characteristics of research samples based on survivor status.

Survivor status	Frequency	Percentage (%)
Not a survivor of COVID-19	268	97.1
COVID-19 survivors	8	2.9

DISCUSSION

The COVID-19 pandemic affects many aspects of human life in Indonesia and worldwide. The SARS-Cov-2 virus

has infected more than 450 million people worldwide, including children and the elderly. The characteristics of COVID-19 patients significantly affect the prognosis. Many studies have shown that older age and specific comorbidities can increase the severity of COVID-19 disease and increase patient mortality. Epidemiological data collection and profiling of the characteristics of COVID-19 patients is essential to determine the pattern of spread, virulence, design of clinical manifestations, and patient prognosis.

Gender is one of the factors that influence the prognosis of COVID-19 patients. This study found that the frequency of male sex was more common than female, namely 51.1% male and 48.9% female. Many studies have stated that the male gender has a higher risk of suffering from severe COVID-19 and mortality than the female gender.³⁷⁻³⁹ The mechanisms that explain the increased degree of clinical symptoms, poor prognosis, and high mortality in males are unknown. Some explanations for this difference are due to differences in reproductive hormones and genes related to the X chromosome. Steroid hormones and specific genes cause an increased immune response to viral infections in the female sex. A study found that male patients tend to have more comorbid diseases than women, thus worsening the prognosis.³⁹

Age is very influential in the course of COVID-19 disease. This study found that the average age of confirmed COVID-19 patients who received treatment at Sanglah hospital in January-February 2022 was 52.57 ± 18.87 . The youngest generation of COVID-19 patients is 18, and the oldest age is 94 years. The distribution of COVID-19 patients was mostly in the elderly (60-79 years), as many as 93 people (33.7%), followed by aged 40-59 years, 87 people (31.5%), and aged 18-39 years, 80 people (29%). The elderly age group (>60 years) dominated the proportion of patients in this study. The study results by Ho et al reported that old age (>65 years) was associated with an increased risk of COVID-19 complications, hospitalization risk, intensive care, and higher mortality.²⁵ Old age was associated with severe COVID-19 (Standard mean difference (SMD)=1.73, 95% CI: 1.34-2.12). Patients over 65 years have a risk of hospital admission twice as significant as the 45-64-year age group. Just as every system in the body undergoes natural aging accompanied by progressive biological changes, so does the immune system. Some cause decreased function as evidenced by increased susceptibility to respiratory infections such as influenza and novel coronavirus. These changes in the presence of comorbidities make older individuals susceptible to latent or new infections and lead to increased morbidity and mortality from COVID-19.²⁸

This study found that private occupations had the highest proportion of COVID-19 patients at Sanglah hospital receiving treatment, namely 80 people (29%), followed by the unemployed group of 51 (18.5%). Private employment tends to work in a narrower working environment and long working hours, thereby increasing the risk of transmission

of the SARS-Cov-2 virus. This is one of the reasons for the high proportion of COVID-19 patients in this working group compared to outdoor work.²⁸ Al-Kuwari et al research found similar results. Most positive COVID-19 patients came from the private sector (36.7%) in Qatar. The type of work with the highest proportion of COVID-19 infections came from employees of retail/wholesale stores such as supermarkets (positivity rate: 40%) and office employees (positivity rate: 34.9%).

COVID-19 disease has a broad spectrum of severity ranging from asymptomatic to critical, requiring mechanical ventilation and intensive care. This study found that patients with confirmed COVID-19 at Sanglah hospital Denpasar who received treatment for the period January-February 2022 based on the severity were dominated by patients with mild symptoms 109 (39.5%), followed by 98 patients with moderate symptoms (35.5%), 53 patients with severe symptoms (19.2%) and 16 patients with critical symptoms (5.8%). This study did not find patients confirmed positive for COVID-19 without signs at Sanglah Hospital who received treatment in January-February 2022. The absence of asymptomatic patients receiving treatment is thought to be due to screening patients through tiered referrals. Asymptomatic patients are mostly treated in primary and secondary health facilities such as community health centers and type D and C hospitals. Asymptomatic patients can also self-isolate at home or in isolation centers provided by the government. The pattern of behavior of the Indonesian people who do not carry out routine COVID-19 screening and only check if they are symptomatic may be another reason why asymptomatic patients were not found in this study.

This study found that 58.7% of confirmed COVID-19 patients at Sanglah hospital received treatment in January-February 2022 had comorbid diseases. Kidney disease was the most common comorbid found in 46 people (16.7%), followed by cancer in 32 people (11.6%) and diabetes mellitus in 20 people (7.2%). The least comorbid found was HIV disease (1 person). Comorbid illness is one of the predictors of poor prognosis in COVID-19 patients. A systematic review study and meta-analysis by Li et al reported comorbid diseases such as hypertension (OR=2.42, 95% CI: 2.03-2.88), diabetes (OR=2.40, 95% CI: 1.98-2.91), coronary heart disease (OR: 2.87, 95% CI: 2.22-3.71), chronic kidney disease (CKD) (OR=2.97, 95% CI: 1.63-5.41), cerebrovascular disease (OR=2.47, 95% CI: 1.54-3.97), chronic obstructive pulmonary disease (COPD) (OR=2.88, 95% CI: 1.89-4.38), malignancy/cancer (OR=2.60, 95% CI: 2.00-3.40), and chronic liver disease (OR=1.51, 95% CI: 1.06-2.17) is associated with an increase in the severity of COVID-19 disease. COVID-19 infection can worsen the clinical condition of patients with comorbidities.²⁸

This study found that the vaccination status of confirmed COVID-19 patients at Sanglah hospital Denpasar, the majority had been vaccinated twice as many as 127 people (46%), while 104 people had not been vaccinated at all

(37.7%). A total of 27 (9.8%) patients had been vaccinated once. The SARS-CoV-2 virus continues to mutate and, to date, has produced 5 variants of concern (VOC). The Omicron variant is the latest VOC that is expected to cause an increase in daily COVID-19 cases in Indonesia and the world in late 2021 and early 2022. This mutation reduces the efficacy of inactivated virus vaccines such as Sinovac/Sinopharm, vector virus vaccines such as AstraZeneca, and mRNA vaccines such as Pfizer and Moderna. Early studies by Lu et al reported that only 20% and 24% of recipients of the BNT162b2 (Pfizer) vaccine had detectable antibodies against the Omicron variants HKU691 and HKU344-R346K, respectively. Meanwhile, none of the Coronavac recipients had detectable antibody titers against Omicron isolates.²⁸ This incident is why many patients vaccinated twice can be infected with the SARS-Cov-2 virus.

This study found that most confirmed COVID-19 patients at Sanglah hospital Denpasar who received treatment in January-February 2022 were not COVID-19 survivors (97.1% of cases). COVID-19 survivors who were re-infected were only eight people (2.9%). A retrospective cohort study by Sheehan et al reported that reinfection of COVID-19 after at least 90 days of recovery occurred in 4.9%. Protection against reinfection after asymptomatic infection was 81.8% (95% CI 76.6, 85.8), while protection against reinfection in symptomatic patients was 84.5% (95% CI 77.9, 89.1). The risk of reinfection is most significant after 90 days and decreases after that. As a result, protection against reinfection was lowest at 4-5 months and increased up to 8 months after infection.³⁶

CONCLUSION

More males suffer from COVID-19 in the January-February 2022 period. Older people (60-79 years) are the age group that suffers the most from COVID-19, while private employees are the most common occupation for confirmed COVID-19 patients. Mild COVID-19 is the most common severity in patients. Cough and shortness of breath are the most common symptoms in COVID-19 patients, while the most common comorbid diseases of COVID-19 patients are chronic kidney disease and cancer. Nearly half of patients who are confirmed positive for COVID-19 have received at least two vaccinations. Reinfection of COVID-19 occurs in a minority of confirmed cases of COVID-19.

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