

Relationship between age, and gender with COVID-19 treatment period for patients with mental disorders at the Aceh Mental Hospital in 2021

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ABSTRACT

Introduction: COVID-19 can infect anyone from children to the elderly and is not closed to the possibility of occurring in people with mental disorders

Objectives: This study aims to identify the relationship between age and gender to the COVID-19 treatment period in patients with mental disorders at the Aceh Mental Hospital

Methods & Materials: This type of research is observational analytic with a cross-sectional design with a total of 106 subjects. Data obtained from medical records were analyzed using the Spearman's Rank test

Results: Research on patients with mental disorders at the Aceh Mental Hospital in 2021 shows that the COVID-19 treatment period < 14 days is mostly found in the adult age group and the COVID-19 treatment period ≥ 14 days is mostly found in the pre-elderly age group. In the gender group, the COVID-19 treatment period < 14 days and ≥ 14 days, the male group was more than the female group.

Conclusion : It was concluded that there was a significant influence between age and the mass of COVID-19 treatment with a p value = 0.000 ($p \leq 0.05$) and there was no significant influence between gender and the COVID-19 treatment period with $p = 0.082$ ($p > 0.05$). This study recommends further research, especially in patients with mental disorders who have been vaccinated against COVID-19.

Keywords: Age, COVID-19, Gender, People with Mental Disorders

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INTRODUCTION

Since the identification of human-to-human transmission of COVID-19 in Wuhan (China) on December 31, 2019, coronavirus infection (COVID-19) has become a global pandemic (Ridlo, 2020). World Health Organization (WHO) declared an international emergency on January 30, 2020 followed by a declaration as a pandemic on March 11, 2020 (Mujiburrahman et al., 2020). Data from the Ministry of Health on January 31, 2021, the number of confirmed positive COVID-19 cases reached 1,078,314 (Hildan Hadian & Sadeli Masria, 2022). Data from the Aceh Health Office on COVID-19 cases in 2021 in Aceh amounted to 38,430 people.

In 2020, COVID-19 cases were categorized by age and gender, with men aged 30-39 years having the highest number of reported cases, totaling more than 180,000. The data shown is based on sex and age from 116 countries reporting. There were 193,995 cases in men in the 30-34 age group, while there were 183,133 cases in the 35-34 age group. Meanwhile, positive cases in males in the 40-54 age group amounted to about 170,000 cases (Martini & Mendrofa, 2021).

In general, COVID-19 can cause symptoms such as fever, cough, sore throat, shortness of breath, fatigue, and muscle pain (Banjarnahor, 2020). Based on data from 55,924 cases, the most common symptoms are fever, dry cough, and fatigue. Other symptoms that can be found are productive cough, headache, myalgia/arthritis, chills, nausea/vomiting, nasal congestion, diarrhea, abdominal pain, hemoptysis, and conjunctival congestion (Arianto & Sutrisno, 2021). More than 40% of fevers in COVID-19 patients have peak temperatures between 38-39°C, while 34% have fevers over 39°C (Putri et al., 2021).

COVID-19 can infect anyone from children to the elderly and is not closed to the possibility of occurring in people with mental disorders. Patients with mental disorders have health conditions that involve changes in emotions, thinking, and behavior that will interfere with or limit the patient's function and role in one or more major activities, such as social, work, and family activities. These barriers will cause people with mental illness to have limited access and difficulty in understanding public health information which makes them more vulnerable to COVID-19 infection compared to the general population (Kurniawan et al., 2022).

Therefore, this study aims to identify the relationship between age and gender to the COVID-19 treatment period in patients with mental disorders at the Aceh Mental Hospital.

METHODS & MATERIALS

This study is an observational analytic study with a cross sectional approach. The population in this study were all patients with mental disorders treated at the Aceh Mental Hospital, totaling 1,976 people. The samples in this study were the medical records of patients with COVID-19 confirmed mental disorders who were admitted to the COVID-19 isolation room of the Aceh Mental Hospital on January 1, 2021 to December 30, 2021, and met the inclusion criteria. In this study, the inclusion criteria are patients with mental disorders confirmed by COVID-19, patients treated in the COVID-19 isolation room at the Aceh Mental Hospital from January 1, 2021 to December 30, 2021. Unreadable medical record data and patients who were declared dead were the exclusion criteria for this study.

This study was conducted by collecting medical record data taken at one specific time simultaneously. Data analysis in this study was developed with univariate and bivariate analysis. Univariate analysis was used to describe each independent variable and the dependent variable. The data obtained were then presented in the form of distribution

tables, frequencies and percentages. Bivariate data analysis to analyze the relationship between age and gender to the COVID-19 treatment period in patients with mental disorders at the Aceh Mental Hospital.

RESULT

This study was conducted at the Aceh Mental Hospital. This data was taken from the medical records of patients with mental disorders confirmed with COVID-19 from January 1, 2021 - December 31, 2021 with a total of 106 people.

Table 1. Characteristics of Patients with Mental Disorders Confirmed by COVID-19

Category	Frequency (n=106)	Percentage (%)
Vaccination Status		
Not Vaccinated	106	100
Vaccinated	0	0
Psychiatric Diagnosis		
Alzheimer's Dementia	1	0,94
Substance Dependence	18	17
Paranoid Schizophrenia	82	77,35
Hebephrenic Schizophrenia	3	2,83
Acute Psychotic	2	1,88

Based on Table 1. it was found that all 106 subjects had not been vaccinated against COVID-19 (100%) and the highest psychiatric diagnosis of patients with mental disorders confirmed by COVID-19 was paranoid schizophrenia as much as 77.35%. The lowest psychiatric diagnosis is Alzheimer's dementia 0.94%.

Frequency distribution data regarding the age of patients with people with mental disorders confirmed with COVID-19 at the Aceh Mental Hospital in 2021 can be seen in Table 2.

Table 2. Frequency Distribution of Patients with Mental Disorders Confirmed with COVID-19 by Age and gender at Aceh Mental Hospital in 2021

Age	Frequency (n=106)	Percentage (%)
Teens	6	5,7
Adults	60	56,6
Pre-elderly	33	31,1
elderly	7	6,6
Gender		
Male	98	92,5
Female	8	7,5

In Table 2, it can be seen that the number of adult patients is more than that of adolescents, pre-elderly and elderly patients. The percentage of adult patients was 60 people (56.6%). Adolescent patients were the least among the age groups studied with 6 people (5.7%). As for the genders, there are far more male COVID-19 confirmed patients than female patients. The ratio of these two groups is 92.5%: 7.5%.

The results of research on the treatment period of patients with mental disorders confirmed by COVID-19 at the Aceh Mental Hospital in 2021 are presented in the form of Table 3.

Table 3. Frequency Distribution of Patients with Mental Disorders Confirmed by COVID-19 According to the Period of COVID-19 Treatment at the Aceh Mental Hospital in 2021

COVID-19 Treatment Period	Frequency (n=106)	Percentage (%)
Short (<14 hari)	80	75,5
Long (≥ 14 hari)	26	24,5

Table 3 shows that 80 people (75.5%) had a short treatment period (<14 days) and 26 people (24.5%) had a long treatment period (≥14 days).

The relationship between age and the COVID-19 treatment period for patients with mental disorders at the Aceh Mental Hospital in 2021 is presented in the form of Table 4 below. Table 4 shows that the treatment period < 14 days is mostly found in the adult age group, 86.7%, while the treatment period ≥ 14 days is mostly found in the pre-elderly age group, 45.5%. The Spearman's rank test results show a p value = 0.000 ≤ 0.05 so that H0 is rejected and the hypothesis is accepted. This shows that there is a significant correlation between age and the COVID-19 treatment period in patients with mental disorders at the Aceh Mental Hospital in 2021, with a correlation value of $r = 0.367$ indicating a moderate relationship.

Table 4. Relationship between Age and COVID-19 Treatment Period in Patients with Mental Disorders at Aceh Mental Hospital in 2021

Age	COVID-19 Treatment Period						p-value	R
	Short		Long		Total			
	(<14 Days)		(≥14 Days)		(n)	(%)		
	(n)	(%)	(n)	(%)	(n)	(%)		
Teens	6	100	0	0	6	100	0,000*	0,367
Adults	52	86,7	8	13,3	60	100		
Pre-elderly	18	54,5	15	45,5	33	100		
elderly	4	57,1	3	42,9	7	100		

Table 5. Relationship between Gender and the Period of COVID-19 Treatment in Patients with Mental Disorders at the Aceh Mental Hospital in 2021

Gender	COVID-19 Treatment Period						p-value	R
	Short (<14 Days)		Panjang (≥14 Days)		Total			
	(n)	(%)	(n)	(%)	(n)	(%)		
Male	76	77,6	22	22,4	98	100	0,083	0,169
Female	4	50.0	4	50.0	8	100		

Table 5 shows that the number of male sex groups, both in the short (< 14 days) and long (≥ 14 days) treatment periods, is more than the female sex group. The Spearman's rank test results show a p value = 0.083 $p > 0.05$ so that H0 is accepted, so the hypothesis is rejected. This shows that there is no correlation between gender and the COVID-19 treatment period in patients with mental disorders at the Aceh Mental Hospital in 2021, with a correlation value of $r = 0.169$ indicating a weak relationship

DISCUSSION

In this study, it was found that all subjects with mental disorders (106 people) who were confirmed with COVID-19 had not received the COVID-19 vaccine. This condition proves that the COVID-19 vaccine is a safe and effective tool to prevent severe COVID-19, prevent hospitalization, and death (Harahap, 2022). So patients who have not been vaccinated will be more susceptible to COVID-19 infection.

The highest psychiatric diagnosis of COVID-19 confirmed mental disorder patients is paranoid schizophrenia 77.35% compared to substance dependence, hebephrenic schizophrenia, acute psychotic and alzheimer's dementia. Schizophrenia patients have a high risk of being infected with COVID-19 and a poor prognosis, especially if they have comorbid diseases (Gadelha et al., 2020). Schizophrenia is the most common case of mental disorders. The results of the Basic Health Research (Riskesdas) 2018 prevalence of people who have suffered from psychosis in Indonesia is 1.8 per 1000 population (Idaiani et al., 2019). Research by Oktaria, et al. (2019) at Ernaldi Bahar Hospital, South Sumatra with 202 patients showed that the incidence of relapse of paranoid schizophrenia patients was 58.4% of patients (Oktarina et al., 2017). Paranoid schizophrenia is the highest psychiatric event that has the potential to relapse and be re-hospitalized. (Oktarina et al., 2017, Gadelha et al., 2020).

This study found that the number of patients in the adult age group (56.6%) was more than the pre-elderly age group (31.1), elderly (6.6%) and adolescents (5.7%). These results are in line with research by Putri, et al (2021) which examined the incidence of COVID-19 in West Sumatra. Putri, et al research found that the age group <50 years was more at risk of being infected with COVID-19 than the age group ≥50 years (Putri et al., 2021). Another study conducted by Elviani, et al (2021) which examined 666 respondents of COVID-19 patients at Dr. M.Hoesin Palembang Hospital. Elviani et al's research found that all ages are at risk of being confirmed positive for COVID-19 and productive age (26-35 years) is most at risk of suffering from COVID-19.48 This is due to the productive age group having high mobility and social activities (Elviani et al., 2021) (Sukirman et al., 2022).

Another study conducted by Wolfe, et al (2021) which used 489 subjects consisting of 232 young adults (49.6%) and 237 old adults (49.8%), found that age was significantly associated with COVID-19. Young adults (18-25 years old) are more at risk than older adults (≥65 years old). These results are different from this study, possibly due to the age grouping in the Wolfe, et al study consisting of 2 groups (young adult group (18-25 years) and old adult group (≥65 years). The age grouping in this study consisted of 3 groups (adolescents (18-24 years), adults (25-49 years), and elderly (≥50 years). Another possible cause is that Wolfe et al study was conducted on a broad population and normal patient subjects (not people with mental disorders). This study was conducted in a special population on the subject of people with mental disorders (Wolfe et al., 2021).

In this study, it was found that the number of male patients (92.5%) was more than women (7.5%). This is in line with the research of Sanjaya, et al. (2021) who found that COVID-19 patients in Kutai Kartanegara were dominated by male gender of 2610 patients (54.5%) while women were 2177 patients (45.5%).¹⁵ Another study conducted by Daud, et al (2022) in the city of Belitung found that the number of males was 109 (57.7%) and females were 74 (56.5%) (Daud et al., 2022).

The results of this study can be caused because in general the patient population at the Aceh Mental Hospital is more men than women. Data on the average number of patients at the Aceh Mental Hospital on January 11, 2023 shows the number of male patients 266 people (82.87%) and 55 women (17.13%). The greater number of male patients confirmed

with COVID-19 may be due to men being more susceptible to contracting COVID-19 as a result of biological and lifestyle factors. Biological factors that are thought to influence are the X chromosome and hormones that make immunity in women better than men (Shepherd et al., 2021).

Data from the Aceh Mental Hospital showed that the total number of patients with mental disorders who underwent hospitalization in 2021 was 1,976 people. In this study, it was found that the short treatment period group (< 14 days) was 75.5% more than the long treatment period group (≥ 14 days) as much as 24.5%. These results are in line with Jamini's research (2021) conducted at H. Boejasin Pelaihari Hospital, which found that the length of stay of COVID-19 patients ≤ 14 days was more than that of patients whose length of stay was > 14 days (Jamini, 2022).

The results of this study may be due to the fact that the elderly have a weaker immune system. This condition can lead to faster development of infection, a higher risk of developing the virus (Departemen Gizi Kesehatan Masyarakat & Universitas Indonesia, Depok 16424, 2006) (A et al., 2022). In this study, the composition of the elderly age group was less than the number of adults and adolescents, which may affect the overall treatment period.

This condition is also in accordance with the prevention and treatment procedures that have been carried out by the Aceh Mental Hospital through screening from the initial admission of patients in the emergency room, screening for patients with COVID-19 symptoms in the inpatient room and other patients who are exposed by conducting rapid antigen tests, roentgen thoracic photos and Polymerase Chain Reaction (PCR) examinations. Through the steps that have been taken, this shortens the treatment period for COVID-19 in patients with mental disorders at the Aceh Mental Hospital.

Based on the results of cross tabulation (Table 5), it shows that the short treatment period (< 14 days) is mostly found in the adult age group, while the long treatment period (≥ 14 days) is mostly found in the pre-elderly age group. The results of the Spearman's rank test with 95% CI and $\alpha = 0.05$ show a p value = $0.000 \leq 0.05$ so that there is a relationship between age and the COVID-19 treatment period in people with mental disorders at the Aceh Mental Hospital in 2021, with this finding, H_0 is rejected, so the hypothesis is accepted. Based on this test, it was also found that the value of $r = 0.367$ indicates a moderate relationship.

This study is different from the research of Siddiq, et al (2022) who found that there was no relationship between length of hospitalization and age. The difference in the results of this study could be due to the fact that Siddiq et al included subjects with comorbidities while this study did not include subjects with comorbidities (A et al., 2022). Another possibility in this study is that the age composition of the adult group is more than the elderly and adolescents.

The results of the cross tabulation (Table 6) show that the number of male gender groups, both in the short (< 14 days) and long (≥ 14 days) treatment periods, is more than the female gender group. This is because there were more male subjects (92.5%) than female subjects (7.5%).

The results of the Spearman's rank test with 95% CI and $\alpha = 0.05$ showed a value of $p = 0.083$ ($p > 0.05$), there was no relationship between gender and the length of COVID-19 treatment in patients with mental disorders at the Aceh Mental Hospital in 2021. This result is in line with the research of Winugroho, et al. (2021) which found that gender has no contribution in influencing the length of time of COVID-19 treatment (Winugroho et al., 2021).

This result may be due to the fact that male and female subjects who were treated in the COVID-19 isolation room at the Aceh Mental Hospital received the same standard of care, treatment in the emergency department, treatment by specialists, administration of drugs and supplements according to the patient's condition and the same food intake. The procedures that have been carried out are in accordance with the reference which states that there are four management that can be used by people with mental disorders infected with COVID-19, namely ICU triage, pharmacotherapy, psychotherapy and nutritional management.¹⁴ The quarantine place for each patient with mental disorders confirmed with COVID-19 is also the same, this is in accordance with the results of Winugroho, et al's research which found that quarantine / isolation has a significant effect on the healing process / quarantine period (Winugroho et al., 2021).

CONCLUSION

This study concluded that there is a relationship between age and the COVID-19 treatment period in patients with mental disorders and there is no relationship between gender and the COVID-19 treatment period at the Aceh Mental Hospital in 2021.

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