Research Paper

Status and Condition of Young Adults in Jakarta Regency Under the Influence of COVID-19: A Secondary Data Study

Nunuk Nugrohowati[1]*, Melly Kristanti[1], Boenga Nur Cita[1], Rebekka Daulay[2], Ananda Ananda[2]

[1] Universitas Pembangunan Nasional "Veteran" Jakarta, Indonesia

[2] Jakarta Provincial Health Office, Indonesia

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Abstract

The role of young adults aged can determine the current condition of the pandemic of SARS-CoV-2 or COVID-19. There has been no report on the discharge status of young adults to date. An overview of the status and condition of the young adult is essential to report. A cross-sectional study was used, with the samples confirming COVID-19 cases in patients aged 18-25. They were the 384 patients without and with vaccination, respectively. Inclusion criteria are positive confirmed patients hospitalized for the first time, have been examined by PCR, and pregnant young adults being excluded; related factors were identified using multivariate analysis. Young adults as non-vaccinated patients and death in males 3 (21.4%), females 11 (78.6%), with 174 (47%) in males and 196 (53%) females of the cases recovered with three comorbidities. The initial symptoms in recovered patients were cough, fever, anosmia, cold, headache and sore throat. In vaccinated patients, the men who recovered were 181 (47.1%), women 203 (52.9%), and no one died. In non-vaccinated patients, there was a relationship between the discharged status of the patient and gender (OR = 2.314; 95% CI = 1.25 to 5.67; p =0.034) and anosmia (OR = 4.21; CI = 2.57 to 10.24; p = 0.017). This study reported that the initial symptoms felt in non-vaccinated and recovered young adult patients were cough, fever, anosmia, cold, headache and sore throat with three comorbidities, and those were associated with gender and anosmia.

Keywords *Status and condition, young adults, Jakarta Regency, Influence of COVID-19*

INTRODUCTION

Jakarta is Indonesia's capital city, the province with the highest number of positive cases of COVID-19. Based on the Gavi Vaccine Alliance report, the total confirmed positive cases of Covid-19 worldwide as of February 12, 2023, were 81,411,466 cases, with 1,021,058 confirmed deaths (CFR 1.25%). From the report on emerging infections from the Indonesian Ministry of Health, positive cases in Indonesia as of February 12 2023, amounted to 6,732,618 with 160,860 deaths (CFR 2.39%), where the CFR in Indonesia is higher compared to the CFR in the world (Infeksi Emerging, 2023)—in Jakarta Regency, confirmed positive cases of covid-19, 1,540,551 confirmed deaths, 15,951 (CFR 1.0%) as of February 12 2023 (Data Pemantauan Covid-19 DKI Jakarta, 2023). This data also reported the age group with the most confirmed positive cases of Covid-19 at the age of 19-28 years, with the female of 200,794 compared to men with 152,205 cases. Positive confirmed cases in young adults are high in Indonesia, especially in Jakarta Regency. Even so, the fluctuation of COVID-19 cases in Jakarta depends on the examining laboratory's capacity and contact tracing capacity (Yunita et al., 2022).

The role of young adults can explicitly determine the current condition of the pandemic of COVID-19 after experiencing initial symptoms of infection or vaccination. Young adults may be vulnerable to exposure to Covid-19, even though the clinical manifestations are lighter than in adults. Since there has not been any report on the discharge status of young adult patients, there is

Corresponding author's email: nunuknugrohowati@upnvj.ac.id

high urgency in conducting this research. The purpose of the study is to overview the status and condition of the young adult age group based on the influence of Covid-19 who are being treated in the Work Area of the Jakarta Provincial Health Office based on secondary data analysis.

LITERATURE REVIEW

The principle of WHO is to overcome the pandemic if we know who is infected (World Health Organization Director-General, 16 March 2020). Until now, Indonesia has been the ASEAN country with the highest number of cases of COVID-19 spread across 34 provinces and 451 districts/cities. The epidemic became clear when the virus that causes COVID-19, namely Severe Acute Respiratory Syndrome Coronavirus 2 (SARSCoV-2), spread rapidly to people in almost all provinces in Indonesia following human movements, as predicted by epidemiologists. Many people have not been detected infected with SARSCoV-2 because efforts to conduct rapid tests have not reached the entire community, including people with comorbid diseases.

In the basic epidemiological model of the spread of SARS-CoV-2, which estimates the ability of the virus to transmit and the low immunity of the community, 40–70% of the public can be infected unless immediate action is taken until a safe and effective vaccine is found and available, the only way to prevent the spread of the virus is by fast is to control the spread of SARS-CoV-2. Without drugs that are not yet available, and because of the strong desire to return to a normal life, prevention to control the transmission or spread of SARS-CoV-2 must still be carried out more actively and vigorously. With social distancing, rapid testing, contact tracing and self-isolation in individuals who prove positive for SARS-CoV-2, taking precautions for self-isolation in people with close contact with positive SARS-CoV-2 are some important things to do in order to achieve the goals. (Anderson et al., 2020).

According to Rumain et al. (2021), susceptibility at a young age, namely at the age of 0-14 years, was declared infected by 6.2%; at the age of 15, it was stated as infected by 8.6%, while at the age of 65 years and over was declared infected by 16.3%. Based on these data, young people are classified as not vulnerable and medium vulnerable, although it cannot be denied that young people can be exposed and still have a risk of having severe symptoms that can cause death.

Rumain et al. (2021) also stated that the prevalence of COVID-19 for youth aged 15-24 is significantly greater than for older adults. These results are significant to restrain the pandemic, considering the high transmission that usually occurs in youth associations. For this reason, stricter Health Protocols can be applied if schools or institutions are considered to go offline again. This is supported by data from Davies et al. (2020) that young people are vulnerable to COVID-19 exposure and have a risk of death. Young people of all age groups have a vulnerability to COVID-19, and there are no significant sex differences. It is currently known that clinical manifestations at a young age are lighter than in adults. (Dong et al., 2020). Young adults with a high risk of exposure to the virus and at risk of having severe symptoms up to death are people with certain congenital diseases such as heart disease, neurological and others (Ledford, 2021). Based on this, young people are still at risk of having severe symptoms requiring intensive care if exposed to COVID-19.

Research results that have been collected from over 1 million participants predictive of PCR positivity identified seven symptoms: loss or change of sense of smell, loss or change of sense of taste, fever, new persistent cough, chills, appetite loss, and muscle aches and lesser sore throat (Elliott et al., 2021). With the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB), research from Patwary et al. (2021) found respondent intention to get COVID-19 vaccination; with 24.29 years old as the average aged criteria, they are willing to accept the vaccine.

At a young age, based on reported data and evidence, it is less common to be infected with COVID-19; at this age, most are asymptomatic or have symptoms that are much milder than adults and have the potential to recover. Appropriate treatment at a young age who is infected is needed

to emphasize the risk of severe symptoms to death because data shows that in Poland, the rate of severe symptoms has increased by 2-3% while the critical rate has increased by 0.61% (Kuchar et al., 2021).

RESEARCH METHOD

The secondary data obtained from the Jakarta Provincial Health office was in the complete form of existing data regarding the variables to be studied, collected from the available data of community health centres in Jakarta according to the questionnaire that had been applied to P-Care. Data analysis used in this cross-sectional study was univariate and bivariate using the chi-square test. A cox-regression and multivariate analysis also had used for this study. Samples confirmed COVID-19 cases in young adult patients aged 18-25 (defined by the Indonesian Ministry of Health) were obtained from 3851 total cases collected from Secondary data in Jakarta Regency Provincial Health Office. They were 384 patients without and 384 with vaccination, respectively, with data taken from September 2020-March 2021 for non-vaccine data and August 2021-December 2021. Inclusion criteria are complete data on positive confirmed patients who have been treated, have been examined by PCR and have been hospitalized for the first time due to Covid-19 while excluding Pregnant young adult patients.

The independent variables consisting of age, gender, Initial Symptoms (Fever, Cough, Cold, Sore throat, Shortness of breath, Chills, Headache, Malaise, Muscle pain, Nausea, Abdominal pain, Diarrhea, Pneumonia, Anosmia, and loss or change of sense of smell), Comorbid History (Hypertension, Diabetes, Pain Heart and Lung) while the dependent variable was Discharged Status (Recovered-Death) of Covid-19 patients.

The definition of deaths due to COVID-19 (WHO, 2020) means the people who die from clinical illness in probable or confirmed COVID-19 cases, not attributed to another disease, for example cancer, and counted independently, while the definition of recovered from Covid-19 is a symptomatic or asymptomatic patient who initially 14 days after the onset of symptoms or achieves clinical stability and their symptoms gave the improvement (NICD, 2020).

FINDINGS AND DISCUSSION

Univariate Analyses

For descriptive data that have not received vaccines, Table 1 shows the characteristics of the respondents. Most respondents, 53,9 %, were female, between 18 and 25 years old. Most of the respondents came from South Jakarta, 30,7 %. Young adult patients COVID-19 infected sufferers (death) with the proportion based on gender in males 3 (21.4%) compared to females 11 (78.6%), with a proportion of 174 (47%) in males and 196 (53%) females cases recovered. The initial symptoms felt in recovered patients were cough 338 (41.4%), fever 290 (35.5), anosmia 267 (32.7%), cold 203 (24.8%), headache 162 (19.8%) and sore throat 142 (17.4%) and had three comorbidities (heart pain, hypertension and lung). Those who died felt the initial symptoms of fever, cold, cough, shortness of breath, headache and malaise with no comorbidity.

The number of patients recovering from COVID-19 based on young adults was 370 (96.35%) more than those who died 14 (3.65%), which means that patients in young adults have a high recovery rate compared to those who died even though they had a history of comorbidities. This result can be seen from the description of the percentage in which more COVID-19 patients recovered compared to those who died, also the percentage who died and had no comorbidities.
As one of the risk factors of Covid-19 cases, there was a correlation between age and severity of Covid-19, with 2.7 times to encounter suffer Conditions of Covid cases (Kim, 2021).

Table 1. Overview of Young Adult Aged (18-25 years old) based on Discharged Status Covid-19 Patients in Jakarta Regency without vaccinated, data from September 2020 to March 2021

Variable	Discharged Status		p-value	OR (95%CI)
	Recovered N (%)	Died N (%)		
Gender				
Male	174 (47)	3 (21.4)	0.034*	2.314 (1.251-5.673)
Female	196 (53)	11 (78.6)		
Area				
Central Jakarta	72 (19.5)	3 (21.4)		
South Jakarta	115 (31.1)	3 (21.4)		
West Jakarta	22 (5.9)	1 (7.1)		
North Jakarta	63 (17)	1 (7.1)		
East Jakarta	97 (26)	6 (42.9)	0.835	
Kepulaun Seribu	1 (0.3)	0		
Initial Symptom				
Fever	290 (35.5)	3 (17.6)	0.198	
Cough	338 (41.4)	4 (23.5)	0.212	
Cold	203 (24.8)	5 (29.4)	0.777	
Sore throat	142 (17.4)	1 (5.9)	0.332	
Shortness of breath	76 (9.3)	4 (23.5)	0.071	
Chills	5 (0.6)	0	1.000	
Headache	162 (19.8)	4 (23.5)	0.758	
Malaise	61 (7.5)	3 (17.6)	0.135	
Muscle pain	40 (4.9)	0	1.000	
Nausea	69 (8.4)	2 (2.8)	0.649	
Abdominal pain	4 (0.5)	1 (5.9)	0.098	
Diarrhea	26 (3.2)	1 (5.9)	0.432	
Pneumonia	5 (0.6)	1 (5.9)	0.117	

Anosmia	267 (32.7)	1 (5.9)	0.017*	4.214 (2.571-10.241)
Loss or change of sense of smell	120 (14.7)	1 (5.9)	0.593	
Comorbid History				
Diabetes	0	0	n/a	
Heart pain	1 (0.1)	0	1.000	
Hypertension	6 (0.7)	0	1.000	
lung	1 (0.1)	0	1.000	
Obesity	0	0	n/a	

Bivariate Analyses

There was a relationship between the discharged status of the patients and gender (OR = 2.314; 95% CI = 1.25 to 5.673; p =0.034) and anosmia (OR = 4.214; CI = 2.571to 10.24; p = 0.017).

Table 2. Overview of Young Adult Aged (18-25 years old) based on Discharged Status COVID-19 Patients in Jakarta Regency with vaccinated, data from August 2021 to Desember 2021

Variable	**Discharged Status**		**p-value**
	Recovered	**Died**	
	N (%)	**N (%)**	
Gender			
Male	181 (47.1)	0	n/a
Female	203 (52.9)	0	
Area			
Central Jakarta	174 (45.3)		
South Jakarta	47 (12.2		
West Jakarta	73 (19)		
North Jakarta	54 (14.1)		
East Jakarta	36 (9.4)		n/a
Kepulaun Seribu	0		
Initial Symptom			

Fever	59 (15.4)	0	n/a
Cough	101 (26.3)	0	n/a
Cold	67 (17.4)		
Sore throat	45 (11.7)	0	n/a
Shortness of breath	12 (3.1)	0	n/a
Chills	11 (2.9)	0	n/a
Headache	35 (9.1)	0	n/a
Malaise	11 (2.9)	0	n/a
Muscle pain	16 (4.2)	0	n/a
Nausea	8 (2.1)	0	n/a
Abdominal Pain	4 (1.0)	0	n/a
Diarrhea	6 (1.6)	0	n/a
Pneumonia	0	0	n/a
Anosmia	6 (1.6)	0	n/a
Loss or change of sense of smell	4 (1.0)	0	n/a
Comorbid History			
Diabetes	2 (0,5)	0	n/a
Heart pain	0	0	n/a
Hypertension	2 (0.5)	0	n/a
Lung	1 (0.3)	0	n/a
Obesity	1 (0.3)	0	n/a
Vaccinated			
No Vaccinated	78 (20.3)		
1st Dose	28 (7.3)		
2nd Dose	246(64.1)		
1st Booster	32 (8.3)		

Univariate Analyses

In the records of patients who had received the vaccine, Table 2 presents the distribution of 52,86 % of females between 18 and 25 years old. The number of men who recovered was 181 (47.1%), women 203 (52.9%), with the highest number of recoveries coming from Central Jakarta, 174 (45.3%) and no one died. The initial symptoms felt in patients who have been vaccinated and recovered most in a row are cough 101 (26.3), Cold 67 (17.4), fever 59 (15.4), sore throat 45 (11.7), headache 35 (9.1) and a little bit feel muscle pain 16 (4.2). They have four comorbidities (Diabetes, Hypertension, lung and obesity). Before being hospitalized, they already had the first dose of vaccine 28 (7.3%), 2nd Dose 246 (64.1%), and 1st Booster 32 (8.3%). The number of patients recovering from COVID-19 based on young adults was 384 (100%), and no one died 0 (0 %), which means that patients in young adults who had received the vaccine had a high recovery rate even though they had a history of comorbidities. This finding differed from the resulting study of Medeni and Medeni (2022), in which about 15% of their samples were those High school-aged and above with COVID-19 infection. Most of the infected youth were not vaccinated, while 91,7% of all aged respondents already had their first dose of the vaccine (Medeni & Medeni, 2022).

Table 3. Multivariate Determinant Risk Factors of discharged status of COVID-19 patients age 18-25 years old without vaccinated

Variable	B	p-value	OR (95%CI)
Gender	1.431	0.044*	4.184 (1.037-16.883)
Fever	-1.301	0.141	0.272 (0.048-1.541)
cough	-1.960	0.064	0.141 (0.018-1.124)
Shortness of Breath	0.228	0.801	1.333 (0.142-12.486)
Malaise	0.497	0.667	1.644 (0.170-15.857)
Pneumonia	4.812	0.872	1.349 (0.012-19.028)
Anosmia	4.490	0.040*	9.140 (1.236-6. 26)

With OR 4.184 (95% CI 1.037-16.883; p-value=0,044) and 9.140 (95% CI 1.236-6. 26; p-value=0.040), respectively, the gender and anosmia variables are the most influences to the discharged status of COVID-19 respondents. Same with the study result from Rahman et al. (2021) found that the most prevalent group of symptoms are fever, cough, and fatigue with three comorbidities (respiratory disease, hypertension and diabetes).

Young adult respondents with Covid-19 and no-vaccinated had a worse result, among others hospitalized in the intensive care unit, needed ventilation and died. The range ages between 18 and 34 had three morbidities undoubtedly associated with the result (Cunningham et al., 2020). Based on the results, it can be seen that COVID-19 patients at a young age have a higher recovery rate. This can happen because the immune condition at a young age has a fast-immune response compared to the elderly. The ability of the body's immunity to fight infection can experience a decrease in response speed if they get older because the older a person is, the risk of illness will also increase. Previous studies have discussed the severity of young adult COVID-19 patients with symptoms such as shortness of breath, coughing, fever and stomach discomfort, on average being treated for 7-8 days. In addition, the comorbid factors suffered by the visiting patients were that

two of the nine young patients had hypertension, and 2 had diabetes. Apart from that, out of the nine patients, six were found to be obese. After taking several actions on nine positive patients with COVID-19, seven people were successfully discharged (Riera et al., 2020). It can be said that 77.7% of young patients with symptoms and a history of comorbidities can be cured. From this study, it can be seen that the percentage of COVID-19 patients at a young age has a higher recovery rate compared to death with some of the initial symptoms felt in these patients and also a history of comorbidities that have suffered a small number of deaths even though the statistical results show no significant relationship.

Other research also explains that children and young adults exposed to COVID-19 experience milder severity than adults. In addition, fever occurs less frequently with age (Swann et al., 2020). However, symptoms of nausea and vomiting, abdominal pain, headache and sore throat increase with age. So, this study also stated that anosmia is still one of the symptoms often felt in sufferers of COVID-19 with no vaccine, apart from other initial symptoms felt in young adult COVID-19 patients. Based on the patient's discharge status, based on this study showed there were still many who returned home cured. However, there were also those who died with early symptoms without a history of comorbidities experienced in the patient. The most common early symptoms found in patients who died included cough, fever, cold, shortness of breath, headache, malaise, nausea, abdominal pain, sore throat, diarrhoea, pneumonia, anosmia and loss or change of sense of smell. This can happen if a person does not quickly seek treatment after feeling symptoms and getting positive results from a COVID-19 test so that the symptoms they feel can get worse and can result in death; even though these results are not proven to be significant, it is better to prevent this.

Other research also explains a significant relationship between the history of diabetes and COVID-19 deaths, with a percentage of 21.28%. Furthermore, they also explained that clinical symptoms seemed to be related to the incidence of COVID-19 deaths. However, the results of this study were not in line with previous studies even though the percentage of clinical symptoms was relatively high, besides that the age of the respondents was classified as young adults where the patient's immune system was still good, so it did not worsen clinical symptoms felt when infected with COVID-19 (Harbuwono et al., 2021).

CONCLUSIONS

In the group of respondents without the vaccine, young adult patients with COVID-19 who infected sufferers (death) males by 21.4% compared to females 78.6%, with a proportion of 47% in males and 53% females of the cases recovered. In contrast, respondents with the vaccine all are cured, and no one died.

This study found a group of initial symptoms (cough, anosmia, cold, and sore throat) and three comorbidities (heart pain, hypertension and lung) in respondents without the vaccine, anosmia and gender were associated with the discharged status of COVID-19 infected patients. The gender and anosmia variables are the most influential on the discharged status of COVID-19 young adult patients. In group respondents with the vaccine, the symptoms they got were cough, Cold, fever, sore throat, headache and muscle pain, and they have four comorbidities (Diabetes, Hypertension, lung and obesity).

Furthermore, the initial symptoms experienced by COVID-19 patients are mostly cured, although many experiences had many initial symptoms such as fever, anosmia, loss/reduced sense of taste, sore throat, headache, cough, chills, muscle aches, pneumonia, diarrhoea, nausea/vomiting, malaise and abdominal pain. The average COVID-19 patients feel all of these initial symptoms, but not many people died from these symptoms; many have recovered. This is also related to the

condition of the immune system at a young adult age that is still functioning properly so that the self-recovery process is still fast.

There are no records showing what treatment measures were taken before the patient died, most likely due to the chaotic conditions of limited equipment and the large number of patients arriving at the same time. There is a big difference in death discharge status between those who have not been vaccinated and those who already have. This shows the effectiveness of vaccination in young adults after experiencing initial symptoms of COVID-19 infection, which need more research to prove.

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