Relationships between History of COVID-19 Disease, Anxiety, and Symptoms of Obsessive Compulsive Disorder (OCD) in Adolescents Age 20-24 Years

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ABSTRACT

Background: The COVID-19 pandemic triggers anxiety and worry in society. Active cases have continued to grow since the government announced the first patient of COVID-19 in Indonesia. In the midst of the pandemic, adolescent is a dominant groups in society infected with COVID-19. This situation can affect the psychological condition of adolescents. This study aims to analyze the relationship between the history of COVID-19 and anxiety and symptoms of Obsessive Compulsive Disorder (OCD) in adolescents aged 20-24 years in Surabaya.

Subjects and Method: A cross-sectional study was conducted in Surabaya City from October to November 2022. As many as 100 youth aged 20-24 years in Surabaya were the subjects of this study. The dependent variable is anxiety and obsessive compulsive disorder (OCD) symptoms. The independent variable is adolescents aged 20-24 years with a history of COVID-19. The instruments used were questionnaires and PCR swab evidence collection. Research data were analyzed using Pearson's correlation.

Results: The results showed that 74 subjects (74%) had mild anxiety. Meanwhile, there were 16 subjects (16%) who had symptoms of OCD. Analysis of the chi-square correlation test between history of COVID-19 disease and anxiety showed that there was no relationship between the two variables with a p value = 0.704. Analysis of the chi-square correlation test between history of COVID-19 disease and OCD symptoms showed that there was no relationship between the two variables with a p value = 0.086.

Conclusion: There is no relationship between history of COVID-19 disease and anxiety in adolescents aged 20-24 years in Surabaya and there is no relationship between history of COVID-19 disease and symptoms of OCD in adolescents aged 20-24 years in Surabaya.

Keywords: COVID-19, anxiety, Obsessive Compulsive Disorder (OCD) symptoms.

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BACKGROUND

Since 2019, the COVID-19 pandemic has attacked almost all countries through the spread of the SARS-CoV-2 virus which continues to grow from time to time. Real time data released by the World Health Organization (WHO) as of 11 February 2022 stated that there were 404,910,528 confirmed cases from all over the world (WHO, 2022). The high speed of transmission of the SARS-CoV-2 virus prompted WHO to designate the current conditions as a global pandemic (Mona, 2020).

In Indonesia, the first case of COVID-19 was reported on March 2, 2020. Based on data compiled by the Indonesian COVID-19 Task Force, a total of 4,844,279 confirmed cases, 4,323,101 recovered, and 145,321 died (Covid-19 Task Force, 2022). Emergency situations can trigger people who are physically and psychologically unprepared (Sabir and Phil, 2016). Taking the burden of disease calculations in 2017, people are predicted to experience several types of mental disorders (Riskesdas, 2017). Some of them are depression, anxiety, schizophrenia, behavioral disorders, bipolar, autism, eating disorders, intellectual disabilities, and ADHD. Depression is the most common mental disorder that affects people worldwide, around 300 million people (WHO, 2017). This number encapsulates around 4.4% of the world's population. Based on the results of the 2018 Riskesdas, depression can occur from the age of teenagers aged 15 to 24 years with a prevalence rate of 6.2%. The pattern of prevalence of depression continues to increase as individuals age.

People in China are reported to be affected by mental health at mild to severe levels with 33% of subjects showing severe symptoms (Stefana et al., 2020). Apart from threatening lives and lives, the COVID-19 pandemic has also triggered several psychological problems, such as depression, anxiety, and panic disorder (Qiu et al., 2020). One of the psychological indicators that arise as a result of COVID-19 is anxiety about being afraid of contracting it (Hanifah et al., 2020). Based on research conducted by Muyasaroh et al. (2020) in Cilacap, there are 4 types of anxiety that occur, including general anxiety, panic disorder, social anxiety, and obsessive anxiety. Based on Muyasaroh's research (2020), 18% of anxiety consists of panic, social anxiety, and obsessive behavior. A study in Saudi Arabia revealed an increased prevalence of obsessive and/or compulsive hygiene contamination symptoms (Alhujaili et al., 2021). Obsessive Compulsive Disorder is one of the ten disabling disorders by WHO (Brock, 2020). The pandemic has had a significant impact on contamination of OCD symptoms in individuals (Hassoulas, 2021). OCD can be centered on recurring or persistent obsessions or preoccupations around a fear of contracting/suffering from a disease or fear of contamination, which drives sufferers to perform repetitive behaviors or avoid them to reduce the risk of developing the disease. The obsessions/ preoccupations or compulsions/behaviors in this disorder are time consuming (e.g. take up more than 1 hour per day) and cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (American Psychiatric Association, 2013; World Health Organization, 2019).

In general, the tendency for OCD to worsen during COVID-19 (Cox et al., 2021). Some of the symptoms of checking, neutralizing, ordering and obsession do not show severity. Meanwhile, hoarding and washing activities worsened at different rates. The symptoms of excessive washing in OCD reflect compulsions rather than obsessions. Meanwhile, sleep disturbances indicate obsession (Cox, 2021). The scoping review by Wheaton et al. (2021) revealed that most people with OCD experienced worsening

symptoms during the pandemic. Symptoms of contamination and washing are increasingly associated with compulsive behaviors and stress associated with the pandemic. Teenagers tend to feel stressed due to pressure and heavy assignments from the environment (Aziz et al., 2021).

This condition causes mental problems among adolescents (Ida, 2021). The results of the study also showed that there was an influence of the pandemic situation on the etiology of OCD in students in the age range less than 26 years and more than 26 years (Ji et al., 2020). The prevalence of OCD attacks at the age of 15 to 18 years is 29.2% (Cost et al., 2021). transmission of infection comes from groups with relatively high mobility, namely the relatively young age group (Elviani et al., 2021). Information from the COVID-19 Task Force as of 4 October 2020 revealed that out of a total of 303,498 COVID-19 cases, 65.4% of them were under 45 years of age. The details are 2.5% aged 0-5 years, 7.7% aged 6-18 years, 24.3% aged 19-30 years, and 30.9% aged 31-45 years. And as information from BPS, 51% or the majority of people aged 17-30 years ignore health protocols because there are no government sanctions (Elviani et al., 2021).

COVID-19 does not only affect adults, but also children and adolescents. Reports from the Center for Disease Control and Prevention (CDC) show that children and adolescents are more at risk of experiencing complications related to COVID-19 disease (Anggreni, 2020). The aim of the research is to analyze the relationship between the history of COVID-19 disease and anxiety and symptoms of OCD in adolescents aged 20-24 years in Surabaya.

SUBJECTS AND METHOD

1. Study Design
This research was conducted using an observational analytic study design with a cross sectional approach. The location of this research is in the city of Surabaya, East Java, in October until November 2022.

2. Population and Sample
The population in this study were all adolescents aged 20-24 years in Surabaya. The sample size in this study was 100 samples using the accidental sampling technique.

3. Variables
The dependent variable is anxiety and OCD symptoms. The independent variable is adolescents aged 20-24 years with a history of COVID-19.

4. Operational Definition of Variables
Anxiety was the result of measuring anxiety in adolescents which is assessed using a questionnaire to see fear/ anxiety related to a history of exposure to COVID-19.

Symptoms of OCD were the results of measuring OCD symptoms in adolescents which are assessed using a questionnaire to see symptoms related to a history of exposure to COVID-19.

Adolescents aged 20-24 years with a history of COVID-19 disease are representtative of the study population at a certain age range.

5. Instrument
The instruments used in data collection were a Google Form containing the location for uploading PCR swab results, the Zung-Self Rating Anxiety Scale questionnaire, and the MINI ICD-10 questionnaire which were distributed online via Instagram, LINE, and WhatsApp to adolescents aged 20-24 years who were subject or research sample. Data management techniques include editing, coding, scoring, data entry, cleaning and tabulating techniques. Questions in the Google Form include a history of COVID-19 disease, 20 Zung-Self Rating Anxity Scale questions, and 6 MINI ICD-10 questions.

6. Data Analysis
The data analysis method of this research is using univariate and bivariate analysis. Uni-

variate analysis in the form of frequency distribution and percentage of each variable and bivariate analysis using the chi-square statistical test with a significance level of 5% (α=0.05) to determine the relationship between history of COVID-19 disease and anxiety and symptoms of OCD.

7. Research Ethics
Research ethics, namely with informed consent, anonymity, and confidentiality. A research ethics permit approval letter was obtained from the Health Research Ethics Committee of the Faculty of Medicine, Airlangga University, Surabaya, Indonesia, No.-188/EC/KEPK/FKUA/2022, on October 24, 2022.

RESULTS

1. Sample Characteristics
Table 1 shows that the 100 research subjects are all domiciled in Surabaya, the majority are 21 years old (52%). Subjects aged 23 and 24 years each consisted of 4(4%) people.

2. Univariate Analysis
The univariate analysis in this study included a history of COVID-19, anxiety, and symptoms of OCD. Table 2 shows that the majority of subjects did not have a history of COVID-19, namely 57 (57%) people. In the anxiety variable, 74 (74%) subjects did not experience anxiety. However, it was found that there were subjects who were categorized into severe anxiety, namely 2 (2%) people. Meanwhile, 16 (16%) people with OCD symptoms were found, with the majority of 74 (74%) subjects having no OCD symptoms.

3. Bivariate Analysis
Bivariate analysis was carried out to see the relationship between history of COVID-19 disease and anxiety and the relationship between history of COVID-19 disease and symptoms of OCD. Table 3 shows that there is a positive and moderate relationship between the history of COVID-19 and anxiety, but it is not statistically significant (r= 0.43; p= 0.704). Which means that subjects with a history of COVID-19 can reduce anxiety levels.

Table 4 shows that there is a positive and very weak relationship between the history of COVID-19 and OCD symptoms, but it is not statistically significant (r= 0.09; p= 0.086). Which means that subjects with a history of COVID-19 can reduce anxiety levels.

Table 1. Study Subject Characteristics

Characteristics	Category	Frequency (n)	Percentage (%)
Age	20 years	23	23
	21 years	52	52
	22 years	17	17
	23 years	4	4
	24 years	4	4

Table 2. Univariate Analysis

Variable	Category	Frequency (n)	Percentage (%)
History of COVID-19 disease	Yes	43	43
	No	57	57
Anxiety	Not anxiety	74	74
	Light anxiety	24	24
	Medium anxiety	2	2
	Severe anxiety	0	0
Symptoms of OCD	Symptomatic	16	16
	Asymptomatic	84	84

Table 3. Bivariate results of the relationship between history of COVID-19 disease and anxiety

Independent variable	Anxiety		OCD symptoms	
	r	p	r	p
History of COVID-19 OCD symptoms	0.43	0.704	0.09	0.086

DISCUSSION

1. Relationship Between History of COVID-19 Disease and Anxiety

Based on the research results, it can be found that most of the subjects do not experience anxiety. When infected with COVID-19, adolescents experience milder symptoms, fewer hospitalizations and lower death rates. However, there are many things to watch out for. First, access to health services is increasingly limited, various physical conditions may not be handled optimally, potentially leading to increased mortality, especially in areas with a shortage of resources. Second, the hyperinflammatory state that has been associated with COVID-19 infection in adolescents. The mental health impact of the pandemic on adolescents must also be considered. Adolescents are particularly vulnerable to the effects of ongoing stress during developmentally sensitive times, and their mental health during and after the pandemic requires special consideration (Courtney et al., 2020).

Anxiety is an emotional state that arises when an individual is stressed, and is characterized by feelings of tension, thoughts that make the individual feel worried and accompanied by a physical response (heart beating fast, blood pressure rising, and so on). But actually, the emergence of anxiety is a normal feeling because with the emergence of anxiety humans are made aware to be careful because there are situations that are not normal that must be faced (Suwandi and Malinti 2020).

There are several things that can cause anxiety, including (1) the age factor plays an important role because different ages mean different stages of development; (2) a conducive environment will reduce the risk of anxiety in a person; (3) knowledge and experience of an individual can help solve psychological problems including anxiety; (4) the role of the family that is less supportive will make teenagers depressed and experience anxiety (Livana et al., 2018). The absence of a relationship between a history of being diagnosed with COVID-19 and anxiety is in line with research conducted by Nurrasyidah and Sari (2022). The results of this study stated that there was no significant relationship between the history of exposure to COVID-19 in subjects and their families and anxiety about COVID-19.

According to Ho et al. (2020) many factors influence psychiatric disorders during a pandemic. These factors include coping mechanisms. Coping mechanisms against COVID-19 are thought to have occurred well in the subject, so that a history of exposure to COVID-19 is not related to anxiety about COVID-19.

Knowledge of the COVID19 variant is also significantly related to anxiety levels. Knowledge of the COVID-19 variant correlates with confidence in vaccine effectiveness. People who have had the vaccine tend to feel safer with a lower level of anxiety regarding the COVID-19 pandemic. People who have had the vaccine also feel immune to the COVID-19 virus so feelings of anxiety do not reappear (Alhasan et al., 2021).

According to Kelvin and Malinti (2020), adolescents who have better knowledge regarding the COVID-19 pandemic ha-

ve a relatively mild level of anxiety. However, there are still teenagers who have moderate and even severe levels of anxiety even though they have good knowledge. Even with better knowledge, it is possible that more men experience anxiety than women.

2. Relationship between history of COVID-19 disease and symptoms of OCD

This study showed that the majority of subjects had no symptoms of OCD. The results of this study are in line with the results of a study by Chakraborty and Karmakar (2020) which showed that there was no increase in OCD symptoms in patients with obsession with contamination and compulsive washing during a pandemic. Only a small proportion of patients (6%) reported OCD symptoms during the pandemic. Then Schwartzlifshitz et al. (2020) also found that there is no relationship between OCD and COVID-19 in children and adolescents. Children and adolescents with OCD coped well with COVID-19 during the first two months of the pandemic and for the most part did not experience OCD exacerbations.

Contamination obsession cannot be generalized. For example, a person with an obsession with fecal contamination may not continue to have an obsession with viral contamination. Fear of AIDS infection probably cannot be generalized to obsession with COVID infection. In addition, because adolescents still live with family members, their anxiety levels may be the same as other family members. Family support during social distancing, shared anxiety about COVID, frequent hand washing by other family members all play a preventive role from exacerbation of OCD symptoms (Brooks et al., 2020).

AUTHOR CONTRIBUTION

In this study, Woro Setia Ningtyas and Ayu Novia Christanti collaborated to develop a conceptual framework and research methodology. Ayu Novia Christanti collects data. Woro Setia Ningtyas, Annisa Nur Rohma, and Azimatul Karimah collaborated to analyze the data.

CONFLICT OF INTEREST
There is no conflict of interest in this study.

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