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## Navigating the Storm: Unraveling the Factors Shaping Adolescent Anxiety Amid the COVID-19 Pandemic

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### ABSTRACT

The COVID-19 epidemic has significantly impacted adolescent mental health, particularly in cases of anxiety. The underlying causes, though, are yet unknown. The goal of this study is to identify any potential influences on adolescent anxiety during the COVID-19 epidemic. Cross-sectional time series analysis is the method used in this investigation. The 188 teenagers who made up the study's samples ranged in age from 15 to 18 years old. The sampling method made use of the probability sampling. The Generalized Anxiety Disorder-7 (GAD-7) questionnaire was used as the instrument for gathering the data. Then, univariate, bivariate, and multivariate were used in the statistical test. Most of the respondents, namely 143 respondents (76.1%) experienced anxiety. The most influential factor in anxiety is the source of information (p value 0.020). The factors related to anxiety were sources of information, resilience, loneliness, social support, and having positive COVID-19 patients within the family or around the family environment. During the COVID-19, the source of information variable was found to be the most important variable related to the anxiety. Lack of clear information makes thinking worse and increases adolescent anxiety. It is recommended for healthcare services and community health centers to provide accurate information about COVID-19 in educational institutions to reduce adolescent anxiety.

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## INTRODUCTION

The COVID-19 pandemic has altered social connections all across the world. The regulations to stay at home and to do social distancing are established to prevent the transmission of COVID-19. The enactment of these regulations has an influence on the daily life of all age groups, one of which is the youth group.<sup>1</sup> The lack of external support and support from the family can increase the anxiety. Anxiety because of the COVID-19 pandemic can also be caused by the deteriorating economic conditions so that unemployment rates are high and increasing in all countries. This impact puts a lot of pressure on teenagers.<sup>2</sup>

The findings of the research carried out by the United Nations International Children's Emergency Fund (UNICEF) in 2021, state that as many as 27% of adolescents experienced anxiety, 15% are depressed during the pandemic, 46% of adolescents are not motivated to do activities they usually like, 36% are not motivated to do homework, and 43% of female adolescents feel pessimistic about their future. Meanwhile, male adolescents feel pessimistic, namely around 31%.<sup>3</sup> According to the previous research, the COVID-19 pandemic resulted in a twofold increase in the prevalence of depression and anxiety among children and adolescents worldwide. The study also stated that globally 1 out of 4 adolescents experienced an increase in depressive symptoms and 1 out of 5 adolescents experienced an increase in anxiety.<sup>4</sup>

The data on adolescent mental health in Indonesia in 2013 reached around 6.1% of the total population of Indonesia or the equivalent of 11 million people. Whereas in 2018, there were 9.8% of adolescents aged over 15 years experiencing mental-emotional disorders with the symptoms of depression and anxiety. The data shows that for 5 years mental disorders in adolescents have increased by around 3.7%.<sup>5</sup> In Central Java, there are 95,460 people (15-24 years old) with a prevalence of mental-emotional illnesses in 2018, and there are 95,461 (15-24 years old) with a prevalence of depression in Central Java.<sup>5</sup> Before the pandemic, the problem with adolescent mental health was also quite large. The research conducted by the Litbangkes Agency shows that 60.17% of junior high school students experience symptoms of mental-emotional

disorders with the symptoms of 44.54% feeling lonely, 40.75% feeling anxious, and 7.33% of adolescents having attempted suicide.<sup>5</sup>

Adolescent anxiety during the COVID-19 pandemic was influenced by a variety of elements, including loneliness, decreased resilience, and a lack of social support.<sup>6</sup> Anxiety in adolescents is also influenced by information sources owned by positive COVID-19 patients in or around the family.<sup>7</sup> High loneliness and a low tolerance for pressure can increase the anxiety that occurs in adolescents.<sup>6</sup> However, mental disorders can be prevented by having resilience and feeling supported by others. Psychological resilience can be used to adapt positively when facing difficulties during a pandemic.<sup>8</sup> The results of the previous studies stated that there were 898 (61.5%) adolescents who experienced high loneliness, 72.0% of adolescents had low resilience, and from the data we obtained, teenagers during the COVID-19 pandemic stated that 88.2% of the majority received information and developments on the COVID-19 disease through television. Most of the respondents have a high level of social support.<sup>6</sup> Adolescents' anxiety levels can increase 3.81 times when they live in a family or environment with positive COVID-19 patients.<sup>7</sup>

Excessive anxiety can affect the physical condition of adolescents because anxiety can indirectly increase the heart rate in the body and affect a person's physical condition in the form of dizziness, headaches and affect a person's performance and immunity. During the pandemic, problems with sleep, denial, anger, fear, and eating disorders affect adolescents.<sup>9</sup> In earlier research, 34.4% of high school students reported having anxiety symptoms, 42.9% of the students said they had depression symptoms, and 44.8% said they had insomnia symptoms.<sup>10</sup> If anxiety is allowed to develop, it can result in risky behavior, inappropriate sexual involvement, drug abuse, and isolation from family and friends. It may also have an effect on academic performance and outcomes at school, which may have repercussions for choices regarding careers or fields of study in the future.<sup>11</sup>

Mental health problems need to be identified and treated. The World Health Organization (WHO) has identified a gap in handling mental health problems including Indonesia, which reaches more than 85%, meaning that less than

15% of people with mental health problems get the health services they need. Mental health conditions are still an issue that has not received optimal attention and the number of people with mental disorders continues to increase.<sup>5</sup> Anxiety experienced by adolescents can have an emotional and physical impact. Excessive anxiety can affect adolescents in the educational process because excessive fear can affect clarity of thinking and memory for learning. Anxiety can also affect a adolescent physical condition because anxiety can indirectly increase the heart rate in the body and affect a person's physical condition in the form of dizziness, headaches and affect a person's performance and immunity. Poor sleep patterns, denial, anger, fear and eating disorders cause mental problems in adolescents during the pandemic.<sup>12</sup> If depression and anxiety are allowed to develop, it can lead to adolescent isolation from family and friends, risky behavior, inappropriate sexual involvement and drug abuse. It can also impact school performance and studies which can have downstream effects on career or study choices in the future.<sup>12</sup>

The coronavirus pandemic and the aftermath of the pandemic can affect the emotional health of the adolescents and their parents. Inadequate management of mental health issues connected to COVID-19 in teenagers can result in post-traumatic stress disorder, mental disorders, and other psychosocial issues. So that in the future it will have an impact on the quality and productivity of human resources. In this manner, it is important to complete the endeavors to help the emotional wellness of the youths during the Coronavirus pandemic. The health office and Public Health Centers (PHC) must work together with various parties in the community, which include health workers (doctors and midwives), social workers, community organizations, parents, and other elements of the society to build networks in promotive efforts. preventive measures through early detection and effective and efficient handling. This network can be integrated into Community Based Health Efforts integrated service post-service activities, health service facilities both government and private, educational institutions, and social institutions (social homes) as part of the efforts to deal with the COVID-19 pandemic. This study differs from the earlier research in that it is known, based on

the results of the previous journal reviews, that a variety of factors, including social isolation, lack of social support, information sources, and having a positive patient with COVID-19 in or around the family, can contribute to anxiety in adolescents. Based on the aforementioned information, this study intends to examine variables that affect adolescent anxiety during the coronavirus pandemic.

## MATERIAL AND METHOD

This study employs a survey-based research design and a quantitative approach. The time approach used is cross-sectional, namely identifying the independent variables and the dependent variable at one time.<sup>13</sup> The cross-sectional approach in this study is that the anxiety data and the influencing factors are taken at the same time at the current time only. The subjects in this study were high school teenagers. The respondents' inclusion criteria were: male and female adolescents, aged 15-18 years old and willing to become respondents. The instrument in this study used the GAD-7 questionnaire. The data collection techniques were carried out by collecting the questionnaires. The data analysis using univariate, bivariate, and multivariate. Univariate analysis was performed on each variable from the research results in the form of distribution and percentage of each variable. The chi-square bivariate test examines the associations between information sources, isolation, adaptability, social support, and having positive COVID-19 patients in or in the home context with anxiety. Then multiple logistic regression was used to run a multivariate test. The variables utilized in the logistic regression test had a p-value of less than 0.25 and were included in the multiple logistic regression analysis used to find the predictors of the anxiety symptoms. The ethical commission has approved this study (No. 2099/KEP-UNISA/VI/2022).

## RESULTS

Based on Table 1 of the characteristics in this study, it was found that the majority of the respondents were female, 134 (71.3%). Based on the age characteristics, it was found that most of the respondents were 17-18 years old with 121 respondents (64.4%). Univariate analysis

was used to describe the frequency and percentage distribution of the independent variables (sources of information, resilience, loneliness, social support, having positive COVID-19 patients in or around the family), dependent variables (anxiety, depression), and confounding variables (age, gender) that has been obtained from the research results (Table 1).

From Table 2, it can be seen that during the pandemic, it was found that the majority of the respondents obtained sources of information about COVID-19 from electronic and printing media, as many as 112 respondents (59.6%). The respondents who have low resilience were 94 respondents (50%). Most of the respondents experienced loneliness as many as 153 students (81.4%). The respondents mostly had low social support as many as 99 respondents (52.7%). Most of the respondents also had family members who tested positive for COVID-19 as many as 148 respondents (78.7%).

The relationship between independent and dependent variables can be determined using bivariate analysis. The chi-square test was used to look at the data to see if there was a relationship and what the next step should be namely multivariate analysis. The variables that will be tested bivariate in this study are the independent variables (sources of information, resilience, loneliness, social support, and having positive COVID-19 patients in or around the family) with the dependent variables (anxiety and depression).

Based on the data findings, it was found that the proportion of anxiety in adolescents mostly obtained information sources through electronic and print media, had low resilience, during the C Coronavirus pandemic, the majority of adolescents experienced loneliness and lacked social support, and most adolescents have positive COVID-19 patients in or around the family. The chi-square calculation's findings demonstrated that there was a significant relationship between sources of information, resilience, loneliness, social support, and having positive COVID-19 patients in or around the family with anxiety during the Coronavirus pandemic (Table 3).

**Table 1. Characteristics of Respondents**

Characteristics	n = 188	%
<b>Gender</b>		
Man	54	28,7
Woman	134	71.3
<b>Age</b>		
Early Teenagers (15-16 years)	67	35,6
Late Teenagers (17-18 years)	121	64,4
<b>Worry</b>		
Not Worried	45	23.9
Worried	143	76.1

Source: Primary Data, 2022

**Table 2. The Frequency Distribution of the Factors Influencing Anxiety During the COVID-19 Pandemic**

Variable	n = 188	%
<b>Resources</b>		
Electronic and printing media	112	59.6
Oral Media	76	40.4
<b>Resilience</b>		
High Durability	94	50
Low Resistance	94	50
<b>Lonely</b>		
Lonely	153	81.4
Not Lonely	35	18.6
<b>Social Support</b>		
High Social Support	89	47.3
Low Social Support	99	52.7
<b>Have a positive COVID-19 patient in or in the family environment</b>		
There is	148	78.7
There aren't any	40	21.3

Source: Primary Data, 2022

To ascertain whether the external variables have an impact on the dependent variable, multivariate analysis is utilized. The logistic regression is the multivariate analysis method employed. The multivariate analysis includes the variables having a p-value of less than 0.25.

The results of Table 4 explain the effect of each variable in the multivariate test through the Odds Ratio (OR) or Exp (B) value. From the multivariate analysis, it was found that the source of information variable was the most dominant factor in adolescent anxiety during the Coronavirus pandemic with OR = 1.891.

**Table 3. The Results of Analysis of Factors Influencing Anxiety**

Variable	No worries	Worried	Total	p-value
	n (%)	n (%)	n (%)	
<b>Resources</b>				
Electronic and Printing Media	34 (18.1)	78 (41.5)	112 (59.6)	0.020
Oral Media	11 (18.2)	65 (34.6)	76 (40.4)	
<b>Resilience</b>				
High Durability	41 (21.8)	53 (28.2)	94 (50)	0.000
Low Resistance	4 (2.1)	90 (71.5)	94 (50)	
<b>Lonely</b>				
Lonely	15 (8)	138 (73.4)	153 (81.4)	0.000
Not Lonely	30 (16)	5 (2.7)	35 (18.6)	
<b>Social Support</b>				
High Social Support	37 (19.7)	52 (27.7)	89 (47.3)	0.000
Low Social Support	8 (4.3)	91 (48.4)	99 (52.7)	
<b>Having a COVID-19 Positive Patient in or Around the Family</b>				
There is	22 (11.7)	126 (67)	148 (78.7)	0.000
There aren't any	23 (12.2)	17 (9)	40 (21.3)	

Source: Primary Data, 2022

## DISCUSSION

### The Effect of Loneliness on Adolescent Anxiety During the COVID-19 Pandemic

Based totally on the outcomes of the cross-tabulation of loneliness and anxiety, it was observed that the general public of respondents who experienced loneliness skilled tension, particularly 138 respondents (73.4%), and based totally on the Chi-square which obtained an importance value of  $0.000 < 0.05$ , that means there may be a courting among loneliness and anxiety. This finding supports the earlier studies that explain how adolescent loneliness contributes to high levels of stress.

Loneliness is a risk factor for mental health experienced by adolescents, thus making

adolescents feel vulnerable and pessimistic about their situation and resulting in negative moods and increased anxiety and depression during the pandemic.<sup>14</sup> According to the other study, adolescents who experience significant degrees of loneliness during a pandemic may experience symptoms of anxiety, sadness, and Post-Traumatic Stress Disorder (PTSD), as well as other mental health issues.<sup>15</sup>

**Table 4 Multivariate Analysis of Factors Influencing Anxiety During the COVID-19 Pandemic by Considering Confounding Variables**

Worry	Variables	
	Model 1	Model 2
<b>Resources</b>		
Print media	1891 [0.553, 6.474]	
Oral Media	1 [1, 1]	
<b>Covid</b>		
There aren't any	0.351 [0.089, 1.380]	
There is	1 [1, 1]	
<b>Lonely</b>		
Not Lonely	0.006*** [0.001, 0.046]	0.009*** [0.002, 0.053]
Lonely	1 [1, 1]	1 [1, 1]
<b>Resilience</b>		
High Durability	0.149* [0.034, 0.660]	0.102*** [0.024, 0.426]
Low Resistance	1 [1, 1]	1 [1, 1]
<b>Social Support</b>		
High Social Support	0.062*** [0.012, 0.317]	0.091*** [0.019, 0.431]
Low Social Support	1 [1, 1]	1 [1, 1]
<b>Gender</b>		
Man	3.496 [0.899, 13.597]	
Woman	1 [1, 1]	
<b>Age</b>		
Early Teens	1715 [0.483, 6.087]	
Late Teens	1 [1, 1]	

Source: Primary Data, 2022

Data are exponential coefficients; 95% confidence interval in brackets, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

### **The Effect of Resilience on Adolescent Anxiety during the COVID-19 Pandemic**

Based on the cross-tabulation results, it was found that 90 respondents (47.9%) had low resilience to experience anxiety. A significance value of  $0.001 < 0.05$  as determined by the chi-square test indicates that resilience and anxiety are related. These findings support the previous research<sup>6</sup> that adolescent resilience affects high anxiety, however not PTSD levels. Adolescent resilience, which comprises personal competence and trust in one's intuition, has been associated to the increased rates of depression, anxiety, and Post-Traumatic Stress Disorder (PTSD) symptoms during the pandemic. A person's ability to control emotions both physically and mentally is more effective in protecting individuals than characteristics that involve flexibility of mind, especially for adolescents who experience symptoms and side effects of PTSD in general during a pandemic. A pandemic is a source of worldwide pressure that has no predefined endpoint; therefore, it cannot be controlled by a single person. In addition, the pandemic has also simultaneously affected several aspects of life (health, relationships, and finances), which can exacerbate the symptoms of Post-Traumatic Stress Disorder (PTSD).

Therefore, the mental resilience typically associated with overcoming setbacks isn't sufficient to defend and protect against PTSD symptoms during a pandemic.<sup>6</sup> This is also in line with the research<sup>16</sup> which shows that in managing mental health, both emotional and stress, good skills are needed through effective coping mechanisms so no problems will arise in psychological health such as sleep disturbances, anxiety, depression, and panic. A research conducted by Cao, et al.<sup>17</sup> shows that the increase in symptoms of depression and anxiety in adolescents is due to online learning difficulties, conflicts with parents and peers, and stress over notifications about COVID-19.

### **The Effect of Social Support on Adolescent Anxiety during the COVID-19 Pandemic**

According to the cross-tabulation results, 91 individuals (48.4%) with low social support were reported having anxiety. Based on the results of the chi-square test, a significance value of  $0.000 < 0.05$  means that there is a relationship between social support and anxiety. This

research confirmed the previous findings that adolescents experience low levels of social support; around (37%) of adolescents reported to have low support from their families, which affected the level of anxiety in adolescents.<sup>6</sup> In this study, people who provided social support included friends, family, and significant others. Additionally, the prior research has demonstrated that the importance of parental support during the adolescent years varies across life stages.<sup>16</sup>

According to the previous research, more than half of adolescents with low social support also show symptoms of depression and anxiety, with a 4.2-fold increased risk of anxiety and depression compared to adolescents with high social support.<sup>18</sup> The results of this study indicate that social support is an important component of mental health among adolescents. Adolescents' mental health improves when they get more social support. Empathizing with teens, friends, and family can reduce their levels of anxiety and depression. An individual's sense of self-efficacy and capacities for understanding, respect, encouragement, courage, and self-fulfillment are all enhanced by social support, which can also assist individuals in maintaining relatively stable emotions even during stressful situations.<sup>16</sup>

### **The Influence of Information Sources on Anxiety during the COVID-19 Pandemic**

Based on the research result, it is known that most of the respondents who obtained information from digital and print media experienced anxiety, specifically seventy-eight respondents (41.5%). Based on the results of the analytic test using chi-square, there is a relationship between sources of information and anxiety. The dissemination of worry and dread in relation to the COVID-19 epidemic is significantly influenced by social media.<sup>7</sup> Since the issues that are raised by the constant exposure to material gained through social media cannot be answered, it can lead to worry, anxiety, and terror.<sup>19</sup> Based on the research conducted, it mentioned that the rise of news via the internet related to COVID-19 made teenagers unconsciously read information that could create panic. The dissemination of incorrect information will trigger fear and anxiety in teenagers. Therefore, it is said that

improper electronic media can trigger greater anxiety than the use of oral media as a source of information in adolescents.

### **The Effect of Having a Positive COVID-19 patient in or in the Family Environment on Adolescent Anxiety during the COVID-19 Pandemic**

Based on the outcomes, cross-tabulations of having positive COVID-19 patients in or around the family, it was found that respondents who had families who tested positive for COVID-19 experienced more anxiety, with 126 respondents (67%). There is a correlation between anxiety and having positive COVID-19 patients in or around the family, according to the chi-square test results, and an OR value of 7.749 is obtained, meaning that respondents who have positive COVID-19 patients have a risk of experiencing anxiety 7.749 times compared to respondents who do not have families who test positive for COVID-19. This is in line with earlier studies, which discovered that the presence of those adolescents' family or relatives had an effect on the mental health of adolescents with COVID-19.<sup>20</sup> Grief over the loss of a family can exacerbate mental distress in adolescents.<sup>9</sup> Having a family member who is hospitalized due to COVID-19 infection is a significant risk factor for the worsening of anxiety and sadness.<sup>21</sup>

### **The Most Dominant Factor Affecting Adolescent Anxiety during COVID-19**

According to the findings of the multivariate analysis, the information source with the highest OR value (1.891), had the greatest influence on adolescent anxiety during the COVID-19 pandemic. This indicated that the source of information is the main factor influencing anxiety. This is in accordance with previous research by Garfin, et al.<sup>22</sup> that exposure to the mass media increases the fear of COVID-19 which has an impact on increasing anxiety and attitudes. As many as 88.2% of adolescents follow the development of the disease COVID-19 and most obtain information through electronic media.<sup>7</sup>

One of the primary routes for updating information about COVID-19 is social media.<sup>23</sup> During the pandemic youth agendas changed rapidly and television and social media were mostly news about COVID-19. Exposing

adolescents to excessive information causes an increase in anxiety, lack of clear information makes the public think the worst thereby increasing their anxiety.<sup>23</sup> Other studies also show that factors that affect confusion among adolescents stem from differences in style, approach, and content of government messages, because many adolescents use electronic social media as a source of information that triggers fear and confuses adolescents so that it can endanger their mental health, so it is necessary for the authorities to cooperate and coordinate properly and provide accurate and easy-to-understand information about prevention strategies.<sup>24</sup>

The internet and social media are also useful resources for learning about the COVID-19 epidemic. The availability of knowledge regarding the coronavirus has resulted in an infodemic, which can affect teenagers' mental health. This is because, during the epidemic, many activities are carried out remotely, beginning with school, and social media has helped preserve social links with families and friends. However, excessive internet use can negatively impact the well-being of children and adolescents.<sup>7</sup> A good parent-child relationship can be an important protective factor for health adolescent mentality when facing the COVID-19 pandemic.<sup>25</sup>

## **CONCLUSION AND RECOMMENDATION**

This research found that the majority of adolescents experience anxiety during the COVID-19 pandemic. There is a correlation between sources of information, resilience, loneliness, social support, and having positive COVID-19 patients in or around families with adolescent anxiety during the pandemic. Sources of information as the most important factor causing adolescent anxiety during a pandemic (OR 1.891). Exposing adolescent to information overload causes an increase in anxiety. Efforts need to be made to support mental and psychosocial health for adolescents in situations of adapting to the new habits of the COVID-19 pandemic. The health service and community health centers must collaborate with various parties including health workers, parents and social organizations to built promotive and preventive networks such as early detection and effective and efficient

treatment by providing outreach in educational institutions as an effort to handle teenage anxiety during the COVID-19 pandemic. Providing guidelines related to factors that influence teenage anxiety during the pandemic so that it can reduce teenage anxiety rates.

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## AUTHOR CONTRIBUTIONS

Study conception and design RND and MN; Data collection RND; Data analysis and interpretation RND, MN, and DE; Drafting of the article RND, MN, and DE; Critical revision of the article MN. RND = Rini Nur Diana; MN = Mamnuah; DE = Dwi Ernawati.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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