

Anxiety to COVID-19 pandemic amongst university students is related with gastrointestinal symptoms



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ABSTRACT

Introduction: The COVID-19 pandemic has spread throughout the world, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that affects the respiratory system. The emergence and spread of the COVID-19 pandemic have caused confusion, anxiety and fear among the community, including university students. Anxiety to the COVID-19 pandemic causes various psychological manifestations, including fear of disease transmission, loss of loved ones, and decline in future socio-economic aspects. Anxiety can also lead to physical responses like gastrointestinal symptoms. This study aimed to determine the relationship between anxiety to COVID-19 pandemic and gastrointestinal symptoms complained by university students.

Methods: This observational analytic study using cross-sectional approaches involved 311 university students of Universitas Syiah Kuala, Banda Aceh, Indonesia. Anxiety to COVID-19 pandemic was measured using the Depression, Anxiety, and Stress Scale questionnaire, while gastrointestinal symptoms were measured using the Gastrointestinal Symptom Rating Scale questionnaire.

Result: Of the 311 respondents, 157 (50.5%) of them felt anxiety about the COVID-19 pandemic, with 28 (9%) and 13 (4.2%) students experienced severe and very severe anxiety, respectively. Besides, 264 (84.9%) university students complained of gastrointestinal symptoms, both upper and lower gastrointestinal tracts. There was a significant relationship between the level of anxiety to COVID-19 pandemic and gastrointestinal symptoms.

Conclusion: In conclusion, anxiety about the COVID-19 pandemic can cause gastrointestinal symptoms amongst university students. Therefore psychological assistance is needed to reduce psychological and physical disorders during the pandemic.

Keywords: Anxiety, Gastrointestinal symptoms, COVID-19 pandemic

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INTRODUCTION

Novel Coronavirus Disease 2019 (COVID-19) is a disease that affects the respiratory system and has spread throughout the world. COVID-19 is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 was first revealed in late December 2019 in the city of Wuhan, China and after more than three months, it was identified as a global pandemic by the WHO.¹ Besides induces different physical conditions such as fever, cough and dyspnea, COVID-19 also causes various psychological disorders including anxiety and depression.² Emotional mental disorders including anxiety are

categorized into mild, moderate and severe. In Indonesia, mild, moderate and severe emotional mental disorders count for 4.2%, 1.1%, 0.5% of the total population, whereas 37,728 people or 6% of the total population experience symptoms of depression and anxiety.³ Based on the study in India during the COVID-19 pandemic, around 72% of Indian people felt anxious if they or their family will be infected with COVID-19, where about 12% of the total population experiencing difficulty sleeping due to anxiety.²

On the other hand, a psychological disorder like severe anxiety can result in somatic complaints, such as palpitations,

shortness of breath, dizziness, headache, and gastrointestinal discomfort. Gastrointestinal disorders are somatic symptoms of excessive anxiety that lead to disruption in daily activities.^{4,5} A study conducted by Bekhuis *et al.* using the Netherlands Study of Depression and Anxiety (NESDA) survey found that around 68.1% of people who experience anxiety or depression disorders experience gastrointestinal symptoms.⁶ Nevertheless, the response of individuals regarding the COVID-19 pandemic is the key to psychology result of each individual. The level of anxiety for each individual is different; therefore, somatic response, including gastrointestinal disorder, is also different.

Therefore, the study aimed to analyze the relationship between anxiety to COVID-19 and gastrointestinal symptoms among university students who have good knowledge regarding COVID-19.

METHODS

The analytic observational with the cross sectional design was conducted from September to October 2020 using an online questionnaire using google form. The respondents were first, second and third-grade active students of Universitas Syiah Kuala that were randomly sampled using the proportionate stratified method. Inclusion criteria include: good understanding/knowledge regarding COVID-19 and completed questionnaires. Exclusion criteria were students undergoing gastrointestinal disease treatment and a history of anxiety disorders before the COVID-19 pandemic. The anxiety to COVID-19 pandemic was measured using the Depression, Anxiety, and Stress Scale (DASS) questionnaire and gastrointestinal symptoms were measured using Gastrointestinal Symptom Rating Scale (GSRS). The study received ethical approval from the Research Ethics Committee of Faculty of Medicine Universitas Syiah Kuala/Dr. Zainoel Abidin General Hospital No. 225/EA/FK-RSUDZA/2020. Data analysis was carried out using Graphpad Prism 5 using Chi-Square statistical test. P-value <0.05 was considered statistically significant.

RESULT

Baseline characteristic of respondents

311 university students were included in the study. Baseline characteristic of respondents showed in Table 1. The mean age of the subjects in this study is 20 years, with most of them female and from different grades of university students. Most respondents were nursing faculty students at 219 (70.4%) and had good knowledge regarding COVID-19.

University students feel anxiety due to COVID-19.

We then asked the physiological feeling of the respondents regarding COVID-19. Interestingly, half of the students experienced anxiety due to COVID-19 at a different level, as showed Table 2.

Majority of respondent experienced both upper and lower GI symptoms

Respondents were then asked regarding COVID-19 symptoms including fever, dyspnea, cough and gastrointestinal symptoms. None of the respondents experienced COVID-19 symptoms such as fever, dyspnea and cough (data not shown). However, most respondents showed gastrointestinal symptoms such as nausea and abdominal discomfort when

discussed COVID-19, as shown in Figure 1.

As shown in figure 1, most patients showed GI symptoms at 264 (85%) respondents. Additionally, 37 (14%) and 23 (9%) respondents experienced upper and lower gastrointestinal symptoms, respectively. Most of the respondents 204 (77%) have both upper and lower GI symptoms.

The level of anxiety due to COVID-19 in university students is related to Gastrointestinal symptoms

Finally, we then analyzed if the level of anxiety related to gastrointestinal symptoms. Interestingly, we found that

Table 1. Characteristics of respondents

Baseline characteristics	n=311
Age (year) (mean ± SD)	20.0 ± 1.0
Sex (female) (n, %)	293 (94.2)
Grade (n, %)	
First	103 (33.1)
Second	103 (33.1)
Third	105 (33.8)
Faculty (n, %)	
Nursing	219 (70.4)
Dentistry	92 (29.6)
Knowledge of COVID-19 (n, %)	
Good	298 (95.8)
Fair	12 (3.9)
Poor	1 (0.3)

Table 2. Distribution of Anxiety Levels Due to the COVID-19 Pandemic

Anxiety level	n	%
Normal	154	49.5
Mild	48	15.4
Moderate	68	21.9
Severe	28	9.0
Very Severe	13	4.2

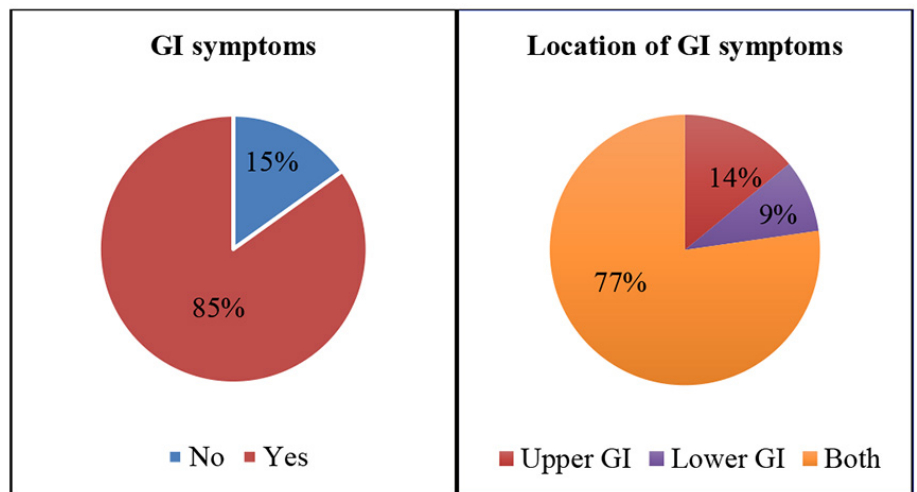


Figure 1. Gastrointestinal symptoms (GI) and the location of GI symptoms experienced by respondents.

Table 3. Relationship between anxiety level and gastrointestinal symptoms

Anxiety level	Gastrointestinal symptom (n)		p
	No	Yes	
Normal	36	118	0.002
Mild	5	43	
Moderate	5	63	
Severe	1	27	
Very Severe	0	13	

level anxiety due to COVID-19 is related to gastrointestinal symptoms in university students, as shown in Table 3.

Table 3 showed that a third of the total students at 118 (37.9%) students who did not have anxiety experienced gastrointestinal symptoms. However, around two-thirds of total students who felt anxiety experienced gastrointestinal symptoms. This table showed significant relation with p-value 0.002.

DISCUSSION

As the COVID-19 becomes a pandemic that raises fears and panic, it is important to evaluate if pandemic leads to increased anxiety and whether it causes gastrointestinal symptoms. This study showed a significant relationship between the level of anxiety due to the COVID-19 pandemic and gastrointestinal complaints. The results are supported by a previous study by Haug et al. who found that anxiety is strongly related to gastrointestinal complaints in the general population. Gender (women) and age (young) determines the incidence of gastrointestinal complaints due to anxiety, which is parallel with the result of the study, whereas the majority of respondents were women (94.2%).⁷ In addition, a review by Werden supported that anxiety has a significant relationship with the incidence of gastrointestinal complaints in undergraduate students. Anxiety causes worry or discomfort as if something is perceived as a threat, and different individuals have different reactions to anxiety. Increase understanding of COVID-19 leads to increase fear and worry feeling among university students. Some people reactions to anxiety is not necessarily a physical reaction. However, in other people, the complexity of the response to anxiety can involve physical reactions, one of which is gastrointestinal complaints.⁸

A study in Bangladesh stated that the COVID-19 pandemic is the most devastating and challenging crisis for public health worldwide because it increases death rates rapidly. People also suffered from severe psychological consequences, including the anxiety that can occur at all ages university students. The study also found that around 76.6%

of the anxiety caused by the COVID-19 pandemic to students can generally come due to their thoughts or feelings that they will decline academically from other students. The study also showed that more female students experience anxiety than male students.⁹ A similar result study conducted by Mertens et al. in Germany and Özdin et al. in Turkey, showing that female students experience more anxiety and depression rates than male students in the university. Based on research conducted, it was found that they were higher in the female sample, and this suggests that the psychiatric impact during the COVID-19 pandemic is more likely to occur in the female sample.^{10,11} Several studies also showed similar results that women are most likely to experience anxiety or post-traumatic stress disorder (PTSD) due to the COVID-19 pandemic.¹⁶ According to research conducted by Wang, it is shown that anxiety disorders due to the COVID-19 pandemic are three times more common in women than men.^{12,13}

More than half of the population was psychologically affected by the COVID-19 pandemic, and about a third of these affected population reported experiencing various psychological effects, one of which was mild to moderate anxiety. Female gender, students, and certain physical symptoms are associated with an increased psychological impact.¹⁴ Anxiety can result from a threatening situation as a dangerous stimulus (stressor). COVID-19, as a new disease has a major global impact and its emergence and spread causes confusion, anxiety and fear among the population. Anxiety due to the COVID-19 pandemic can be caused by various psychological manifestations of people who fear disease transmission, loss of loved ones, a decline in economic, social and future aspects due to the COVID-19 pandemic. Anxiety can develop into various hate reactions and bad stigma. In a time of widespread use of social media, fake news about COVID-19 is also spreading rapidly. This condition is sometimes very disturbing for certain individuals or society and in turn increases personal anxiety.² Moreover, anxiety due to the COVID-19 pandemic can negatively affect individual attitudes. The panic and anxiety caused by the COVID-19 pandemic lead to negative

behaviors. In contrast, individuals with low anxiety levels displayed a more positive attitude and awareness of the COVID-19 pandemic.¹⁵ Therefore, university students should cope with stress against bad news about COVID-19 to reduce the possibility of experiencing anxiety and avoid negative behaviors.

CONCLUSION

The majority of university students in Universitas Syiah Kuala feel anxiety about COVID-19 experiencing gastrointestinal complaints. There is a relationship between the level of anxiety due to the COVID-19 pandemic and gastrointestinal complaints among university students. This relationship is probably due to gender and age factors. Moreover, increasing understanding of COVID-19 probably leads to an increased feeling of fear and worry among university students. Another study should address these potential factors that lead to increase anxiety and gastrointestinal complaints among university students.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest regarding publication of this article.

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ETHICAL STATEMENT

The study received ethical approval from the Research Ethics Committee of Faculty of Medicine Universitas Syiah Kuala/Dr. Zainoel Abidin General Hospital No. 225/EA/FK-RSUDZA/2020.

AUTHOR CONTRIBUTION

Azzaki Abubakar is responsible for conceptualization, statistical analysis and editing the original draft. Muhammad Fadhlan Ma'rif is responsible for data gathering, project administration, statistical analysis and supporting writing the original draft. Muhammad Mizfaruddin is responsible for

conceptualization and editing the original draft. Fauzi Yusuf and Desi Maghfirah are responsible for editing and reviewing the original draft. Muhsin Muhsin is responsible for statistical analysis and supports writing the original draft. All authors had reviewed and agreed for the final version of the manuscript.

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