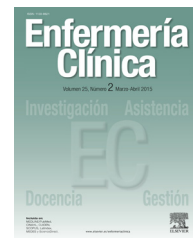




Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



ORIGINAL ARTICLE

Anxiety among nursing students during the Covid-19 pandemic: A web-based cross-sectional survey[☆]



Ririn Muthia Zukhra^{a,*}, Fathra Annis Nauli^a, Alfian Konadi^b

^a Faculty of Nursing, Universitas Riau, Pekanbaru, Indonesia

^b Nursing Laboratory, Faculty of Nursing, Universitas Riau, Pekanbaru, Indonesia

Received 5 November 2020; accepted 20 April 2021

KEYWORDS

Anxiety;
Coronavirus disease
2019;
Covid-19;
Nursing students;
Pandemic

Abstract

Objective: The objective of this study was to assess levels of anxiety and ways of coping among nursing students in The School of Nursing, University of Riau during the COVID-19 Outbreak.

Method: This study was conducted among 247 students through the web-based cross-sectional survey.

Results: The findings show that more than one in three students 87 (35.3%) had mild to severe anxiety. Many students experienced anxiety when doing activities outside, having no use personal protection equipment (PPE), worrying about being infected if they have a cough, fever, or sore throat. The top three ways of coping to reduce student's anxiety are implemented healthy lifestyle behaviors (46.56%), staying at home and doing activities together with family (44.94%), and doing positive activities (22.67%).

Conclusions: The school should give attention to the mental health of students by providing psychological support to reduce student's anxiety.

© 2021 Elsevier España, S.L.U. All rights reserved.

Introduction

Coronavirus disease (Covid-19) is an infectious disease that primarily affects the lungs. The disease is caused by the novel coronavirus which was first identified in Wuhan, China.¹ Confirmed cases of Covid-19 in the world significantly increase. More than 190 countries have been infected by Covid-19. The top five of countries with the highest cases are United State of America, Italy, Spain, China, and Germany respectively. The total number of infections nationwide

[☆] Peer-review under responsibility of the scientific committee of the Riau International Nursing Conference 2020. Full-text and the content of it is under responsibility of authors of the article.

* Corresponding author.

E-mail address: ririnmuthiazukhra@lecturer.unri.ac.id (R.M. Zukhra).

achieved 781,485 cases. The cases increase every month significantly.² The outbreak of Covid-19 has been substantially influencing the human life across the world, especially after the declaration of a global pandemic by the World Health Organization in the second week of March 2020. Meanwhile, Indonesia Government also declared Covid-19 pandemic as a non-natural disaster. The confirmed cases in Indonesia as of, March 31, 2020, bringing the total number of infections into 1528 cases.²

The outbreak does not only influence physical health but also psychosocial and mental health. This outbreak causes stress and anxiety in community.² In spite of limited specific investigation on psychosocial and mental health problems, the number of patients with anxiety disorder increase during the outbreak.³ The anxiety disorder generated during Covid-19 pandemic can happen to anyone. The symptoms of anxiety are stress, fear, palpitation, difficulties to control emotions, as well as sleep disorder. The anxiety disorders eventually increased related to greater exposure to misinformation on social media are more likely contributing to the development of anxiety.⁴

Since March 2020 the Indonesian president announced a two-week confinement period as a response to the pandemic. It was also implemented in Pekanbaru city, Riau Province which became a red-zone of Covid-19. This condition affects students' learning activities. It caused anxiety among university students. On this ground, the purpose of this study was to explore the level of anxiety among nursing students and to find out how their strategies are to reduce the anxiety during the pandemic.

Method

This study was conducted in the second week of April until May 2020. Data collection was through an online survey which was administered to collect demographic informations, level of anxiety, causative factors, and their activities to reduce anxiety. An informed consent form was attached to the questionnaire. The stratified random sampling technique was used. All students registered in the 2019/2020 academic year were invited to participate in this survey until the inclusion criteria fulfilled. The total number of sample was 247 students. A set of questionnaires using Zung Self-Rating Anxiety Scale (ZSAS) was to measure anxiety level mental health and psychosocial support during Covid-19 pandemic.

Results

Findings show that 224 students are (90.7%) female and the rest are male. More than a half of the overall students was 17–20 years old. Regarding to region where they live, 205 (83%) live in red zone region, 26 (10.5%) in yellow zone, and the rest in green zone (see Table 1).

Based on ZSAS questionnaire, 87 students (35.3%) had mild to severe anxiety. Out of 87, female students (90.8%) had higher anxiety symptoms than male. 69 (33.65%) students living in red zone, had mild to severe anxiety. Students in the age of 17–20 had higher anxiety symptoms (66.67%) than other groups.

They felt anxiety when doing activities outside especially when with no personal protection equipment (PPE) 221

Table 1 Demography and level of anxiety.

Variables	Frequency (f)	Percent (%)
<i>Gender</i>		
Male	23	9.3
Female	224	90.7
<i>Age group</i>		
17–20	143	57.89
21–24	100	40.48
>24	4	1.61
<i>Region zone</i>		
Red zone	205	83
Yellow zone	26	10.5
Green zone	16	6.5
<i>Level of anxiety</i>		
Minimal/no	160	64.8
Mild	74	30
Moderate	12	4.9
Severe	1	0.4

Table 2 Activities reduce students' anxiety.

Activities	f	%
Perform healthy life style	115	46.56
Behaviors stay at home	111	44.94
Doing positive activities	56	22.67
Doing prayer	52	21.05
Doing relaxation (deep breathing, listening music, and other)	20	8.10
Positive thinking	18	7.29

(89.5%). Students also were worried about being infected when having a cough 109 (44.1%), fever 103 (41.7%), and sore throat 111 (44.9%). Furthermore, they were also worried when interacting to any person with the given symptoms 233 (94.3%) where the presence of positive patients with Covid-19 in their environment 235 (95.1%). Their perception on Covid-19 was that it is a scary disease: 228 (92.3%). Many activities had been carried out by students in order to reduce their anxiety during this pandemic (see Table 2).

Discussion

Covid-19 has been a big source of stressor for people in the world including nursing students. The findings of the present survey indicate that one third students (35.3%) had mild to severe anxiety during this pandemic. This condition, however, changes students' life aspects including their learning activities. This result is line in with a past study in China which reported that psychological effects were not only on public communities, but also all aspects of community life, including university students.⁵ The past study about students' mental health status during the outbreak reported that approximately 24.9% students had mild to severe.⁶ A survey in Bangladesh also reported that more than two-thirds of students were experiencing mild to severe anxiety during the pandemic.⁴

In this present study, students experiencing anxiety are caused by a few factors such as outdoor activities without PPE. Covid-19 virus is transmitted across people through close contacts and droplets rather than by airborne. Implementing PPE is preventive and mitigation such as performing hand hygiene, wearing a medical mask, avoiding touching eyes, nose, and mouth as well as maintaining social distance.⁷ They also worried when suffering fever, cough, and sore throat as well as when interacting to people with these symptoms. Those worries can be called psychosomatic disorder. When any person is stressful, their human body will stimulate activation of the sympathetic nervous system. Consequently, the hypothalamic pituitary-adrenal (HPA) axis stimulates to increase cortisol hormone which has various effects on the organs of the human body, such as disability to focus, tachycardia, sleeping disorder, irritable bowel syndrome, tiring, worries, and mood changes.⁸

The present study also found that female students have higher anxiety symptoms than the male group. Female students prioritized importance on their experiences and self-perceptions. Their emotions are more fragile and sensitive. Thus, they are more vulnerable to anxiety in this pandemic.⁹ Female have less capability than men in facing Covid-19 situation.⁵ Although the female group have anxiety symptoms, they turn out have good knowledge about how the virus can be transmitted.³

The 17–20 age group is found to have higher anxiety than other groups. It is because this age group is an early phase to become adults therefore sometimes their personality is still labil. This result is consistent with the past study⁹ showing that the given age range was more vulnerable to anxiety when facing critical situation like school examinations and disaster. This result is also in accordance with the past study⁵ that students in the age of under 22 years were more fearful due to their transition period and sensitivity.

Most of nursing students in this present study live in red zone of Covid-19 spread and experience anxiety. Their location or livelihood is found to affect stress and anxiety with different responses for each person. It is contrast to past study arguing that location has no influence on their anxiety, except if the students lived alone during this pandemic.⁶

During the pandemic, many activities that students have carried out in order to reduce their anxiety such as implemented healthy lifestyle behaviors, staying at home, activities together with family, also positive activities, etc. All of the activities are supported by past study² that those are helpful to reduce anxiety.

Conclusions

This study presents empirical evidences that nursing students in Riau Province have been suffering anxiety during the Covid-19 outbreak. To minimize their growing mental health problems the nursing schools are suggested to pay

careful attention to their mental health by providing psychological support and sufficient information about anxiety management during this pandemic.

Conflict of interest

The authors declare no conflict of interest.

Acknowledgements

We are grateful to the participants and thankful to the editors and anonymous reviewers. This research did not receive any specific grant from funding agencies either in the public, commercial, or profit sectors.

References

1. WHO. Coronavirus disease 2019 (COVID-19); 2019. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019> [accessed 15.4.19].
2. Kementerian Kesehatan Republik Indonesia Pedoman Dukungan Kesehatan Jiwa dan Psikososial pada Pandemi COVID-19; 2020. <https://covid19.kemkes.go.id/protokol-covid-19/pedoman-dukungan-kesehatan-jiwa-dan-psikososial-pada-pandemi-covid-19/#.X8IEDIUzblU> [accessed 5.5.20].
3. Liu F, Zhou N, Cao H, Fang X, Deng L, Chen W, et al. Chinese college freshmen's mental health problems and their subsequent help-seeking behaviors: a cohort design (2005–2011). *PLOS ONE*. 2017;12:1–17, <http://dx.doi.org/10.1371/journal.pone.0185531>.
4. Akhtarul Islam M, Barna SD, Raihan H, Nafiu Alam Khan M, Tanvir Hossain M. Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: a web-based cross-sectional survey. *PLOS ONE*. 2020;15:1–12, <http://dx.doi.org/10.1371/journal.pone.0238162>.
5. Liu X, Liu J, Zhong X. Psychological state of college students during COVID-19 epidemic. *Lancet Glob Heal*. 2020, <http://dx.doi.org/10.2139/ssrn.3552814>.
6. Wenjun C, Ziwei F, Guoqiang H, Mei H, Xinrong X, Jiaxin D, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res*. 2020;287:1–5, <http://dx.doi.org/10.1016/j.psychres.2020.112934>.
7. WHO. Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19) and considerations during severe shortages; 2020. <https://apps.who.int/iris/handle/10665/33.1695> [accessed 15.4.20].
8. Gica S, Kavakli M, Durduran Y, Ak M. The effect of COVID-19 pandemic on psychosomatic complaints and investigation of the mediating role of intolerance to uncertainty biological rhythm changes and perceived COVID-19 threat in this relationship: a web-based community survey. *Psychiatry Clin Psychopharmacol*. 2020;30:89–96, <http://dx.doi.org/10.5455/PCP.20200514033022>.
9. Husky MM, Kovess-Masfety V, Swendsen JD. Stress and anxiety among university students in France during Covid-19 mandatory confinement. *Compr Psychiatry*. 2020;102:152191, <http://dx.doi.org/10.1016/j.comppsy.2020.0152191>.