

## Knowledge, anxiety, stress and COVID-19 guidelines practice among nursing students: A cross-sectional study

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### Abstract

**Objective:** To analyse the relationship of knowledge, anxiety and stress with the practice of coronavirus disease-2019 guidelines among nursing students.

**Method:** The cross-sectional study was conducted in June-July 2020 after approval from the ethics review board of Universitas Nahdlatul Ulama, Surabaya, Indonesia, and comprised undergraduate nursing students in their second, third and fourth years of studies at various universities in the East Java region. Data was collected using the Depression, Anxiety, Stress Scale-21 questionnaire. Knowledge about coronavirus disease-2019 guidelines was assessed using a self-developed questionnaire in line with World Health Organisation advisory. Data was analysed using SPSS 25.

**Results:** Of the 227 subjects, 204(90%) were women and 23(10%) were men. The overall mean age was 20.10±1.5888 years. There was no significant association of knowledge, anxiety and stress with the practice of coronavirus disease-2019 guidelines ( $p>0.05$ ).

**Conclusion:** Adequate knowledge of coronavirus disease-2019 did not make the nursing students follow the relevant guidelines.

**Keywords:** Nursing, Anxiety, Mental health, Socialisation, Stress, COVID-19. (JPMA 73: S-122 [Suppl. 2]; 2023)

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### Introduction

Coronavirus disease-2019 (COVID-19) first appeared in Wuhan, China, towards the end of December 2019 after which it became a pandemic that killed thousands of people and infected many more.<sup>1</sup> COVID-19 is an infectious disease that attacks the respiratory system, which causes fever, dry cough and asphyxiation<sup>2</sup> with quick and high transmission levels. On March 11, 2020, the World Health Organisation (WHO) declared COVID-19 a global pandemic.<sup>3</sup> Many countries, including Italy, Spain, Germany and China, implemented lockdowns to minimise the spread and transmission.<sup>4</sup> Indonesia was among the countries that did not implement lockdowns, but practised large-scale social distancing (PSBB). Indonesia became one of the countries with the most number of COVID-19 patients in Southeast Asia.<sup>5</sup> The global number of COVID-19 patients was 12.3 million, and in Indonesia 70,408 people were affected.<sup>6</sup>

A study in Jordan showed that 90% of 592 students had adequate knowledge of COVID-19 and its transmission.<sup>7</sup>

Similarly, students in Bangladesh showed fairly good level of knowledge of COVID-19.<sup>8</sup> Another study showed that the emergency problem in the healthcare sector had impact on students' mental condition, as they felt fear and anxiety.<sup>9</sup>

The pandemic not only increased the risk of getting infected and dying of it, but it also had a psychosocial element<sup>9</sup> Lockdowns and PSBB forced people homebound and promoted working and studying from home. A similar situation happened to the nursing students who had to study from home regardless of the kind of assignment. Their daily activities were filled with online studying without going out of their houses, and they could not hang out with their friends or carry out their usual activities. The situation was made worse by news updates about COVID-19 and the number of people infected every day which the students received through social media, and this caused stress and anxiety.<sup>10</sup> Students aged 19-25 years were at the risk of experiencing anxiety and stress during lockdown and PSBB.<sup>11</sup>

Nursing students, being related to healthcare delivery mechanism and working as agents of change, were expected to have enough knowledge to educate people around them to improve the implementation of COVID-19 control protocol, including the wearing of masks when

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leaving the house, washing hands with soap, avoiding crowded places, and maintaining distance with other people.<sup>12</sup> By mass education about COVID-19 transmission prevention in various media, it was expected that people understood more, and could implement measures in daily life to reduce the number of COVID-19 infections.

The current study was planned to analyse the relationship of COVID-19 protocol practice with knowledge, anxiety and stress among nursing students.

## Subjects and Methods

The cross-sectional study was conducted in June-July 2020 after approval from the ethics review board of Universitas Nahdlatul Ulama, Surabaya, Indonesia, and comprised undergraduate nursing students in their second, third and fourth years of studies at various universities in the East Java region. The sample was raised using accidental sampling technique. Informed consent was taken from each subject, and those not willing to participate were excluded, and so were those in the first year of the academic programme.

Data was collected using a 14-item questionnaire about the knowledge about COVID-19 as outlined by the WHO.<sup>12</sup> Each item was responded to as true or false, and the total score ranged 0-14. The items included transmission ways of virus, name of the virus, signs and symptoms, infectious with or without symptoms, and vaccination development. The knowledge was classified as good >76%, average 55-76% and poor <55%.

Stress and anxiety were assessed using the Depression, Anxiety, Stress Scale-21 (DASS-21).<sup>13</sup> The subjects responded to 7 items of the stress component. The stress level was classified as normal 0-14, mild 15-18, moderate 19-25, severe 26-33 and extremely severe >34. The six items of the anxiety component were scored on a 4-point Likert scale ranging from 0=not at all to 3=most of the time. Anxiety level was classified as normal 0-7, mild 8-9, moderate 10-14, severe 15-19 and extremely severe >20. The questionnaire had excellent consistency, with Cronbach's  $\alpha$  value 0.911.

The COVID-19 guideline practice was explored using a 7-item questionnaire which was scored on a Likert scale ranging from 3=most of the time to 0= not at all. The maximum score was 28 and it was classified as good >76%, moderate 55-76% and weak <55%. Data collection was supplemented with demographic items, such as age, gender, city/area.

Data was analysed using SPSS 25. Descriptive statistics were calculated. Kolmogorov Smirnov test was used to test data normality after which regression linear test was carried

out.  $P < 0.05$  was taken as statically significant.

## Results

Of the 227 subjects, 204(90%) were women and 23(10%) were men. The overall mean age was  $20.10 \pm 1.5888$  years. Mean knowledge score was  $78.07 \pm 7.226$ , mean anxiety score was  $4.06 \pm 2.608$ , mean stress score was  $6.16 \pm 2.623$  and COVID-19 guideline practice score was  $16.85 \pm 31.04$  (Table 1).

There was no significant association of knowledge, anxiety and stress with the practice of COVID-19 guidelines ( $p > 0.05$ ) (Table 2).

The subjects had a good knowledge about COVID-19, but their practice of the relevant guidelines was suboptimal as

**Tabl-1:** Characteristic of the nursing students.

No.	Variable	n (%)	Mean $\pm$ SD
1	Gender		
	Male	204 (89.9)	1.1 $\pm$ 0.302
	Female	23 (10.1)	
2	Age		
	18 years old	21 (9.3)	20.10 $\pm$ 1.5888
	19 years old	74 (32.6)	
	20 years old	57 (25.1)	
	21 years old	39 (17.2)	
22 years old	36 (15.9)		
3	Region		
	Urban	123 (54.2)	78.07 $\pm$ 7.226
	Rural	104 (45.8)	
4	Knowledge Level		
	Good	171 (75.3)	4.06 $\pm$ 2.608
	Average	55 (24.2)	
Poor	1(4)		
5	Anxiety		
	Normal	205 (90.3)	6.16 $\pm$ 2.623
	Mild	13 (5.7)	
	Moderate	8 (3.5)	
	Severe	1 (0.4)	
Extremely Severe	0		
6	Stress		
	Normal	225 (99.1)	16.87 $\pm$ 3.184
	Mild	(0.9)	
	Moderate	0	
	Severe	0	
Extremely Severe	0		
7	COVID-19 guidelines Practice		
	Good	156 (68.7)	16.87 $\pm$ 3.184
	Moderate	57 (25.1)	
Weak	14 (6.2)		

COVID-19: Coronavirus disease-2019.

**Tabl-2:** Correlation of knowledge, anxiety and stress with practice of COVID-19 guidelines.

Variable	COVID-19 Guidelines Practice	
	t-test	p-values
Knowledge	0.780	0.436
Anxiety	0.295	0.768
Stress	0.0.929	0.354

COVID-19: Coronavirus disease-2019.

**Tabl-3:** Responses related to anxiety and stress in the context of COVID-19 guidelines practice.

Variable	Most of Time n (%)	Good part of time n (%)	Some of the time n (%)	Not at All n (%)
<b>Anxiety: Item</b>				
I was aware of dryness of my mouth	2 (0.9)	21 (9.3)	151 (66.5)	53(23.3)
I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	1 (0.4)	1 (0.4)	31 (13.7)	194 (85.5)
I experienced trembling (e.g. in the hands)	1 (0.4)	6 (2.6)	60 (26.4)	160 (70.5)
I was worried about situations in which I might panic and make a fool of myself	4 (1.8)	15 (6.6)	115 (50.7)	93 (41)
I felt I was close to panic	7 (3.1)	34 (15)	126 (55.5)	60 (26.4)
<b>Stress : Item</b>				
I found it hard to wind down	3 (1.3)	8 (3.5)	112 (49.3)	104 (45.8)
I tended to overreact to situations	1 (0.4)	8 (3.5)	116 (51.1)	102 (44.9)
I felt that I was using a lot of nervous energy	2 (0.9)	20 (8.8)	127 (55.9)	78 (34.4)
I found myself getting agitated	1 (0.4)	8 (3.5)	116 (51.1)	102 (44.9)
I found it difficult to relax	2 (0.9)	13 (5.7)	103 (45.4)	109 (48)
I was intolerant of anything that kept me from getting on with what I was doing	4 (1.8)	20 (8.8)	98 (43.2)	105 (46.3)
I went to public places within the last 14 days.	130 (57.3)	88 (38.8)	9 (4)	-
I wore A mask when leaving the house.	-	7 (3.1)	43 (18.9)	176 (77.5)
I maintained distance of at least 2 meters when leaving the house.	4 (1.8)	50 (22)	72 (31.7)	101 (44.5)
I washed my hands with soap.	-	8 (3.5)	57 (25.1)	162 (71.4)
I used hand sanitizer during activities outside the house.	-	-	74 (32.6)	114 (50.2)
I did not touch my face, eyes, nose, and mouth.	8 (3.5)	68 (30)	65 (28.6)	86 (37.9)
I used tissue and covered my nose and mouth with my elbow when I sneezed.	-	29 (12.8)	82 (36.1)	116 (51.1)

COVID-19: Coronavirus disease-2019.

130(57.3) of the subjects reported having to public places 'most of the time' without keeping social distancing in the preceding 15 days (Table 3).

## Discussion

The study showed that the nursing students' knowledge of COVID-19 was fairly good. Similar findings were reported from Italy<sup>14</sup> and Iran<sup>15</sup>. The knowledge of COVID-19 was gained mostly from the internet and social media.<sup>16</sup> Lockdown, stay-at-home environment, and studying-from-home programmes enabled the students to access the internet and obtain news from television. During the pandemic, mass media had significant effect on the improvement of knowledge and attitude of the public toward s the health problem.<sup>17</sup>

Students' mental health during the pandemic showed that a small number of students had anxiety and stress symptoms in the current study. A study done in China showed that problems and emergency in the field of public health could affect students' psychosocial condition, which could be in the form of fear and anxiety.<sup>18</sup> The occurrence of COVID-19 has affected certain aspects of life, including the studies, causing stress and anxiety during the phase<sup>19</sup>. Social media itself can increase the possibility of getting stress and anxiety.<sup>20</sup> Studies in Nigeria and China showed similar findings.<sup>2,9</sup> The factors affecting students' anxiety included anxiety of not being able to graduate on time,

economic condition of their families, and stay-at-home daily life that only made them feel bored and weary.

In the current study, some students did not wear masks when leaving their houses, did not maintain social distancing, and rarely washed hands, but, in general, they were proactive in implementing the COVID-19 control protocol in daily life. Students' proactive actions were, among others, triggered by their desire not to get infected by COVID-19.

The current study showed there was no significant relationship of knowledge, anxiety and stress with COVID-19 guideline practice, which was in line with a study done in Ecuador.<sup>21</sup>

PSBB implemented in some big cities in Indonesia, such as Jakarta, Bandung, Surabaya, Gresik and Sidoarjo, did not make overall society follow COVID-19 prevention protocols. Despite their good level of knowledge, only half of the subjects in the current study wore masks, washed hands and maintained social distancing. This condition could be one of the causative factors of increasing number of COVID-19 patients in Indonesia.<sup>22</sup>

The fact that the current study did not calculate the sample size and had a small sample is a limitation of the study.

## Conclusion

The knowledge of nursing students about COVID-19 was found to be good, but this knowledge did not make the nursing student follow the relevant guidelines.

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