

FEAR OF COVID-19 AND ASSOCIATED FACTORS AMONG STUDENTS IN CAN THO UNIVERSITY OF MEDICINE AND PHARMACY DURING THE COVID-19 PANDEMIC

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ABSTRACT

Background: The COVID-19 pandemic has been affecting the world seriously and along with the fear of COVID-19, psychological reactions are also becoming more common. In particular, medical students are susceptible to sleep-related problems due to pressure in studying as well as accessing the hospital environment. **Objectives:** Evaluate the fear of COVID-19 and associated factors among students in Can Tho University of Medicine and Pharmacy during the COVID-19 pandemic. **Materials and methods:** A cross-sectional study from October 10 to October 17, 2021 among 816 from third-year to sixth-year medical students in Can Tho University of Medicine and Pharmacy through an online survey via Microsoft form using a structural questionnaire. **Results:** The average age is 22.58 ± 1.39 ; in which, male accounts for 43.6% and female 56.4%. There is 47.7% of students participating in the fight against COVID-19 in localities. Regarding accommodation, the majority of students stayed in hostels alone with the rate of 55.4%. There are 2.9% third-year students, 35% fourth-year students, 5.4% five-year students, and 56.6% sixth-year students. The COVID-19 pandemic fear score is quite high (19.07 ± 5.3). The overall average score of the full scale is 2.72 ± 0.75 indicating that students have an average fear of COVID-19. Expressions in the emotional response group is higher in comparison with physiological COVID-19 fear response. Female students have higher levels of fear of COVID-19 than male. The difference is statistically significant in mean of FCV-19S by school year, student's place of residence and participation in COVID-19 pandemic ($p < 0.05$). FCV-19S is positively correlated with students' sleep quality score with $r = 0.08$, $p = 0.017$ (Pearson). **Conclusions:** The COVID-19 pandemic has greatly affected the psychophysiology, especially the quality of students' sleep. There are many factors related to COVID-19 fear such as gender, school year, place of residence and student participation in COVID-19.

Keywords: COVID-19, sleep quality, students, CTUMP, Fear of COVID-19 Scales (FCV-19s).

I. INTRODUCTION

Sleep plays a crucial role in maintaining physical and mental health for everyone. Currently, poor sleep quality which is very common, causes many serious health and social consequences. Medical students are considered as a special population which prone to sleep-related problems due to pressure in studying as well as accessing the hospital environment.

Since its emergence, COVID-19 has become a global health threat, creating unprecedented challenges for health care and education systems of countries worldwide, including Vietnam. The COVID-19 pandemic causes fear, panic, and mental health problems in communities. At the present time, during the 4th outbreak of the COVID-19 pandemic, according to updated data on October 17, 2021 on the news page about COVID-19 acute respiratory infection disease of Ministry of Health, Vietnam. In fact, Vietnam recorded a total of 859.372 infections, ranking 40/223 countries and territories and 21.194 deaths. The number of COVID-19 infections in Can Tho from July 8 to October 17, 2021 is 6.277 cases and the total number of recovered patients reaches 5.594 people [1].

Until now, to the best of our knowledge, there are no studies on fear of COVID-19 and related factors, including sleep quality among medical students in Can Tho city where there is a remarkable raising in cases of COVID-19 infections. This study was conducted to initially explore the level and manifestation of fear of COVID-19, sleep quality of students at Can Tho University of Medicine and Pharmacy as well as some related factors.

II. MATERIALS AND METHODS

2.1. Methods and data analysis

The research was conducted through a cross-sectional study among 816 third-year to sixth-year medical students in Can Tho University of Medicine and Pharmacy by an online survey using a structural questionnaire. Data were collected between October 10 and October 17, 2021 by using convenience sampling techniques.

The data were processed using SPSS version 26. Descriptive statistics (Mean, Standard deviation), an Independent One-sample t-test (t-test), ANOVA, and Pearson correlation were used to analyze the collected data.

2.2. Measures

Fear of COVID-19 Scale – FCV-19S

Evaluating the fear of COVID-19 pandemic by FCV- 19S, which was developed by Ahorsu D.K. [2] and translated into Vietnamese by Nguyen HT et al., is a reliable tool in screening the fear of COVID-19 [13].

The tool consists of 7 items evaluated on a 5-point Likert scale, with 1 = “strongly disagree”, 2 = “disagree”, 3 = “neither disagree nor agree”, 4 = “agree”, 5 = “strongly agree”. The total score is the sum of the scores of the 7 items, ranging from 7 to 35, with a higher score indicating greater fear of COVID-19. It has the Cronbach's Alpha value of 0,907. The items “I am most afraid of coronavirus-19”, “It makes me uncomfortable to think about coronavirus-19”, “I am afraid of losing my life because of coronavirus-19” and “When watching news and stories about coronavirus-19 on social media, I become nervous or anxious” tend to represent emotional responses; otherwise, the items “My heart races or palpitates when I think about getting coronavirus-19”, “I cannot sleep because I'm worrying about getting coronavirus-19” and “My hands become clammy when I think about coronavirus-19” seem to reflect physiological responses (Reznik et al., 2020) [14].

We analyzed the results by the FCV-19S scale which was used according to the following formula: (maximum value (5) – minimum value (1)) ÷ 3 (the group number of the degree is divided) = 1.33; The statistical criteria of the scale are defined by 3 levels: low (1.00-2.33), moderate (2.34-3.67) and high (3.68 – 5.00).

Pittsburgh Sleep Quality Index - PSQI

Pittsburgh Sleep Quality Index, which was developed by Buysse et al., is a total score of a questionnaire including 21 questions: 4 opened questions, 14 based on event frequency questions (not during the last month, less than once a week, once or twice a week, three or more times a week) in 7 components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication and daytime dysfunction. The global score has a range of 0-21 points, higher scores indicate worse sleep quality. A global PSQI score >5 yielded a diagnostic sensitivity of 89.6% and specificity of 86.5% (kappa = 0.75, p < 0.001) in distinguishing good and poor sleeper [7].

2.3. Variables

Dependent variable: FCV-19S

Independent variables: Age, gender, academic year, participating in the fight against COVID-19 (Yes/No), PSQI (Poor sleeper/Good sleeper).

III. RESULTS

3.1. Participants' characteristics

A study was conducted on 816 medical students in Can Tho University of Medicine and Pharmacy. The average age is 22.58 ± 1.39; in which, male accounts for 43.6% (n=356) and female 56.4% (n=460). Regarding accommodation, the majority of students stayed in hostels alone with the rate of 55.4%(n=452), 18,6% (n=142) students stayed in hostel with friends, 21,8% (n=178) students lived with family and 4,2% (n=34) students stayed with relatives. There is 2.9% (n=24) third-year students, 35% (n=286) fourth-year students, 5.4% (n=44) five-year students, and 56.6% (n=426) sixth-year students participated in this survey. There are 45.7% students participating in the fight against COVID-19 in localities and 54.3% students do not.

3.2. Fear of COVID-19 of students in Can Tho University of Medicine and Pharmacy

3.2.1. General proportion

Our study showed that the total score of FCV-19S of 816 students in Can Tho University of Medicine and Pharmacy ranged between 7 and 35 (mean 19.07; SD = 5.30)

Table 1. Fear of COVID-19 of students in Can Tho University of Medicine and Pharmacy

No.	Items of Fear of COVID-19 Scale	Mean	SD
1	When watching news and stories about coronavirus-19 on social media, I become nervous or anxious	3.18	1.05
2	I am most afraid of coronavirus-19	3.09	1.05
3	I am afraid of losing my life because of coronavirus-19	3.07	1.07
4	It makes me uncomfortable to think about coronavirus-19	2.91	1.04
5	My hands become clammy when I think about coronavirus-19	2.36	0.93
6	My heart races or palpitates when I think about getting coronavirus-19	2.26	0.97
7	I cannot sleep because I'm worrying about getting coronavirus-19	2.21	0.89
Overall average score		2.72	0.75

Items of fear of COVID-19 in students were ranked by the mean score. The overall average score of the full scale is 2.72 ± 0.75 indicating that students have an average fear of COVID-19. The items in emotional responses group seemed to have higher scores than ones in physiological responses to the COVID-19 groups.

3.2.2. Factors associated with fear of COVID-19 of students in Can Tho University of Medicine and Pharmacy

Table 2. Distribution of scores of FCV-19S of students in Can Tho University of Medicine and Pharmacy COVID-19.

Factors	Variables	Frequency	FCV-19S		Anova	
			M	SD	F	p
Gender	Male	356	18.16	5.56	5.46	0.00
	Female	460	19.77	4.98		
Academic year	Sixth-year	462	19	5.11	3.32	0.019
	Fifth-year	44	17	4.97		
	Fourth-year	286	19.3	5.62		
	Third-year	24	20.7	4.6		
Accommodation	Living with family	178	18.34	5.41	3.28	0.02
	Living with relatives	34	18.17	6.49		
	Living with friends	152	18.61	5.26		
	Living alone	452	19.58	5.13		
Sleep quality	Poor	356	19.49	5.37	3.94	0.047
	Good	460	18.75	5.22		
Participating in the fight against COVID-19	Yes	373	18.77	5.2	2.22	0.13
	No	443	19.3	5.3		

Table 2 showed that:

- Female students have higher levels of fear of COVID-19 than male (19.77 ± 4.98 compared to 18.16 ± 5.6 with $F = 5.46$; $p < 0.01$).

- There was a significant difference in the mean score of FCV-19S by students' academic year with $F=3.32$ and $p=0.019$. Turkey post hoc test indicated the statistically significant difference in mean score of FCV-19S in different year students ($p=0.02$ and 0.03).

- There was a significant difference in the mean score of FCV-19S by students' place of residence with $F=3.28$ and $p=0.02$. Turkey post hoc test indicated the statistically significant difference in mean score of FCV-19S between students living in hostel alone and students living with family ($p=0.03$).

- There are 356/816 (43.6%) students who have PQSI score >5 , that means they had a poor sleep quality. Students in the poor sleep quality group has a higher level of fear of COVID-19 than a good sleep quality group. Deeper analytics showed that FCV-19S had a weak positive correlation with students' sleep quality score with $r = 0.08$, $p=0.017$ (Pearson's correlation).

- There was a significant difference in the mean score of FCV-19S among students participating in the fight against COVID-19 with $F=22$; $p=0.013$.

IV. DISCUSSION

4.1. Participants' characteristics

- The average age of the participants in our study was 22.58 ± 1.39 ; This result was similar to the study of author Nguyen TH et al. (22 ± 2) [13].

- Our result showed that female students participated in our survey more than male students (56.4% comparing to 43.6%). This was quite similar to previous studies. The ratio of female students participating in was 69.3% in study conducted by Bonnici et al [5], was 73.7% in Broche et al.' study [6] and was 82% in Martinez-Lorca's study [12]. Because students are voluntary to join the research, our results reflected the fact that females seemed to be more concerned about COVID-19 and willing to take part in surveys than males.

Regarding accommodation, the majority of students stayed in hostels alone. Although there was no previous study to compare to but this could be difficult in approaching to help when they have health problems or maybe increase the risk of psychophysiological disorders causing by COVID-19.

Regarding academic year, most of participants were sixth-year medical students (56.6%). Our study result was similar to the studies of author Nguyen Thanh Hiep [13] and author Martinez [12], that sixth-year students took the highest proportion. This showed their knowledge, attitude and understanding in the battle against COVID-19.

4.2. Manifestation of fear of Covid-19 and related factors of students at Can Tho University of Medicine and Pharmacy

Firstly, the initial objective of the study is to determine the level and manifestation of fear of COVID-19 among students. Accordingly, Can Tho University of Medicine and Pharmacy students have an average fear of COVID-19, which is in line with the general level of other studies around the world, such as in Jordan by Alkhazaleh et al. [3], Malta by Bonnici et al. [5], Eastern Europe by Reznik et al. [14]. In the 4th outbreak, the number of infections and deaths due to COVID-19 has increased rapidly and at a fast pace, the vaccination schedule has proceeded slowly and the world has not yet found a recognized treatment. This problem leads to a general fear of epidemics as noted by Harper et al. [9]. The scores of COVID-19 fear manifestation were higher in the emotional response group than in the physiological response group. Therefore, it is necessary to design mental health intervention programs that emphasize the emotional expressions of fear to help students cope well with the epidemic.

The COVID-19 fear level of each question in our study is average (range 2.34-3.67). The results of our study in the physiological response group are similar to those of Alkhazaleh [3] and Luo [11]. Research by Alkhazaleh et al showed that the average score of emotional response content such as "I am most afraid of Corona" was 3.08; "It makes me uncomfortable to think about Corona" was 3.13; "I am afraid of losing my life because of Corona" was 2.58; "When I watch news and stories about Corona on social media, I become nervous or anxious" was 3.10 [3].

Second, the study also shows that female students have higher levels of fear about COVID-19 than male students, especially when following news and stories about Corona in the mass media. This finding is also consistent with the results of a number of domestic and foreign studies. Research results of Nguyen T. Hiep et al. on university students in Vietnam showed that: the score of fear of COVID-19 in men was 16.2 ± 5.6 ; and in women it was 17 ± 4.8 [13]. Research results of Broche-Perez: fear of COVID-19 was a significantly

greater score in women (21.9 ± 6.9) than in men (17.9 ± 8). Besides, in this study, female gender was a moderate and high predictor of COVID-19 fear. The proportion of women with moderate fear level versus low fear level was 3.13 times higher than that of men, and the proportion of women with high fear level versus low fear level was 3.45 times that of men [6]. Looking at the gender differences, the COVID-19 pandemic has had a worse impact on women than men because women tend to exhibit more symptoms of post-traumatic stress. The level of suffering acute stress, anxiety, and depression among them are higher than men [8]. On the other hand, COVID-19 has also become a forceful stressor that causes people who have experienced feelings of fear to be isolated for a long time, leading to the possibility of going through anxiety, depression and acute stress. This result is also recorded in the review of COVID-19 fear by Luo et al [11]. These findings suggested that female students need to be concerned, prioritizing the communication strategies and psychological interventions to reduce and prevent fear of COVID-19.

Third, our study found an association between fear of COVID-19 and students sleep quality. In the study of Siddique et al., the mean value of fear of COVID-19 is related to sleep quality with $r = 0.22$ (95% confidence interval is 0.1-0.33, $p < 0.001$) [15]. Barua et al studied 370 frontline doctors in Bangladesh and found that 18.6% suffered from insomnia and 31.9% feared COVID-19 [4]. A study by Lin YQ et al in Wuhan showed that 27.3% of the 528 doctors and nurses experienced frequent nightmares, and the reduction in sleep duration and sleep efficiency was related to frequent nightmares as well as regular sleeping medication use [10]. The multinational study by Tahir et al showed that 73.5% of 2749 students had a Pittsburgh sleep quality score > 5 [16].

Fourth, our research shows that fear of COVID-19 varies by grade. This is similar to domestic and international studies such as those of Nguyen T. Hiep et al., Martínez-Lorca et al. Research by Nguyen T. Hiep et al. showed that first, second and third-year medical students have a higher average value of fear of COVID-19 than medical students in years 4-5-6. Specifically, the score of COVID-19 fear of the 1st year medical students was 17 ± 5.3 ; of 2nd year medical students was 17.3 ± 5.5 ; of 3rd year medical students was 17.2 ± 5.2 ; of 4th year medical students was 16.9 ± 5.2 ; of 5th year medical students was 15.9 ± 5.2 and of 6th year was 15.8 ± 4.9 with $p < 0.001$ [13]. Martínez-Lorca et al. found that the COVID-19 fear scales of students enrolled in health sciences degrees scaled higher on the fear of COVID-19 scale (FCV-19S) compared to students on other degree courses; of 1st year students was higher than that of 2nd, 3rd and 4th year students [12].

Moreover, the results of this study also show that students who live in hostel have a high level of fear of COVID-19, especially significantly higher than students living under one roof with their family. It is possible that the pressure on rent and living costs, as well as having few relatives to share them with, are also contributing factors to amplify the fear of students about the impact of the COVID-19 pandemic, especially in a period of prolonged social distancing.

V. CONCLUSIONS

In conclusion, our study shows that the 4th wave of COVID-19 pandemic outbreak had negative impacts on medical students in Can Tho University of Medicine and Pharmacy by bringing them more fears and reducing their sleep quality. Remarkably, fear of COVID-19 was more severe in female students than in male participants; and also, students living in hostel alone had a higher level of fear than in ones living with family or friends.

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(Received: 22/01/2022 – Accepted: 06/03/2022)
