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RESEARCH ARTICLE

FACTORS RELATED TO ANXIETY LEVEL AMONG PROFESSIONAL PROGRAM STUDENTS AT THE FACULTY OF MEDICINE, HASANUDDIN UNIVERSITY DURING THE COVID-19 PANDEMIC

(FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN TINGKAT KECEMASAN MAHASISWA PROGRAM PROFESI DOKTER FAKULTAS KEDOKTERAN UNIVERSITAS HASANUDDIN SELAMA PANDEMI COVID-19)

Muhammad Wirasto Ismail[1], Saidah Syamsuddin[2], Arman[2]

[1]Department of Psychiatry, Faculty of Medicine, Muslim University of Indonesia, Makassar, South Sulawesi, Indonesia
[2]Department of Psychiatry, Faculty of Medicine, Hasanuddin University, Makassar, South Sulawesi, Indonesia

Correspondence email: wirasto.fkumi@umi.ac.id.

ABSTRACT

COVID-19 has caused health problems, including stress or anxiety among the general public, health workers and students. Anxiety disorders related to COVID-19 have been reported with a high prevalence. Professional Program Medical Students (PPMS), as part of the groups in direct contact with patients in hospitals during the pandemic, are also affected. This research used a descriptive correlational design with a quantitative approach. Generally, this study aims to identify the factors that influence anxiety level among PPMS, or medical students, of Faculty of Medicine at Hasanuddin University during the COVID-19 pandemic. Specifically, it examines demographic and clinical factors associated with anxiety. The results showed that 53.1% of students did not experience anxiety, while 46.9% reported mild to severe anxiety. Significant factors influencing anxiety included gender, number of friends, and psychiatric history. In contrast, age, marital status, COVID-19 history, academic level, and Personal Protective Equipment (PPE) availability did not significantly affect anxiety levels.

Keywords: anxiety, COVID-19, GAD, Medical students

ABSTRAK

COVID-19 telah menimbulkan masalah kesehatan berupa stres atau kecemasan bagi masyarakat umum, tenaga kesehatan dan tentunya bagi mahasiswa. COVID-19 dapat menyebabkan gangguan kecemasan dengan prevalensi yang cukup tinggi. Mahasiswa Program Profesi Dokter (MPPD) sebagai bagian dari elemen yang bersentuhan dengan pasien di rumah sakit pada masa pandemi ini turut merasakan dampaknya. Jenis penelitian yang digunakan adalah penelitian deskriptif korelasi dengan pendekatan kuantitatif. Secara umum, penelitian ini bertujuan untuk mengetahui faktor-faktor yang mempengaruhi tingkat kecemasan pada

MPPD FK Unhas di masa pandemi COVID-19. Secara khusus, penelitian ini bertujuan untuk mengetahui faktor-faktor yang mempengaruhi tingkat kecemasan pada MPPD FK Unhas di masa pandemi COVID-19. Hasil penelitian menunjukkan bahwa 53,1% mahasiswa tidak mengalami kecemasan, sementara 46,9% mengalami kecemasan ringan hingga berat. Faktor-faktor signifikan yang mempengaruhi kecemasan termasuk jenis kelamin, jumlah teman, dan riwayat kejiwaan. Namun, usia, status pernikahan, riwayat COVID-19, tingkat pendaftaran, dan ketersediaan APD tidak memiliki dampak yang signifikan.

Kata kunci: COVID-19, GAD, kecemasan, MPPD

INTRODUCTION

COVID-19 is an infectious disease caused by the coronavirus SARS-CoV-2. This virus was first identified as an outbreak in Wuhan, China in December 2019. Since then, the global COVID-19 pandemic has spread globally for more than two years. As of 2022, the number of confirmed cases worldwide had reached 346,741,628. with 5,584,374 reported deaths.[1]

In Indonesia, South Sulawesi Province ranked 10th in the number of confirmed COVID-19, recording 110,205 cases and 2,243 deaths. In Makassar City alone, 24 confirmed cases were reported as of January 30, 2022.[2]

A total of 2,029 healthcare workers in Indonesia have died from COVID-19, with the majority being doctors, accounting for 730 deaths.[3] In March 2020, Hasanuddin University issued a circular outlining preparedness measures and COVID-19 infection- prevention efforts, including a policy requiring the replacement of face-to-face lectures with online learning. As a result, students in the Medical Professional Program were required to participate in online instruction[4]. Currently, the number of active PPMS at the Faculty of Medicine, Hasanuddin University, is 758. The Head of the Medical Profession Study Program, also issued a circular regulating face-to-face medical education learning activities during the COVID-19 pandemic.[5]

A study in the United States stated reported that the prevalence of depression among medical students was 24.3%, while the prevalence of anxiety was 30.6%.[6] Anxiety is characterized by excessive feelings of worry and fear, accompanied by somatic, cognitive, and behavioral symptoms.[7] In a study conducted in Iran, the prevalence of depression in medical students was 27.6%, and the prevalence of anxiety was 38.1%.[8] A systematic review of eight studies published in 2020 found that the prevalence of anxiety in medical students was 28.1%.[9]

Symptoms of anxiety may include diarrhea, dizziness, a floating sensation, hyperhidrosis, hyperreflexia, palpitations, pupillary mydriasis, restlessness, fainting,

tachycardia, extremity tingling, tremors, abdominal discomfort, and frequent, difficult and urgent urination.[10]

A New York study found that 24% of medical students undergoing clinical clerkships experienced anxiety [11]. During the COVID-19 pandemic, medical students undergoing clinical clerkships are a population particularly vulnerable to stress and psychological problems. Specifically, the mandatory face-to-face learning system requires medical students to undergo routine Polymerase Chain Reaction (PCR) swab tests before entering each department. This study aims to determine the factors influencing anxiety levels among medical students undergoing clinical clerkships at Hasanuddin University during the COVID-19 pandemic.

MATERIALS AND METHODS

This research is a quantitative descriptive study examining the correlation between anxiety factors and anxiety scores.. The study was conducted within the scope of the Medical Education Study Program of the Faculty of Medicine, Hasanuddin University. The population for this study was all students of the Medical Education Study Program, Hasanuddin University.

The sample consisted of students from the Medical Education Study Program, Faculty of Medicine, Hasanuddin University (UNHAS) who met the inclusion criteria. The inclusion criteria required students to be able to answer the questionnaire and consent to participate in the study. Exclusion criteria included suffering from or being under treatment for mental disorders, suffering from medical disorders or declining to participate in the study. Simple Random Sampling was used as the sampling technique, meaning sample members were selected randomly from the population without considering existing strata.

Primary data used in this study, were obtained directly from the research subjects. The research instrument was the Generalized Anxiety Disorder-7 item (GAD-7) questionnaire, which consists of seven question items. The GAD-7 has a Cronbach's alpha coefficient generally above 0.80, indicating good to excellent reliability. The total scores range from 0 to 21, with higher scores reflecting more severe level of anxiety. Scores of 0-4 indicates minimal anxiety, 5-9 mild, 10-14 moderate, and 15-21 severe anxiety.

Data collection was conducted by asking respondents to complete the GAD-7 questionnaire via online Google Form. Data processing was performed after summarizing the research instrument, using the SPSS 24.0 software and Microsoft Excel. The significance of the data was analyzed using the chi-square correlation test. The processed data are presented in

tables, diagrams, and correlation values along with their significance.

RESULTS AND DISCUSSION

The study was conducted within the educational environment of students in the Medical Education Program, Faculty of Medicine, Hasanuddin University. Data were collected using an online questionnaire. Of the 321 medical students who accessed the questionnaire link, one individual was excluded from the study because they met the exclusion criteria (receiving psychiatric therapy).

Table 1 Demographic characteristics

Characteristics	Number (N)	Percentage (%)
Age		
21 years	24	7.5
22 years	123	38.4
23 years	111	34.7
24 years old	45	14.1
25 years	16	5.0
26 years old	1	0.3
Gender		
Man	84	26.3
Woman	236	73.8
Class year		
2014	3	0.9
2015	3	0.9
2016	107	33.4
2017	207	64.7
Marital status		
Not married yet	310	96.9
Married	9	2.8
Widow/widower	1	0.3
Staying Friend		
With parents	133	41.6
Married couple)	5	1.6
Other family members	71	22.2
Friend	11	3.4
Alone	100	31.3
Number of Friends		
0	8	2.5
1-2	127	39.7
3-5	111	34.7
>5	74	23.1
Psychiatric History		
Yes	17	5.3
No	303	94.7
Confirmed History of Covid-19		
Yes	184	57.5
No	136	42.5
Covid-19 vaccination history		
Never	0	0.0
Already dose 1	0	0.0

Characteristics	Number (N)	Percentage (%)
Already dose 2	53	16.6
Already dose 3	267	83.4
Covid-19 contact history		
There isn't any	90	28.1
There is a history of no PPE	70	21.9
There is a history of PPE 1 or 2	149	46.6
There is a history with PPE 3	11	3.4
Clerkship Level		
Level 1	194	60.6
Level 2	126	39.4
Perceptions of the Covid-19		
Adaptation Learning System		
Agree	296	92.5
Don't agree	24	7.5
Financing Status		
Independent	298	93.1
Scholarship	22	6.9
Office Hours		
≤ 40 hours/week	157	49.1
> 40 hours/week	163	50.9
Availability of PPE		
Adequate	264	82.5
Inadequate	56	17.5

The descriptive data from Table 1 shows that 17 respondents (5.3%) had a psychiatric history, while 303 respondents (94.7%) did not. A total of 184 respondents (57.5%) had a confirmed history of COVID-19, while 136 respondents (42.5%)did not. Most MPPD students, totaling 267 respondents (83.4%),, had received three doses of the COVID-19 vaccine. In addition, 90 respondents (28.1%) reported no history of contact with COVID-19. Most MPPD students, totaling 264 respondents (82.5%), perceived the PPE availability was adequate. Meanwhile, 157 respondents (49.1%) had working hours of fewer than 40 hours per week, while 163 respondents (51.9%) reported working more than 40 hours per week.

Table 2 MPPD anxiety level

Anxiety Level	Number (N)	Percentage (%)
Minimal/No anxiety	170	53.1
Mild	104	32.5
Moderate	37	11.6
Severe	9	2.8

This study showed that nearly 14.4% respondents experienced moderate-severe anxiety (with a GAD-7 cutoff score of 10). Related research shows the proportion of anxiety in medical students such as that conducted by Cao et al. in China (2020) found a prevalence of moderate to severe anxiety of 3.6%.[12] In contrast, a similar study conducted by Filho et al. in Brazil (2020) reported a much higher prevalence, with 46.1% of medical students experiencing moderate to severe anxiety.[13] A recent meta-analysis by Lasheras also reported a higher prevalence of anxiety, at 28.0%, using various measurement tools with different scoring systems, including the GAD-7, STAI-6 (Six-item State-Trait Anxiety Inventory), BAI (Beck Anxiety Inventory), and DASS-21 (Twenty-one-item Depression Anxiety Stress Scale).[9] Compared with related research conducted before the pandemic, the prevalence of anxiety found in this study is actually greater. For example, research by Ibrayeva et al. (2018) in Kazakhstan reported an anxiety prevalence of 6.5% using the moderate-to-severe anxiety score GAD-7 cutoff score).[14]

Table 3 Factors associated with MPPD anxiety levels during the COVID-19 pandemic

Variables	Anxiety Level (N (%))			p-value
	Minimal/No Anxiety	Light	Medium-Heavy	
Age (years)				
21-22 years old	81 (55.8%)	43 (29.7%)	21 (14.5%)	0.824
23-24 years old	79 (50.0%)	56 (35.4%)	23 (14.6%)	
25-26 years old	10 (58.8%)	5 (29.4%)	2 (11.8%)	
Gender				
Man	59 (70.2%)	21 (25.0%)	4 (4.8%)	**0,000**
Woman	111 (47.0%)	83 (35.2%)	42 (17.8%)	
Class Year				
2014-2015	4 (66.7%)	2 (33.3%)	0 (0.00)	0.711
2016	60 (56.1%)	34 (31.8%)	13 (12.1%)	
2017	106 (51.2%)	68 (32.9%)	33 (15.9%)	
Marital status				
Unmarried/widowed/widower	165 (53.1%)	102 (32.8%)	44 (14.1%)	0.702
Married	5 (55.6%)	2 (22.2%)	2 (22.2%)	
Staying Friend				
Parent	63 (47.4%)	50 (37.6%)	20 (15.0%)	
Married couple)	4 (80.0%)	1 (20.0%)	0 (0.0%)	
Other family members	41 (57.7%)	20 (28.2%)	10 (14.1%)	0.638
Friend	8 (72.7%)	2 (18.2%)	1 (9.1%)	
Alone	54 (54.0%)	31 (31.0%)	15 (15.0%)	
Number of Friends				
0-2	61 (45.2%)	47 (34.8%)	27 (20.0%)	**0.031**
3-5	69 (62.2%)	34 (30.6%)	8 (7.2%)	
> 5	40 (54.0%)	23 (31.1%)	11 (14.9%)	
Psychiatric History				

Variables	Anxiety Level (N (%))			p-value
	Minimal/No Anxiety	Light	Medium-Heavy	
Yes	2 (11.7%)	8 (47.1%)	7 (41.2%)	**0.000**
No	168 (55.4%)	96 (31.7%)	39 (12.9%)	
Confirmed history of Covid-19				
Yes	96 (49.4%)	68 (35.1%)	30 (15.5%)	0.550
No	74 (54.4%)	46 (33.8%)	16 (11.8%)	
Covid-19 Vaccination History				
Never	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Already dose 1	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.067
Already dose 2	24 (45.3%)	16 (30.2%)	13 (24.5%)	
Already dose 3	146 (54.7%)	88 (33.0%)	33 (12.3%)	
History of contact with Covid-19				
There isn't any	56 (62.2%)	24 (26.7%)	10 (11.1%)	
There is a history of no PPE	38 (54.3%)	19 (27.1%)	13 (18.6%)	0.220
There is a history of PPE 1 or 2	69 (46.3%)	58 (38.9%)	22 (14.8%)	
There is a history with PPE 3	7 (63.6%)	3 (27.3%)	1 (9.1%)	
Clerkship Level				
Level 1	98 (50.5%)	65 (33.5%)	31 (16.0%)	0.435
Level 2	72 (57.1%)	39 (31.0%)	15 (11.9%)	
Perceptions of the Covid-19 Adaptation Learning System				
Agree	155 (52.4%)	98 (33.1%)	43 (14.5%)	0.624
Don't agree	15 (62.5%)	6 (25.0%)	3 (12.5%)	
Financing Status				
Independent	159 (53.4%)	95 (31.9%)	44 (14.7%)	0.602
Scholarship	11 (50.0%)	9 (40.9%)	2 (9.1%)	
Office Hours				
≤ 40 hours/week	78 (49.7%)	59 (37.6%)	20 (12.7%)	0.157
> 40 hours/week	92 (56.4%)	45 (27.6%)	26 (16.0%)	
Availability of PPE				
Adequate	143 (54.1%)	86 (32.6%)	35 (13.3%)	0.465
Inadequate	28 (50.0%)	17 (30.4%)	11 (19.6%)	

Based on the data analysis, several factors were found to be associated with anxiety levels among the medical students during the COVID-19 pandemic, as measured by the GAD-7 scale. Gender (p=0.000), number of friends (p=0.031), and a history of experiencing psychological complaints and accessing psychiatric services (p=0.000) were identified as the three factors significantly associated with anxiety among the medical students.

Gender differences showed that female students experienced anxiety more frequently (>50%) compared with those who did not (<50%). In contrast, a greater percentage of male students did not experience anxiety (70.2%) compared with

those who did (29.8%), and this difference was also statistically significant (p=0.000).

The number of friends was also a significant factor affecting anxiety levels among medical students during the COVID-19 pandemic. Those who had 0-2 friends had 54.8% greater anxiety compared with those with 3-5 friends (37.8%) and those with more than 5 friends (44.6%), a relationship that was also statistically significant (p = 0.031).

Another factor showing a statistically significant relationship was psychiatric history. The medical students with a history of using psychiatric medication or accessing psychiatric services had a markedly greater prevalence of anxiety (88.2%) compared with those without a previous psychiatric history (44.6%). This relationship was statistically significant (p = 0.000). Other factors, including age, class, marital status, spouse, confirmed COVID-19 history, COVID-19 vaccination history, staffing level, perceptions of the COVID-19 adaptive learning system, funding status, working hours, and availability of Personal Protective Equipment (PPE) did not have a statistically significant relationship (p>0.05) with anxiety levels among Professional Program Medical Students (PPMS) during the COVID-19 pandemic.

This study found that female gender, psychiatric history, and number of friends were statistically significantly associated with anxiety in PPMS at Faculty of Medicine, Hasanuddin University (FM-UNHAS) during the pandemic. This is consistent with research by Narkhostin-Ansari et al. (2020), which showed a similar finding, where female medical students tended exhibit greater susceptible to anxiety than male students.[8] The prevalence of anxiety in women is caused by multifactorial factors, such as cultural aspects, social stigma, and educational environmental pressures.[15] Furthermore, differences in physiological conditions between women and men, including genetic susceptibility, hormone levels, and cortisol, may influence their emotions and behaviors.[16,17]

A previous psychiatric history factor had a statistically significant relationship with anxiety among the medical students at FM-UNHAS in this study. The pandemic also exacerbates the risk of acute psychotic episodes and substance abuse, which thereby increasing the burden of healthcare systems and costs.[18,19] Furthermore, a previous psychiatric history can increase the occurrence of anxiety and depression in patients treated in the COVID-19 isolation rooms.[20] Research by Asmundson et al. showed that individuals with a history of anxiety and mood disorders reported higher levels of stress and fear related to COVID-

19 compared with those without a previous psychiatric history.[21]

The number of friends also significantly correlated with anxiety among PPMS at FKUNHAS. In this study, 57.8% of the students had three or more friends. The data suggest that less social support, for example, having fewer friends, may increase the risk of developing psychiatric symptoms.[11] Consequently, individuals with fewer friends are more likely to experience loneliness and frustration during the pandemic, a situation that was further exacerbated by social restrictions.[15]

Age, class, clerkship level, marital status, spouse/life partner status, confirmed COVID-19 history COVID-19 vaccination history, history of COVID-19 contact, perception of the learning system, funding status, availability of Personal Protective Equipment (PPE), and working hours were statistically insignificant factors associated anxiety among the medical students at FK-UNHAS. Despite this finding, several studies have shown that young individuals and those over 50 years of age tend to be risk factors for anxiety. [20]

In this study, housemates was not found to be a statistically significant relationship with anxiety among the PPMS at FK-UNHAS. Most of them (41.6%) lived with their parents, and 31.3% lived alone. One study found that living with parents was a protective factor against anxiety.[12] However, a study by Mayer et al. did not statistically prove that living alone increased the risk of developing anxiety and depression symptoms. [15]

CONCLUSION

Overall, 14.4% of students experienced moderate to severe anxiety. The factors statistically found to influence the anxiety levels included gender, psychiatric history, and number of friends.

Specifically, sources of anxiety related to the COVID-19 pandemic included fear of exposure to COVID-19, worry about infecting others, and the pandemic's impact on various aspects of life. Other non-pandemic factors that contribute to anxiety among the PPMS included academic stress (exams and assignments), family issues, financial difficulties, and personality-related factors.

CONFLICT OF INTEREST

There author declare that there is no conflict of interest regarding the preparation and publication of this scientific article.

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