The Relationship Between High Emotional Intelligence and Stress in Medical Students of Medicine Pelita Harapan University During the Covid-19 Pandemic

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Abstract

Background: The World Health Organization (WHO) has declared Coronavirus Disease 2019 (COVID-19) a global pandemic. This also has an impact on student's lives. Most of the students have been in a stressful condition due to changes in the online teaching and learning process as an adaptation to COVID- 19. Although it has been reported that emotional intelligence can reduce stress, there are still a few studies that study about relationship between the two during COVID-19 pandemic, especially among medical students.

Methods: A cross sectional using comparative numerical analysis was conducted with 305 medical students. Data were collected by an online survey using Emotional Intelligence Appraisal (EIA) questionnaire, and Medical Student Stressor Questionnaire (MSSQ). Statistical analysis was done using Statistical Package for the Social Sciences (SPSS) version 25.

Results: The EIA questionnaire showed that there were 1.3% low EI groups, 38.7% normal EI groups, and 60.0% high EI groups. The MSSQ questionnaire showed that there was 24% mild stress, 49% moderate stress, 26% severe stress, and 1% very severe stress. A normal data distribution was obtained through the Kolmogorov-Smirnov test, so that the T test could be used with a 95% confidence degree (p value <0.05). T-test analysis in the high EI group with an average stress (1.76±0.64) and the normal EI group with an average stress (1.40±0.75) showed a significant difference with p value = 0.008.

Conclusion: In accordance with the hypothesis in this study, during the COVID-19 pandemic, there is a significant relationship between high emotional intelligence and stress in UPH Medical Faculty students.

Introduction

COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) which was first found in Wuhan, China at the end of December 2019.[1] In March 2020, 2 people were reported as the first case in Indonesia.[2,3] High number of cases in Indonesia has made the government published a policy to implement an online learning process during the pandemic through the Circular of the Minister of Education and Culture Number 4 of 20205. In the end, this also has an impact on increasing students stress.[4,5].

Stress itself is defined as a disturbance in homeostasis that triggers changes in physiological balance resulting from physical or psychological stimuli. A key component in the stress system is the hypothalamic-pituitary-adrenal (HPA) axis, which interacts with other vital centers in the central nervous system and peripheral tissues/organs to mobilize adaptive

responses to stressors.[6] Stress has an impact on the individual who experiencing it. Yet, the impact of perceived stress is determined by the individual's ability to cope with the situation.[7]

One way to reduce the impact of stress is to have emotional regulation or emotional intelligence.[8] Emotional intelligence consists of aspects of self-awareness, self-management, social awareness, and relationship management. Someone who has a good level of emotional intelligence can apply active and effective strategies in dealing with stress so that there is a high influence of emotional intelligence in reducing stress.[9]

In a previous study, conducted by Kauts Deepa (2016) in India, it was reported that students with high emotional intelligence had lower levels of academic stress.[10] In a study conducted by Muhnia and friends (2016) on 74 students of the Nursing Science Study Program, Faculty of Medicine, University of Hasanuddin showed that there was a negative relationship between emotional intelligence and stress levels of first-year students, with a *p* value = 0.036. [11]

Before the pandemic, there was a lot of research on the relationship between emotional intelligence and stress, but it still has a variety of results. In addition, there are still a few studies that study the relationship between intelligence and high emotional intelligence with average stress during the COVID-19 pandemic.

The purpose of this study was to determine the relationship between high emotional intelligence as measured by EIA and average stress as measured by MSSQ in students of the Faculty of Medicine, Pelita Harapan University during the COVID-19 pandemic.

Methods

This study used a comparative numerical analytical study to determine the relationship between high emotional intelligence as measured by EIA and average stress as measured by MSSQ in students of the Faculty of Medicine, Pelita Harapan University during the COVID-19 pandemic. Besides that, the General Health Questionnaire-12 (GHQ-12), Patient Health Questionnaire-9 (PHQ-9), Mood Disorder Questionnaire (MDQ) were also used to measure the mental health of the respondents. This research was conducted online from January 2021 to April 2021 using a Google form with a simple random sampling technique.

The inclusion criteria in this study were students of the Faculty of Medicine, Pelita Harapan University, both women and men with an age range of 17-24 years. Meanwhile, to reduce bias, students with minor depression and anxiety (measured by the GHQ-12 questionnaire with a score> 1), major depression (measured by the PHQ-9 with a score ≥10), and those with bipolar disorder (measured by the MDQ with a positive result) were excluded in this study.

Respondents who meet the inclusion criteria filled out the Emotional Intelligence Appraisal questionnaire (EIA) and the results were divided into 3 categories, namely low emotional intelligence, normal emotional intelligence and high emotional intelligence. Furthermore, respondents were given an MSSQ questionnaire to measure stress levels. The results were divided into mild stress, moderate stress, severe stress and very severe stress.

The sample in this study are 52 students that were randomly selected from 301 students who met the inclusion and exclusion criteria to fill out the MSSQ questionnaire.

The data that has been collected is summarized in Microsoft Excel. Statistical

tests were carried out with the SPSS 25 program and used comparative numerical analysis. Before the data was processed, the Kolmogorov-Smirnov normality test was carried out. After getting the results, the relationship between high emotional intelligence and average stress will be analyzed usingthe T-test.[12]

Result

Of the 450 students who have filled out the questionnaire, there are 305 students who met the inclusion and exclusion criteria. From 305 students who have filled out the Emotional Intelligence Appraisal questionnaire. The results of the interpretation of emotional intelligence can be seen in the table 1.

Table 1. Emotional intelligence level

Emotional Intelligence	Frequency (n)	Percentage (%)
Low (0-59)	4	1.3%
Normal (60-80)	118	38.7%
High (81-140)	183	60.0%
Total	305	100%

Through the EIA questionnaire, from 305 students there were 4 students (1.3%) with low emotional intelligence, 118 students (38.7%) had normal emotional intelligence and most of them had high emotional intelligence levels, as many as 183 students (60.0%).

In this study, we just wanted to know about the relationship between high emotional intelligence and stress, so that we didn't involve a low emotional intelligence group in the test. So that, from each group with normal and high emotional intelligence, 52 students were randomly selected to fill out the MSSQ questionnaire which was divided into 4 categories. These 52 students were related to sample calculations in comparative numerical analytical studies, The results of stress interpretation can be seen in the table 2.

Table 2. Stress levels in the group of Students with normal and high emotional intelligence

	Mild Stress (0-1.00)	Moderat eStress (1.01-2.00)	Severe Stress (2.01-3.00)	Very Severe Stress (3.01-4.00)	Mean ±SD
Normal Emotional Intelligenc e(n=52)	7 (13%)	29 (56%)	15 (29%)	1 (2%)	**1.76± 0.64**
High Emotional Intelligen ce(n=52)	18 (35%)	22 (42%)	12 (23%)	0 (0%)	**1.40± 0.75**
Total	**24%**	**49%**	**26%**	**1%**	

In each group with normal and high emotional intelligence, the most stress was found at themoderate level by 51 students (49%) and the least at the very severe level by 1 student (1%).

To find out whether the data is normally distributed, the Kolmogorov-Smirnov normality test was carried out with a p value = 0.200. With this result of p value > 0.05, it can be concluded that the data is normally distributed. Since it was normally distributed data, the data was analyzed by the T test. The results of the T test on the two variables can be seen in the table 3.

Table 3. Differences between average stress and emotional intelligence on T test

	Variable	N	Mean±SD	P Value
Stress	Normal Emotional Intelligence	52	1.76±0.64	**0.008**
	High Emotional Intelligence	52	1.40±0.75	

The average stress that was compared between the two groups above showed significance with $p$value = 0.008.

Discussion

In this study, there were 305 students who met the inclusion criteria. The highest level of emotional intelligence is at a high

level (60.0%). This is in line with research by Sindy, et al (2020) who reported that 58% of the students of the Faculty of Medicine, Sebelas Maret University, had a high to very high level of emotional intelligence.[15] Hagelin, et al (2017) also report that, on average, students of the Faculty of Medicine at Udayana University have a high level of emotional intelligence[16]. This is possible because a high level of emotional intelligence is influenced by the existence of family support, university facilities and a good scope of lectures, which help them to manage their emotions well in preparation for dealing with problems and patients in the future.[9] During a pandemic, emotional intelligence, which consists of awareness and self-management components, is very important to have in dealing with critical and difficult situations [9,17].

In each group with normal and high emotional intelligence, the most stress was at a moderate level (49%) and the least at a very severe level (1%). This is in line with research conducted by Lorcan and colleagues (2021) that stress on medical students in Ireland during the pandemic was found to be moderate to severe stress levels (54.5%)[18]. In research that are conducted by Sania (2021) also reported that stress on medical students at the University of North Sumatra during the pandemic was at the most moderate level (49.1%)[19]. In the pre-pandemic period, it was reported by Riskia, et al (2019) that Andalas University medical students experienced the most moderate levels of stress (48.4%)[20]. Wahyudi, et al (2017) also reported that stress on medical students at the University of Riau was mostly at a moderate level (56.6%)[21]. The differences in the results of the research mentioned above are possible due to differences in the academic system of each university, the research sample environment and the type of stress measuring instrument used. The results of the study also showed that there was no difference in stress levels in medical students before and during the pandemic.[19,20] Allegedly, it is caused by a high level of emotional intelligence that will stimulate the limbic system and prefrontal cortex where the neurotransmitters serotonin and dopamine will be stimulated and cortisol will not be stimulated through the HPA axis, so that students with high emotional intelligence are not susceptible to stress during the pandemic. [9,22]

With the T-test, comparison of mean and standard deviation of stress in the normal and high emotional intelligence groups showed a significant difference (p value <0.05). This results in line with the theory that emotional intelligence is the ability to recognize and understand emotions in oneself and others, as well as the ability to use this awareness to manage individual behavior and relationships, making it an indispensable component during the COVID-19 pandemic.[9,22]

Conclusion

In conclusion, this study has proved that during the COVID-19 pandemic, high emotional intelligence showed a lower average stress among Faculty of Medicine, Pelita Harapan University students, with a very significant difference of p value = 0.008. For future research, it is hoped that there could be more varied samples being obtained from fellow medical faculty of other universities. In addition, it is also expected that in future research could be able to examine the factors that affect emotional intelligence and the factors that affect stress levels such as exams and study load during college.

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