The Stress Level and its Effect on Learning Achievements of Health Students due to Corona Pandemic in Indonesia

Isak Jurun Hans TUKAYO[1]*, Jems KR Maay[2]*, Paul Sirait[3]*, Heru Santoso W Nugroho[2]

[1]Associate Professor at Health Polytechnic of The Ministry of Health Jayapura, Indonesia
[2]Associate Professor at Health Polytechnic of The Ministry of Health Surabaya, Indonesia
[3]North Sumatra Institute of Health Sciences, Medan, Indonesia
E-mail: tukayoisak123@gmail.com*

ABSTRACT

(1) **Background**: The development of the Covid-19 (Corona Virus Disease 2019) outbreak has an impact on all sectors including education where teaching and learning processes are carried out online nationwide. Changes in these conditions can cause various levels of stress that affect students' achievement during the online learning process.

(2) **Objective**: The purpose of this study is to determine the effect of stress levels on students' achievement in various health majors in Indonesia.

(3) **Methods**: The type of research used is quantitative using a cross sectional study design. The sampling technique is simple random sampling, conducted online with a total sample of 200 respondents, in 5 departments of health education institutions in 21 provinces (61.8%) out of 34 provinces in Indonesia. Data were collected using a validated Medical Student Stressor Questionnaire (MSSQ) and the Pearson Product Moment correlation analysis method.

(4) **Results**: From the Pearson Product Moment test results, a *p*-value of 0,000 was obtained, which means *p*-value <0.05, concluded that H0 was rejected, which means that there is an influence between the level of student stress on learning achievement in the Covid-19 epidemic era. The Pearson correlation coefficient (r) obtained is positive 0.732 which shows the correlation between the levels of students' stress with learning achievement is in the category of "High / Strong", while the positive value indicates the pattern of influence is unidirectional.

INTRODUCTION

The number of cases of Corona virus worldwide until April 12, 2020 was 1,775,210 with a mortality rate of 108,544, while there were 401,517 recovered (Kompas.com, 12 April 2020). Corona case update in Indonesia on the same date reached 3,842 active cases, 286 healed and 327 people died (covid19.co.id, 12 April 2020). Corona pandemic still occurs in many countries in the world including Indonesia. This outbreak has caused panic in many sectors of life (Rumpa, 2019). This panic is a source of stress. Stress is a part of human life. All humans are certain to experience stress, even though the volume, intensity and level of frequency are relatively different from one person to another (Ekawarna, 2018).

In Indonesia, this epidemic affects various walks of life from unskilled laborers to high rank officials, from insecurity, discomfort to panic. The Indonesian government calls for work, study and worship from home during the Corona virus pandemic in accordance with the Minister of Education Circular No. 4 of 2020. The government also canceled the 2020 National Examination (Kemendikbud.go.id, March 24, 2020). Theoretically this policy automatically reduces student mobility so that it is expected to reduce the spread of Corona. In practice, the teaching and learning process at home, the interaction of students and lecturers with the help of online learning applications in fact, experiences a number of difficulties. As a result, not only students, teachers and parents are also facing dilemmatic situations. Therefore, at some level the Corona outbreak eventually caused stress to students. Although it is recognized that the levels of stress between one student and another will be different. The minimum stress is there is no direct study off face to face, thus it requires the support of gadgets, credit, internet access and electricity, all of which need funds.

This change in teaching and learning system coupled with new environmental and social conditions such as a new learning climate, or learning methods, is one of the causes of academic stress. Therefore, students are asked to adjust themselves to the changes and the new social environment (Safarindo, 1994). Students must also try to adjust to physical and emotional changes in themselves and overcome the conflicts that occur in his life (Papalia, et al. 2008). Meanwhile, studying in college is a hard work. Many learning activities that must be owned by students, such as the choice of learning methods, setting learning methods, determining study time, attending lectures regularly, choosing suitable courses, studying books that generally written in foreign languages, studying various theories and research, making written reports and so on (Sudrajat, 2008). Learning is also related to mental activity, where psychological factors have a very decisive role in the learning process and its results (Rahmi, 2013).

In line with this academic stress, the Faculty of Medicine of the Islamic University of Indonesia conducted a study of 133 students with mild stress experienced by 82 respondents (61.7%), while moderate stress was being experienced by 51 respondents (38.3%). However, none of the respondents experienced severe one. Other research results from the University of North Sumatra (USU) with a sample of 90 USU medical students showed the percentage of mild, moderate, and severe stress respectively 26.7%, 22.2%, and 22.2%. Around 28.9% of medical students do not experience severe stress (Rahmi, 2013). Research on stress levels in health students has also been conducted at several universities in the Indonesian Midwifery and other health majors (Rahmi, 2013; Rahmayani et al, 2019; Suwartika et al, 2014). This study explores student of health department' stress levels related to learning achievement due to the Corona outbreak. Corona outbreak

is suspected as one of the external reasons that causes students to complain of stress, both in physical and psychological forms that affect their academic achievement.

METHOD

This research uses a quantitative method with a cross sectional study design conducted from April 12 to April 18, 2020 online involving respondents from 21 provinces throughout Indonesia. The samples in this study were 200 health science students from 5 majors, from Diploma III, Undergraduate and Postgraduate levels of education with total sampling technique. Samples were taken by random technique, the data tested were homogeneous, normally distributed and linear in nature. As a measure of data in this study, the researcher used a questionnaire sourced from the Medical Student Stressor Questionnaire (MSSQ) which has been validated, with the Pearson Product Moment correlation analysis method. The stress levels are arranged with a Likert Scale consisting of 5 answers to multiple choice questions. The questionnaire used consisted of three main sections, namely: demographic data, stress levels and student achievement. The data is processed by the steps of editing, coding, transferring, and tabulating.

The statistics are parametric with the independent variable (X) and the dependent variable (Y) on the interval scale. Data analysis consists of univariate and bivariate analysis. Univariate analysis is used to look at the frequency distribution of research variables. While bivariate analysis is used to find out the interaction of two variables that are thought to be related to or correlated. The study was conducted after obtaining a letter of ethical evaluation from the Health Polytechnic of Ethics Committee of the Ministry of Health of Jayapura which aims to protect and guarantee the confidentiality of the respondents.

RESULTS

Based on the results of research conducted on 200 respondents online from 21 provinces throughout Indonesia, from 5 majors of health tertiary education with Diploma III, Undergraduate and Postgraduate levels, the following results are obtained:

a.   **Demographics**

Table 1: Demographic Data

No	Demographic Data	F	%
1.	**Age: (year)**		
	17-25 years old (late teens)	170	85
	26-35 years old (early adulthood)	20	10
	36-45 years old (late adulthood)	9	4.5
	46-55 years old (early elderly)	1	0.5
2.	**Gender:**		
	Male	37	18.5
	Female	163	81.5
3.	**Department:**		
	Med.Tech	2	1.0
	Pharmacy	14	7.0
	Nutrition	2	1.0
	Midwifery	12	6.0
	Nursing	170	85.0
4.	**Province of Origin:**		
	Aceh	21	10.5
	Banten	8	4.0
	Bengkulu	1	0.5
	DKI Jakarta	23	11.5
	Gorontalo	2	1.0
	Jambi	1	0.5
	West Java	26	13.0
	Central Java	5	2.5
	East Java	22	11.0
	West Kalimantan	3	1.5
	Lampung	9	4.5
	West Nusa Tenggara	4	2.0
	East Nusa Tenggara	1	0.5
	Papua	39	19.5
	West Papua	4	2.0
	Riau	1	0.5
	South Sulawesi	4	2.0
	Central Sulawesi	11	5.5
	West Sumatera	5	2.5
	South Sumatera	5	2.5
	North Sumatera	5	2.5
5.	**Final GPA:**		
	2,60-3,00	3	1.5
	3,00-3,50	116	58.0
	3,51-4,00	81	40.5

Total	200	100%

From table 1 above, it can be concluded that the age of most respondents is between 17 to 25 years as many as 170 people (85%), the most sex is female, 163 people (81.5%), and from the nursing department that is 170 people (85%). The average highest GPA is between 3.00 to 3.50 with 116 people (68%). The majority of respondents came from Papua Province as many as 39 people (19.5%). From the population of 200 students 100% are willing to be respondents in this study.

b. **Relationship between sex and stress level.**

Table 2: Relationship between Gender and Stress Level (n = 200)

Stress Levels	Sex		Total
	Male	**Female**	
Light	20	73	93
Moderate	15	67	82
Severe	4	21	25
Total	**39**	**161**	**200**

From table 2 it can be concluded that the level of severe stress occurs in 21 female students (10.5%) and 4 male students (2%).

c. **The relationship between majors and stress levels.**

Table 3: Relationship between Majors and Stress Levels (n = 200)

Majors	Stress Levels			
	Light	Moderate	Severe	Total
Nursing	79	70	20	169
Midwifery	4	5	2	11
Pharmacy	4	7	2	13
Nutrition	4	1	-	5
Med.Tech	1	-	1	2
Total	92	83	25	**200**

From table 3 it can be concluded that the highest level of severe stress is in nursing majoring students totaling 20 people (10%).

d. **The relationship between stress and achievement.**

Table 4: Relationship between GPA and Stress Level (n = 200)

GPA	Stress Levels			
	Light	Moderate	Severe	Total
2.60-3.00	1	2	-	3
3.00-3.50	43	57	14	114
3.50-4.00	52	22	9	83
Total	96	81	23	200

From table 4 above it can be concluded that students who have a GPA between 3.50-4.00 experience severe stress as many as 9 people (4.5%). At the same time the mildest stress experienced, with the same GPA of 52 people (26%).

e. **Effect of Student Stress Levels on Learning Achievement in the Covid-19 Epidemic Era**

Table 5: Effects of Student Stress Levels on Learning Achievement in the Covid-19 Epidemic Era

Variabel	($\bar{x}$)	SD	*p*-value	r
Stress Levels	1.63	0.74564	0.000	0.732

Learning achievement	3.72	3.24283		

Table 5 shows that from the Pearson Product Moment test results, a *p*-value of 0,000 was obtained, which means *p*-value <0.05, so it was concluded that H0 was rejected, which means that there was an influence between the level of students' stress on learning achievement in the Covid-19 epidemic era. The Pearson correlation coefficient (r) obtained is positive 0.732.

DISCUSSION

a. Characteristics of Respondents

The results of the analysis of the age characteristics of the respondents are students of Diploma III, bachelor's degree and Post-graduate programs, in the academic year of 2019-2020, totaling 200 people who are actively studying. Characteristics of the age of the respondents were dominated by those aged between 17 to 25 years (late teens) totaling 170 people (85%). At that age according to Wong et al (2009) is part of the late teens. During this period of mental development occurs rapidly. At this time, they are able to deal with conditions that are abstract (Potter & Perry, 2005), where they are able to recognize the situation and some solutions. In Table 1 it is shown that the results of their academic achievements for the 3.00 to 3.50 category were 116 people (58%), and those who were predicated were very satisfying reaching 81 people (40.5%). In other words, this satisfying and very satisfying value can be achieved because according to Smeltzer & Bare (2008) students at that age are demanded to be able to develop defense mechanisms and adaptation to stressors that trigger stressors which originate from academic life. This can be interpreted at the same time that stress does not always have a negative connotation of learning achievement. Conversely, it can be a supporting element or motivation for students to study harder, because stressors are seen as challenging triggers. Angola and Ongori (2009) mention the impact of stress as a positive or negative thing that depends on the management of each individual.

b. Gender and stress level

The level of academic stress based on sex as shown in Table 2 shows that more female students experience stress than male students. This is not only because the number of female respondents is much greater (163 = 81.5%) than men (37 = 18.5%), but the level of stress in women according to some researchers is indeed higher than men (Angola & Ongori, 2009; Walker, 2002) and Goff (2011). This is because women more often use coping mechanisms that are task-oriented, so women are more easily identified if they are under stress. While men use ego-oriented coping mechanisms, so men are more relaxed in dealing with academic stressors. According to Grovaerts & Gregoire (2004) conditions that affect cognitive abilities also affect stress levels among students. The same academic stressor characteristics (pattern, number and intensity) and the absence of differences in obligations or assignments to male and female students have a correlation in this study. In this study, it is assumed that the characteristics of stressors received by both male and female students are the same. Thus, the experience of all students' exposure to stressors is the same. Therefore, there is no relationship between the sex of students with the level of academic stress. Table 2 also shows that students who have mild to moderate stress levels with a GPA below 3.50 are far higher than those who have severe stress levels with a GPA of 3.50 and above. Yet in order to get high grades or the best achievement, it takes enthusiasm to study harder, more energy, more time, consistency and also mind. Thus, it can be concluded that the high or low grades or learning achievement has nothing to do with academic stress.

c. Relationship between Majors and stress levels

Table 3 shows the average level of mild to moderate stress for all majors ranging from 40% to 50% of the total respondents in all majors. While for severe stress levels, the number reaches 15% to 20% of the total respondents in all departments of health education. This indicates that the stress level has no relationship with the department. This can also be supported by research at the Faculty of Medicine of the Islamic University of Indonesia which conducted research on 133 students with mild stress results experienced by 82 respondents (61.7%), while stress was being experienced by 51 respondents (38.3%). However, none of the respondents experienced severe stress. Though it is a general assumption that medical education is heavier, and the stress levels are higher than other health education majors. But in reality, in Table 3 in the department of nursing found the number of respondents with severe stress levels reached 20 people (11.8%). Likewise, in the Department of Midwifery Education (18%) and the Pharmacy Education Department (15.4%). However, it is possible in the same department with different times, semesters and places, it can show different levels of stress and learning achievement.

d. The relationship between stress and learning achievement

The results of this study as outlined in Table 4 prove that there is no relationship between GPA and academic stress. The number of respondents who had a very satisfying predicate reached 83 people (41.5%), with details of mild stress 52 people (26%), moderate stress 22 people (11%) and severe stress totaling 9 people (4.5%) from a total of 200 respondents. The results shown in this study are consistent with those researched by Sari (2007) that there is no relationship between stress tolerance and GPA. But this is not in accordance with the results of Goff's (2011), that the level of stress affects academic ability. The researcher assumes that students regardless of different majors, semesters, assignment, different places and times have an adaptive response to stressors received while undergoing teaching and learning, so that a positive impact may results in good academic achievement (Angola & Ongori, 2009). Or there might be other possibilities, for example the existence of a support system from peers (Walgito, 2007). The existence of this support group can offer adaptive ways to deal with stressors during the learning process.

e. The influence of the Covid-19 outbreak on the learning achievements of health students

Since the lockdown took effect in major cities in Indonesia, all campuses are closed. Psychologically this affects the mental health of students. Those who are accustomed to studying on campus must change the way they study by being at home. In fact, internet networks are not always optimal. Other disruptions can be in the form of a disconnected electricity network. Plus, learning material, for example, that requires laboratory practice such as in

nursing department, cannot be provided online. This can all affect the student achievement.

The results of this study indicate that there is a relationship between the Covid-19 outbreak and learning achievement as shown in Table 5. Pearson Product Moment is used as a statistical test tool to test associative hypotheses, the relationship between the two variables between stress due to the Covid-19 outbreak and the achievements of health students in Indonesia (Sugiyono, 2019). The correlation is calculated through the formulation of hypotheses (H1 and H0), determining the significant level (α = 0.05) then calculating by formula. Based on the calculation of the Pearson Product Moment correlation above shows that the correlation coefficient between student stress due to the Corona outbreak and the results of their learning achievements obtained by 0.732, which means it has a strong relationship level and a positive value (+) that indicates the pattern of direction of influence.

CONCLUSION

This research seeks to help provide an understanding of the impact of stress on health students due to the Covid-19 outbreak and its relationship to learning achievement and how to be positive in anticipating it. But there is a drawback that is not explained the level of knowledge related to how is the concrete efforts to overcome it. In the future, research might be needed regarding prevention and solutions when similar outbreaks occur, especially for the effective continuation of the teaching and learning process. It is better if the study materials related to this epidemic are socialized so as to minimize stress not only on students, but also lecturers, the campus, campus management and the wider community.

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