

Depression, Anxiety, and Stress among Medical Students in the Faculty of Medicine Universitas Airlangga Year Batch 2016, 2017, and 2018

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Abstract

Background: Going through college is a stressful life situation. Students are challenged to live independently along with academic challenges. The medicine is known to be more stressful than other professional study programs. **Objectives:** To analyze the depression, anxiety, and stress in medical students of the Faculty of Medicine, Universitas Airlangga Year Batch 2016, 2017 and 2018. **Sampling Methods:** This research was conducted with observational analytic study design, a cross-sectional approach by accidental sampling. The variables used are the socio-demographic characteristics of medical students as an independent variable, and the scale of depression, anxiety, and stress as the dependent variable. Data was collected by visiting each year batch, and giving a questionnaire sheet Depression, Anxiety, Stress Scale - 42 items (DASS-42). The results were then processed and analyzed in SPSS 16. **Result:** Respondents were mostly female (71,0%), Javanese (69,9%), have no history of personal (95,3%) and family mental disorders (94,4%), do not consume alcohol and cigarettes (98,3%), having married parents (91,4%), mean age 19 years, and first child. Year batch of 2016 exposed to depression 26.3%, anxiety 51.5%, and stress 32.3%. Year batch of 2017 exposed to depression 30.2%, anxiety 60.4%, and stress 37.5%. While the year batch of 2018 which is depressed 23.2%, anxiety 54.3%, and stress 30.5%. **Conclusion:** There was correlation between anxiety and stress with gender, which female tend to be more anxious and stressed, there is no difference in depression, anxiety, and stress in the class of 2016, 2017 and 2018.

Keywords: *Depression, Anxiety, Stress, Medical Students, DASS-42*

Introduction

Being a student in university is said to have a stressful life. They are challenged to live independently along with the academic challenges in lectures¹. The medical study program has become the most popular study program when entering university². However, medical study programs are considered more stressful than other professional study programs³. Even the prevalence of psychological distress in medical students is shown to be higher than that in the general population⁴.

Stress is defined as the relationship between a person and his environment, which is when one's resources are no longer adequate, while the environmental

situation is increasingly dangerous for the situation⁵. Research reveals that stress is associated with anxiety and depression⁶. Stress causes interpersonal conflict, decreased attention and concentration, impeded decision making processes, and reduces the ability of students to maintain good relations with patients thereby causing feelings of inadequacy and dissatisfaction in future clinical practice⁷.

Although the prevalence of depression, anxiety, and stress of medical students have been extensively studied, the percentage remains high and has not been fully addressed^{8,9,10,11}. This might occur because students are challenged to live independently so they tend to have less place to tell and express their daily stressors,

which results in a lack of support and social balance¹². Knowing that depression, anxiety, and stress cause a decrease in the quality of life of students, and to improve the quality of the medical education system, author sought to examine the prevalence of depression, anxiety, and stress of medical students at the Faculty of Medicine, Airlangga University.

Material and Methods

This was an observational analytical cross-sectional study by accidental sampling using the DASS-42 questionnaire conducted at medical students of the Faculty of Medicine Universitas Airlangga year batch 2016, 2017, and 2018. The variables used are the socio-demographic characteristics of medical students as an independent variable, and the scale of depression, anxiety, and stress as the dependent variable. This study started from April-May 2019 and had certified ethically before.

Participants. Total participants were 359 students, consist of 95, 89, 164 students from year batch 2016, 2017, and 2018 respectively. All of the subjects have agreed to be participants by signing participants and aged not less than 17 years old.

Measurements. All participants would be given a self-administered questionnaire, consist of a socio-demographic sheet and a DASS-42 questionnaire Indonesian version by visiting each year batch class.

Outcomes. The correlation between socio-demographic characteristics with depression, anxiety, and stress, would be analyzed with Spearman correlation. This study also compared depression, anxiety, and stress each batch using the Kruskall Wallis test, Mann-Whitney test, and Chi-Square or Fisher’s Exact test if the data scale were nominal.

Findings

This study selected 359 medical students to be given self-administered questionnaires.

1. Socio-demographic characteristics

Table 1. Socio-demographic characteristics

Socio-demographic characteristics (N = 359)		Year Batch			N (%)	P
		2016 n (%)	2017 n (%)	2018 n (%)		
Sex	Male	26 (26,3%)	22 (22,9%)	56 (34,1%)	104 (29,0%)	0,123
	Female	73 (73,7%)	74 (77,1%)	108 (65,9%)	255 (71,0%)	
Ethnicity	Javanese	81 (81,8%)	72 (75,0%)	98 (59,8%)	251 (69,9%)	0,003
	Non Javanese	14 (14,1%)	18 (18,8%)	51 (31,1%)	83 (23,1%)	
	Not Filled	4 (4,0%)	6 (6,3%)	15 (9,1%)	25 (7,0%)	

Cont... Table 1. Socio-demographic characteristics

Personal History of Mental Illness	Yes	5 (5,1%)	3 (3,1%)	5 (3,0%)	13 (3,6%)	0,705
	No	94 (94,9%)	92 (95,8%)	156 (95,1%)	342 (95,3%)	
	Not Filled	0 (0%)	1 (1,0%)	3 (1,8%)	4 (1,1%)	
Family History of Mental Illness	Yes	7 (7,1%)	6 (6,3%)	3 (1,8%)	16 (4,5%)	0,098
	No	92 (92,9%)	89 (92,7%)	158 (96,3%)	339 (94,4%)	
	Not Filled	0 (0%)	1 (1%)	3 (1,8%)	4 (1,1%)	
Recent History of Consumption of Cigarettes or Alcohol	No	99 (100%)	94 (97,9%)	160 (97,6%)	353 (98,3%)	0,190
	Cigarettes	0 (0%)	0 (0%)	3 (1,8%)	3 (0,8%)	
	Alcohol	0 (0%)	2 (2,1%)	1 (0,6%)	3 (0,8%)	
Parent's Marital Status	Married	94 (94,9%)	83 (86,5%)	151 (92,1%)	328 (91,4%)	0,122
	Divorced	1 (1,0%)	4 (4,2%)	4 (2,4%)	9 (2,5%)	
	Spouse's Death	4 (4,0%)	3 (3,1%)	6 (3,7%)	13 (3,6%)	
	Not Filled	0 (0%)	6 (6,3%)	3 (1,8%)	9 (2,5%)	
Birth Order		1,67 ± 0,857	1,78 ± 0,954	1,82 ± 0,939	1,77 ± 0,921	0,356

Based on table 1., year batch 2016 and 2017 had proportion of male and female in ratio 1:3, slightly different than year batch 2018 which had proportion of male and female in ratio 1:2.

The is a difference between Javanese ethnicity and non-Javanese ethnicity with $p < 0,05$, because non-Javanese ethnicity consists of Sunda, Batak, Bali,

Aceh, Madura, and many other ethnics. There were no differences in personal history of mental illness, family history of mental illness, alcohol or cigarette consumption, birth order, and marital status of parents in the all year batch. This shows the homogeneity of the socio-demographic conditions of the year batch of 2016, 2017 and 2018.

2. Correlations of Socio-demographic Characteristics with Depression, Anxiety, and Stress

Table 2. Correlations of Socio-demographic Characteristics with Depression, Anxiety, and Stress

	Depression	Anxiety	Stress
Sex	P : 0,620 Mann-Whitney Test	P : 0,001* Mann-Whitney Test	P : 0,023* Mann-Whitney Test
Age	P : 0,913 Spearman Test	P : 0,725 Spearman Test	P : 0,685 Spearman Test
Ethnicity	P : 0,686 Mann-Whitney Test	P : 0,089 Mann-Whitney Test	P : 0,107 Mann-Whitney Test
Personal History of Mental Illness	P : 0,069 Mann-Whitney Test	P : 0,523 Mann-Whitney Test	P : 0,250 Mann-Whitney Test
Family History of Mental Illness	P : 0,251 Mann-Whitney Test	P : 0,187 Mann-Whitney Test	P : 0,247 Mann-Whitney Test
Recent History of Consumption of Cigarettes or Alcohol	P : 0,081 Kruskall Wallis Test	P : 0,606 Kruskall Wallis Test	P : 0,888 Kruskall Wallis Test
Parent's Marital Status	P : 0,500 Kruskall Wallis Test	P : 0,744 Kruskall Wallis Test	P : 0,567 Kruskall Wallis Test
Birth Order	P : 0,197 Spearman Test	P : 0,212 Spearman Test	P : 0,791 Spearman Test

*p<0,05 is significant

From table 2. above it was found that anxiety and stress have a relationship with sex ($p < 0.05$). In further statistical calculation female are found to experience higher level of anxiety and stress than male.

3. Prevalence of Depression, Anxiety, and Stress among Medical Students of the Faculty of Medicine year batch 2016, 2017 and 2018

Table 3. Prevalence of Depression, Anxiety, and Stress among Medical Students of the Faculty of Medicine year batch 2016, 2017 and 2018

		Year Batch			P
		2016 n (%)	2017 n (%)	2018 n (%)	
Depression Me = 4,00	Normal	73 (73,7%)	67 (69,8%)	126 (76,8%)	0,240*
	Mild	9 (9,1%)	13 (13,5%)	18 (11,0%)	
	Moderate	9 (9,1%)	10 (10,4%)	15 (9,1%)	
	Severe	0 (0%)	2 (2,1%)	2 (1,2%)	
	Very Severe	8 (8,1%)	4 (4,2%)	3 (1,8%)	
Anxiety Me = 8,00	Normal	48 (48,5%)	38 (39,6%)	75 (45,7%)	0,592*
	Mild	8 (8,1%)	9 (9,4%)	9 (5,5%)	
	Moderate	26 (26,3%)	28 (29,2%)	50 (30,5%)	
	Severe	9 (9,1%)	15 (15,6%)	22 (13,4%)	
	Very Severe	8 (8,1%)	6 (6,3%)	8 (4,9%)	
Stress Me = 11,00	Normal	67 (67,7%)	60 (62,5%)	114 (69,5%)	0,374*
	Mild	11 (11,1%)	13 (13,5%)	17 (10,4%)	
	Moderate	16 (16,2%)	15 (15,6%)	22 (13,4%)	
	Severe	2 (2,0%)	5 (5,2%)	8 (4,9%)	
	Very Severe	3 (3,0%)	3 (3,1%)	3 (1,8%)	

*Kruskall Wallis test, abnormal distribution

Based on the above table, there are no differences in depression, anxiety, and stress in each year batch. The three year batches also showed a consistent distribution of depression, anxiety and stress. This might indicate that there are triggers of depression, anxiety, and stress of medical students in every school year and a consistent reaction to these triggers.

Discussion

Research in various countries about medical students revealed that there were more female medical students than male students with different ratios^{13,14,15,16,17}. Female naturally have a caring and friendly attitude so they can communicate better with patients. Female doctors also spend their time educating and developing patient self-efficacy. Female physicians are commonly associated with low hospital admission rates and post-hospitalization mortality, low postoperative mortality rates and high patient-centered communication rates¹⁸. From this study it was found that the majority of medical students at the Faculty of Medicine, Airlangga University were Javanese. The author assumes this is due to the location of Universitas Airlangga located in the city of Surabaya, East Java¹⁹.

Alvi et al., found that sex has a significant correlation with the incidence of depression ($p = 0.016$) and anxiety ($p = 0.007$). Women experience more anxiety, depression, and stress than men^{20,13}. In line with this study which revealed that women were more prone to anxiety ($p = 0.001$) and stress ($p = 0.023$). This is because women think things that are challenging and threatening are stressful²¹. Other research also states that female medical students tend to be more competitive, tend to work hard to secure high scores on examinations, and care more about their academic performance¹⁴.

Nearly half of the medical students in this study were exposed to anxiety and stress. This is in line with previous research on depression, anxiety, and stress of medical students conducted in India. Research shows that perceptions of self-performance in academics are strongly associated with high amounts of depression, anxiety and stress scores¹³. For college students, there are 3 main causes of depression, anxiety, and stress, namely: academic performance, pressure for success, and post-graduate plans. So that most exposed to depression, anxiety, and stress are upper

semester students²². A subjective opinion states that the academic burden imposed on the curriculum and a busy schedule is the cause of the high DASS score on medical students²³. Academic activities at the Faculty of Medicine, Universitas Airlangga have been arranged systematically in the Kurikulum 2016. The total study load of graduating from the Medical Study Program is 155 credits with, 68 credits of sub-program I, 44 credits of sub-program II, and 43 credits of sub program III²⁴. Along with this research which was held in April-May 2019, students of year batch 2018 were in semester 2, students of year batch 2017 were in semester 4, and students of year batch 2016 were in semester 6. If lectures were carried out according to schedule, students of year batch 2018 were in Anatomical Pathology Block (3 SKS), Clinical Pathology (3 SKS), and Empathy Effective Communication and Social Accountability (2 SKS) modules, year batch 2017 students are in Research Module 1 (2 SKS), and Musculoskeletal System Block (4 SKS), and year batch 2016 students are in the Health Services Management Block (2 SKS), Public Health Sciences - Preventive Medicine (2 SKS), and part of the Research Module (6 SKS). If added up, the 2018 students receive a load of 8 SKS, 2017 class students receive a load of 6 SKS, and 2016 class students receive a load of 7 SKS²⁴.

Although academic burden is the most talked scourge, there are certainly many other factors related to student depression, anxiety and stress. Depression was stated to have a correlation with students living in boarding houses ($p < 0,0001$)²⁵. Other studies add that extracurricular activity is associated with anxiety and stress⁴.

Conclusion

This study concludes that there were significant differences in ethnicity ($p = 0.003$) among the three year batches. There was correlation between sex with anxiety and stress, female are found to experience higher level of anxiety and stress than male. This study also found that each year batch has the same risk to experience depression, anxiety, and stress. Further studies are needed to explore predisposing factor which influence risk of depression, anxiety, and stress among medical students.

Conflict of Interest: There was no conflict of interest in this study.

Source of Funding : This study was supported by the authors.

Ethical Clearance: This study was ethically certified by Komite Etik Penelitian Kesehatan (KEPK) Fakultas Kedokteran Universitas Airlangga.

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