PREVALENCE OF DEPRESSION IN FIRST-YEAR MEDICAL STUDENTS AT AIRLANGGA UNIVERSITY, INDONESIA

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ABSTRACT

Depression is a mental disorder with a relatively high prevalence rate in medical students around the world. Medical students are often faced with a variety of pressures ranging from academic to social stress so that the prevalence of depression in medical students tends to be higher than general population. Therefore, this study aimed to find out the prevalence of depression in medical students at Airlangga University. This research was a descriptive cross-sectional study. The sample used was 86 first-year medical students at Airlangga University, Indonesia in the academic year of 2017/2018. The data collection was carried out using Beck Depression Inventory II questionnaires as a measurement instrument. The data was analyzed by descriptive univariate using SPSS 16.0. From 86 samples obtained from first-year students, 37.20% of them experienced mental conditions that were considered abnormal (mean score of 10.14 ± 7.093), starting from mild mood disturbance (23.26%) to the most severe category, severe depression (1.16%). There was no extreme depression category in this study. Furthermore, mean score of male subjects is 8.57 ± 6.120 while mean score of female subjects is 10.64 ± 7.351. This study revealed that the prevalence of depression in first-year medical students at Airlangga University in the second semester of academic year 2017/2018 is quite high, which is more than one third of the total respondents while the prevalence in female subjects is higher than in male subjects.

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INTRODUCTION

Depression is a symptom of mental disorder characterized by sadness and loss of interest in activities.[1] Depression usually decrease the productivity because there is a feeling of loss of energy, difficulty concentrating, feeling guilty and useless. Some even have a desire to harm themselves.[2] Depression can affect mind, mood, and physical health. Depressed people tend to have a lack of enthusiasm, insomnia, and are unable to enjoy life.[3]

Depression can be caused by various factors. The biggest risk factors are due to psychosocial stress exposure.[4] The prevalence of depression increases in post-puberty to adulthood because of biological and social factors. In adulthood, human brain will experience maturation in cognitive, social understanding, and self-awareness in addition to those required to be able to understand and begin to be aware of social obligations.[5] The body considers adapting to these various changes to be a cause of severe stress.

Stress will trigger the amygdala to stimulate the hypothalamus to produce CRH. This hormone triggers the anterior pituitary to secrete ACTH, which causes the adrenal gland to produce cortisol hormone.[6] Normally, high systemic cortisol levels will give negative feedback to the hippocampus so the hypothalamus stops producing CRH.[7] However, people who experience depression will have dysfunction in the HPA axis regulation so feedback does not occur.

There are parts of the brain that occur physiologically when they are depressed. Some areas have decreased activity such as anterior cingulate cortex, prefrontral cortex, subgenual cingulate, and ventral striatum but in some other areas increase, such as amygdala and orbitofrontal cortex. Generally the brain structure affected by depression will experience atrophy, however the pituitary will experience the opposite.[7] This change might affect a person's cognitive condition.

Medical students are often faced with a variety of pressures ranging from academic to adaptation and social stress, so that the prevalence of depression in medical students tends to be higher than that of the general population.[8] Various studies were conducted to determine the prevalence rate of depression in medical students. The results for each study varied considerably. A study showed that the prevalence rate of depression in first-year medical students was 57%.[9] Another study showed a depression rate of 21.5% in first-year medical students.[10]

If followed during the study period, the depression character in the first-year can be grouped into 3 clusters. Cluster 1 consisted of 68.5% medical students who had a stable low depression score. Cluster 2 was medical students with persistent depression during the study period, as much as 19.7%. Cluster 3 was medical students with depression in the first year and improved during the study period, as much as 11.8%.[10] Persistent depression if unrecognized and uncontrolled will affect academic performance.

At Airlangga University, there are no studies that show the prevalence of depression in first-year medical students. This prevalence rate is important because various previous studies showed varying results. Therefore, this research is expected to be able to determine the prevalence rate of depression in Airlangga University. The results obtained can be used as a basis for taking action so that medical students do not experience persistent depression and gain better academic performance.

MATERIALS AND METHODS

This was a descriptive study using cross-sectional design. This research was carried out to medical students at Airlangga University. Population studied were first-year students in the second semester of 2017/2018 academic year. Sample studied were students who are willing to fill out the online-distributed questionnaires. The inclusion criteria of this study were first-year students who wanted to fill out the questionnaire that had been given.

Data was obtained with a validated questionnaire in Indonesian, namely Beck Depression Scale II (BDI II). The questionnaire is a depression measuring instrument consisting of 21 items. Subjects chose one of four statements that best suited to their conditions being experienced on each item. Furthermore, the total score was categorized based on the predetermined cut-

off. BDI II scores ranged from 0 to 63. Subjects with score of 0–10 were considered normal. Those with score of 11 – 16 indicated mild mood distubance, 17–20 showed borderline clinical depression, 21–30 were moderate depression, 31–40 were severe depression, while the score above 40 indicated extreme depression. The data were analyzed both statistically with SPSS 16.0 and explained descriptively. The statistic are displayed in the form of table and chart.

RESULTS

The total number of subject who valid in completing the questionnaire were 86 students. The average total sample is 10.14 with a standard deviation of 7.093 and a median of 9.0 (Table 1). Furthermore, the sample was categorized based on the depression score obtained from the questionnaire. Apparently, only 62.79% subjects were considered normal, while the other (37.20%), or more than one third of the samples, were abnormal. The abnormal subjects consisted of five categories, consisting of 23.26% subjects with mild mood disturbance, 4.65% subjects with borderline clinical depression, 8.13% subjects with moderate depression, and 1.16% subject suffered severe depression with a BDI II score of 33. However, in this study no one suffered from extreme depression. But, there were two of the respondents who had suicidal thoughts.

The number of male and female subjects in this study was quite unbalanced. The ratios of the number of males to that of females was 1:3. Furthermore, in terms of score depression, female subjects appeared to score higher in average than male subjects. The highest score in male subjects was only 22 (n=1), while the scores of 23-33 (n=5) were

experienced entirely by female subjects. This means that the category of severe depression is suffered by female subject.

Table 1. Statistical data on prevalence of depression

|	N (%)	Mean ± SD	Med	Min-max
Total	86	10.14 ± 7.093	9.0	0 – 33
Considered normal	54 (62.79)	5.87 ± 3.144	6.0	0 – 10
Considered not normal	32 (37.20)	17.34 ± 5.976	15.0	11 – 33
Mild mood disturbance	20 (23.26)	13.5 ± 1.638	13.0	11 – 16
Borderline clinical depression	4 (4.65)	18.25 ± 0.500	18.25	18 – 19
Moderate depression	7 (8.13)	25.57 ± 2.507	25.0	22 – 30
Severe depression	1 (1.16)	33.00 ± 0	33.0	33
Extreme depression	-	-	-	-
Male	21 (24.4)	8.57 ± 6.120	7.0	0 – 22
Female	65 (75.5)	10.64 ± 7.351	9.0	0 – 33
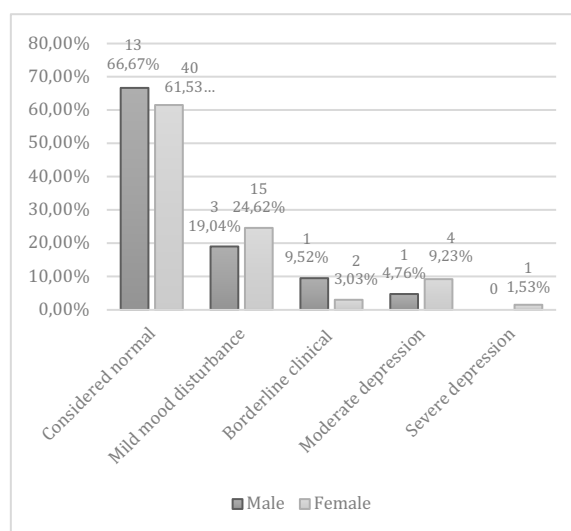
Figure 1. Prevalence of depression chart

DISCUSSION

Depression which in this study was measured using Beck Depression Inventory II showed that the number of depressive symptoms in all respondents was 37.20%. A study in India using the Zung's Self Rating Depression Scale (ZSRDS) showed that the prevalence rate of depression in first-year medical students was 9.1% consisting of mild and moderate depression.[11] Another study in India using the Beck Depression Scale (BDI) showed a depression rate of 57%, with 33% classified as mild depression.[9] Meanwhile, a study in Palestine using BDI II showed that 33.4% of first-year medical students experienced depression. A total of 9.1% had severe depression.[12]

According to the previous studies, depression rates in first-year medical students are higher when compared to the year after. This statement is supported by a study in Portugal which showed a depression rate of 72.5% in the first year, 29.1% in the second year and 54.9% in the third year.[13] Another study compared mean scores of depression using the BDI. The results showed an average score of 8.57, 7.13, 6.47, 6.84 in the first, second, third and fourth years respectively.[10]

This can be caused by the fact that first-year students still need time to adapt to new environments that are full of pressure. The rate of depression in medical students is higher in the first year of study with the most precipitating factors due to academic stress, followed by social adaptation problems.[14] Students experience various pressures during lectures, including academic demands, non-academic activities, time restrictions, and demands for adjustments to the social environment. In medical students, these demands can be even more severe due to various additional challenges, whether the increasingly heavy burden pursued by the target score and time or the challenges of a stressful adaptation to social environment.[15]

Comparison rates of depression in female subjects in this study (38.47%, mean 10.64 ± 7.351) is higher than that in male (33.33%, mean 8.57 ± 6.12). Global Burden of Disease showed that the depression rates in the world are always higher in women. In 2017, the prevalence of depression in women were 4.12% and men were 2.73%. Meanwhile in Indonesia, the prevalence of depression in women were 3.14% and men were 2.13%.[16] Likewise in medical students, the depression rate was significantly higher for women (59.7%) than men (45.6%).[13]

The previous study stated that this is due to differences in reactivity, one of which is about stress coping styles.[17] Hormonal change is one of the reasons that can explain the cause of high prevalence of depression in female compared to male. Fluctuating systemic estrogen levels can trigger depression, especially when levels are low in the blood. Whereas in male, even though estrogen levels are low in blood, they do not experience fluctuations. In addition, the brain has an important role in the low prevalence of depression in male so that depression in male is explained more complex.[18]

CONCLUSION

Prevalence of depression rates in Airlangga University medical students in the first semester of the academic year 2017/2018 is relatively higher than other previous studies. Depression scores in female subjects were found to be higher compared to that in male.

In fact, the highest score in this study was experienced by a female subject at the level of severe depression.

Due to the high prevalence rate of depression among first-year medical students, it would be very nice if education providers were aware and paid special attention. This is intended to prevent persistent depression that will affect student academic performance.

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