

## Anxiety Level and Risk Factors in Medical Students

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### ABSTRACT

**Introduction:** Medical students are more susceptible to anxiety than non-medical students. This study aimed to describe the anxiety level and its risk factors among the first, third, and fifth year medical students in Universitas Airlangga.

**Methods:** We conducted cross-sectional study involving 195 medical students by consecutive sampling. The inclusion criteria in this study were all first, third, and fifth year medical students who were willing to participate in the study. The data was recorded using questionnaire of anxiety risk factors, Hamilton Rating Scale for Anxiety, and Miller and Smith Stress Vulnerability Scale. All data then was processed and analyzed descriptively.

**Results:** From 195 students, 57 male (29.2%) and 138 female (70.8%) students participated, consisted of 63 first year, 68 third year, and 64 fifth year students. Anxiety mostly occurred in fifth year students (20.3%), followed by first year students (19%), and third year students (11.8%). Anxiety mostly occurred in male (24.6%), at the age of 17 (33.3%), susceptible to stress (75%), dissatisfied with physical condition (29.2%), had chronic diseases (26.4%), on middle birth order (34.6%), had frequent conflict with parents in almost every month (50%), lived in dorm (20%), had no close friends (33.3%), perceived that health was not important (100%), orphaned (18.8%), low parental income (35%), overburdened with examination (26.3%), and dissatisfied with the examination criteria (26.5%).

**Conclusion:** Fifth year medical students had the highest frequency of anxiety, while third year students had the lowest frequency. Nevertheless, based on the age, anxiety mostly occurred at the age of 17. These conditions were caused by some risk factors.

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**Introduction**

Nowadays, mental health becomes an apprehensive issue, including among the students. Anxiety is the most common mental health problem in students (41.6%), followed by depression (36.4%), and the remaining 35.8% are interpersonal relationships problems.<sup>1</sup> Medical students are more susceptible to anxiety than non-medical students, with the highest frequency occur at third and fourth years.<sup>2</sup> In Asia, a study in Lahore, Pakistan, found that 43.7% of female students experienced anxiety and 19.5% experienced depression. The prevalence of anxiety at first, second, third, fourth, and fifth year students was 35.0%, 30.0%, 20%, 55.2% and 46.7%, respectively.<sup>3</sup> In Multan, Pakistan, the prevalence of anxiety and depression at first, second, third, fourth, and last year was 45.86%, 52.58%, 47.14%, 28.75%, and 45.10% sequentially.<sup>4</sup> Data in Indonesia, from Faculty of Medicine, Sebelas Maret University, found the anxiety level between the preclinical students and co-assistants was significantly different, where co-assistant students were more anxious and depressive than preclinical students.<sup>5</sup>

A study showed that every individual has basic anxiety that would make a person more likely to experience anxiety in a stressful situation. This basic anxiety was part of the personality formed by life experience.<sup>6</sup> All of the factors are classified into two, i.e. internal factors (gender, history of chronic illness, physical condition, perception of health, stress vulnerability, and personality) and external factors (year of study, parental status, domicile, number of close friends, frequency of conflict with parents, economic status, birth order, examination loads, and examination criteria dissatisfaction). This study described both internal and external factors, except personality. There are no studies that describe the level of anxiety, especially in students in Faculty of Medicine, Universitas Airlangga. Therefore, this study aimed to describe the level of anxiety in first, third, and fifth year students in Faculty of Medicine,

Universitas Airlangga, to help identify early and determine the intervention or ways to reduce it. Moreover, it is expected that the study performance and the potential of first, third, and fifth year medical students of Universitas Airlangga can enhance optimally.

**Methods**

This study was a descriptive study with cross-sectional design conducted in Faculty of Medicine, Universitas Airlangga from July 2014 to September 2015. The sample of this study was 195 first, third, and fifth year students of Faculty of Medicine, Universitas Airlangga in the year of 2014-2015. The inclusion criteria in this study were all first, third, and fifth year medical students who were willing to participate in the study, while the exclusion criteria were students who had not passed the sub-program yudisium or had taken leave of at least one semester. This study used three questionnaire: Hamilton Rating Scale for Anxiety<sup>7</sup>, Miller and Smith Stress Vulnerability<sup>8</sup>, and a questionnaire listing internal and external risk factors which was validated. All subjects gave written informed consent. The data were collected by fulfilling the questionnaire online and offline, then processed and analyzed descriptively.

**Results**

This study conducted in Faculty of Medicine, Universitas Airlangga from July 2014 to September 2015, involving 195 students consisted of 68 third year students, followed by 64 fifth year students, and 63 first year students. The age varied from 17 to 25 years old and was dominated by female students. Table 1 describes the prevalence of anxiety based on the characteristics of the subjects. Although majority of the students had no anxiety, anxiety mostly occurred in the first and the fifth year students with a slight difference.

Table 1. The characteristics of the subjects.

Variables	Frequency N=195	Anxiety Level				
		No anxiety n(%)	Mild n(%)	Moderate n(%)	Severe n(%)	Very Severe n(%)
<b>Year of Study</b>						
First	63	51 (81)	6 (9.5)	4 (6.3)	2 (3.2)	0 (0)
Third	68	60 (88.2)	3 (4.4)	2 (3)	3 (4.4)	0 (0)
Fifth	64	51 (79.7)	9 (14)	3 (4.7)	1 (1.6)	0 (0)
<b>Gender</b>						
Male	57	119 (86.2)	10 (7.2)	6 (4.4)	3 (2.2)	0 (0)
Female	138	43 (75.4)	8 (14)	3 (5.3)	3 (5.3)	0 (0)
<b>Age</b>						
17	9	6 (66.7)	1 (11.1)	1 (11.1)	1 (11.1)	0 (0)
18	19	18 (94.7)	1 (5.3)	0 (0)	0 (0)	0 (0)
19	33	25 (75.9)	4 (12.1)	3 (9.1)	1 (3)	0 (0)
20	29	25 (86.2)	1 (3.4)	1 (3.4)	2 (7)	0 (0)
21	42	37 (88.1)	3 (7.1)	1 (2.4)	1 (2.4)	0 (0)
22	21	18 (85.7)	2 (9.5)	0 (0)	1 (4.8)	0 (0)
23	39	30 (76.9)	6 (15.4)	3 (7.7)	0 (0)	0 (0)
24	2	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)
25	1	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)

Table 2. Description of anxiety levels based on the year of study, gender, age, physical condition satisfaction, health perception, history of chronic illness, parental status, domicile, number of close friends, birth orders, frequency of conflict with parents, parental income, examination loads, satisfaction towards examination criteria, and levels of stress vulnerability.

Variables	Frequency N=195	Anxiety Level				
		No anxiety n(%)	Mild n(%)	Moderate n(%)	Severe n(%)	Very Severe n(%)
<b>Physical Satisfaction</b>						
Yes	147	128 (87.1)	13 (8.8)	4 (2.7)	2 (1.4)	0 (0)
No	48	34 (70.8)	5 (10.4)	5 (10.4)	4 (8.4)	0 (0)
<b>Health Perception</b>						
Important	194	162 (83.5)	17 (8.8)	9 (4.6)	6 (3.1)	0 (0)
Unimportant	1	0(0)	1 (100)	0(0)	0(0)	0 (0)
<b>History of Chronic Illness</b>						
No	176	148 (84.1)	15 (8.5)	8 (4.5)	5 (2.9)	0 (0)
Yes	19	14 (73.6)	3 (15.8)	1 (5.3)	1 (5.3)	0 (0)
<b>Parental Status</b>						
Both live and together	171	142 (83)	15 (8.8)	9 (5.3)	5 (2.9)	0 (0)
One or both has died	16	13 (81.2)	3 (18.8)	0 (0)	0 (0)	0 (0)
Both live but divorced	8	7 (87.5)	0 (0)	0 (0)	1 (12.5)	0 (0)
<b>Domicile</b>						
Home	110	94 (85.5)	10 (9.1)	3 (2.7)	3 (2.7)	0 (0)
Dorm	85	68 (80)	8 (9.4)	6 (7)	3 (3.6)	0 (0)
<b>Number of Close Friends</b>						
>5	139	120 (86.3)	10 (7.2)	6 (4.3)	3 (2.2)	0 (0)
3-5	35	27 (77.2)	4 (11.4)	2 (5.7)	2 (5.7)	0 (0)
1-2	18	13 (72.1)	3 (16.7)	1 (5.6)	1 (5.6)	0 (0)
0	3	2 (66.7)	1 (33.3)	0 (0)	0 (0)	0 (0)
<b>Birth Order in Siblings</b>						
The last	67	57 (85.1)	5 (7.5)	3 (4.5)	2 (2.9)	0 (0)
Middle	26	17 (65.4)	2 (7.7)	5 (19.2)	2 (7.7)	0 (0)
The first	102	88 (86.3)	11 (10.8)	1 (1)	2 (1.9)	0 (0)
<b>Conflict with Parents</b>						
Rarely	154	136 (88.3)	12 (7.8)	6 (3.9)	0 (0)	0 (0)
Almost every month	23	17 (73.9)	2 (8.7)	2 (8.7)	2 (8.7)	0 (0)
Almost every week	18	9 (50)	4 (22.2)	1 (5.6)	4 (22.2)	0 (0)
<b>Parental Income</b>						
> Minimum Wage	175	149 (85.1)	14 (8)	9 (5.1)	3 (1.8)	0 (0)
< Minimum Wage	20	13 (65)	4 (20)	0 (0)	3 (15)	0 (0)
<b>Examination Loads</b>						
Light	23	21 (91.4)	1 (4.3)	1 (4.3)	0 (0)	0 (0)
Moderate	134	113 (84.3)	15 (11.1)	4 (2.1)	2 (1.5)	0 (0)
Heavy	38	28 (73.7)	2 (5.3)	4 (10.5)	4 (10.5)	0 (0)
<b>Examination Criteria Satisfaction</b>						
Yes	112	101 (90.2)	10 (8.9)	1 (0.9)	0 (0)	0 (0)
No	83	61 (73.5)	8 (9.6)	8 (9.6)	6 (7.3)	0 (0)
<b>Levels of Stress Vulnerability</b>						
Good	94	88 (93.6)	3 (3.2)	2 (2.2)	1 (1)	0 (0)
Moderate	93	72 (77.4)	11 (11.8)	6 (6.5)	4 (4.3)	0 (0)
Poor	8	2 (25)	4 (50)	1 (12.5)	1 (12.5)	0 (0)

Table 2. shows that anxiety was influenced by some risk factors. Those who were satisfied with their body condition, had good health perception, had no history of chronic illnesses, had good social support including friends and family were less likely to have anxiety. Moreover, those who did not feel overburdened with their academic load, and had good stress immunity were easier to avoid anxiety.

## Discussion

From this study, we found that anxiety was common in medical students and influenced by many factors. The previous study showed that anxiety mostly occurred in the first, third, and fifth year students, with a percentage of 45.86%, 47.14%, and 45.10% sequentially.<sup>4</sup> It is in contrast with this study, where the highest prevalence of anxiety was in fifth year students. A study in Faculty of Medicine, Sebelas Maret University showed that co-assistant students were more anxious and depressive.<sup>5</sup> In this study, anxiety mostly occurred in the first and the fifth year students, with a slight difference higher in the fifth year students.

Anxiety is known to be related to parental status, domiciles, and the number of close friends. The majority of anxiety occurred in students who were orphan, lived in dormitories, and had few close friends.<sup>3</sup> Based on age, the older the students, the frequency of anxiety will also increase. Nevertheless, in this study, the highest prevalence of anxiety was at the age of 17 years old, which was because there was cognitive maturity where there is a transition between concrete operational thinking towards a more abstract mindset.<sup>9</sup> The previous study also reported that anxiety was related to gender, birth order, examination loads, and dissatisfaction with the test criteria.<sup>10</sup> The highest prevalence of anxiety was found in female and the youngest children. This study had the same results, except for gender and birth order. In this study, the highest prevalence of anxiety was in male and middle births. This condition can be caused by the sense of responsibility and life demands in male is relatively heavier than female. While the middle births students experienced more anxiety because the demands of oneself and the family that being an older sibling means giving a good example, such as being successful in the academic field.<sup>11</sup> A study stated that anxiety was related to satisfaction with the condition of the body, health perception, history of having chronic disease, conflict with parents, and economic status.<sup>11</sup> This study had the same results where the highest prevalence of anxiety was found in students who were not satisfied with their body condition, perceived that health was not important, had history of chronic diseases, had conflict with parents frequently, and parental income under minimum wage. Whereas based on stress vulnerability, the result of this study was similar to the previous study where the students whose stress vulnerability was good, the less likely the prevalence of anxiety would come.<sup>12</sup>

This study has some limitations; firstly, there was no data on anxiety in general population. Secondly, the questionnaire depended upon self-reported measures. Thirdly, the students tended to finish their questionnaire in a short time because of limited time. Fourthly, the anonymity of this study made it impossible to recheck the results.

## Conclusion

We concluded that anxiety in medical students mostly occurred in the first and the fifth year students with a slight difference. There is a need for the counseling services to decrease the morbidity caused by anxiety.

## CONFLICT OF INTEREST

The author stated there is no conflict of interest in this study.

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