Differences of Stress Level Between First Year and Final Year Medical Students in Faculty of Medicine Udayana University

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Abstract: **Stress level in medical students are still considered high in both first year and final year students. Stressor or causes of stress in students can be due to academic life, especially from external demands and their own expectations of themselves. There are also different demands in both levels, such as adapting to university life and academicals demands during final years. The aim of this study is to measure the differences of stress level between first year and final year medical students in Faculty of Medicine, Udayana University. The design of this research is analytical with cross-sectional. Overall, the factors that contributed to stress are difficulty in understanding theories (p=0.006), conflicts with friends (p=0.049), difficulties in handling emotions (p=0.000), problems with lecturers (p=0.021), problems with campus facilities (p=0.000) and problems with noise levels of classes (p=0.000).**

Keywords: **Student's stress, causes of stress in students, differences between stress level of first year and final year students, medical students stress.**

1. INTRODUCTION

Stressor or causes of stress in students can be due to their academic life which stems from the external demands and own expectations of themselves. Coursework, study load, demands from parents for the students to excel in their study and also social adjustment can contribute to external demands. [1] Most students enrolling in university have high hopes and expectations, and this can cause stress build-ups inside them. They must also adapt with living far from home for the first time, maintaining their grades and also adjusting with new social environment. Other causes of stress include coursework overload, conflicts with lecturers and unconducive learning spaces. [2] For a medical student, stress can alter their concentration thus affecting their decision-making abilities and establishing good rapport with patients. This can cause patients' dissatisfaction in future medical services, which in turn will indirectly affect patient's quality of life and public health. [3]

Stress seems to give effects to first, second and third year students more compared to fourth and fifth year students. This is because their mental health worsened after being accepted into the medical faculty where the pressure of adapting into the hectic student life exists. However, along the time, their mental health conditions become better due to their own coping mechanism and student support system from the universities. [4] Final year students that are completing their thesis are also prone to stress. Factors affecting students who are completing their thesis are bad interpersonal relationship with their supervisor due to ineffective communication and this in turn will cause anxieties and strains to the students. [5]

Previous researches shows that stress levels are still high in both final year and first year medical students. Research based on Faculty of Medicine, Udayana University is needed to explore and re-evaluate the findings of previous researches. Hence this study is conducted to measure the differences of stress level between first year and final year medical students in Faculty of Medicine, Udayana University.

2. METHODOLOGY

The study design of this research is analytical and cross-sectional. Sample size is calculated using hypothesis test proportion of two population formula with inclusions and exclusions criteria. This study is conducted to measure the differences of stress level between first year and final year medical students in Faculty of Medicine, Udayana University. It was conducted for 1 week which is from 1st February to 7th February 2020 at the Faculty of Medicine in Udayana University. Inclusions criteria for the subjects are medical students from batches of 2016 and 2019 in Faculty of Medicine, Udayana University. Subjects are excluded if they haven't completely filled in the informed consent, are chronically ill for more than 3 months and also failed and had to repeat a year. Factors affecting stress was measured using a questionnaire that inquire about events that causes stress to the subjects over the past month while stress level was measured using Perceived Stress Scale (PSS). The final data set for analysis consisted of 268 samples consisting of 134 students from batch 2016 which represents final year students and 134 students from batch 2019 which represents first year students. Statistical analysis was done using SPSS (Statistic Program for Social Science).

3. RESULTS AND DISCUSSION

3.1 Comparison of Respondents Following the Batches Based on Gender, Grade Point Average, Average Sleep Time and Average Study Time

Table 1 shows the characteristics of respondents and the comparisons based on gender, grade point average (GPA), average sleep time and average study time. The demographic characteristic which is gender shows that for both of the batches, female is more dominant compared to male. Pearson chi square test was used to determine whether the characteristics influenced the level of stress in students and it is found that GPA (p=0.019) and average study time in a week (p=0.011) affected the stress levels in the first year students. None of the characteristics have significant influence to the level of stress in final year students.

TABLE 1: Comparison of Respondents Following the Batches Based on Gender, Grade Point Average, Average Sleep Time and Average Study Time

Characteristics	Frequency n(%)			P value	
	2019 (n= 134)	2016 (n= 134)	Total	2016	2019
Gender					
Male	61 (45.5)	42 (31.3)	75 (38.4)	0.438	0.086
Female	73 (54.5)	92 (68.7)	107 (61.6)		
Grade Point Average					
≤ 3.44	65 (48.5)	71 (53.0)	136 (50.7)	0.064	0.019
> 3.44	69 (51.5)	63 (47.0)	132 (49.3)		
Average Sleep Time					
≤ 7 hours per day	88 (65.7)	69 (51.5)	157 (58.6)	0.129	0.179
> 7 hours per day	46 (34.3)	65 (48.5)	111 (41.4)		
Average Study Time					
≤ 4 hours per day	50 (37.3)	89 (66.4)	139 (51.9)	0.591	0.011
> 4 hours per day	84 (62.7)	45 (33.6)	129 (48.1)		

3.2 Characteristics of Stressors in Students

Table 2 shows the characteristics of stressors in students. Based on the year of admission, 50% of first year students and 63.4% of final students failed the exam. In terms of understanding the theories, there were 75.4% first year students and 61.9% of the final students have difficulties. Based on emotional factors, 9.7% of first year students have problems with their friends and 9% of final-year students have similar problems. As many as 24.6% of first year students experienced emotional control problems and 35.8% of final students experienced this problem. It was also found that 26.9% of first year students experienced love conflicts with their partners and 29.9% of final year students experienced the same thing.

In this study it was found that only 10.4% of all respondents experienced conflicts with both teachers and families in the past 1 month and 10.1% experienced problems with their neighbours. It was also found that 20.1% of respondents had financial problems where 23.1% of new students experienced this and 17.2% of the final students experienced financial problems. For physical factors, 36.6% of new students experienced problems with the campus environment and only 17.2% of final year students complained similarly. Overall there are 29.9% of respondents feel disturbed by noise in the lecture hall and SGD room, where according to the year of admission, 35.8% of first year students complained about this and 23.9% of final year students complained about the same thing.

Academic factors that are allegedly causing the stress to the students are examinations as well as the enormous amount of material they have to study and understand. Failing to achieve the grades they expected is also one of the causes of academic stress on medical students. [6]

TABLE 2: Characteristics of Stressors in Students

Factors	Frequency n(%)		Total
	2019 (n= 134)	2016 (n= 134)	
Academic Factors			
Failure in examination	67 (50.0)	85 (63.4)	152 (56.7)
Difficulty in understanding theories	101 (75.4)	83 (61.9)	184 (68.7)
Emotional Factors			
Conflict with friends	13 (9.7)	12 (9.0)	25 (9.3)
Emotional control problems	33 (24.6)	48 (35.8)	81 (30.2)
Love issues	36 (26.9)	40 (29.9)	76 (28.4)
Social Factors			
Conflict with lecturers	15 (11.2)	13 (9.7)	28 (10.4)
Conflict with family	15 (11.2)	13 (9.7)	28 (10.4)
Conflict with neighbours	17 (12.7)	10 (7.5)	27 (10.1)
Financial problems	31 (23.1)	23 (17.2)	54 (20.1)
Physical Factors			
Problems with campus facilities	49 (36.6)	23 (17.2)	72 (26.9)
Problems with noise level of classes	48 (35.8)	32 (23.9)	80 (29.9)

3.3 Characteristics of PSS Scores

Table 3 shows the characteristic of PSS scores of the respondents. Based on the year of admission, it is found that 0.7% of first year students experienced low stress, 89.6% experienced moderate stress and 9.7% experienced high stress. While for the final year students it is found that 5.2% experienced low stress, 83.6% experienced moderate stress and 11.2% experienced high stress. However, statistically, no significant difference in stress levels was found between first year and final year students where the significance value was 0.085. A similar study conducted at University Kebangsaan Malaysia found similar results with this study where the prevalence of stress in first year students was 49.5% while in third year students was 47.7% (p> 0.05). The insignificant difference is expected due to the stress caused by adaptation to new things in the first year students and academic demands before graduation are almost similar in terms of causing stress. [7]

TABLE 3: Characteristics of PSS Scores of Respondents

Characteristics	Frequency n(%)		Total	P
	2019 (n= 134)	2016 (n= 134)		
PSS score value (mean $\pm$ SD)	21.22 $\pm$ 3.7	20.53 $\pm$ 4.9	20.88 $\pm$ 4.3	
Low stress (1-14)	1 (0.7)	7 (5.2)	8 (3.0)	0.085
Moderate stress (15-26)	120 (89.6)	112 (83.6)	232 (86.6)	
High stress (>26)	13 (9.7)	15 (11.2)	28 (10.4)	

3.4 Factors Affecting Stress in Students

Table 4 shows the factors affecting stress in students. Students who have GPA <3.44 tend to experience stress where 82.1% of students who experience severe stress have GPA <3.44 (p = 0.002). Based on academic factors, it was found that as many as 92.9% of students who experienced severe stress had problems in understanding the lectures that was being given in classes (p = 0.006). While for emotional factors, it was found that 21.4% of students with severe stress experienced conflict with their friends (p = 0.049) and 78.6% of students with severe stress had problems controlling their emotions (p = 0,000). Based on social factors, it was found that 25% of students with severe stress had conflicts with their lecturers (p = 0.021). Whereas based on physical factors, it was found that 57.1% and 60% of students with severe stress levels had problems with campus facilities and the noise levels of classes (p = 0,000).

A study conducted in Nigeria that examined the factors that causes stress in first-year medical students showed that 52.8% of them experienced problems from academic factors, 41.5% had problems in time management, 24.1% had problems with self-control, 25.5% had family problems, 30.4% have financial problems and 34% have problems with their campus environment. The problem of controlling one's own emotions is a significant factor affecting the stress of first year students with an increased risk of 5.46 times (p = 0.019). This will cause them being lonely, feeling that they are not smart enough, regretting their decision to study medicine and trying to hide their real emotions. This can be overcome with good social support and the availability of counselling guidance at the university. [8]

Another study conducted in India found that poor performance on exams (p = 0.0004), difficulty understanding the material provided (p = 0.002), and conflicts with classmates (p = 0.02) are significant risk factors that can trigger stress among first year medical students. [9] Studies conducted in North Sumatra also show that campus environmental factors can also trigger stress in medical students, where 59.2% of students experiencing stress are claiming to be triggered by the noise level in campus facilities, libraries, and tutorial rooms. These factors are considered as a disturbance to the students' concentration, hence affecting their academic performance. [10]

TABLE 4: Factors Affecting Stress in Students

Characteristics	Frequency n(%)			
	Low (n=8)	Moderate (n=232)	High (n=28)	p
Year of Admission				
First Year (2019)	1 (12.5)	120 (51.7)	13 (46.4)	0.085
Final Year (2016)	7 (87.5)	112 (48.3)	15 (53.6)	
Gender				
Male	3 (37.5%)	92 (39.7%)	8 (28.6)	0.522
Female	5 (62.5%)	140 (60.3%)	20 (71.4)	
Grade Point Average				
$\leq$ 3.44	4 (50.0)	109 (47.0)	23 (82.1)	0.002
> 3.44	4 (50.0)	123 (53.0)	5 (17.9)	
Sleep Time				
$\leq$ 7 hours per day	4 (50.0)	131 (56.5)	22 (78.6)	0.071
> 7 hours per day	4 (50.0)	101 (43.5)	6 (21.4)	
Study Time				
$\leq$ 4 hours per day	6 (75.0)	122 (52.6)	11 (39.3)	0.170
> 4 hours per day	2 (25.0)	110 (47.4)	17 (60.7)	
Academic Factors				
Failure in examinations	6 (75.0)	126 (54.3)	20 (71.4)	0.128
Difficulty in understanding theories	7 (87.5)	151 (65.1)	26 (92.9)	0.006*
Emotional Factors				
Conflict with friends	0 (0.0)	19 (8.2)	6 (21.4)	0.049*
Emotional control problems	1 (12.5)	58 (25.0)	22 (78.6)	0.000*
Love issues	1 (12.5)	68 (29.3)	7 (25.0)	0.535
Social Factors				
Conflict with lecturers	0 (0.0)	21 (9.1)	7 (25.0)	0.021*
Conflict with family	1 (12.5)	21 (9.1)	22 (78.6)	0.127
Conflict with neighbours	0 (0.0)	23 (9.9)	4 (14.3)	0.484
Financial problems	1 (12.5)	45 (19.4)	8 (28.6)	0.448
Physical Factors				
Problems with campus facilities	4 (50.0)	52 (22.4)	16 (57.1)	0.000*
Problems with noise levels of classes	5 (62.5)	58 (25.0)	17 (60.0)	0.000*

4. CONCLUSION

The conclusion that can be obtained from this study is that there is no significant difference in the stress level of the first year (2019) and the final year (2016) medical students in Faculty of Medicine, Udayana University. Overall factors that affect student's stress level are GPA, academic factors which is difficulty in understanding theories, emotional factors,

namely conflicts with friends and emotional control problems, social factors which is conflicts with lecturers and physical factors, namely problems with campus facilities and noise levels of classes. Students are advised to manage stress with appropriate coping mechanisms such as yoga, adequate sleep and maintain their health so that the level of stress in students can be controlled. For researchers who will conduct similar studies, it is recommended to measure stress levels and how students manage their stress in order to get more accurate data and reduce errors and biases.

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