Stress and its Effects on Medical Students in Early Years

Renad Alharbi[1], Danah Alamri[1] and Amira Ismail[2,3*]

[1]MBBS program, Fakeeh College for Medical Sciences, Jeddah - 21461, Saudi Arabia
[2]Medical Education Department, Fakeeh College for Medical Sciences, Jeddah - 21461, Saudi Arabia; dr.asa84@yahoo.com
[3]Medical Education Department, Faculty of Medicine, Suez Canal University, Egypt

Abstract

Introduction: Stress can have a variety of effects on a medical student's performance. It can cause decreased concentration and memory retention, making it difficult to remember information. Furthermore, stress can cause anxiety, which can result in poor decision-making and mistakes in patient care. This study aims to assess the stress level among medical students during their early year of study. **Methods and Instruments:** A descriptive quantitative cross-sectional study was utilized on medical students in first, second and third years of their study in Fakeeh College for Medical Sciences, Jeddah, KSA; data collection was carried out to assess the medical students stress level. The levels of stress were assessed among these students using the Perceived Stress Scale- 10 item version (PSS-10), self-report scale measures the degree to which one feels overwhelmed and unable to predict the future. **Results:** A descriptive statistic of the ten items of the PSS questionnaire reveals that the high percent of students perceive two items (one and three) very often. The majority of respondents reported moderate level of stress level. However, The Pearson's correlations between GPA and the average score of PSS was not statistically significant. **Conclusion:** There is a high percentage of moderate stress among medical students at Fakeeh College for Medical Sciences especially first year medical students; this requires special orientation program to improve students time management and study skills sessions. Further research is needed to explore the predisposing factors for this stress.

Keywords: Early Years Medical Students, Med School Struggles, Medical Students, Stress, Stress in Med School

1. Introduction

Stress is a natural response to challenging situations, but when it becomes chronic, it can have adverse effects on physical and mental health[1]. Medical school is a rigorous academic program that requires students to dedicate a significant amount of time and energy to their studies. The pressure to succeed and the workload can lead to stress, which can have a negative impact on a medical student's performance[2]. Stress can have a variety of effects on a medical student's performance. It can cause decreased concentration and memory retention, making it difficult to remember information[3]. Furthermore, stress can cause anxiety, which can result in poor decision-making and mistakes in patient care. Students who are stressed out may experience burnout and decreased motivation,

which can lead to poor academic performance and a lack of interest in medical practice[4]. Despite this, many medical students feel that they must push through the stress and exhaustion in order to achieve their goals[5].

It is important for medical students to recognize the signs of stress and take steps to manage it. Taking breaks when needed, engaging in physical activity, getting enough sleep and nutrition, as well as talking with supportive friends or family members can help reduce stress levels[6]. Additionally, seeking professional help from mental health professionals can also be beneficial in managing stress during medical school. With these strategies, medical students can strive to achieve balance and wellness during their time in medical school. Also, time management can be key in balancing the stress and workload of a medical school. Allotting enough time for

Author for correspondence

studying, assignments, and exams can help reduce stress levels[7]. Additionally, setting aside some time for relaxation and leisure activities can help students stay focused and motivated throughout medical school. Seeking assistance from tutors or peers when needed can also be beneficial in managing stress during medical school[8]. A healthy lifestyle is also important for managing stress levels, as it can help students stay energized and productive during the day. Practicing mindful techniques such as yoga or meditation can also be beneficial in reducing stress levels[9].

Assessing stress levels in medical students is essential for developing effective strategies for managing it. There are several tools available for assessing stress in medical students, including self-report questionnaires and physiological measures self-report questionnaires are a widely used tool for assessing stress in medical students[10]. These questionnaires ask students to rate their stress levels and identify the causes of their stress. In addition to that, stress can be assessed physiologically through measuring heart rate variability and cortisol levels[11].

Assessing stress levels in medical students is critical for developing targeted interventions that address the specific stressors faced by students[12].

2. Objectives of the Study

1. Identify the stress level among early years' Medical Students at Fakeeh college for Medical Sciences.
2. Determine the association between stress level and gender.
3. Correlate between stress level and students' academic performance.

3. Methodology

Study design: A cross-sectional study was conducted among first, second- and third-year medical students in Fakeeh College for Medical Sciences.

Instruments: The PSS-10 was developed originally by Cohen, Kamarck, and Mermelstein, in 1983, it assesses the participants' perception of their life as stressful. The participants rated their feelings about each questionnaire item in the last month. The scale of the questionnaire ranges from 0 = never to 4 = very often. The questionnaire scores were calculated by reversing the scores on the four

items that were stated positively; these items were 4, 5, 7 and 8. Total scores range from 0 to 40, with higher scores indicating high perceived stress. Coefficient alpha reliability of the scale was 0.86 in the general literature[13].

Sampling technique: The sample was collected by comprehensive sampling techniques were the first, second and third year medical students were involved; participants were involved conveniently from each year.

Sample size was calculated using Epi-info CDC software calculator based on a study conducted on Turkish university students[12], and the required students sample size is 130 participants.

Study subjects: The study participants were 389 male and female students from the first, second- and third-years medical Students at Fakeeh college for Medical Sciences.

Data analysis: Data collection and analysis were performed through utilizing the Excel program and SPSS Version 23. The associations between level of stress and other variables like gender and year of studies were assessed through utilizing chi square test. Statistically significant tests were considered if $P < 0.05$. Moreover, Pearson's correlation between Grade Point Average (GPA) and stress scale score was measured.

Ethical consideration: This study was approved from the Institutional Review Board at FCMS, Jeddah, KSA. IRB number is 143/2020. All students voluntarily participated in this study and were informed about the purpose of the study. All study information is kept confidential.

4. Results

One hundred thirty-three students responded to the online perceived stress scale questionnaire out of 389 in first, second- and third-year medical students. A descriptive statistic of the ten items of the PSS questionnaire were summarized in (Table 1). The majority of respondents (n:95) (71.4%) reported moderate level of stress level (Table 2). However, The Pearson's correlations between GPA and the average score of PSS was not statistically significant (Table 3). This result indicates that there were no correlations between GPA and stress level. Moreover, the majority of the moderately stressed students were in their first year of study (Table 4). However, the chi square tests for measuring the association between level of stress and gender and levels of study were statistically insignificant (Tables 5 and 6).
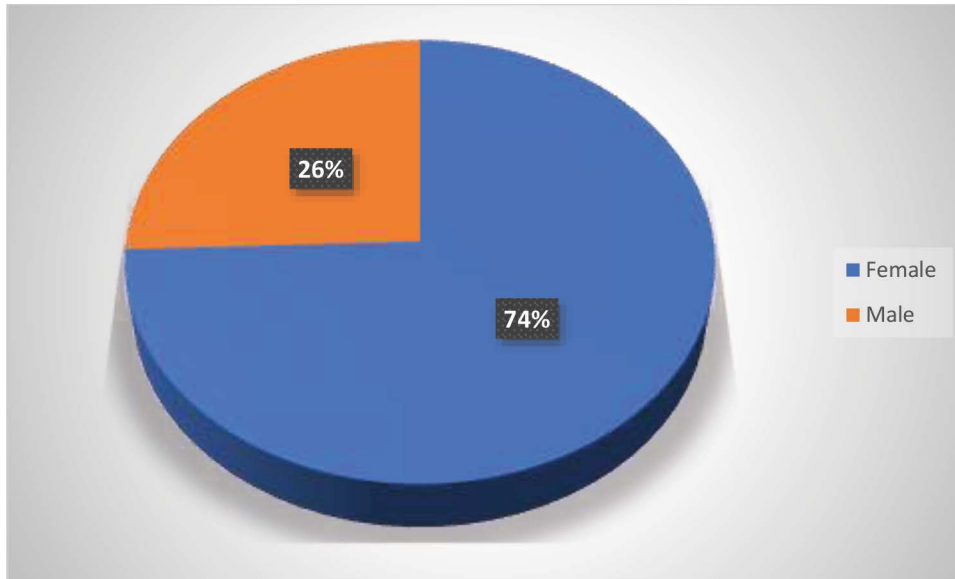
Figure 1. Frequency distribution of Participants gender (n = 133).

Table 1. Frequency distribution of perceived stress scale items (n = 133)

	Items	Never (%)	Sometimes (%)	Often (%)
Perceived Stress Scale	l. In the last month, how often have you been upset because of something that happened unexpectedly?	3.8	33.1	63.2
	2. In the last month, how often have you felt that you were unable to control the important things in your life?	7.6	27.1	65.4
	3. In the last month, how often have you felt nervous and stressed?	4.6	18	77.4
	4. In the last month, how often have you felt confident about your ability to handle your personal problems?	47.4	47.4	5.3
	5. In the last month, how often have you felt that things were going your way?	36.1	52.6	11.3
	6. In the last month, how often have you found that you could not cope with all the things that you had to do?	14.3	33.8	51.8
	7. In the last month, how often have you been able to control irritations in your life?	34.6	54.1	11.3
	8. In the last month, how often have you felt that you were on top of things?	34.5	48.9	16.5
	9. In the last month, how often have you been angered because of things that happened that were outside of your control?	11.3	31.6	57.1
	10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	12	39.8	48.1

The figure showed that Most of the respondents were females 99 (74.4%), while the male respondents were 34 (25.6%)

A descriptive statistic of the ten items of the PSS questionnaire were summarized in (Table 1) and showed that that the high percent of students perceived two items (In the last month, how often have you been upset because of something that happened unexpectedly and in the last month, how often have you felt that you were unable to control the important things in your life?) often.

Table 2. Frequency distribution of stress level among medical students

	Frequency	Percent
Low stress	6	4.5
Moderate stress	95	71.4
High perceived stress	32	24.1
Total	133	100.0

Table 3. Pearson's correlation between stress level and GPA

Correlations				
		GPA	Stress Level
GPA	Pearson Correlation	1	−.216*
	Sig. (2-tailed)		.017
	N	121	121
Stress level	Pearson Correlation	−.216*	1
	Sig. (2-tailed)	.017	
	N	121	133
*. Correlation is significant at the 0.05 level (2-tailed).			

Table 4. Crosstabulation between stress level and study years

		Stress Level			Total
		Low	Moderate	High	
Study Year	1.00	2	43	12	57
	2.00	1	36	14	51
	3.00	3	16	6	25
Total		6	95	32	133

Table 5. Chi square test to measure association between year of study and level of stress

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.755a	4	.313
Likelihood Ratio	3.986	4	.408
Linear-by-Linear Association	.030	1	.863
N of Valid Cases	133		

While high percentage of students other two items were perceived as sometimes (In the last month, how often have you been able to control irritations in your life? and in the last month, how often have you felt that you were on top of things?)

Table 6. Chi square test to measure association between gender and level of stress

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.134	2	.567
Likelihood Ratio	1.175	2	.556
Linear-by-Linear Association	1.110	1	.292
N of Valid Cases	133		

This table showed that the Pearson's correlations between GPA and the average score of PSS was not statistically significant. This result indicates that there were no correlations between GPA and stress level.

This table showed that the majority of the moderately stressed students were in their first year of study.

This table revealed that the chi square tests for measuring the association between level of stress and levels of study was statistically insignificant (Tables 5 and 6).

This table showed that the relationship between level of stress and gender was statistically insignificant.

5. Discussion

Medical education is known to be stressful. High level of stress may have negative impact on students' learning and academic performance in their medical school[12]. The current study showed that the majority of the participated medical students were moderately stressed and this result was consistent with a study conducted in the Al-Anbar governorate, Iraq including the medical colleges of two universities[14]. This indicates that medical study is an incredibly stressful time for students. Moreover, this study showed that there is no statistical association between gender and stress level and this finding was inconsistent with another study conducted and showed that females are more vulnerable than male in regard to stress and this inconsistency can explained in the light of that all students regardless their gender are exposed to the same level of stress during their study[15]. The ranking prevalence of stress by students' year of study indicated that the highest was in the first year. These findings are consistent with another study conducted on medical students at university of interior Sindh showed high stress prevalence in first-year students[16]. This results reflect that first-year medical students need more support and attention from

the institution as it is a new learning and academic environment for them so, structured orientations program for those students is required. In addition to that two items on PSS-10 were perceived very often for medical students in the current study (In the last month, how often have you been upset because of something that happened unexpectedly? and in the last month, how often have you felt nervous and stressed?). These findings reflect the great workload, lack of pleasure time with frequent examinations and Progressive assessments. This result was consistent with a study that was conducted at the College of Medicine, King Saud University, KSA where the stressed students reported being unable to study or work[17].

In addition to that two items (In the last month, how often have you been able to control irritations in your life? and In the last month, how often have you felt that you were on top of things?), the students reported that they perceived them sometimes and this finding is similar to study conducted at king Khaled University, KSA where Students experience several stressors during their educational journey, these stressors were interpersonal and intrapersonal, , social, drive- and desire-related, and group activities-related stressors and this reflect that stress affects the students' lives negatively[18].

In addition to that, there was no significant association between year of the study and stress level, additionally there no correlation between GPAs and stress scale scores. These results come along with study conducted in Taibah University, Saudi Arabia and this indicate that the stress has no direct relation with the year of study or GPA as the medical study is stressful along all the level of study and need time management and study skills and institutional support for students especially for newly admitted students[19].

The main limitation of this study is that it was conducted at only one private college in Jeddah, KSA. Moreover, the small sample size was small. Including only early year students. More studies are needed which include other private medical colleges, with larger sample sizes.

6. Conclusion

Medical school can be a challenging and stressful experience. The current study revealed that there is a high percentage of moderate stress among medical students at Fakeeh College for Medical Sciences especially first year medical students; this requires special orientation program to improve students time management and study skills sessions.

In addition to that it would be helpful to motivate students managing stress and prioritizing their well-being by practicing stress management techniques, seeking support from friends and family, and utilizing available resources.

7. References

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