



Original Article

Comparison of anxiety levels among medical & engineering students

Sarfaraz Ahmed¹, Kiran Abdullah² & Abdul Ghani³¹Baqai Medical University (BMU)²Liaquat National Medical College (LNMC)³Sir Syed University of Engineering & Technology (SSUET)

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Corresponding Author Email: Sarfaraz.amhad6@gmail.com

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Abstract

Background: There has been a rising concern regarding the psychophysiological distress associated with medical training. As the medical students during their transformational period undergo several changes in relation to the academic and training experiences. The family expectations, competition, uncertainties, admission and academic protocol are few of the stressors behind the anxiety and stress among medical students. The objective of this study was to compare anxiety levels among medical & engineering students.

Methodology: A cross sectional study was carried out among students of different medical & engineering universities of Karachi from August 2018 to February 2019. A total of 400 students were enrolled in the study. Data was collected using a self-administered questionnaire consisting of socio demographic characteristics, details regarding the anxiety episodes including intensity, causes, physical symptoms, experiences during anxiety and the coping strategies for such episodes was also inquired. The collected data was analyzed using SPSS version 20.

Results: Findings showed that among out of 250 medical students, 160(64%) were suffering from moderate to severe anxiety. On the other hand, 54 (36%) out of 150 engineering students reported moderate to severe level of anxiety. Social interactions (45%) and stress at work or university (35%) were the prime cause of anxiety. Moreover, restlessness, difficulty concentrating and sleeping were the common physical effects observed due to anxiety.

Conclusion: High prevalence of anxiety was observed among medical students when compared to engineering students. Therefore, to improve psychological wellbeing and work performances interventional strategies promoting mental health and wellbeing need to be designed and implemented.

Keywords

Anxiety, Prevalence, Medical students, Engineering students.



Introduction

Due to the high academic and professional demand the medical schools are greatly focusing on the extensive trainings together with the academic courses and examinations with the aim to produce skilled physicians with advance medical knowledge¹. Which in turn effects the students and result in negative outcomes compromising both physical and mental health. Based on the available literature, students usually face difficulties due to the torturous admission process, slow development of skills, trouble learning and inappropriate implementation while economic constraints and family expectations comes in as the add on stressors during this training²⁻⁴.

Moreover, everyday exposure to the medical environment having patients with several health conditions, terminal illnesses and death greatly affects the psychological wellbeing of the student during the training period^{5,6}. The increasing stress develops anxiety among the students which is as devastating as depression⁷ but due to lack of awareness it remains unattended⁸. Anxiety sufferers undergo fear, nausea, dizziness, headache, fatigue, abdominal pain and palpitations etc⁹. Besides this, it also impairs the working memory and compromises the performance due to distorted attention and concentration^{10,11}.

Based on the findings of a systematic review, the prevalence of anxiety among medical students ranges in between 7.7% and 65.5%¹². It is found that anxiety is significantly associated with the dropout rate, affecting the personal as well as professional life of the student¹. Ultimately, affecting the quality of patient care as it decreases the working efficacy¹³. With reduced self-esteem, these students experience decline in the quality of life and care they provide during training and practice^{14,15}. Our aim was to compare the prevalence of anxiety among medical and engineering students.

Methodology

A cross sectional study was carried out during August 2018 to February 2019 on medical and engineering students of various universities of Karachi including Baqai Medical University (BMU), Liaquat National Medical College (LNMC), Sir Syed University of Engineering & Technology (SSUET) and Dawood University of Engineering & Technology (DUET). A total of 400 students were enrolled in the study after attaining written informed consents. A self-administered questionnaire inquiring socio demographic details and characteristics of anxiety episodes like intensity of the episode, causes, physical symptoms and coping strategies was used by the students.

The collected data was analyzed using SPSS Version 20, where quantitative variables such as age was summarized using mean and standard deviation while qualitative variables such as gender, intensity, symptoms and strategies used to cope with anxiety episodes were summarized as frequency and percentages.

Result

Out of the 400 enrolled students, there were 150 engineering students (E) and 250 medical students (M) with a mean age of 20 ± 1.5 years. Around 51.25% of these students were males while 48.75% were females.

Based on the findings 159(63.6%) medical students had anxiety out of which 49% were suffering from moderate anxiety and 15% were in severe anxiety. On the other hand, 54(36%) engineering students had anxiety, of them 28% and 8% suffered moderate and severe episodes. Stress at Work/University, social interaction, isolation and family expectations were few of the prominent factors leading to anxiety among both medical and engineering students.

Table 1: Demographic characteristics of study participants

| Variables | Sub-categories | (n=400) |
|--------------|---------------------------------|------------|
| Age (Years) | | 20±1.5 |
| Study Groups | <i>Medical Students (M)</i> | 250(62.5) |
| | <i>Engineering Students (E)</i> | 150(37.5) |
| Gender | <i>Male</i> | 205(51.25) |
| | <i>Female</i> | 195(48.75) |

*90(M) + 115 (E) =205 males; 160 (M) + 35 (E) = 195 females

*Values are given as n (%) and Mean ± SD

Among the symptoms of anxiety, trouble concentrating (35%), difficulty falling asleep (25%) and restlessness (20%) were apparent. Crying was preferred as the best coping strategy by 33% of the medical students while 17% preferred sleeping, comparatively among engineering students sleeping (30%) was mostly preferred to cope with anxiety.

Table 2: Characteristics of anxiety among medical and engineering students

| Characteristics of Anxiety | Medical Students (n=250) | Engineering Students (n=150) |
|----------------------------|----------------------------------|------------------------------|
| Intensity | <i>Moderate</i> | 122(49) |
| | <i>Severe</i> | 37(15) |
| Causes | <i>Social Interaction</i> | 62(25) |
| | <i>Family Expectations</i> | 25(10) |
| | <i>Stress at Work/University</i> | 100(40) |
| | <i>Isolation</i> | 57(23) |
| | <i>Body Image</i> | 5(02) |
| Symptoms | <i>Restlessness</i> | 50(20) |
| | <i>Trouble concentrating</i> | 87(35) |
| | <i>Uncomfortable</i> | 30(12) |
| | <i>Difficulty falling asleep</i> | 62(25) |
| | <i>Decreased Muscle tension</i> | 20(08) |
| Coping strategies | <i>Crying</i> | 82(33) |
| | <i>Sleeping</i> | 42(17) |
| | <i>Offer Prayers</i> | 15(06) |
| | <i>Speaking to Someone</i> | 50(20) |
| | <i>Moving to Peaceful Place</i> | 25(10) |
| | <i>Wait to Out it</i> | 35(14) |

*Values are given as n (%).

Significant difference was observed in the anxiety levels among the two genders. The mean anxiety ratio was higher among female students (53.43%) as compared to male students (46.57%).

Table 3: Comparison of male and female students suffering from anxiety

| Gender | Medical Students (n=250) | Engineering Students (n=150) | Mean Ratio |
|--------|--------------------------|------------------------------|------------|
| Male | 72(45) | 26(48.14) | 46.57% |



| | | | |
|--------|--------|-----------|--------|
| Female | 88(55) | 28(51.85) | 53.43% |
|--------|--------|-----------|--------|

**M=Medical; E=Engineering*
**Values are given as n (%)*

Discussion

Overall study demonstrated that higher level of anxiety was observed in medical students as compared to the engineering students of both genders (Table 2). Moreover, gender wise differences were also common in both groups i.e. female students either medical or engineering experienced higher level of anxiety (53.43%) as compared to male students (46.57%) (Table 3). This substantiate presence of gender differences in the anxiety has also been reported by many other researchers^{16,17}. It is suggested that the possible reason for this could be increased emotional vulnerability of females as compared to males¹⁸. The results were comparable to a similar study conducted in India where perceived stress and associated anxiety were more common among medical students (72%) as compared to engineering students (56.7%)¹⁹. However, students in medical school with highly competitive challenges show greater susceptibility to develop anxiety as compared to the counterparts¹⁹.

There have been an increasing number of studies conducted to evaluate the prevalence of anxiety among medical students, the prevalence of anxiety among Thai students was reported to be 61.4%²⁰. In support, a cross-sectional study conducted in Jeddah pointed out that the prevalence of borderline anxiety was 33.3% and morbid anxiety was 34.9%²¹. According to research conducted at the Faculty of Medicine, Riyadh, female students (75.7%) who experienced psychological stress was more as compared to male students (57%)²². The overall results of our study were consistent with the above-mentioned details.

Among the major causes of anxiety were social interactions and stress at work or

university (Table 2). High parental pressure and future concerns are the key stressors contributing to the higher anxiety levels among medical students as concluded by a similar study²³. Restlessness, sleeping difficulties and concentrating inabilities are few of the physical effects caused by anxiety (Table 2). In support, a study presenting more descriptive results indicated restlessness, loss of appetite, difficulty in concentrating, constant fatigue, increase muscle ache, impatience and clouded judgment as the chief symptoms associated with anxiety²³. With the increasing complexities in the academic system, it may not be possible to completely eliminate anxiety from the medical educational structure. But the early detection and management are important in order to control this stressor. To support the academic transitions mental health and wellness promotion programs are required as internationally such programs have yield positive outcomes among medical students^{24,25}.

There were a few limitations in the current study, one of which is self-reporting by the students enrolled that might be reason for reporting bias and response inaccuracy.

Conclusion

It is concluded that medical students experience higher level of anxiety as compared to engineering students, which can be prevented by the help of different psychological therapies and recommended physical activities. Students should indulge in various extracurricular activities in order to avoid academic distress.

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