

Anxiety, depression and stress among medical students from Public and Private Universities

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Abstract: Objectives: To determine the prevalence of depression, anxiety and stress among purposive sample of public and private undergraduate medical students. **Subjects and Methods:** Cross-sectional survey between June 2016 and March 2017 with Purposive sampling. The questionnaire used in this study consisted of three components: A sociodemographic questionnaire that required each student to provide their age, gender and year of study, as well as marks obtained as mean % scoring in the professional examinations and DASS scale (the Depression, Anxiety, and Stress Scale). **Results:** There is a high prevalence of anxiety followed by stress and depression in medical students during their academic training. **Results** demonstrate the significant relationship between gender and stress, depression and anxiety in medical students. Female students were more stressed than male students ($p < 0.05$). **Conclusion:** There is a high prevalence of anxiety followed by stress and depression among the purposive sample of medical students during their academic training. Instructors, examiners, and universities should consider the stressors while assessing students on their academic basis.

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1. Introduction

Medical school is recognized as a stressful environment that often has a negative effect on students' academic performance, physical health, and psychosocial well-being, as these medical students are quite susceptible to depression, anxiety and stress due to multiple factors like academic challenges, environmental changes, ultimate goal achievement plans and life challenges such as academic evolution from school to university and the difference including the ultimate responsibility from the vantage point of a student to a capable physician [1-4].

The prevalence of depression among medical students in public universities has been estimated to be 10.4% in Greece by Yusoff MS et al. 15.2% in USA, 24% in UK, 29.1% in Indiaby Sida S et al. and 43.8% in Pakistan by Jadoon NA et al. [5-7] The prevalence of depression among private medical students, however, has been estimated to be 19% in USA, 21.7% in Malaysia by Zaid ZA et al. 49.1% in India by Singh A et al. and 60% in Turkey by Inam SN [8-10].

Given the inconsistent findings regarding the relationship between levels of depression and anxiety and gender, year of study and stage of training (preclinical or clinical) and the fact that studies have typically been undertaken in public universities in Egypt and other countries, there is a need to further investigate these relationships and to investigate them among students in other medical schools in public universities in Egypt.

Aim of the Study

The aim was to investigate the prevalence of depression, anxiety and stress amongst medical students in public and private universities in Egypt.

2. Material and Methods

Sample size

Calculation was done using WHO SAMPLE SIZE (Epinfo) calculator, where P (prevalence) = 10.4% [6] and confidence interval=95%, absolute precision= 0.08, Sample size calculation=56, so selecting 109 extra, final sample size= 165 students.

Student's population

Between June 2016 and March 2017, a total number of 184 undergraduate medical students were chosen from a public (Al azhar) and a private (The 6th of October) universities for the study with an average age of 21.3 years (range from 18-27 years). There were 133 students from Al Azhar university and 51 students from the 6th of October university, of those 112 were males (83 from Al Azhar and 29 from the 6th of October university) and 72 were females (50 from Al Azhar and 22 from the 6th of October university). During the study 19 students were excluded (11 females and 8 males). Those 11 female medical students were excluded only because they do not want to continue (9 from the 6th of October and 2 from Al Azhar University), however, all the 8 male medical students were excluded because they reported physical illness during the study (6 from Al Azhar and 2 from the 6th of October university). So, 165 undergraduate

medical students were left for this study, 125 medical students from Al Azhar (77 males and 48 females) and

40 from the 6th of October university (27 males and 13 females) (table 1).

Table 1: Student's demographic data

Variables	Age range (in years)	Sex Male-Female	Total
Al Azhar university	20-27	77-48	125
The 6 th of October university	18-25	27-13	40

Inclusion criteria

Included in the study all undergraduate medical students (from the first to the sixth year) that agreed to respond to the questionnaire and to sign the written consent for the study.

Exclusion criteria

Excluded from the study undergraduate medical students with psychic or mental disorders or those reporting physical illness during the course of the study.

Student's evaluation

All undergraduate medical students had to read carefully the questionnaire (DASS 42 score) and to sign a written consent after explaining the purpose of study. All student's data were kept confidential. In this study the used questionnaire had a sociodemographic part that contains age, gender and year of study and a DASS scoring system (the Depression, Anxiety and Stress Scale) [11]. The DASS is a 42-item questionnaire which includes three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. Each of the three components of the DASS score contains 14 items, divided into subscales of 2-5 items with similar content. The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia and inertia. The Anxiety scale assesses skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress scale (items) is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervousarousal, and being easily upset/agitated, irritable/over-reactive and impatient. Respondents are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week [11].

Scores of Depression, Anxiety and Stress are calculated by summing the scores for the relevant items. The depression scale items are 3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38 & 42. The anxiety scale items are 2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30, 36, 40 & 41. The stress scale items are 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35 & 39. The score for each of the respondents over each of the sub-scales, are then evaluated as per the severity-rating index of DASS scoring [11].

Mean, standard deviations, frequency tables, graphs and pie charts were used to analyze the data and to find out the prevalence of depression, anxiety and stress, among purposive sample of medical students of private and public medical colleges in Cairo, Egypt.

3. Results

The average age of the students was 21.3 years (SD 1.304) Minimum 18 and maximum 27. Male students were 104(63.1%) and females were 61 (36.9%). 125students (75.7%) belonged to the public medical colleges and 40 (24.3%) belonged to the private medical colleges. The Mean and SD were calculated for the quantitative data like age, whereas frequency percentage was calculated for the categorical variables like gender, private and public medical college students etc. Statistical test of significance Anova was applied for calculating the p values, regarding the impact of depression, anxiety and stress (as individual factors), on the overall students performance of their mean % scoring of 1st, 2nd and 3rd professional examination results.

Results demonstrate that after the utilization of the factual test Anova, depression had no critical effect on the overall student's performance of their mean % scoring of first, second and third expert examination comes about (p value was not significant). Anxiety had a significant part on the overall mean % scoring of student's performance in regards to first professional exams, second and third expert examination comes about. Students of first expert examination were observed to be anxious as the p value was noteworthy (<0.05). Anxiety had no effect on the academic performance of students of second proficient examination (p value was not significant), in spite of the fact that, anxiety had an impact on the academic performance of students of 3rd professional exams (p value significant =0.034). Stress had no significant effect on the overall student's performance with respect to their mean % scoring of first, second and third expert exam comes about (p value not significant).

Results demonstrate the significant relationship between gender and stress, depression and anxiety in medical students. Female students were more stressed than male students (p<0.05).

Students of private medicinal schools were discovered to be more depressed. Results as indicated by DASS scoring show 55.7% of students had no depression, 8.6% had mild depression, 15.7% had moderate depression, 12.9% were severely depressed and 1.8% had extreme severe depression.

Results as indicated by DASS scoring demonstrated that 24.3% of the students had no anxiety, 12.9% had mild anxiety, 25.7% moderate anxiety, 18.6% were severely anxious and 12.9% had extremely severe anxiety. 47.1% of the students did not have pressure, 17.1% had mild stress, 22.9% were moderately stressed and 7.1% had severe stress.

4. Discussion

Contrasted with different nations the results of our study had a higher prevalence of depression, when

contrasted with another studies in view of medicinal students going to an American private college with prevalence of 19%, yet lower than that of medical students going to private colleges in India with prevalence of 49.1% as stated by Singh An et al. [9] The prevalence of students with depression in the present study is higher than was found among medical students going to public colleges in Greece (10.4%) as reported by Yusoff MS et al. [7] Malaysia (21.7%) by Zaid ZA et al. [8] and India by Sida S et al. [5] and UK by Hendryx MS et al. [12].

The prevalence of depression among the sample of medical students in the present study was 40.9%, out of which 9.09% had mild depression, 16.67% had moderate depression, 13.64% had severe depression and 1.52% had extreme severe depression (Table 2).

Table 2: Categories of depression, anxiety and stress in medical students by DASS

Categories	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Source: www.psy.unsw.edu.au/groups Reference: Lovibond, S.H. & Lovibond, P.f. (1995) [11], Manual for the Depression anxiety Stress Scales. (2nd Ed) Sydney: Psychology Foundation.

The prevalence of anxiety among students in the present study was 74.2%, out of which 13.64% had mild anxiety, 27.27% had moderate anxiety, 19.70% had severe anxiety and 13.64% were experiencing extremely severe anxiety. Contrasted with different nation's information, the consequences of our study demonstrated a higher rate of anxiety than that found in private medical colleges in a number of countries, for instance, Israel (29.4%) and India (56%) [13,14]. prevalence of anxiety among students attending public medical schools, the present prevalence rate is lower than those found in numerous nations, for instance, Greece (65.5%), Malaysia (54.5%) and Beirut (69%) [15]. The reasons why the prevalence rate of anxiety in the present study is generally lower than those detailed in different studies are indistinct and distinguish a requirement for additionally look into around there covering a bigger example estimate.

A significant relationship was found in the present study between gender and anxiety where a larger number of females than males experienced anxiety. This outcome is as opposed to those revealed for students in some other private medical schools yet predictable with those detailed for students in some public colleges [16]. The pattern that females encounter more anxiety than males may propose that female medical students are more competitive, have a tendency to be more concerned about endeavoring to

secure higher checks in exams, are more worried about their performance and in particular, have a tendency to enjoy less exercise [10]. However, more research is obviously required before these proposals can be affirmed or disproved by this privilege.

As to between year of study and phase of training (clinical or pre/para-clinical), and depression and anxiety, results of the present study demonstrate no statistical significance, in any case, a pattern can be seen that depression and anxiety increase as students go on to their advanced medical training. The main exemption to this pattern happens in the primary year where the predominance of depression and anxiety is more prominent than in some other year. This could be because of various select stress factors which the first year students need to confront, in regards to their advance from the secondary school to a medicinal college, despairing in light of undue worry of studies, speculative nature with scholastic strategies and extreme calendars, juggling another time table with their own lives, the way toward making new companions, and expanded desires from family and faculty.

Anova test was applied to find out p value between categories of anxiety and First professional examination mean % scoring (Table 3) as well as Third professional examination mean % scoring

(Table 4) and p values were significant, (0.05 and 0.34 respectively).

Table 3: Anxiety with first professional exams mean % scoring (ANOVA)

Anxiety	N	Mean	Std. Deviation	Std. Error
0-7	17	67.24	3.977	.965
8-9	9	68.89	3.621	1.207
10-14	18	65.33	4.765	1.123
15-19	13	67.77	5.434	1.507
20+	9	63.44	2.744	.915
Total	66	66.53	4.555	.561

P= 0.05 (Significant)

The increase in the prevalence of both depression and anxiety as students progress through their program is in evidence in the medical literature along with the physical and mental manifestations of anxiety and depression [16]. The self-help programs should be

made available to the medical students at the instigation of and throughout the medical training programs, along with the provision of counseling services.

Table 4: Categories of anxiety with third professional exams mean % scoring (ANOVA)

Anxiety	N	Mean	Std. Deviation	Std. Error
0-7	17	69.93	4.202	1.019
8-9	9	71.33	4.690	1.563
10-14	18	67.88	4.833	1.172
15-19	13	67.99	4.839	1.342
20+	9	65.00	2.674	1.225
Total	66	68.52	4.757	.590

P= 0.05 (Significant)

The prevalence of stress among the sample of medical students in the present study was 50%, out of which 18.18% were mildly stressed, 24.24% were moderately stressed and 7.58% were severely stressed (Table 2).

Different studies have shown that anxious students, as compared to non-anxious students, usually experience notably more frustrations, related to failure to accomplish the work, daily hassles, and delays in reaching goals, heavy workload, many assignments, too many test activities, frequent strain and inability to make decisions and inability to answer for lecturers, pressures (due to deadlines, overwork and conflicts in interpersonal relations), and changes (rapid and too many occurring at the same time) [17,18].

These stressors gradually diminish when students advance in their medical program but some students may not be able to overcome these stressors, thus leading to poor academic performance, substance abuse, and mental illnesses [19,20].

Anova test was applied to find out p value between categories of anxiety and first professional examination mean % scoring and p value was <0.05 (significant). Anova test was applied to find out p value between categories of anxiety and third year professional examination mean % scoring and p value was <0.034 (significant).

5. Conclusion

There is a high prevalence of anxiety followed by stress and depression in medical students during their academic training. Future studies are needed to focus on sifting out the unique independent predictors affecting and ultimately leading to stress and anxiety in the medical students lives, so that prevention programs could be designed for effective dealing with these variables to minimize the overall burden of stress and anxiety among the students.

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