

The Prevalence of Depression Among Medical Students: A Worldwide Literature Review

Abstract:

Stress is one of the main factors that might lead to depression in the long term; medical students are susceptible to stress and depression more than other students.

Aim: to look at the prevalence of depression among medical students.

Methodology: The authors looked at published studies on the internet about the depression rates among medical students in different areas around the world.

Results: Most of the literature showed that there is a significant prevalence of depression among students during medical school.

Conclusion: Due to high rates of depression among medical students, coping strategies for stress and depression should be offered to medical students to prevent future complications.

Introduction:

Depression (clinical depression) is a common and serious mood disorder. It can cause severe symptoms and affect health. Current research suggests that depression can be caused by multiple factors such as genetics, stress, and environmental or psychological factors. It can occur at any age regardless of gender.

According to the American Psychiatric Association, at least 5 of the following symptoms must be present during a 2-week period (1):

- 1- Depressed mood
- 2- Diminished interest
- 3- Significant weight change
- 4- Sleep disturbance
- 5- Psychomotor agitation
- 6- Fatigue
- 7- Feelings of worthlessness
- 8- Lack of concentration
- 9- Recurrent thoughts of death

Medical school is well known as a program that causes stress on students. It is recognized as a stressful environment and may have negative effects on mental health, physical health, and academic performance. A study done in the United Kingdom about depression among medical students showed that the prevalence of depression ranged between 5.7% and 10.6% among all core students in medical school(2).

Stress is a usual response to any student prior to any exam, and this kind of stress may contribute to motivating the student; however, if this stress were to become severe and the student were unable to cope with it, it might cause depression in the long term.

Medical students are one of the most distressed group of students compared to other specialities and this stress has consequences which might lead to depression and mood swings (3).

Recent studies in the United Kingdom showed that the rate of mental health problems among students is very high, possibly as high as 40%, and most of the students were suffering from depression(4).

Failure to detect depression among medical students is not uncommon. Multiple studies showed that these disorders are under-

diagnosed and under-treated, a fact which might lead to unwanted effects such as psychological morbidity and effects on students' careers and lives (5).

In this literature review, we are looking at depression rates among medical students according to geographic distribution.

Literature review:

A study was done by Thelma and his colleagues on the prevalence of depression among medical students. This study was a longitudinal study including core science and clinical students; it showed a prevalence of depression ranging between 5.7% to 10.6% among all core students and 2.7% and 8.2% among all clinical students.

The Albert Einstein College of Medicine did a wellness assessment of all medical students to assess health behaviors, stress, and depressive disorder. It was an online survey for all medical students from 2014 to 2015; at the beginning of their first year and again at the end of their third year. The results showed a significant increase in stress from an average of 5.51 in the first year to 6.46 in the third year with a p value of (0.0001). Furthermore, 28.4% experienced depression in their first year, while 39% experienced it in their third year. The researchers concluded that there is an increase in stress rate and depression rate over the years, as the third years were more stressed and depressed compared to the first years (6).

A systematic review of depression done in Canada among medical students identified 40 articles on medical students' psychological distress. The findings indicated that there is a high prevalence of depression and anxiety among medical students, and that the level of

psychological distress was higher than that for the general population of the same age, with females experiencing the highest levels (7).

A cross sectional study done in Malaysia by Sherina about psychological stress among undergraduate students in 2002 screened for symptoms of psychological stress. The results of this self-administered questionnaire showed that the prevalence of psychological stress among the participants was 41.9%; it was higher in females compared to males (42% and 41%, respectively). The most common symptoms were that the students did not feel happy (78%) and had trouble sleeping (71%)(8).

Table 1
Symptoms of Psychological Stress among 396 Respondents

	Symptoms of Psychological Stress	Number	Percentage	Mean / SD
1	Unable to feel reasonably happy	312	78.8	0.79 ± 0.41
2	Lose sleep over worry	281	71.0	0.71 ± 0.46
3	Constantly under strain	154	38.9	0.39 ± 0.49
4	Feeling unhappy and depressed	133	33.6	0.34 ± 0.47
5	Unable to concentrate	109	27.5	0.28 ± 0.44
6	Unable to enjoy normal activities	108	27.3	0.27±0.45
7	Losing confidence in own self	107	27.0	0.27±0.45
8	Unable to overcome difficulties	103	26.0	0.26 ± 0.44
9	Unable to face up to problems	81	20.5	0.20 ± 0.40
10	Not capable of making decisions	67	16.9	0.17 ± 0.38
11	Unable to play a useful part in things	66	16.7	0.17 ± 0.37
12	Thinking of own self as worthless	63	15.9	0.16 ± 0.37

As seen in Table 1, the prevalence of psychological stress is very high among medical students.

A cross-sectional survey conducted in Rawalpindi included 500 medical students for depression evaluation. All students were tested 3 times in different intervals during the semester. For those students who

completed all three assessments, the results showed that 37% had mild depression, 14% had moderate to severe depression, and 48% had no depression(9).

A cross-sectional study was done in the United Kingdom of Saudi Arabia using a patient health questionnaire (PHQ-9). A total of 2562 students participated in the study, the majority being female students (61.6%). Of all the participating students, 66% of male students had various levels of depression and 87% of female patients had depression as well. It was observed that depression rates were associated with college year, living conditions, and smoking status (P-Value < 0.05)(10).

Fig 1:

Depression severity in relation with gender

Gender	Depression severity				
	None– minimal (0–4), n (%)	Mild (5–9)	Moderate (10–14)	Moderately severe (15– 19)	Severe (20– 27)
Male	233 (23.4)	299 (30.4)	242 (24.5)	128 (12.9)	88 (8.8)
Female	196 (12.4)	461 (29.3)	429 (27.3)	277 (17.6)	209 (13.2)
Total	429 (16.7)	760 (29.7)	671 (26.2)	405 (15.9)	297 (11.6)

Fig 2:

Presence of depression symptoms associated with sociodemographic factors

Sociodemographic characteristics	Presence of depression symptoms		P-value ^a
	Yes	No	
Marital status			
Single	1,309 (83.3)	396 (16.7)	0.233
Married	122 (83.1)	33 (16.9)	
College years			
Year 1	439 (88)	60 (12)	0.034
Year 2	480 (85.9)	79 (14.1)	
Year 3	418 (84.6)	76 (15.4)	
Year 4	441 (81.8)	98 (18.2)	
Year 5	355 (75.4)	116 (24.6)	
Nationality			
Saudi	2,043 (82.9)	420 (17.1)	0.097
Non-Saudi	99 (90.9)	9 (9.1)	
Living condition			
With family	1,792 (83)	366 (17)	0.004
With relatives	91 (82)	20 (18)	
Alone	241 (88.8)	27 (11.2)	
Undetermined	36 (69.2)	16 (30.8)	
Smoking status			
Never smoked	1,804 (82.7)	378 (17.3)	0.008
Previously smoked	140 (87.8)	20 (12.5)	
Smoking	178 (80.9)	42 (19.1)	

A self-administered questionnaire was given to 700 students using a depression anxiety stress scale and the Pittsburgh Sleep Quality Index. Results indicated that there is a high frequency of depression (65%), anxiety (73%), and stress (59.9%) among medical students; 55.6% of respondents were poor sleepers as well. They also found that the prevalence of stress and depression was higher among female students(11).

A cross-sectional survey was conducted in Jordan including all different levels of undergraduate medical students. The researchers used Istilli et al.'s questionnaire, PHQ9, and the GAD scale to assess depression among medical students. They reported that 22.3% of 1582 undergraduate medical students participating in the study were experiencing depression and 15% were experiencing anxiety. Furthermore, they reported that female students and students with low income had higher depression rates(12).

A cross-sectional study was done to assess depression rates in medical students in Arabian Gulf University in Bahrain, including medical students from all years from first year to sixth year. They reported that 33.9% of first-year students and 55.06% of sixth-year students were suffering from anxiety, and 18.8% of first years and 31.8% of sixth years were suffering from depression. They noticed that female students were slightly more stressed and depressed compared to male students (13).

A cross-sectional observational study was done in Palestine between 2018 and 2019 using a questionnaire to assess depression in medical students. Researchers found that 56% of participants had minimal depression, 20.3% had mild depression, 14% had moderate depression, and 9.1% had severe depression; they reported that 4.5% of participants had even attempted suicide (14).

In Ireland, researchers looked for the prevalence of depression and suicidal ideation among first year medical students using an epidemiological depression scale and the suicidal behaviors questionnaire. Depression-related symptoms and suicidal thoughts were experienced by 59% & 28.5% of participants, respectively (15).

Systematic reviews were done in China to look at the prevalence of depression in medical students. Studies found that depression among medical students ranged from 13% to 76%, with a mean of 32%; anxiety ranged from 8.5% to 88.3%, with a mean of 27% (16).

A study was conducted at the University of Auckland between 2008 and 2009 using a patient health questionnaire and a generalized anxiety disorder questionnaire. A total of 778 students participated in the study; the rate of depression reported was 16.9% and the rate of anxiety was 13%; they found that the rates of both depression and anxiety were higher in female students (17).

Discussion:

Stress is our body's response to certain environmental changes; it has physical, emotional, and negative impacts on students. Stress is important in facing challenges, but when this stress exceeds the student's ability to cope, it might affect the student negatively. Hormones are released in response to stress, affecting the heart rate and blood pressure. Nowadays there is an increase in pressure and stress on medical students due to highly competitive environments. Stress appears to be universally present in most medical students, regardless of their age, sex, and other factors. Depression is not simply feeling sad or fed up for a few days; it is a spectrum of signs

and symptoms that persist for weeks and even months. It can be caused by many factors and can affect students in many ways and with a variety of symptoms. It can range from mild to severe.

Students in general, and medical students in particular, are susceptible to depression for many different reasons; for example, it can be due to long hours of studying during college or the high number of exams.

According to the World Health Organization, medical students are susceptible to stress more than other students because they encounter more competitive environments. Academic causes predominate in the first year, while patient factors and physical factors appear to be the main causes of stress during the subsequent years(18).

Various reports worldwide have shown medical education to be stressful. One study done in India reported high neurotic traits in medical students who had symptoms relating to hysteria, floating, obsession, and phobic anxiety (Bhatia et al. 1995). In Colombia as well, experience states that, on average, 10-15% of students seek consultation and one third need therapy to deal with life conflicts.

A comparison of different stressors in America showed that the atmosphere created by professors and financial pressure ranked very high(Forster-Williams et al., 1996).

Students studying in foreign countries have problems related to adjustment in the country. These include adapting to a new environment, finances, accommodations, and lack of social support.

Stress has many consequences, and some of them might affect a student's life. Suicide and psychiatric illness lie on one end of the spectrum while changes in lifestyle lie on the other end. Lifestyle changes could include things such as decreases in sleep and recreational activities (Wolf,1994). Psychiatric illnesses, anxiety, and

depression are quite common. Anxiety may lead to cognitive ineffectiveness and memory problems.

Conclusion:

The prevalence of stress and depression is high among undergraduate medical students, so we should teach the students strategies to cope with stress. If we are able to identify those students who are experiencing stress or depression, then we could offer them coping strategies to help them.

UNDER PEER REVIEW

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