

# Factors and Consequences of Depression: A Cross Sectional Study of Undergraduate Medical Students

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## ABSTRACT

**Introduction:** Depression is a very common and serious problem that have negative effects on one's feeling, thinking, behavior and daily routine. The undergraduate medical students face many mental health problems mainly depression and there are various reasons leading to its cause, which should be found. Our study focused on assessment of depression based on a criterion through which severity of depression was measured ranging from minimal to severe depression. Our study being conducted focuses on this decisive matter, factors leading to its incidence and its consequences on routine life.

**Materials and Methods:** Present work is a cross sectional study carried out in Peshawar Pakistan from January to November 2020 where about 300 students from private and public medical collages were selected for questionnaire distribution. SPSS version 22 was used for the study.

**Results:** Out of 300 students, half were males and half were females. We have divided the age in 4 groups in which 21-23 years were 60% and 24-26 years were 24%. When the comparison of the colleges was done with DMS criteria, KMC showed more moderate depression (18.7%) than RMC (8.7%). In RMC student's mild and Minimal depression was more common (18.7% and 17.7% respectively).

**Conclusion:** Comparison based on DMS criteria we concluded that mild and moderate depression is high in RMC students and level of moderate depression is high in KMC students.

**KEYWORDS:** Mental Health; Medical students; Depression; Prevalence

## INTRODUCTION

Depression is a common and serious medical illness that negatively affects how you feel, the way you think and how you act. It is a normal physiological effect that can be experienced after an emotional, pathological, or even physical problem. One of the studies meeting eligibility criteria found statistically significant results that suggested that medical students had a higher prevalence of depression than non-medical students. They also found that medical students had significantly higher levels of depression than engineering and other non-medical students, when assessed with the Depression Anxiety and Stress Scale (DASS-21) [1]. There was approximately 17% increase in the number of students developing depressive symptoms from the first year to

the third year, indicating that the symptoms increase over time if not diagnosed and treated effectively. [2] Our study being conducted focuses on this decisive matter, the factors leading to its incidence and its consequences on routine life [3]. Depression among medical students was found to be 6.1% and suicidal behavior was 3.9%. [4]. Anxiety and depression can be caused by certain other risk factors as well apart from academic stress as suggested by this study [3]. Anxiety and depression related symptoms showed a higher prevalence in students studying medicine. The addition of culturally appropriate self-care methods by the medical educators should be encouraged [5]. Nearly nineteen percent of the participants have moderate to severe depression, and 42.2% has moderate to severe physical symptoms. Sleep and gastrointestinal

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symptoms were the most associated with depression [6]. Medical Students in Mexico shows a higher prevalence of stress and anxiety and consequently suicidal thoughts. Hostile living environments adds up to the above stated symptoms [7]. The high incidence of stress among medical students of India shows deleterious effects on mental health [8]. A prevalence of 10-44% makes stress and anxiety the fourth leading cause of morbidities. The demanding academic curriculum makes undergraduate medical students more prone to and affected by anxiety and depression in comparison to students pursuing other career options [9].

## Rationale

The study conducted was all about the prevalence of mental health issues particularly depression and the factors leading to it. It focuses specifically on the mental health of undergraduate medical students. The levels of anxiety and depression were also assessed which provided evidence of its effects on academic, social, and personal lives of the students.

## Objectives

- To assess the prevalence of depression faced by students in medical colleges.
- To determine the reasons depreciating the mental health.
- To find out the consequences of depression on academic and personal life of medical students.
- To compare the depression level between private and public sector medical students.

## MATERIALS AND METHODS

### Study Settings

This study was conducted in medical colleges of both public and private sector in Peshawar Pakistan. The colleges included in the study were Khyber Medical College Peshawar (KMC) and Rehman Medical College Peshawar (RMC).

### Study Design

This study was a cross sectional prevalence study and the questionnaire used for the study was a structured questionnaire. This questionnaire was composed of closed ended questions.

**Table 1:** Demographics of Depression n=300.

Gender	
Male	50%
Females	50%
Age Groups	
18-20 years	15.7%
21-23 years	60%
24-26 years	24%
Equal or > 27 years	0.3%
Colleges	
Khyber Medical College	50%
Rehman Medical College	50%
Prof Year	
1 <sup>st</sup> Prof to 5 <sup>th</sup> Prof	20%

## Study Duration

January 2020 to November 2020.

## Sample Size

The sample size was calculated according to the sample size calculator. There was a total of 300 questionnaires which were divided equally amongst the students from both sectors i.e., 150 questionnaires per sector where 30 questionnaires were allocated to each year which were further divided equally amongst male and female students.

Where Prevalence= 71%

\*<https://pubmed.ncbi.nlm.nih.gov/27923088/>

## Selection Criteria

**Inclusion criteria:** All undergraduate MBBS students at Khyber medical College and Rehman Medical College were included.

**Exclusion criteria:** non-cooperative participants.

## Sampling Technique

Convenience sampling technique was used for the study.

## METHODOLOGY

This was a cross sectional study type, and a convenience sampling technique was used for 300 students from a private medical college i.e., Rehman Medical College and a public medical college i.e., Khyber Medical College. The study was conducted from January 2020 to October 2020. The questionnaire used was a structured questionnaire which had closed ended questions. SPSS version used for the study was version 22.0

## RESULTS

Out of 300 students, half were males and half were females. We have divided the age in 4 groups in which 21-23 years were 60% and 24-26 years were 24%. The students were taken from Khyber medical college and Rehman medical college, and they were equally selected. 20% of the students were taken from each Prof Year. Demographics are shown below in [Table 1].

When the question was asked regarding the personal level of stress among the colleges, KMC showed more average stress (20.3%) than RMC (17%). While slight stress was more among the

students of RMC (23.3%). The P value came out to be 0.372 [Figure 1].

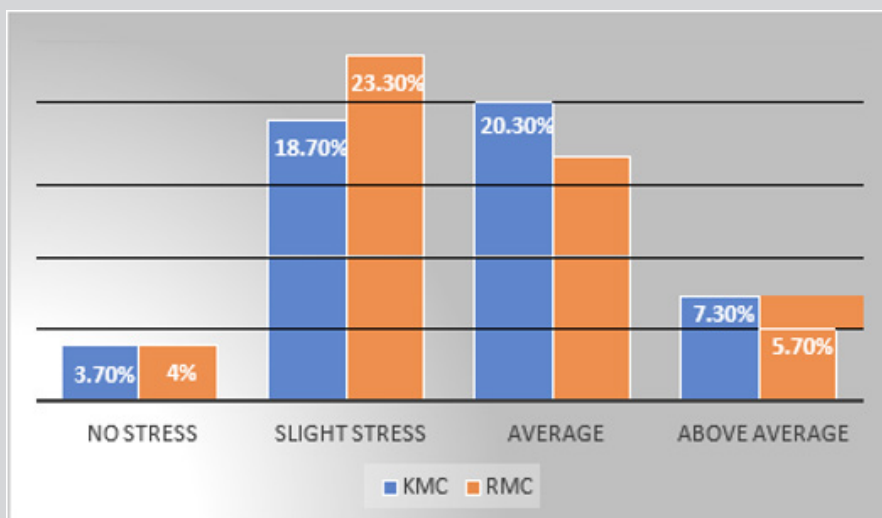


Figure 1: Percentage of stress among undergraduate medical students.

DMS criteria score was also assessed among the students, and it showed that 36.3% (109) of students came in the Mild depression area [Table 2].

Table 2: DSM Score Criteria of Depression n=300.

DSM Score	Frequency	% Age
No Depression	8	2.7
Minimal Depression	76	25.3
Mild Depression	109	36.3
Moderate Depression	70	23.3
Moderately Severe	27	9
Severe Depression	10	3.3
Total	300	100

When the comparison of the colleges was done with DSM criteria, KMC showed more moderate depression (18.7%) than RMC (8.7%). In RMC students Mild and Minimal depression was

more common (18.7% and 17.7% respectively). This comparison was highly significant, p value 0.000 [Figure 2].

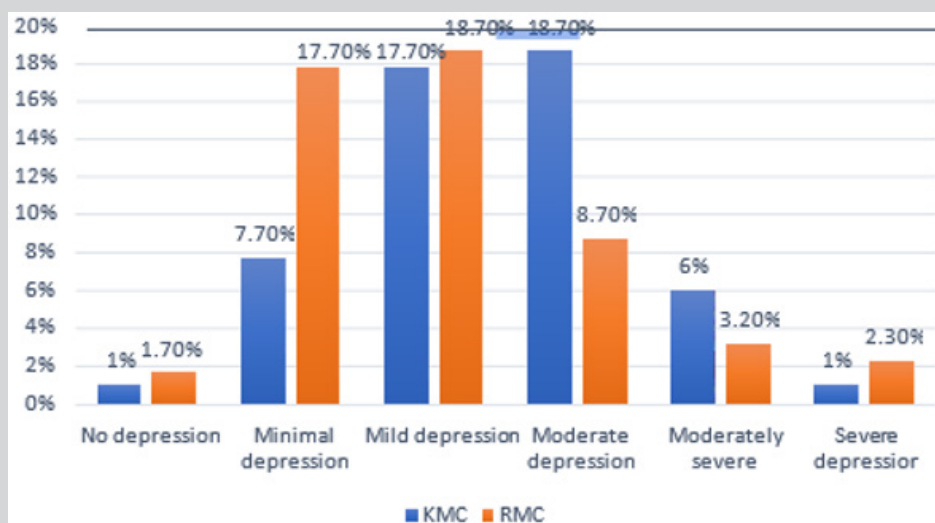


Figure 2: Comparison of colleges with DSM criteria.

As far as the environmental stress is concerned, RMC showed more stress (38.7%) than KMC (33.7%). The significance level was P value 0.053 [Figure 3].

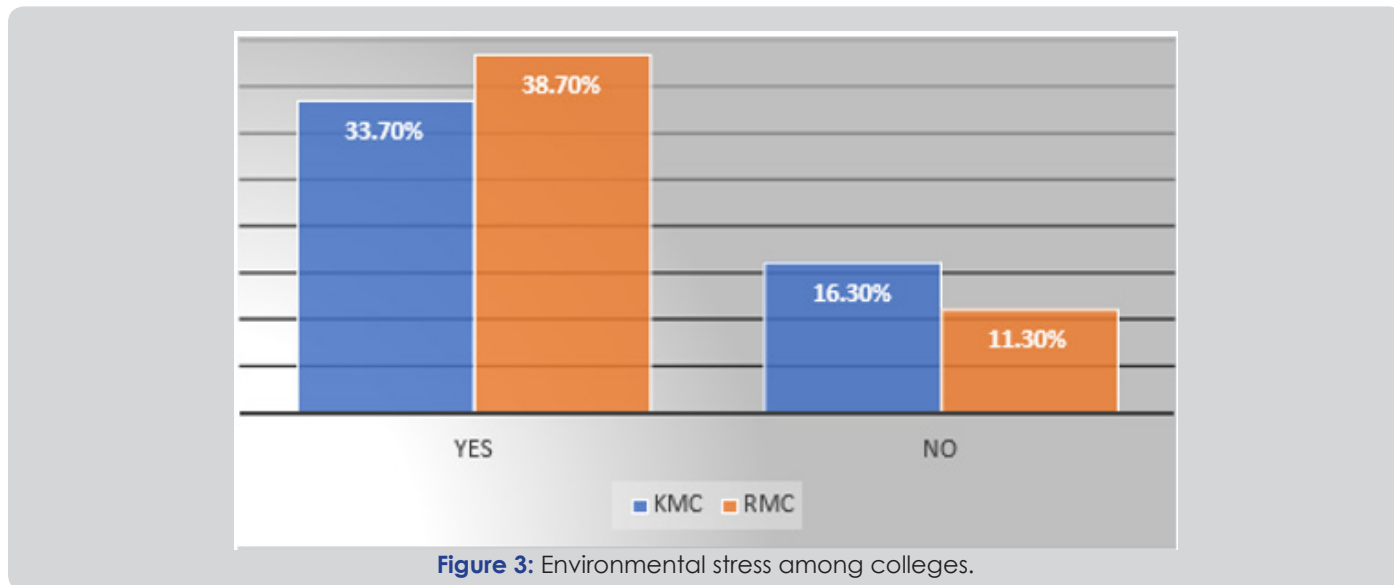


Figure 3: Environmental stress among colleges.

When the cross tabulation was made to check the association of age groups with DSM criteria, the age group of 21-23 years exhibited more depression, a total of 60%. The significance level was P value 0.020 [Figure 4].

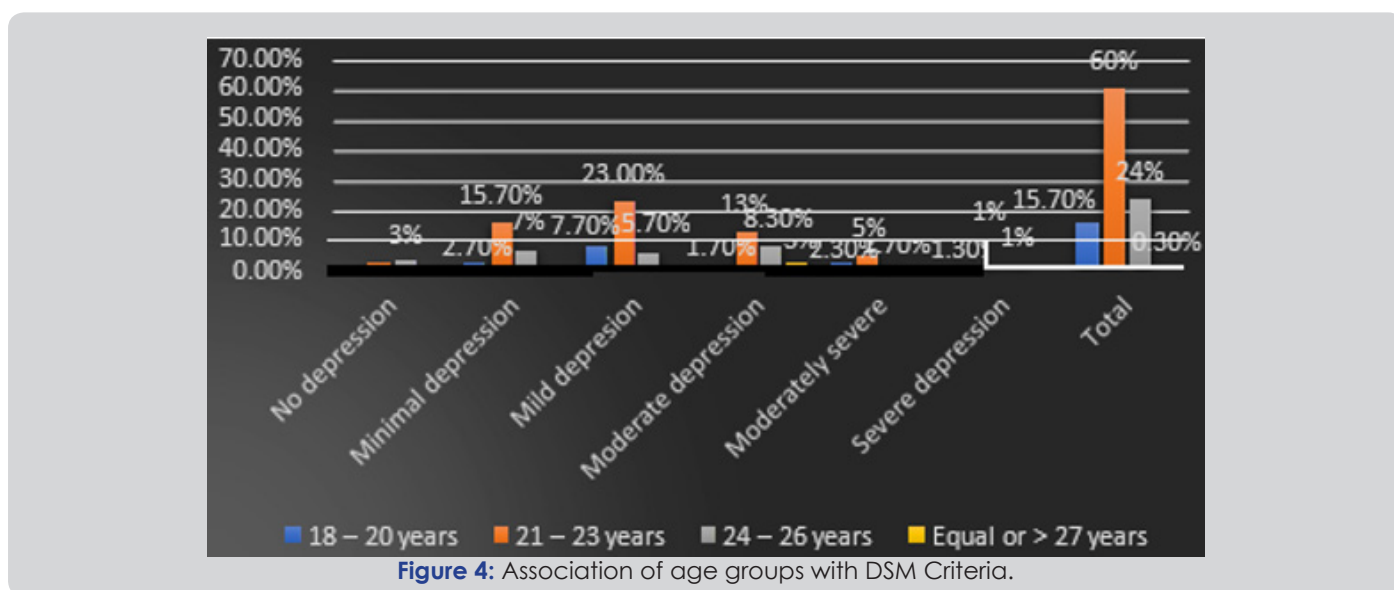


Figure 4: Association of age groups with DSM Criteria.

Among these giving a lot of exams is the most common cause of depression (76.3%) [Figure 5].

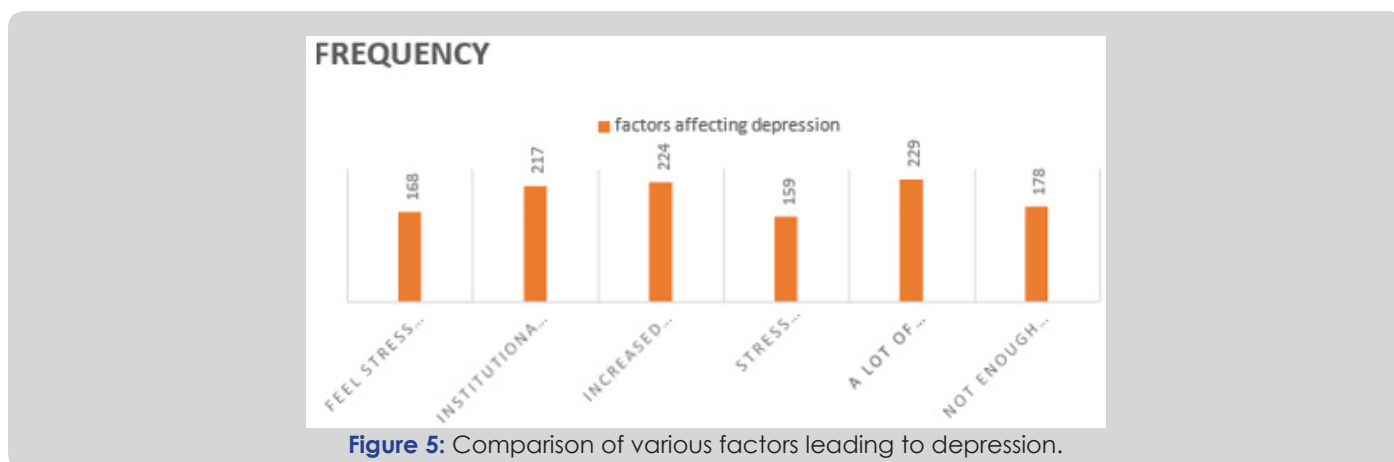


Figure 5: Comparison of various factors leading to depression.

Fatigue came out to be the most common effect (75.5%) followed by Headache (73.3%) and Insomnia (52%) [Figure 6].

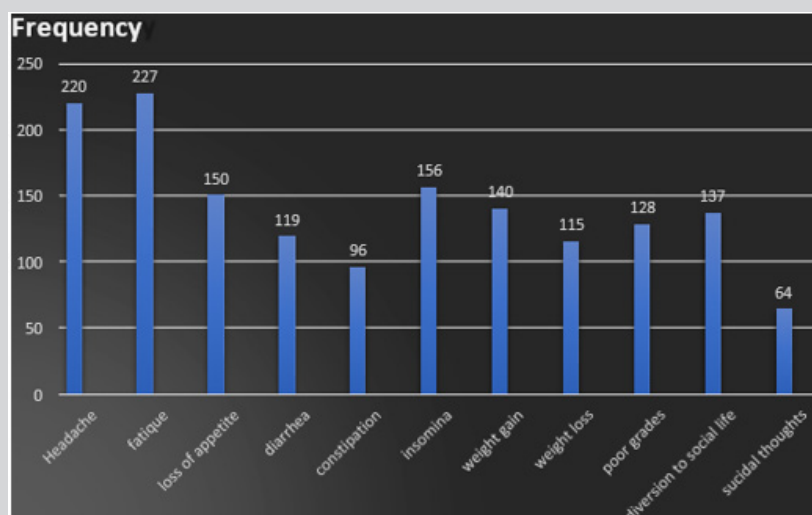


Figure 6: Percentage of various consequences faced by students due to depression.

## DISCUSSION

This study was conducted to assess the factors depreciating the mental health of under-graduate medical students and their consequences in both government and private medical colleges.

### Prevalence of Depression

The study was evaluated according to the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV criteria for major depressive disorder (MDD). Mild depression was the most suffered outcome. Males have a slightly higher tendency for depression. Depression was most common among ages of 21-23 years (60%). According to the study conducted by Mi Li et al. [10], females undergo more emotional experiences which are prone to be more negative ones. This is in contradiction to our study where males were more likely to have depression. In our study, when students were asked to rate their personal level of stress in life, on a total of 300 medical students, 23 (7.7%) had no stress, 126 (42%) underwent slight stress, 112 (37.3%) had average stress and 39 (13%) had above average stress. According to the DSM score 45 (15%) of the 126 slightly stress students faced mild depression. Scientifically stress and depression are related in such a way that sustained stress release cortisol or "stress hormone" which reduced serotonin and other neurotransmitters like dopamine which is linked to depression [11]. Our study showed that out of the 2 medical colleges we chose for sampling, 53 (17.7%) out of 150 students in KMC and 56 (18.7%) out of 150 students in RMC faced mild depression. Lowest number of students had severe depression, 3 out of 150 in KMC while in RMC severe depression was found in 7 out of 150. When asked to rate their personal level of stress 61 (20.3%) out of 150 students in KMC had average stress and 70 (23.3%) out of 150 students in RMC had slight stress.

### Reasons Depreciating Depression

The causes of depression and anxiety includes various individual, social, and economic factors. Medical students suffering from these illnesses may be due to deteriorative workplace environment, overwork, increased academic pressure and excessive burn out. A study reported of 27.7% of medical students subjected to depression or its symptoms in 47 countries [12]. In our study

when students were asked about their institutional environment to be stressful, 217 (72.3%) out of 300 students responded with a Yes and 83 (27.7%) with a No. Out of these 217 students who responded with a Yes, 101 (33.7%) were from KMC and 116 (38.7%) were from RMC. This shows that students at private medical college find their institution more stressful which leads to causing anxiety and depression. A similar study on comparison of depression among students of public and private medical college, it was found that 9.7% of students were found to be depressed in public medical college and 8.3% of students suffered from depression in private medical college.

This concluded that prevalence of depression in public sector is more [13]. In contrary to our study where it shows of private sector to have more depressed cases. It was found that out of 300 students, 224 (74.7%) students agreed on having an increased workload at college, and 168 (56%) students out of 300 were stressed about their health while 159 (53%) out of 300 were stressed about drooping more than one class. When asked if they had too many exams 229 (76.3%) out of 300 students responded with a Yes. While 178 (59.3%) out of 300 agreed about not having enough time to prepare for exams.

### Consequences

Depression can have various somatic effects [14]. When asked if they experienced any of the following conditions during their time in college, 220 (73.3%) out of 300 students have headaches, 227 (75.5%) out of 300 experienced fatigue, 150 (50%) had loss of appetite. When surveying their sleep problems 156 (52%) out of 300 had insomnia. Only a few percentages of students complained about conditions like diarrhea (39%), constipation (32%), weight gain (46.7%), weight loss (38.3%), poor grades (42.7%), diversion to social life (45%) and suicidal thoughts (21.3%) [15].

## CONCLUSION

The average stress level in Khyber medical college students (20.3%) was high than in Rehman medical college students. While slight stress level was high among RMC students (23.3%). And after comparison based on DSM criteria, we concluded that minimal and mild depression is high in RMC students and level of moderate

depression is high in KMC students. Hence, we concluded that in private sector college only minimal and mild depression was high but in public sector moderate.

## LIMITATIONS AND RECOMMENDATIONS

Our study was limited to selective medical colleges. Convenient sampling was used which did not show complete accuracy. Generalized study is more effective adding a greater number of medical colleges. Results are more reliable when using systemic and random sampling technique.

## REFERENCES

- Bacchi S, Licino J (2015) Qualitative literature review of the prevalence of depression in medical students compared to non-medical degrees. *Acad Psychiatry* 39(3): 293-299.
- Alharbi H, Almalki A, Fawaz A, Bander H (2018) Depression among medical students in Saudi medical colleges: a cross-sectional study. *Adv Med Educ Pract* 4(9): 887-891.
- Pham T, Bui L, Nguyen A, Nguyen B, Tran P, et al. (2019) The prevalence of depression and associated risk factors among medical students: An untold story in Vietnam. *PLoS One* 14: (8).
- Khan MS, Mahmood S, Badshah A, Ali AU, Jamal Y (2006) Prevalence of depression, anxiety, and their associated factors among medical students in Karachi, Pakistan. *J Pak Med Assoc* 56(12): 583-586.
- Mahroon ZA, Borgan SM, Kamel C, Maddison W, Royston M, et al. (2018) Factors associated with depression and anxiety symptoms among medical students in Bahrain. *Acad Psychiatry* 42(1): 31-40.
- Abdelaziz AMY, Alotaibi KT, Alhurayyis JH, Alqahtani TA, Alghamlas AM, et al. (2017) The association between physical symptoms and depression among medical students in Bahrain. *Int J Med Educ* 15(8): 423-427.
- Padilla BE, Gonzalez HM, Chapela CCY, Sepulveda ACL, Vildosola ACS (2019) Social violence increases the risk of suicidal ideation among undergraduate medical student. *J Arc Med* 50(8): 577-586.
- Nandi M, Hazra A, Sarkar S, Mondal R, Ghosal MK (2012) Stress, and its risk factors in medical students: an observational study from a medical college in India. *Indian J Med Sci* 66(1-2): 1-12.
- Azim SR, Baig M (2019) Frequency and perceived causes of depression, anxiety and stress among medical students of a private medical institute in Karachi: a mixed method study. *J Pak Med Assoc* 69(6): 840-845.
- Li M, Lu S, Wang G, Zhong N (2015) The effects of gender differences in patients with depression on their emotional working memory and emotional experience. *Behav Neurol* 2015: 807343.
- Karen Bruno (2021) The stress-depression connection. WebMD.
- Mao Y, Zhang N, Lui J (2019) A systemic review of depression and anxiety in medical students in China. *BMC Med Edu* 19(1): 327.
- Zafar M, Rizvi SB (2017) Comparison analysis of depression and its associated risk factors among public and private medical schools students in Karachi, Pakistan: A multicenter study. *Saudi journal for Health Sciences* 111(68): 107-135.
- Phennix, BW, Milaneschi Y, Lamers F (2013) Understanding the somatic consequences of depression: biological mechanisms and the role of depression symptom profile. *BMC Med* 5(15): 11-129.
- Glied S, Pine DS (2002) Consequences and correlates of adolescent depression. *Arch Pediatr Adolesc Med* 156(10): 1009-1014.