



# Prevalence of Depression and its Associated Factors among Students of a Medical College in Western Rajasthan

Neha Agrawal<sup>1</sup>, Savitri Sharma<sup>2</sup>, Rita Meena<sup>3</sup>, Sandeep Kumar Uppadhaya<sup>4</sup>, Manish Mittal<sup>5</sup>

**Financial Support:** None declared  
**Conflict of Interest:** None declared  
**Copy Right:** The Journal retains the copyrights of this article. However, reproduction of this article in the part or total in any form is permissible with due acknowledgement of the source.

## How to cite this article:

Agrawal N, Sharma S, Meena R, Uppadhaya SK, Mittal M. Prevalence of Depression and its Associated Factors among Students of a Medical College in Western Rajasthan. *Ntl J Community Med* 2017; 8(1):12-16.

## Author's Affiliation:

<sup>1</sup>Asst Prof, Dept of Community Medicine, SIMS, Hapur; <sup>2</sup>Asst Prof, Dept of Community Medicine, Dr. S. N. Medical College, Jodhpur; <sup>3</sup>Professor, Dept of Community Medicine, Dr. S. N. Medical College, Jodhpur; <sup>4</sup>Senior Resident, Dept of Community Medicine, AIIMS, Jodhpur; <sup>5</sup>Asst Prof, Dept of Community Medicine, Pacific Medical College, Udaipur

## Correspondence:

Dr. Neha Agrawal  
nehaagrwal.live@gmail.com

**Date of Submission:** 05-08-16

**Date of Acceptance:** 01-01-17

**Date of Publication:** 31-01-17

## ABSTRACT

**Introduction:** Study of medicine along with being very prestigious, exciting, and challenging; is also very stressful. Getting into medical school has an impact on a student's mental health because it requires adaptation and lifestyle changes. It is important to know the factors that influence students' mental health during medical training to facilitate healthcare promotion and psychopedagogical support services.

**Methodology:** A descriptive cross-sectional study was conducted on the medical students of Dr. S.N. Medical College, Jodhpur for a period of six months. Students were screened using BDI questionnaire for assessment of depression. Data regarding their demographic profile and their smoking and drinking habits if any was also collected. Responses obtained were analysed using Micro soft excel version 2010. For further statistical analysis SPSS version 16.0 was used.

**Results:** A total of 815 students participated in the study. Prevalence of smoking was found to be 15.46% and that of alcohol consumption 26.13% respectively. A large proportion of the students (44.42%) were found to be depressed.

**Conclusion:** Stress was more common in the undergraduates. Gender, year of study, age, marital status were found to be significantly related to presence depression in the students.

**Key words:** Medical students, Stress, Depression, Substance abuse

## INTRODUCTION

Depression has become a common illness worldwide. According to WHO an estimated 350 million people worldwide are suffering from depression.<sup>1</sup> Especially when long-lasting and with moderate or severe intensity, depression may become a serious health condition. It can cause the affected person to suffer greatly and function poorly at work, at school and in the family. At its worst, depression can lead to suicide.<sup>1</sup> Suicide rates among young people have increased in the recent past to such an extent that they are now the group at highest risk and is the second leading cause of death in 15-29 year old globally.<sup>2</sup> Death by suicide is a major oc-

cupation hazard amongst physicians. Several multi-institutional studies have observed that medical students have lower mental quality of life and thus, increased suicidal ideation.<sup>3,4</sup> This increased risk may begin during medical school.<sup>5</sup>

The study of medicine along with being very prestigious, exciting, and challenging; is also very stressful. Depression, anxiety, and stress are seen to occur among medical students in high frequency.<sup>6-8</sup> Medical professionals are in fact more prone to be affected as they faced with patients suffering and deaths on a regular basis and academic pressure, workload, sleep deprivation, student abuse,

lack of social activities may further contribute to this decline in students' mental health.<sup>6,9,10</sup>

Medical students present higher levels of stress when compared with other young people of the same age in other programs.<sup>5</sup> Getting into medical school has an impact on a student's health as it requires adaptation and lifestyle changes. To combat the high levels of stress many students take up substance abuse habits which may further add-up to the increased stress levels, thus creating a vicious cycle.

Little effort has been made to promote prevention, wellbeing and appropriate self-care, particularly in the early stages of the profession i.e. medical college. The current medical curriculum focuses mostly on acquisition of clinical knowledge, with a deficit in the development of self-care skills and understanding of the personal challenges.

It is thus important to know the factors that influence students' health during medical training to facilitate healthcare promotion and psychopedagogical support services. Knowledge of these factors can also help in designing of the medical curriculum. Hence, the present study was carried out to ascertain the level of depression in the students and its relation with their smoking and drinking habits if any and also encourage them to seek professional help if under duress/depression.

#### METHODOLOGY:

A cross-sectional study was conducted on the medical students of Dr. S.N. Medical College, Jodhpur for a period of six months from Feb 2014 to July 2014. The aim was to screen the students for depression using Beck Depression Inventory (BDI)<sup>11</sup> and collect data regarding their demographic profile and their smoking and drinking habits if any.

Permission of the Principal of the institute was obtained and an informed verbal consent was also obtained from the students. All the students were explained the purpose of the study and were assured of the confidentiality of their identity. The study tool was distributed to the students at the end of their respective classes, for which permission was also taken from the concerned subject's head of department and the teacher taking the lecture. The students were asked to complete the questionnaire within twenty minutes and return them in the same session.

Likewise Interns and postgraduate students were approached in OPD's and wards and their respective sheets were collected the next day. In this manner 989 students out of 1147 were available at the time of data collection. Out of that 894 responded and 815 completely filled sheets were

available for data compilation (513 undergraduate students, 112 interns and 190 postgraduate students). The overall response rate was 82.41%.

**Inclusion criteria:** All the students who were present in the class on the day of data collection and gave the consent were included in the study.

**Exclusion criteria:** Students who refused to participate; Students who were unavailable at the time of data collection (approached three times for data collection); or Students who submitted incomplete or blank sheets were excluded from the study.

**Study Tool:** Evaluation of the level of depression of the students was done using the Beck Depression Inventory. The BDI is known to be a sensitive measure for assessing the intensity of depressive symptoms, although it is not to be used as the only diagnostic tool for depression.<sup>12</sup> However, it is highly valid for establishing that an individual is not experiencing depressive symptoms.<sup>13</sup> It can be administered to assess normal adults, adolescents, and individuals with psychiatric disorders (>13 years of age). Beck Depression Inventory is a 21 item self-administered inventory where 1 statement was to be chosen from each item. Every question in BDI has four responses having a score of 0, 1, 2 and 3. The scores are summed up to identify not only the presence of depression but also its severity (Total scores range 0 to 63). Study subjects with BDI score more than 10 were classified as depressed and 10 or less were classified as normal.

A self-administrated questionnaire was utilized including information regarding year of study, social factors like alcohol use, smoking, marital status, socio-economic class etc.

#### RESULT

A total of 815 students participated in the study of which 62.94% were males and 37.06% were females. The mean age of the undergraduate students (including interns) was 21.44±4.51 years and the postgraduate student was 28.66±7.25 years. Only a small number of the students were married (14.85%) of which, majority were postgraduate students (76.86%).

Prevalence of smoking was found to be 15.46% (11.29% occasional & 4.17% daily smokers). Only 23.40% of males were smokers, while 1.99% of females also smoked. The prevalence of alcohol consumption was found to be 26.13% (23.93% occasional and 2.20% daily drinkers). A highly significant correlation was found between alcohol and smoking behavior. Majority (80.16%) of the students who were consuming alcohol were also smoking, compared to which only 16.26% of the teetotalers were smoking (p=0.0001).

**Table 1: Prevalence of Substance Abuse Habit in Medical Students**

Substance Abuse Habit	MBBS (n=513)	Internees (n=112)	P.G.'s (n=190)	Total (n=815)	P value
Smoking	72 (14.04)	25 (22.32)	29 (15.26)	126 (15.46)	0.089
Alcohol Consumption	103 (20.08)	35 (31.20)	75 (39.47)	213 (26.13)	<0.0001

Figure in parenthesis indicate percentage

**Table 2: Association of Substance Abuse Habit with Years of Under graduation**

Substance Abuse Habit	Year I (n=195)	Year II (n=125)	Year III (n=110)	Year IV (n=83)	Total (n=513)	P value
Smoking	10 (5.13)	21 (16.80)	20 (18.18)	21 (25.30)	72 (14.04)	<0.0001
Alcohol Consumption	18 (9.23)	28 (22.40)	28 (25.45)	29 (34.94)	103 (20.08)	<0.0001

Figure in parenthesis indicate percentage

**Table 3: Prevalence of Depression in Medical Students:**

BDI Score	Subjects (n=815) (%)
Score ≤10: No Depression (Normal ups & downs)	453 (55.58)
Score >10: Depression Present	362 (44.42)
11-16 (Mild Depression)	221 (27.12)
17-30 (Moderate Depression)	133 (16.32)
>30 (Severe depression)	8 (0.98)

**Table 4: Factors Associated with Presence of Depression in Medical Students**

Determinants	Students	Students with depression	Prevalence	P value
<b>Category of Student</b>				
MBBS	513	252	49.12	0.002
Internees	112	41	36.61	
P.G.'s	190	69	36.32	
<b>SEX</b>				
Male	513	200	38.99	<0.0001
Female	302	162	53.64	
<b>Age Group</b>				
≤20 years	251	111	44.2	0.002
21-30 years	524	244	46.56	
>30 years	40	7	17.5	
<b>Marital Status</b>				
Married	121	39	32.23	0.003
Unmarried	694	323	46.54	
<b>Year of Study</b>				
I	195	85	43.59	0.007
II	125	75	60.0	
III	110	46	41.82	
IV	83	46	55.42	

On comparing the substance abuse habit between the different categories of students, it was observed that smoking and alcohol intake was more common in interns (22.32% & 31.25%) & postgraduate students (15.26% & 39.47%) ( $p < 0.0001$ ).

In the undergraduates the proportion of students smoking and drinking alcohol increased significantly with the increasing year of study, maximum proportion being in the fourth year students (25.30% and 34.94% respectively) ( $p < 0.0001$ ).

In the present study a large proportion of the students (44.42%) were found to have anxiety and depression. According to the cut off score, majority (61.05%) of the depressed students had mild depression (score 11-16), 36.74% were moderately depressed (score 17-30) and 2.21% had severe/extreme depression (score >30).

In the undergraduates, a higher rate of depression was seen among 2nd and final year medical students (60% and 55.42% respectively) compared with 1st to 3rd year students.

In the present study female students were found to be more depressed as more than half (53.64) of the female students had BDI scores more than 10 ( $p = 0.0001$ ); although the association between the grade of depression and gender was not statistically significant ( $p = 0.425$ ).

Age too was found to have an effect on the prevalence of depression. Prevalence was least in less than 30 year olds (17.50%), while most in the 21-30 year olds (46.56%) followed by less than 20 year olds (44.2%).

## DISCUSSION

The goal of medical education is to train knowledgeable and competent physicians equipped to care for the nation's sick, advance the science of medicine, and promote public health. But it is not so. Medical training can be very stressful. Many students pick up substance abuse habits to cope with the increased stress or even due to peer pressure which can further lead to depression or can even add to it; thus creating a vicious cycle of substance abuse and depression.

The prevalence of smoking observed in our study was found to be in congruence with the smoking prevalence (15%) of the general population of India.<sup>14</sup> This prevalence varies in different studies most probably because of variation in the definition of smokers. Furthermore as this was a subjective study there can also be the probability of in-

correct information being provided by the students.

Similar to the present study Apoorva et al<sup>15</sup> on college students too reported a prevalence of 26.4% alcohol consumption. Furthermore, there was a highly significant association between smoking and drinking habits mirroring the results of Singh et al,<sup>16</sup> who too came to the same conclusion. This may indicate that picking up an additional substance abuse habit becomes easier after one is already on one, which is a little alarming as the students although being aware of the health hazards of these habits still have no compunction on being addicted to them.

The substance abuse habit was significantly more in the interns and postgraduate students. This could be because of the intense pressure and workload of the internship and residency and also because of attainment of financial independence.

In the undergraduates the smoking and drinking habit showed significant variation according to the year of study of the students, with around 5 fold increase from the first year to the fourth year ( $p < 0.0001$ ).

This could be a means to cope with stress owing to the increase in academic workload and also because of peer pressure.<sup>15</sup> Similarly, study conducted by Majra JP<sup>17</sup> in a pilot study on two medical colleges also observed an increase in the smoking and alcohol consumption prevalence in the fourth year medical students (26.2% and 43.8% respectively).

Large percentages (44.42%) of students were found to be depressed in our study. Medical students have to deal with stressors specific to medical school in addition to normal stressors of everyday life which explains this high prevalence of anxiety and depression. The prevalence of depressive symptoms among medical students reported in the literature varies from 15% to 70%.<sup>3, 5, 6, 18</sup> This variation may be linked to the use of different methodological approaches.

The undergraduates in our study were found to be more depressed and the proportion of students with depression was significantly associated with years of under graduation. Stress levels increased as students advanced in their medical college years with second and final year students being more depressed. This may come as a surprise as Second MBBS is generally thought to be a year where there is less stress. It could be due stress of first exposure to clinical subjects and excessive load of para-clinical subjects as compared to only clinical subjects in the third year. The high stress in Fourth MBBS may be due to dual pressure of preparing for the competition of postgraduate entrance ex-

ams as well as final year exams. Study conducted by Sahu PC et al<sup>5</sup> and Devi K. et al<sup>6</sup> on medical students also arrived on the same conclusions. Study by Supe AN<sup>9</sup> observed stress to be more in Second and Third MBBS students.

In our study the female students were found to be more depressed. This can be collaborated by many more studies which too have reported that female medical students perceive more stress.<sup>19</sup> Stress maybe more common in females as they are more competitive, tend to be more concerned about working hard to secure higher marks in exams, are more concerned about their performance, exaggerate their sadness and tend to engage in less exercise.<sup>7</sup> Higher anxiety in female students can also be explained by specific psychosocial profiles and warrants further investigation.<sup>19</sup>

Although there are some studies such as studies by Supe AN<sup>9</sup> and Sahu PC et al<sup>5</sup> which did not find any association between depression and gender of the student.

Depression was also found to be related with age group in our study. Students with age more than 30 years suffered least from depression in comparison to the younger students. This could be because with the increase in age the students attain maturity and learn to cope with the academic stress and get used to the frequent examinations. Financial independence in the older age group also contributes to better psychological profile. Although other studies did not find any association between age and presence of depressive symptoms.<sup>6</sup>

Marital status was also found to be significantly related to the presence of depression among the students ( $p = 0.003$ ). On further comparing the married students on the basis of gender it was seen that although only 24.39% married male students were anxious or depressed, the proportion (48.72%) of depressed married females was quite high ( $p = 0.007$ ). This could be because although the males on marriage get a companion to share their burden with; for the females it is a great upheaval in life, bringing with it an additional responsibility of home and family to look after. Other studies<sup>20</sup> too have reported lower stress among married students relative to their single counterparts. These studies suggest that the supportive quality of the marriage relationship rather than marriage itself may modulate the experience of stress.

No relation was seen between depression and socio-economic status and substance abuse in the present study. This finding can be collaborated by several such studies.<sup>5,9</sup> However, some studies have found that a significant number of students consider substance abuse as a coping mechanism against stress and stress is positively correlated

with development of depression in medical students.<sup>18</sup>

## CONCLUSION

Majority of the students were non-smokers and about one fourth were consuming alcohol. Majority of the students (80.16%) who were smoking were also found to be consuming alcohol. In the undergraduates students the substance abuse habit showed significant variation according to their year of study.

Although a large proportion (44.42%) of the students was found to be depressed, majority had a mild grade of depression. Stress was more common in the undergraduates as almost half of them had some grade of depression. Being a female, year of study, age, marital status were found to be significantly related to presence of depression in the students.

## REFERENCES

- World Health Organization. Depression Fact Sheet. Available at: <http://www.who.int/mediacentre/factsheets/fs369/en/>. Accessed on August 8<sup>th</sup>, 2016.
- World Health Organization. Mental Health: Suicide data. Available at: [www.who.int/mental\\_health/prevention/suicide/suicideprevent/en/](http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/). Accessed on December 4<sup>th</sup>, 2013.
- Dyrbye LN, Thomas MR, Massie FS, et al. Burnout and suicidal ideation among US medical students. *Ann Intern Med* 2008; 149 (5):334-41.
- Abhinav Goyal, Jugal Kishore, Tanu Anand, Akanksha Rathi: Suicidal ideation among medical students of Delhi. *Journal of Mental Health and Human Behavior* 2012; 17(1).
- P. C. Sahu, I. F. Inamdar, Mohammed Ubaidulla et al. Study of depression among medical students of different pathies in Nanded city, Maharashtra. *Journal of Evolution of Medical and Dental Sciences* 2013; 2 (22): 3978-3986.
- K. Devi, Rohan Patel, Ashok M.Phil. Study of Psychological Depression and its associated factors among Medical Students in Pondicherry. *Indian Journal of Basic & Applied Medical Research* 2013; 2 (8): 1009-1016.
- Mohd Nazeer, Razia Sultana. Stress in Medical Education and its Management. *IJSR* 2014, 3(12): 355-359.
- Aktekin M, Karaman T, Senol YY, Erdem S, Erengin H, Akaydin M. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. *Med Educ* 2001; 35 (1):12-7.
- AN Supe. A study of stress in medical students at Seth G.S. Medical College. *JPGM* 1998; 44 (1): 1-6.
- Hafferty FW. Beyond curriculum reform: confronting medicine's hidden curriculum. *Acad Med* 1998; 73 (4):403-7.
- Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. *Arch Gen Psychiatry* 1961; 4:561-71.
- Kendall PC, Hollon SD, Beck AT et al. Issues and recommendations regarding use of the Beck Depression Inventory. *CognitTher Res* 1987; 11 (3):289-99.
- Deardorff WW, Funabiki D. A diagnostic caution in screening for depressed college students. *CognitTher Res* 1985; 9 (3):277-84.
- World Health Organization. Noncommunicable diseases and mental health. *Noncommunicable Diseases Country Profiles, 2014*. Available at <http://www.who.int/nmh/publications/ncd-profiles-2014/en/>. Accessed on November 10<sup>th</sup> 2014.
- Apoorva, Arjun S. Pillai, Arjun Nayanar et al. Risk factors and consequences of alcohol consumption among college students. *NUJHS* 2014; 4(2).
- Medical Cadet Virendra Vikram Singh, Col Zile Singh, Lt Col A Banerjee et al. Determinants of Smoking Habit among Medical Students. *MJAFI* 2003; 59: 209-211.
- Majra JP. Do Our Medical Colleges Inculcate Health-Promoting Lifestyle Among Medical Students: A Pilot Study from Two Medical Colleges from Southern India. *Int J Prev Med*. 2013; 4(4): 425-429.
- Singh A, Lal A, Shekhar. Prevalence of depression among medical students of a private medical college in India. *Online J Health Allied Scs*. 2010; 9(4):8.
- Hojat M, Glaser K, Xu G et al. Gender comparisons of medical students' psychosocial profiles. *Med Educ* 1999; 33 (5):342-9.
- Coombs RH. The effect of marital status on stress in medical school. *Am J Psychiatry*. 1982; 139:1490-93.