

A Point Prevalence assessment of depression by back depression inventory (BDI) scale and its relation with Psycho-wellness as per Modified MINI Scale (MMS)

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Abstract— *Depression is a major cause of morbidity worldwide. Although there are various studies were conducted in developed country but in India there is paucity of studies regarding depression in medical students who are more prone to have stress. So this study was conducted to study depression in medical students of SMS Medical College, Jaipur (Rajasthan) India. For study purpose 1st MBBS students were screened through Modified Mini Scale (MMS) to found out suspects of depression i.e. red and orange zone of psycho-wellness. Then Back Depression Inventory (BDI) Scale was administered in identified medical students of red and orange zone of psycho-wellness. Depression was found in 30.5% of medical students, out of which 21% had moderate to severe depression. Depression was found to be associated with psycho-wellness of student.*

Key words: *Depression, post-traumatic stress disorder (PTSD), MMS, BDI, Medical students*

1. Introduction

Depression is a state of low mood and aversion to activity that can affect a person's thoughts, behavior, feelings and sense of well-being^{1,2}. People with depressed mood can feel sad, anxious, empty, hopeless, helpless, worthless, guilty, irritable, ashamed or restless. Insomnia, excessive sleeping, fatigue, aches, pains, digestive problems or reduced energy may also be present³.

Depression is a major cause of morbidity worldwide². Lifetime prevalence varies widely, from 3% in Japan to 71% in the Indian medical students.⁴

Mental health is not given so much priority as that of physical health, which reflects in research also. It is a neglected public health problem in India.

Medical students have a higher risk of depression and suicidal ideation than age matched peers and general population.⁵⁻¹³ To appear in medical entrance and during medical training students faced different kinds of stressors such as burden of vast academic pressure with an obligation to succeed, an uncertain future, difficulties of integrating various system along with emotional, social, physical and family problems. These stressors can exert an inadvertent negative effect on students' academic performances and health with more chances of depression. It may reduce their self-esteem, quality of life and the quality of care they provide to patients with decreased empathy. They may engage in substance abuse. It is very important to prevent the ill effects of depression on one's educational attainment and career through early detection and proper interventional measures.

Prevalence of depression among medical students varies depending on age, gender, year of training, place of staying during training, ethnicity, geographical area, parents' socio-economic status

and the scale used to measure depression.^{7,10,13,14} Few studies have been conducted in western countries as well as in other parts of the world^{1,2}. In India, epidemiological studies on depression among medical students are very scanty. Whereas, depression in medical students is of paramount importance and warrants serious study.⁴

So this study was conducted on I MBBS students of SMS Medical college, Jaipur (Rajasthan) with following objectives:-

1. To assess the burden of Depression in I MBBS students SMS medical College, Jaipur
2. To determine association between depression and psycho-wellness

2. Methodology

After taking approval from Institutional Ethics committee, SMS Medical College, Jaipur, a cross-sectional observational study was carried out on 230 students of I MBBS after taking written informed consent from each of the student. Students who has not given consent for the study and those were absent on the day of assessment were excluded from the study. Study was conducted in two stages:-

Stage I:

These identified students were given a predesigned Performa for socio-demographic information along with Modified Mini Screen (MMS) to fill after sitting 10 minims comfortably in the examination hall. Acceptability and reliability of this scale was found satisfactory by many authors.^{8,9} It is a 22-item scale designed to identify psycho-wellness of individual. It can be interpret as follows:-

1. Green Zone (No Disease Zone): (Scores between '1' to '5'): No further action required
2. Orange (Borderline Disease):(Scores between '6' to '8'): Consider for referring
3. Red Zone (Yes Disease): (Scores '9' and above): referred to Psychiatrics for confirmation of diagnosis and treatment
4. Question no. (4) YES shows Suicidal tendency: referred to Psychiatrics for further evaluation
5. Question no. (14 and 15) shows Post Traumatic Syndrome Disorder (PTSD):
 - a. if any of 14 or 15 question 'YES': referred to Psychiatrics for further evaluation

Stage II:

After taking back filled MMS from students, they again were asked to sit calmly for 5 minits. These students were administered another 'Questionnaires' to detect and assess the severity of depression i.e. Back Depression Inventory (BDI) Scale.¹⁵

This BDI-II also contains 21 questions, each answer being scored on a likert scale value of 0 to 3. It has high one-week test-retest reliability (Pearson $r = 0.93$) and high internal consistency ($\alpha = .91$).¹⁶ Higher total scores indicate more severe depressive symptoms. The standardized cutoffs are as follows:-

- 0–13: minimal depression
- 14–19: mild depression
- 20–28: moderate depression
- 29–63: severe depression.

Data thus collected were analyzed and classified on MS Excel 2007. Significance of difference in proportion of students were inferred by Chi-square Test whereas relation between psycho-wellness zone and severity of depression was infered by Regression Equation and Correlation. These statistical tests were done with the help of statistical software Primer version 6. For significance p value < 0.05 was considered significant.

3. Results

In this cross sectional observational study on the day of survey 230 students were present out of total 249 so attendance was 92.37% to represent the I MBBS students.

Out of these 230 students, 132 students (57.39%) were in green zone (no disease zone), while 36(15.65%) students were in orange (borderline) and 62 students (26.96%) were in red zone (Psychiatric disease zone) of psycho-wellness. (Fig 1)

Figure 1

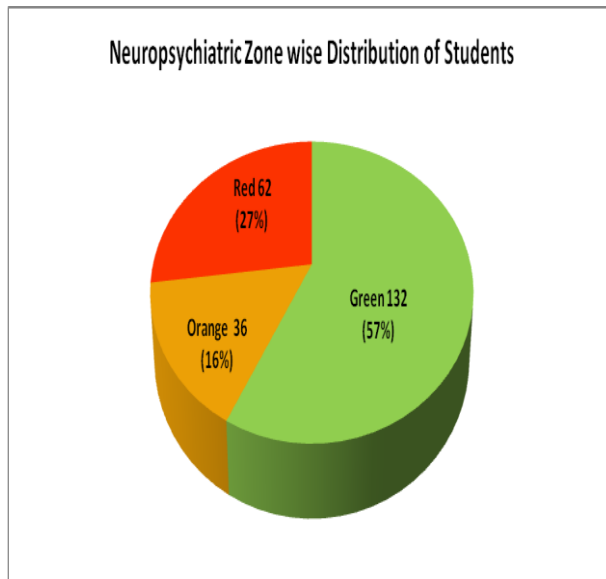
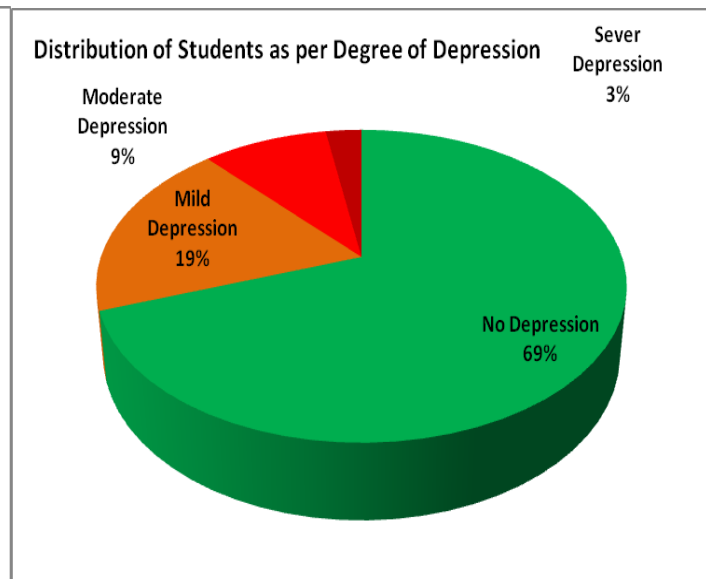


Figure 2



Out of these 230 students, 160 students (69.5%) were in not having depression otherwise rest 70 students (30.5%) were having various grades of depression. (Fig 2).

When association of psycho-wellness and degree of depression is observed it was revealed that proportion of non-depressive students were significantly more in green zone of psycho-wellness zone than orange and red. Among 70 students with depression maximum fall in red zone (54.29%) followed by orange (24.29%) and green zone (21.43%).

When distribution of proportion of students with depression in various psycho-wellness zone was observed it was found that maximum proportion of depression was in students falling in red zone i.e. 38 out of 62 students (61.29%) followed by students in orange zone (17 out of 36 i.e. 47.22%) and Green zone (15 out of 132 students i.e. 11.36%). This variation was found significant.

Likewise, proportion of students with depression was significantly high in red and orange zone of psycho-wellness zone than green. Maximum proportion of students with depression was found in red zone (None of the student of green zone had severe depression. Severe depression was observed maximum in red zone of psycho-wellness. This difference in proportion was also found significant. So it can be depicted that psycho-wellness is associated with degree of depression. (Table 1)

Table 1

Association of Grading of Depression with Psycho-wellness Zone of Students

S. No.	Degree of Depression (as per BDI)	Psycho-wellness Zone of Students (as per MINI)			Chi-square	
		Green (132)	Orange (36)	Red (62)	P Value	LS
1	No Depression (160)	117	19	24	55.348 at 2 DF P <0.001 HS	
2	Mild Depression (43)	11	9	23	24.342 at 2 DF P <0.001 HS	
3	Moderate Depression (21)	4	6	11	13.926 at 2 DF P <0.001 HS	
4	Severe Depression (6)	0	2	4	8.370 at 2 DF P =0.015 S	
5	Chi-square test P Value LS	47.953 with 2 DF P <0.001 HS	6.712 with 3 DF P=0.107 NS	38.689 with 3 DF P <0.001 HS		

When correlation of total psycho-wellness scores and total depression of students was assessed it was observed It was found negative correlation within these two variable i.e. if psychowellness scores increases (towards healthier side) the depression scores decreases. Although there was mild correlation was not found significant ($r = -0.4049$).

The mental health status of the students we assessed showed a worrying picture. After this study, those whom we found to have probable depression were counseled and encouraged to meet counselor & psychologist.

4. Discussion

In this present study, about half (42.6%) of students were either red or orange zone of psycho wellness. Depression was found in 30.5% of medical students out of which 21% were found moderate to severe depression. Well comparable observations were made by other authors.⁴⁻¹⁴

A study conducted in Karnataka by Ganesh S et al⁴ who had also used BDI scale had reported 41.1% prevalence of depression among medical students out of which 15% had Mild whereas 26.1% had Mod-Severe depression. Using same BDI scale, Dr Singh et al¹⁰ found 49.1% depression in a Medical College in Northern India and another study in India by Ganesh S et al¹⁷ found much higher proportion (71.25%) of depressive symptoms among medical undergraduates. Other studies in different parts of the world also showed wide range of variation of depression from 2.2% to 85% among medical students. This variation may be because of different geographical regions, different sample sizes with varied demographic characteristics, scales used to assess depression and cutoffs used were also different and different medical curricula in these countries.

In the present study degree of depression was found to be associated with psycho-wellness zones. There was significantly more proportion of students with depression in red zone and orange zone than green zone. Likewise, psycho-wellness scores and depression scores of students had negative correlation however it was not significant. Other studies⁴⁻¹⁷ also found their observations well in resonance with present study.

CONCLUSIONS

Mental health status of the medical students was found in an alarming situation. About one third of students were having mild to severe grade of depression which requires some type of consultation or counseling. So it emphasizes the importance of screening for depression in medical students. So it can be diagnosed earlier to save students falling in severe depression. Patients with severe depression are tempted to harm themselves so it is a sensitive issue. It should be taken care to protect this valuable future human resource.

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