Original Article

Effect of Counseling on the Mental Status of Undergraduate Medical Students During the Pandemic — A Prospective Quasi-experimental Study at a District Medical College of West Bengal

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Background : Studies show that COVID-19 Pandemic has affected the mental health of all including medical students who already suffer from depression and anxiety but there are not enough studies regarding steps taken towards improving their mental health.

Methods : In this study, undergraduate medical students were screened for depression, anxiety or stress. Counseling in the form of small group and positive motivation was started as an institutional program before the pandemic. The counseling process continued throughout the period of lock down via mobile and what's app messages. The DASS 21 score of this group in March was compared with the DASS 21 score of November and analyzed for any statistical significance.

Results : The mean score of depression of these students was 14.46 ± 6.351 and 8.58 ± 6.178 after intervention, mean score of anxiety was 11.04 ± 4.539 and at end of study 5.44 ± 3.445, mean stress level was 15 ± 5.299 and 8.12 ± 5.472 at the end of study, Paired T tests showing $p<0.0001$.

Conclusion : The above study thus proves that counseling and positive motivation, of vulnerable students , significantly improves their mental health status in stressful situations like the Pandemic.

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Key words **: Mental health, Medical students, Pandemic.**

Various studies undertaken in 43 countries reveal that depression or depressive episodes affect about 27% of medical students throughout the world. Medical students are at high risk for depressive symptoms and suicidal ideation[1]. Symptoms of depression, anxiety or stress may reflect upon their day to day activity, leading to social withdrawal, lack of interest in studies , feeling of hopelessness and even suicidal tendencies[2]. The WHO had declared the COVID 19 outbreak as a Pandemic on March 11, 2020. By September, India was declared as the world's second worst hit nation, following the United States of America. The Government of India, declared a nationwide lockdown on 25th March, as a measure against spread of infection. Public health emergencies like the Severe Acute Respiratory Syndrome (SARS), Middle East respiratory Syndrome (MERS) and Ebola outbreak were associated with increased psychological stress in the affected population[1]. Studies confirm that maladaptive behaviors, anxiety, depression and suicidal tendencies were common due to social isolation. Moreover, social isolation, lack of freedom, concerns for friends and family are negatively affecting the mental health of all, especially the medical students[2]. The mental health of medical students was found to be poorer compared to the general population. It has been found that one in three medical students were found to be suffering from anxiety, which is higher than in the normal population[3]. Earlier studies during previous pandemics show that mental status of health workers are negatively affected. Recent studies on the mental status of medical students too prove that there is an increase in anxiety and depression in them. Medical students are already stressed due to their extensive syllabus, adaptability to various challenging situations, multiple examinations and the lifestyle they lead. The present Pandemic has created additional

Editor's Comment :

- Depression, anxiety and stress are prevalent among medical students and might increase in stressful situations like the pandemic.
- Mental support, sympathy and positive motivation given to vulnerable students by faculties of the institute can certainly improve their mental state.
- Each medical institute should have a supportive cell to help out students in dire need and prevent catastrophes like incidents of suicides or acute depression.

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stress, anxiety, even depression regarding isolation, online classes, concern regarding their own health and that of their family members, worries regarding their assessments and examinations. Depression, anxiety and stress affect a considerable proportion of undergraduate medical students in India and systemic efforts are needed to address their concerns and provide mental health care as necessary to them[4]. Counseling and positive motivation of vulnerable students to handle this stressful situation will certainly be of benefit to them to decrease the associated depression, anxiety and stress, preventing suicidal tendencies and hazardous consequences.

Aims and Objectives

(1) To assess the mental status of undergraduate medical students during the Pandemic.

(2) To compare their present mental status to their status before counseling.

(3) To assess whether counseling had any positive effect on their mental well being.

Materials and Methods

Study population– Undergraduate medical students of 1st and 2nd professional MBBS.

Study design – retrospective quasi-experimental study.

Study population - 225

Place of Study – Murshidabad Medical College & Hospital.

Duration of Study – 9 months.

Sample size – 28.

Inclusion criteria- Students of first and second Professional MBBS of Murshidabad Medical College & Hospital who are willing and not undertaking any medication or counseling.

Exclusion criteria – Students suffering from any illness or under any medication.

Students of 1st and 2nd Professional MBBS students of Murshidabad Medical College and Hospital were screened for notable depression, anxiety and stress by standardized questionnaire as per Depression, Anxiety and Stress Scale (DASS-21) criteria after obtaining permission from Institutional Ethics Committee and individual consent. Of these, 28 students were selected and interrogated regarding their individual problems, which created depression, anxiety or stress in them. Students were counseled in small groups, individually by direct conversation, over phone as well as via positive motivational messages at weekly intervals throughout the study period. They were assured assistance from faculties in case of any need.The ongoing counseling of the above group of students were continued even during the Pandemic, when they were at home via messages and whatsApp group activities. Various citations of notable authors of authentic books were constantly posted to them to keep up their mental strength during the pandemic. The counseling was validated by the Head of the Department of Psychiatry of the Institute. When the Pandemic situation seemed to normalize with gradual opening up of essential activities, the mental status of this group was compared with their initial mental status before counseling as of DASS -21 score and the data analyzed statistically for any significance. Data of 28 students could be collected for final analysis. Those students, who did not undergo counseling or the control group, who did not require any counseling as their DASS-21 score was within normal limits. After the Pandemic, analysis of their DASS-21 scores showed 17.8% of them were found to be suffering from mild to moderate degrees of depression, anxiety and stress which was non –existent before the Pandemic.

Results

Statistical analysis of data collected from students on counseling, prior to intervention and finally at the end of study period confirm that counseling and positive motivation had significant effect on their mental status during the Pandemic. The mental status of those not undergoing counseling was within normal limits prior to the Pandemic but at the end of the study, 17.8% of these students were found to be suffering from mild to moderate degree of depression, anxiety and stress as detected from their DASS-21 score at the end of the Pandemic. The mean score of depression of the students who underwent counseling from faculties and availed their help was 14.46 ± 6.351 and at the end of study was 8.58 ± 6.178, paired T test confirms $p<0.0001$. Their mean score of anxiety prior to study was 11.04 ± 4.539 and at end of study 5.44±3.445, $p<0.0001$. Their stress level prior to study was 15 ± 5.299 and end of study 8.12 ± 5.472, $p<0.0001$. This proves that preventive counseling of undergraduate medical students has a significant role in a Pandemic.

Analysis

Data were described by means and standard deviation. Normality test revealed that the data was normally distributed and hence parametric paired t-test was undertaken to compare the difference in means before and after the study. $P<0.05$ was considered as the level of significance.

The cut off scores for depression, anxiety and stress were considered at 10, 8 and 15 respectively[13]. A high score for any of the subscales was used to

screen subjects for inclusion in the study. The total score was calculated by multiplying the scores on DASS-21 by 2.

The total DASS 21 cut off score was considered ≥60 .

Fig 1 shows the total DASS scores at baseline and post intervention. A significant decline was observed in the overall scores at the end of the counseling program. However increment in score was observed among two subjects. The baseline and post intervention scores ranged from 52 -146 and 4 to 110 respectively. The number of subjects having score ≥60 declined from 24 in the intervention phase to 11 in the post intervention phase.

Table 1 depicts the mean scores of subscales on DASS scale of the study subjects at baseline and post intervention. The baseline scores were noted at the wake of the pandemic prior to declaration of lockdown. The post intervention scores were recorded in the month of November, 2020. It is evident from the table that the mean depression, anxiety and stress scores declined significantly in the post intervention phase compared to the baseline scores .

The depression score declined from 14.46±6.351 to 8.58±6.178, anxiety from 11.04±4.53 to 5.44±3.445 while stress declined from 15.00±5.299 to 8.12±5.472 and the differences were noted to be highly significant (P<0.0001).

Discussion

It is already established that the prevalence of depression as well as anxiety is more among the medical students, compared to the general population[2]. Studies show that the medical community has been greatly affected by the COVID-19 pandemic and the medical students too face unique challenges and uncertainty during this period[3,4]. Studies also reveal that negative psychological effects due to quarantine, frustration, boredom, confusion, stress symptoms were affecting the worldwide population[5-8]. In this study the mental health status of undergraduate medical students was assessed by standardized DASS-21 questionnaire. The DASS 21 scale comprises 21 items, with seven each for screening depression, anxiety and stress. The total sub score ranges from 1 to 42 and is categorized into mild, moderate, severe and extremely severe categories[11,13]. In this study, participants were selected as per standardized psychometric analysis scale[13,14], the DASS 21 scale, the cut off scores of depression, anxiety and stress being 9,7 and 14 respectively. The mental status of this group was compared prior to counseling and after the pandemic; the counseling and positive motivation continuing at weekly intervals throughout the phase. The data collected was analyzed by paired 't' test, and the difference in their depression, anxiety and stress score, was found to be significant. Even though studies show

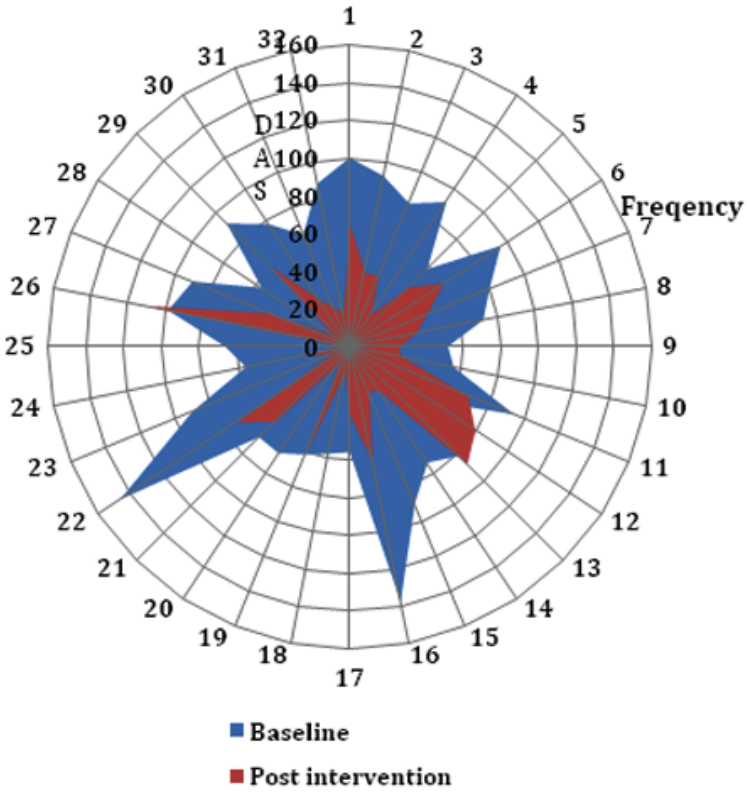

Fig 1 — Distribution of study subjects according to Baseline and post interention DASS score

Table 1 — *Comparison of mean scores of subscales on DASS scale at baseline and post intervention phases*

	Mean score at baseline	Mean score at last post intervention phase	Paired t, Significance
Depression	14.46± 6.351	8.58±6.178	6.895, P<0.0001
Anxiety	11.04±4.539	5.44± 3.445	5.74, P<0.0001
Stress	15.00±5.299	8.12±5.472	7.269,P<0.0001
Overall	79.56±22.05	60.71± 25.34	3.08, p=0.0018

that the Pandemic increased the depression and anxiety among medical students globally[9,10,12], this interventional study, on the contrary shows that instead of rise there has been a decrease in depression, anxiety as well as stress in the group of medical students who were under counseling. Of those students, who did not undergo counseling as their DASS 21 score was within normal limits, 17.8% of them were found to be suffering from mild to moderate degrees of depression, anxiety and stress in the later period of the Pandemic. Thus it proves that constant mental support, positive motivation from faculties of the institute do produce an impact on the mental status of undergraduate medical students, giving them mental support during the Pandemic, when the general population, including the health workers and medical students throughout the globe were suffering from anxiety and depression.

Table 2 — *Comparison of mean DASS scores at baseline and post intervention phases*

Variable	Mean score at baseline	Mean score at 1st last post intervention phase	Paired t, P
Depression	14.46± 6.351	9.12±8.056	3.6, P=0.001
Anxiety	11.04±4.539	7.04±4.56	3.5, P=0.002
Stress	15.00±5.299	10.58±7.788	3.15, P=0.004
	Mean score at 1st Post intervention phase	**Mean score at last post intervention phase**	
Depression	9.12±8.056	8.58±6.178	0.478, P=0.679
Anxiety	7.04±4.56	5.44±3.445	1.203, P=0.214
Stress	10.58±7.788	8.12±5.472	1.17, P=0.86
	Mean score at baseline	**Mean score at last post intervention phase**	
Depression	14.46± 6.351	8.58±6.178	6.895, P<0.0001
Anxiety	11.04±4.539	5.44±3.445	5.74, P<0.0001
Stress	15.00±5.299	8.12±5.472	7.269, P<0.0001

It is evident from the Table that the mean depression, anxiety and stree scores declined significantly in the first and last post intervention p hases compared to the baseline scores. However no significant difference was observed across the 1st and the last intervention phases.

Conclusion

Depression, anxiety and stress are present in the medical students due to their extensive syllabus, multiple examinations and the lifestyle they lead. There is every possibility of increase in their depression and anxiety in stressful conditions like the present Pandemic situation. This study shows that positive motivation and counseling in times of stress like the Pandemic can provide mental support to the vulnerable population, especially the medical students, who are already stressed, over anxious or depressed. The Pandemic situation itself induces depression, anxiety and stress in normal population due to social distancing, the disease and its outcome, altered societal environment and for the medical students, additional stress due to uncertainties of examination system and online classes. Counseling and positive motivation can certainly help out medical students to handle the stress. This can certainly prevent the hazardous consequences of depressed mental states like suicidal tendencies, absenteeism and decrease in academic performance of students.

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References

1 Lisa SR, Ramos MA , Torre M, Segal JB, Peluso MJ, Guille C, *et al* — Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students: A Systematic Review and Meta-Analysis systematic review and meta-analysis. *JAMA* 2016; **316(21):** 2214-36. doi: 10.1001/jama.2016.17324.

2 Saraswathil, Saikarthik J, Senthil Kumar K, Madhan Srinivasan K, ArdhanariM, Gunapriya R — Impact of COVID-19 outbreak on the mental health status of undergraduate medical students in a COVID-19 treating medical college: a prospective longitudinal study, 2020. PeerJ8:e10164 DOI 10.7717/peerj.10164.

3 Sarkar S, Gupta R, Menon V — A systematic review of depression, anxiety and stress among medical students in India. *J Mental Health Hum Behav* 2017; **22:** 88-96.

4 Komer L — COVID 19 amongst the Pandemic of Medical Student Mental Health. International Journal of Medical Students 2020; **8(1):** 56-7. DOI 10.5195/ijms.2020.501

5 Puthran R — Zhang MWB, Tam WWS. HORC. Prevalence of depression amongst medical students: A meta-analysis. *Med Edu* 2016; **50(4):** 456-68. doi: 10.1111/medu.12962.

6 Quek TTC, Tam WWS, Tran BX, Zhang M, Zhang Z, HOCHS, *et al* — The global prevalence of anxiety among medical students; A meta-analysis. *Int J Environ Res Public Health* 2019; **16(15):** Pii E 2735.

7 Ahmed N, Khan A, Naveed H A, Moizuddin S M, Khan J — Concerns of undergraduate medical students towards an outbreak of COVID-19. *International Journal of Current Medical and Pharmaceutical Research* 2020; **6(3):** 5055-62.

8 BaoY,Sun y, Meng S, Shi J, Lu LJTI — 2019-nCov Epidemic address mental health care to empower society. *Lancet* 2019; **395:** e37-e38.

9 Brooks S K, Webster R K, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ — The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 2020; **395(10227):** 912-20.

10 Kecojevic A, Basch CH, Sullivan M, Davi NK — The impact of the COVID-19 epidemic on the mental health of undergraduate students in New Jersey, cross-sectional study. *PLoS ONE* 2020; **15(9):** e0239696, September 30.

11 Crawford JR, Henry JD — The Depression Anxiety Stress Scales (DASS): Normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology* 2003; **42(2):** 111-31. https://doi.org/10.1348/014466503321903544

12 Choi B, Jegatheeswaran L, Minocha A, Alhilani M, Nakhoul M, Mutengesa E — The impact of the COVID-19 pandemic on final year medical students in the United Kingdom: a national survey. *BMC Medical Education* 2020; **20(1):** 1-11. DOI:10.21203/rs.3.rs-24792/v1

13 Lovbond SH, Lovbond PF — DASS-21. Manual for Depresson and Anxiety scales. 1995. 2nd Ed ;Sydney: Psychology Foundation

14 Baeufort IN, De Weert-Van Oone GH, Buwalda VA, de Leeuw JR, Goudriaan AE — The depression and anxiety and stress scale (DASS-21) as a screener for depression in Substnce use disorder Inpatients: A pilot study. *Eur Addict Rws* 2017; **23:** 260-8.