Original Article

Resilience and its correlates among medical students in the Eastern part of India during the coronavirus disease 2019 (COVID-19) pandemic

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Abstract:

BACKGROUND: There is a great deal of psychological pressure on medical students, which results in depression, addiction, and suicide. Resilience plays a significant role in coping with psychological distress. The study aimed to determine the resilience level of medical students in Kolkata and factors related to it.

MATERIALS AND METHODS: A cross-sectional study was conducted among undergraduate students of a medical college in the eastern part of India during October 2020. Resilience was assessed using the validated "Adult Resilience Measure-R." Data were collected on Google Forms and analyzed using SPSS (version 16.0). Logistic regression analysis was performed to find factors associated with low resilience.

RESULTS: The study revealed that one-fourth (25.2%) of the participants had low-level resilience. Nearly half (44.9%) of them perceived their mental health status as having worsened during the lockdown. Students who did not enjoy staying at home during the lockdown and who spent <10 h of their time with their family members had higher odds of low resilience. In multivariable analysis, not enjoying staying at home during the lockdown remained the only significant predictor of low resilience.

CONCLUSION: Students should spend more time with their parents and family members and learn coping skills. Appropriate resilience training programs have to be integrated into the medical curriculum to help in coping with future challenges.

Keywords:

Medical students, pandemic, resilience

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Introduction

The medical curriculum is one of the most stressful educational curriculums in the world, perhaps the most demanding training program both academically and emotionally.[1] Its impact on the student's psychological well-being can be significant and lead to depression, anxiety, and high level of stress.[2] The medical student should have adequate coping skills to deal with

the stresses of their MBBS curriculum such as examination pressure, patient load, assignments, and long course duration. Failure to cope with these stress factors can have profound personal and professional consequences in the long run.[3]

The ability of an individual to cope with difficult situations, trauma, threats, or adversity is known as resilience.[4] It enables the student to tackle stressful situations and allows them to learn despite mental challenges; it also helps the student

to take proper care of themselves and others.[5] A nationwide lockdown is a situation our country has never experienced before. Unlike usual times, students were unable to enjoy holidays, outings, shopping, go to movies and meet physically with their friends during this pandemic resulting in anxiety and depression affecting their resilience.[6]

A study on Canadian medical students found that medical students had lower resilience than their age- and gender-matched peers in the general population.[7] Understanding and correcting the factors responsible for the decrement of the resilience level should result in such benefits as improved quality of life and increased well-being, reduction in addictions such as tobacco or drug usage, and decreased engagement in violent behavior.[7,8] According to past research, students can learn to be resilient. Hence, low resilience can be managed with resilience training programs.[9] Resilience in medical students is rarely discussed in India. Therefore, this study aims to determine resilience levels and the factors affecting resilience in medical students of Kolkata.

Materials and Methods

This is an institution-based cross-sectional study of undergraduate students in a medical college in Kolkata, eastern part of India, in October 2020. All the undergraduate medical students at this college were asked to participate (N = 1000). Participants who reported that they had any psychiatric disorders and were taking antipsychotic and antidepressant drugs were excluded from the study. Ethical approval was obtained from the Institutional Review Board vide Letter No./ NMC/7021 dated 16/10/2020, and informed written consent was taken from all participants.

The outcome variable of the study was the resilience level of the students. It was estimated using the validated "Adult Resilience Measure-R" developed from the perspective that resilience is a social-ecological construct widely used in various regions.[10] The measure was used unmodified (no reverse-coded items). All items were of equal weight; their sum provided the individual's resilience. It comprised 17 questions with responses as the three-point measure (1 = no, 2 = sometimes, and 3 = yes); the attainable minimum and maximum scores are 17 and 51. The median score was used as a cutoff to divide participants into two groups: low and high resilience.

The independent variables considered in this study were sociodemographic factors: usual place of stay during their study before lockdown, enjoyment of the stay at home during the lockdown, time spent with family members, and the mental health status of the students. The mental health status of the students during the lockdown was assessed using a single question: "what was the status of your mental health during the lockdown" with options such as "better," "same," and "worsened."

A predesigned, pretested semi-structured questionnaire was used to collect the data. As all participants were proficient in English, there was no need for a translation. The instrument was checked for face and content validity by two experts from the Department of Community Medicine and Psychiatry of a medical college, Kolkata. The tool was pretested on 30 medical students of another medical college. The reliability of the instrument was checked with Cronbach's alpha (0.87). After incorporating the corrections, the questionnaire was made into Google Forms and distributed to all students through their officially registered mail in the college database. The study objectives were explained to the participants, and confidentiality and anonymity were also assured. Incomplete responses were excluded from the analysis.

Data analysis was done using the SPSS software version 16.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were calculated. The Chi-square test was used to reveal any significant difference in categories of resilience with various levels of independent variables. Logistic regression was used to find the factors associated with resilience with $P < 0.05$ as significant. Variables that were significant in the univariate logistic regression were considered for multivariable logistic regression (final model).

Results

The study was conducted on medical students at a tertiary hospital in Kolkata. Out of 1000 undergraduate medical students of all 4 years (250 students per year), 540 students took part in this study, giving a response rate of 54%. About 5% (32) of participants were excluded from the study because they had psychiatric disorders and took antipsychotic and antidepressant drugs. The final number of participants in the study was 508.

Most of the participants were above 21 years of age (mean: 20.96, standard deviation: 1.4), and most (62.4%) were males. About 80% of the students belonged to nuclear families of the high socioeconomic stratum. Nearly three-fourths (71.7%) of the students enjoyed staying at home during the lockdown, and about half (45.5%) of them spent more than 10 h on average per day with their family members during the pandemic [Table 1]. Around half (44.9%) of the participants perceived that their mental health status had worsened during lockdown; about one-fourth (25.2%) of the participants had low resilience [Table 2].

Table 1: Sociodemographic characteristics of medical students in Kolkata, India, October 2020 (*n*=508)

Characteristics	N (%)
Age (years)	
<21	207 (40.8)
≥21	301 (59.2)
Sex	
Male	317 (62.4)
Female	191 (37.6)
Academic year	
1st year	146 (28.8)
2nd year	142 (27.9)
3rd year (part I)	117 (23)
3rd year (part II)	103 (20.3)
Type of family	
Nuclear	418 (82.3)
Joint	90 (17.7)
Socioeconomic status (class)*	
V (lower class)	11 (2.1)
IV (lower middle class)	8 (1.6)
III (middle class)	28 (5.5)
II (upper middle class)	63 (12.4)
I (upper class)	398 (78.3)
Presence of sibling	
Yes	270 (53.2)
No	238 (46.2)
Enjoyed the stay at home during lockdown	
Yes	364 (71.6)
No	38 (7.5)
May be	106 (20.9)
Usual place of abode before lockdown	
Home	217 (42.7)
Hostel	238 (46.8)
Paying guest	53 (10.4)
Time spent with family members (h)	
≤5	158 (31.1)
5–10	109 (21.4)
≥10	241 (47.5)

*According to modified BG Prasad's classification 2020

Table 2: Self-perceived resilience and change in mental health among medical students in Kolkata, India, October 2020 (*n*=508)

	N (%)
Resilience score	
Mean (SD)	33.6 (4.5)
Median	33
Range	13–47
Resilience	
Low resilience	128 (25.2)
High resilience	380 (74.8)
Perceived change in mental health status during the lockdown	
Worsened	228 (44.9)
Same	201 (39.6)
Better	79 (15.5)

SD=Standard deviation

In univariate logistic regression, students who did not enjoy staying at home during the lockdown and spent <10 h of their time with their family members had higher odds of being low resilient. Other variables such as age, sex, academic year, and socioeconomic status showed no association with resilience [Table 3]. In multivariable analysis, not enjoying being at home remained the only significant predictor of low resilience. Students who did not enjoy their stay at home during lockdown had two times (odds ratio = 2.1) higher likelihood of being low resilient than those who enjoyed being at home [Table 4].

Discussion

The effects of the pandemic presented novel challenges to medical students which they had to overcome with a high degree of resilience. There are ample studies on depression, stress, and anxiety in medical students but only a few on positive well-being or resilience.[11]

The present study found that 25.2% of the students had low resilience, which is less than the results of the studies done in Orissa (46.4%) and Saudi Arabia (45.5%).[12,13] This difference might be due to the diversity in culture. The studies on school-going adolescent girls in India and medical and dental students in Saudi Arabia have claimed that girls had a higher level of resilience because of the home environment and its protective effect.[13,14] In a patriarchal society, unlike males, females have numerous problems to overcome. Thus, we hypothesized that the resilience level of females would be much higher than males. However, contrary to this, this study and a few others done in Maharashtra and the midwest USA found no significant association between resilience level and the gender of the respondent.[15,16] Various other studies on medical students of West Bengal, the United States, and the United Kingdom found resilience higher in males.[17-19]

The present study and a study done in medical schools in the midwest USA found that the age and the year of medical course were not significantly associated with resilience, contrary to the majority of studies in West Bengal and the United States.[16-18] This indicates that with time, students develop coping skills and learn to adapt. However, A study done in Maharashtra showed higher resilience in 1st- and 2nd-year students than in 3rd-year students.[15]

The present study showed no association between socioeconomic levels and resilience levels, but the Saudi Arabian study found that students from families with higher incomes had high resilience.[13] It could be the perceived support from parents in high-income families and their environment. Hence, future studies with

Table 3: Univariate analysis: Factors associated with low resilience among medical students during COVID-19 pandemic, Kolkata, India, October 2020 (*n*=508)

Variables	Total N	Low resilience N (%)	Crude OR (95% CI)	P-value*
Age (years)				
<21	207	51 (24.6)	1	
≥21	301	77 (25.6)	1 (0.6–1.5)	0.8
Sex				
Male	317	75 (23.7)	1	
Female	191	53 (27.7)	1.2 (0.8–1.8)	0.3
Academic year				
1st and 2nd year	288	78 (27.1)	1.2 (0.8–1.9)	0.2
3rd year (parts I and II)	220	50 (22.7)	1	
Type of family				
Joint	90	20 (22.2)	1	
Nuclear	418	108 (25.8)	1.2 (0.7–2)	0.47
Socioeconomic status (class)				
II–V (below upper)	110	24 (21.8)	1	
I (upper)	398	104 (26.1)	1.2 (0.7–2)	0.3
Presence of sibling				
Yes	270	67 (24.8)	1	
No	238	61 (25.6)	1.04 (0.6–1.5)	0.83
Enjoying stay at home during lockdown				
Yes/maybe	470	112 (23.8)	1	
No	38	16 (42.1)	2.3 (1.1–4.5)	0.01*
Usual place of abode before lockdown				
Home	217	49 (22.6)	1	
Hostel/PG	291	79 (27.1)	1.2 (0.8–1.9)	0.24
Time spent with family members (h)				
≥10	241	50 (20.7)	1	
<10	267	78 (29.2)	1.5 (1.1–2.1)	0.04*
Perceived change in mental health status during the lockdown				
Better/same	280	64 (22.9)	1	
Worsened	228	64 (28.1)	1.3 (0.8–1.9)	0.17

*P<0.05. COR=Crude odds ratio, CI=Confidence interval

Table 4: Multiple logistic regression: Factors associated with low resilience among medical students during COVID-19 pandemic, Kolkata, India, October 2020 (*n*=508)

Variables	Adj OR (95% CI)	P-value
Enjoyed the stay at home during lockdown		
Yes/maybe	1	
No	2.1 (1.1–4.4)	0.01*
Time spent with family members (h)		
≥10	1	
<10	1.4 (0.9–2.1)	0.09

*P<0.05. Adj OR=Adjusted odds ratio, CI=Confidence interval

larger populations and representatives from different socioeconomic levels are needed to verify the findings.

A study done in West Bengal found that the students residing in hostels were more resilient than their friends who lived at home.[17] In our study, however, we did not find any association between place of residence and resilience level. This study found that people who did not like staying at home during lockdown had higher odds of low resilience. The study, like the one done in Maharashtra,[15] revealed that the participants who spent more time with their parents had a higher level of resilience. It indicates the need for parents to spend quality time with their children, share their views, and have a good parental relationship. The present study and a Brazilian study of medical students reported no link between social-economic variables and resilience.[20]

To be resilient, students should spend their time fruitfully with family or engage in hobbies.[21] Previous studies of young schoolchildren have shown that healthy free time experiences promoted resilience; this presumes that this can be beneficial to medical students as well.[11] It is well established that resilience skills are necessary for students in medical school as they have to face new challenges and are at higher risk of stress when they come to manage patients.[22] At present, there is evidence only on the educational experiences in resilience, but no action has been taken in skill-based training for medical students.[23]

A validated resilience scale was applied in this study instead of the usual indirect assessments utilized with adolescents. As it was a cross-sectional study, causality could not be checked. A longitudinal study at multiple centers with a large sample is recommended for the future.

Conclusion

This study found that a quarter of the participants had low resilience. The participants who did not enjoy staying at home during the lockdown and spent less time with family members had higher odds of low resilience. It is imperative to include resilience training programs in the medical curriculum. Parents and the teaching community should encourage the students to keep appropriate balance between their academic work and personal and social lives.

Conflicts of interest
There are no conflicts of interest.

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