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# Stress and Resilience among Medical Students during Pandemic

*J. Shivananda Manohar, Rajesh Raman and Bindu Annigeri*

## Abstract

Medical students who are future physicians are faced with a lot of uncertainties during this pandemic. It includes both academic as well as clinical difficulties. Previous literature has revealed that the stress among medical students is higher when compared to their peers. The stress has even been more during the pandemic as their role during the pandemic is not clear. The purpose of medical training is to produce good doctors but not at the cost of the integrity of the individuals. 'Moral inquiry' is a term used to represent the ethical dilemma faced by doctors during life-death situations. Helplessness faced by students during emergencies leads to moral inquiry which in turn leads to more distress. Most of the Medical universities have responded to the pandemic rapidly, by switching to online mode in teaching. This unpatrolled response also has to lead to more stress among medical students. Resilience, by definition, is the capacity to bounce back productively during a stressful situation. Resilience can be viewed as a personality trait or as a fluid process that nurtures according to the situation and the individuals' reservoir. In this article, we have tried to emphasise the importance of Resilience.

**Keywords:** Medical students, Stress, Anxiety, Perceived stress, Medical training

## 1. Introduction

Medical training to become a doctor, a profession dedicated to the caring of patients can at times be detrimental to an individual's health. 'Stress' by definition is an unpleasant feeling or strain because of external demand [1]. Medical training itself can be stressful because of various reasons which include sleep deprivation, academic burden and exposure to life-death situations [2–5]. When compared with the general public, a medical student's satisfaction in life and mental well-being is compromised [6].

### 1.1 Research method

Here we are trying to present a narrative review. We have tried to focus on specific topics, rely on observations, recommendations, and conclusions. The terms we used for the search included stress, resilience, medical students, and pandemic. The original articles, systematic reviews, reviews and guidelines were included to prepare this article.

## **2. Academic and clinical learning during pandemic**

During the pandemic there have been unforeseen changes in not just the pattern of their learning, but in their entire routine. Also during such an emergency situation, an institution's response to the pandemic in terms of academics is rapid, with committed delivery of academic services causing minimal disruption in this regard. This unpatrolled reorganisation may also be distressing for many students [7]. It has also affected the timeline of the training program. They are also under stimulated, being confined to home, with less than adequate interaction with peers. Clinical teaching, which is the centre of medical education has been totally compromised during this pandemic. They have had to rely on technology for all their learning and communication. In this context, some may have had hassles with internet connections. In addition to this, the enhanced screen time results in eye strain and sleep disturbances. When enquired about their attitudes towards e-learning, it was perceived by a majority of them (75%) that they were wasting their study potential due to the pandemic and resultant closure of the college. About 50% agreed that the pandemic had affected their personal wellbeing, and the same number was worried about being exposed to COVID-19 during their clinical training. A little less than 50% of the respondents felt that COVID-19 had no impact on their career and future specialty training and that their faculty had provided guidance for students during the pandemic. There are mixed responses regarding the acceptability of e-learning. Most do not accept that e-learning could help clinical training [8]. Although, the didactic lectures can be easily transitioned to the online mode, the human interactions which take place through clinical exposure cannot be substituted for. The institutional response to the pandemic is rapid in most of the places. The unparalleled reorganisation which may include academic as well as clinical, itself may be a factor to induce stress in the medical students.

Some universities have postponed the examination while others have resorted to online modes of assessment. Rapid restructuring of examination means those who are preparing for examination should contend with the new test format within a short period of time. Many institutions have considered alternative approaches like dropping grade point system and mandating pass grade only. This approach may negate the time and effort put by the students to achieve higher grades which will have negative impact on their future. Rescheduling exams for the final year students and recruiting them for the patient care earlier than expected – also have led to uncertainties [9].

Exposing final year students as frontline is also a concern raised in many countries. While, some universities have recruited them for patient care, others have completely stopped them from interacting with patients in the background of them yet being amateur doctors [10]. An earlier study conducted in 2019 has revealed that nearly 60% of students were willing to volunteer during an infectious crisis and among them, 91% reported that altruism is the motivating factor for volunteering. The question is whether altruism is the only factor to deploy them as volunteers. Earlier studies have also revealed that though there is a willingness to help, only 4% reported their preparedness in terms of skill. Hence, it is worth noting that though, being motivated to work during such situations is commendable, it cannot replace the clinical efficacy of trained professionals [11].

### **2.1 Stress among medical students**

Though stressors like exposures to life-death situations and academic pressures are inevitable, it does not imply medical competence should be acquired at the cost of one's health. The medical profession is governed by the Hippocratic principle

of doing no harm. This also should be applied in training of future physicians so that they are better equipped to handle necessary stress and avoid unnecessary ones. This is especially important during the pandemic where uncertainty itself leads to stress, which in turn results in reduced empathy. The essence of medical education is not only to provide competence but also to preserve the integrity of the individual.

A systematic review of 29 studies of varying qualities showed a wide range of prevalence of 7.7–65.5% for anxiety among medical students in general, although the global prevalence rate of anxiety among medical students is 33.8% [12]. This is most prevalent among medical students from the Middle East and Asia. About one in three medical students globally have anxiety which is substantially higher than the general population [13].

The prevalence of depression (45.3%) and anxiety (48.1%) was found to be high during COVID-19, according to some researchers. More than half the trainees (57.3%) reported experiencing mood changes and difficulty in concentrating since the start of the COVID-19 crisis. One in four trainees felt inadequately supported, and about a sixth confessed to having considered a change in their choice of profession since the beginning of the pandemic in America. Temporary closure of the college and suspension of classes and education, impeding the quality of their education may have contributed to the anxiety [14].

A high level of anxiety and depression was found among medical students, of whom 31.3% exhibited a high likelihood of experiencing depressive symptoms, and 10.5% may have anxiety symptoms. A previous study performed among Libyan medical students during the early phase of the COVID-19 pandemic, found that 11% of medical students have anxiety symptoms, 21.6% have anxiety symptoms, and 22.7% have suicidal ideation.

Among Chinese college students, 0.9% suffered from severe anxiety and 2.7% experienced moderate anxiety symptoms during the COVID-19 outbreak. A meta-analysis of anxiety research studies on 69 medical students showed that 33.8% of them experienced anxiety symptoms when the results were pooled [15].

A recent meta-analysis done on eight studies on anxiety in medical students during COVID-19 showed an estimated prevalence of anxiety of 28%. But, this prevalence of anxiety of 28% is lower than the prevalence prior to COVID-19 for medical students globally, which was estimated as 33.8% in a meta-analysis. Most of the anxiety in medical students is related to academics and it is possible that online learning might have eased the burden of over-loaded academic programs. Also, keeping the medical students away from hospitals might have helped in reducing anxiety. Remaining at home with family might have also resulted in more bonding and the availability of support for medical students who might otherwise struggle to seek it. Being with parents and social support were found to be protective factors for anxiety [16].

The onset of the pandemic has brought about an anxiety of being infected and inability to handle a patient with COVID 19, inadequate clinical exposure and practical learning, compromised confidence in dealing with real patients as all learning is being virtual.

Some universities have prohibited medical students from any patient interaction, whereas others have engaged them for hospital-based roles as either students or early graduated frontline workers [17].

Medical students may pose unnecessary risk for patients, other clinicians and themselves because of an inadequate clinical experience. Being a part of a medical college alone does not substantiate these risks. However, encouraging medical students to participate in roles in which they have been prepared for may be more helpful.



The downside of all this is that, lockdown may prevent students from engaging in other activities such as exercise and interaction with peers, which are vital for the physical and emotional development of young people. Quarantine and lockdown may also limit access to psychiatric services, which could lead to an exacerbation of previously established anxiety disorders [16].

Resilience is relatively a new concept and there is not much research in educational field to make any pedagogical implication [18]. Resilience is one of the important skill which helps to adequately manage painful feelings, failure, and illness and these individuals have stable life satisfaction [19]. Prior studies have found that resilience acts like a buffer during negative life events, and also men are more resilient when compared to women. The concept of resilience has changed from it being a trait to being a dynamic process. Goodman et al. defined resilience as “the interactive and dynamic process of adapting, managing, and negotiating adversity”. Resilience can change over a period of time as a result of development and one’s interaction with the environment. Trauma affects people differently. Some people deal with it very soon, while others struggle with it for a longer time [20].

Self-efficacy and self-esteem are noteworthy factors in predicting psychological distress among medical students during the COVID-19 pandemic. It could also be influenced by factors like, female gender and suburban place of residence [21].

Resilience-It is not precisely clear how one goes about promoting resilience; this personality trait may depend on various factors, not all of which can be addressed by an institutional intervention. It is inversely related to stress, which implies that being more resilient leads to lower perception of stress. Medical students have higher levels of stress but, they are not more resilient than their peers matched by age and gender. Among medical students, there is a gender difference in perceived stress, resilience, and coping. Male medical students are known to have higher positive coping scores than general population peers and higher resilience, and lower perceived stress than female medical students. If resilience is considered predominantly as a personality construct, screening during entry to the medical school becomes vital. Emmy Werner conceptualised resilience as a fluid process, which is built through constant interaction with the stressors. Resilient students are more friendly, responsible and conscientious [22].

### **3. Pandemic preparedness**

It is clear from the available literature that the medical students are not aware of the implications of working during the pandemic. The pandemic requires students to socially distance and also to wear masks while treating a patient, which can be confusing and traumatic to someone who has decided to have a career as a doctor and treat patients. Very young and inadequately trained interns and final year medical students being posted for COVID 19 duty might inadvertently put them through premature stress and we might have a generation of emotionally unprepared doctors who are not mentally prepared to face the new wave of the pandemic. More than seventy percent who were in the final year medical program felt that they were unprepared. Inclusion of topics like pandemic preparedness and disaster management in the curriculum is the need of the hour. Training in pandemic preparedness not only includes academic competence but also on logistic challenges faced specifically during the pandemic. Training in logistic preparedness include leadership courses in disaster response, emergency preparedness exercises, and problem based learning [23].

Suitable preparedness also involves awareness about the tools and aids available for maintenance of student mental health. While working during the pandemic,

It is well documented that mental health sequel is equal to physical risk in the frontline workers. The difficult decisions made during the pandemic might directly oppose the moral and the ethical principles of the frontline workers. Challenges in providing the care include apportion of inadequate resources among equally deserving patients. It also includes aligning the duties among patients, family and friends. Providing care for severely unwell patients with the limited and constrained resources is also a challenge. 'Moral Inquiry' is a term used to conceptualise a psychological sequel resulting after witnessing events contrary to the personal beliefs. It includes the feelings of shame and guilt due to inability to have righted the wrong commitment. Medical students experiencing 'Moral Inquiry' due to unprepared exposure to trauma have already been documented [23].

To prevent the adverse mental events it is important to take measures to mitigate the distress. Medical colleges cannot continue to be stressful and lonely places. Newer initiatives and activities need to start happening for fostering an emotionally balanced generation of doctors who are capable of handling stress. Burnout, depression, lessons to take care of their own mental wellbeing and the importance of a healthy lifestyle should be advocated to all students from the beginning [23].

Rigorous programs that can identify and address mental wellbeing of students should start happening from the first year during induction programs. Mentoring is one method of fostering connectivity among the students apart from student support groups. Different year students can face different set of challenges and Stress in different years. Regular feedback and mental wellbeing assessments need to be done regularly for all students of different years so that tailor-made programs can be introduced in depending on the year in medical school for tackling different issues faced by the students. Studies which have attempted to train physician in stress management and resilience with a focus on attention and interpretations found that human attention inordinately and instinctively focuses more on threats and imperfectness. Assisting in cultivating attitudes of delaying judgement, gratitude, forgiveness, compassion, acceptance, and higher meaning: showed decreased burnout, increased mindfulness and quality of life. One of the most effective way is helping students in developing resilience. Resilient individuals believe they are in control of the environment and were able to distance themselves from dysfunctional situations. If we look at resilience as a dynamic process, it is very essential to include resilience-building strategies in the medical curriculum. These strategies include mental health screening, sensitive workplace infrastructure, peer support, focus on diet, nutrition, sleep, and lifestyle. Previous studies report resilience as an independent predictor of life satisfaction. Finally, medical education has to be redefined with more emphasis on building empathy and the inclusion of humanities as part of the curriculum [23].

The importance of physical activity cannot be more emphasised. In a study on physical activity during the confinement due to the pandemic, health promotion and reduction of stress were the most frequent reasons for being physically active in both genders. The men chose it for health promotion and women for reduction of stress. Women adapted their pattern of physical activity to the confinement better; they involved in doing strength exercise, HIIT and mind-body activities more than men did. In addition, more women than men enjoyed doing physical activity more during than before the pandemic. These results should be considered to promote physical activity whether strict restrictions of movement are imposed or not [24].

At the administrative level, mental wellbeing and emotional health should have stringent guidelines, adequate staff and a system for medical colleges to implement. This should be made mandatory for all medical colleges with periodic checks. All medical colleges should actively invest, with the required number of staff in the departments of Psychiatry and Psychology for the mental wellbeing of medical

students and bring out successful new generations of resilient doctors. Half-hearted cost cutting attempts at improving resilience of the new generation of doctors will not succeed after the COVID pandemic. Periodic interactive programs on mental and emotional wellbeing should be regularly organised. Training of medical students as gatekeepers for prevention of suicide can be helpful. Reverse mentoring and a platform for students to voice their grievances should be encouraged and started in all colleges. Stringent guidelines against substance use on the campus and periodic awareness programs need to be in place. These guidelines should be brought out by the national bodies that bring out recommendations for medical education, like National Medical Commission in India.

#### **4. Conclusion**

Since we do not have robust data as to what interventions work in helping in aiding Resilience we need to start using interventions in different age groups and studying them instead of waiting to find a meta-analysis which will give us a magic pill. We need to prepare to cushion the psychological well-being of a few generations of children that have had no adequate social contact because of lack of school. They were witnesses to prolonged lockdowns and deprived of play in natural areas. The most common reason for anxiety in a child may be a parent and this will be crucial in the assessment of the child and there needs to be interventions done for the parent, it might require a multidisciplinary approach [25].

Mental health specialists in most countries are lacking in numbers so how governments will mobilise balance advocacy activism and implement basic needs for mental health of a population will be an uphill task [26–30].

Resilience needs to be addressed keeping in mind culture ethnicity and religion in different countries as there may be different factors that may aid in Resilience in different cultures.

All ethical workplaces and universities dealing with students should have regular periodical assessments of students and the workforce for psychological well-being and burnout. They should take the guidance of local mental health experts to do this in a methodical way. National bodies of Psychiatrists and Psychologists should come out with timely recommendations and guidelines for such evaluations [31].

Three levels of response are required to address the ever-increasing stress among medical students. At the institutional level, it is the responsibility of the administrators to help promptly, appropriately, and sensitively. The institutions should also make sure that training is not stressful and should include steps to help students look after themselves. At the individual level, students should learn to look after themselves and their well-being. Designing a curriculum that includes looking after oneself during stress is very crucial. The third level of regulation includes making intervention available, accessible for the needy.

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