Research article

Stressors and stress management strategies among young doctors amidst COVID-19 pandemic- Cross-sectional study

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ABSTRACT

Introduction and Aim: The COVID-19 pandemic has caused a huge economic burden and impacted physical and mental health of the people. The young medical graduates are facing a lot of disappointments with regard to career, higher studies, personal life etc. The current research aims to assess the various stressors and their coping strategies among the young medical graduates during the COVID-19 pandemic.

Materials and Methods: The cross-sectional study was conducted in the Department of General Medicine at a tertiary care teaching hospital in South India. Undergraduate medical students of 228 in number of both genders who completed their residency training just before and during the COVID-19 pandemic were enrolled in the study. The data was collected through a preformed questionnaire. Ethics clearance was obtained from the Institutional Ethics Committee. Informed consent was obtained. Statistical analysis was done by SPSS software version 18.0. P value < 0.05 was considered statically significant.

Results: The mean scores obtained in PSS-10 were found to be higher among males than females. Around 79.4% showed moderate stress while 20.6% showed high stress (P=0.001). Males showed more stress compared to females in general as well as academic stressors. Male doctors and female doctors had differing stress coping skills.

Conclusion: The study highlighted the vulnerable state of mind of the young medical doctors. The best way to overcome stress is by providing adequate resources, training to cope stress and ambient conditions for study and work, social support and relaxation techniques at both individual and organisational levels to help them to achieve a reasonable work-family interface.

Keywords: Stress assessment; doctors' stress; perceived stress among doctors.

INTRODUCTION

Stress is the reaction of the body to stimuli outside the body. Stress can cause emotional and physical disabilities. Stress up to a certain level is considered to be productive and is called eustress. When stress gets overwhelmed, the individual faces physical and mental disturbances which manifests in the form of health issues in the individual. Everyone responds to a stress differently. The whole world is facing a lot of emotional, economic and mental difficulties in the COVID-19 pandemic. This has affected the health sector considerably. The dreams of the young medical graduates who had various dreams of achieving great heights in professional and personal life got shattered due to the long-drawn uncertain situation. Few studies have been done across the globe to assess the factors involved in causing stress as well as the stress coping mechanisms. The Centre for Disease Control and Prevention (CDC) of the United States has reported that the incidence of mental illnesses is on the rise during the COVID-19 pandemic (1).

The COVID-19 pandemic has impacted every walk of life globally. It has caused huge physical and mental disabilities in addition to huge economic burden. Many families have lost the breadwinner of the families or have caused a lot of morbidity. This has impacted in the form of loss of jobs; social isolation which has prevented them from seeking moral support from friends and neighbours as well as taking help from other health care professionals. Since the pandemic is long drawn with uncertain duration, people are fraught with anxiety, stress, fear of tomorrow etc. Individuals of all age groups, economic status, and literacy status have been equally affected. There has been a steady increase in the number of people seeking psychological support. The young medical graduates who had planned their future for higher studies, career, or personal responsibilities have been left with confusion, stress and disappointments

(2). This study had been undertaken to analyse the various stressors and their different coping mechanisms adopted by young medical graduates.

MATERIALS AND METHODS

The cross-sectional study was conducted in the Department of General Medicine in a teaching hospital in Chennai, India. Undergraduate medical students of 228 in number of both genders who completed their residency training just before and during the COVID-19 pandemic were enrolled in the study.

Questionnaires used

At the start of the questionnaire, an introduction was given on the following aspects: objectives of the research, voluntary participation and maintenance of anonymity of the responses obtained during analysis as well as consent for presentation or publication of the obtained data. The responses from the participants were collected through administration of closed-ended questionnaires, which were either a hard copy (paper-based) or as a soft copy (google form) with respect to the accessibility of the participants. The questionnaire was derived based on previously published work. The questionnaire consisted of four parts.

Part one was related to perceived stress, for which the Perceived Stress Scale was adopted. The Perceived Scale Stress (PSS) is a validated and one of the most widely used psychological stress measurement instruments, where the responses grade the stress and reactions to stressful situations in ten items.

Part two focussed on the general stressors consisting of eleven items such as health, financial situations, relations with family and friends.

Part three focussed on academic stressors consisting of nineteen items such as post-graduate examinations, preparation, job training or training for research and development.

Part four was related to the common stress coping mechanisms and consisted of sixteen items such as getting emotional support from family/ friends, seeking the help from health care professionals/ senior colleagues, distracting themselves by watching television, meeting friends/ relatives, indulging in social habits/ medications.

The participants were instructed to respond from 0- no stress to 4- high stress on a five-point Likert scale.

Ethics clearance

This study received ethics clearance from the Institutional Ethics Committee before the start of the study. The participants who participated willingly alone were included. They were also given the opportunity of deciding the number of questions to be attempted.

Statistical analysis

All the responses obtained for each question were recorded as per the grade. The responses were coded and used for data analysis. Mainly descriptive statistics were used. Categorical variables were summarized as the frequency and percentages. Chi-square and Fisher's exact tests were used to compare the categorical variables. Statistical analysis was done by SPSS software version 18.0. P value less than 0.05 was considered statically significant.

Perceived stress scale

For each question choose from the following alternatives:

0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

l. In the last month, how often have you been upset because of something that happened unexpectedly? _____

2. In the last month, how often have you felt that you were unable to control the important things in your life? _____

3. In the last month, how often have you felt nervous and stressed? _____

4. In the last month, how often have you felt confident about your ability to handle your personal problems? _____

5. In the last month, how often have you felt that things were going your way? _____

6. In the last month, how often have you found that you could not cope with all the things that you had to do? _____

7. In the last month, how often have you been able to control irritations in your life? _____

8. In the last month, how often have you felt that you were on top of things? _____

9. In the last month, how often have you been angered because of things that happened that were outside of your control? _____

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? _____

Figuring the PSS Score

One can determine the PSS score by following these directions:

• First, reverse the scores for questions 4, 5, 7, and 8. On these 4 questions, change the scores like this: 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0.

• Now add up the scores for each item to get a total. The total score is _____.

• Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress.

- ► Scores ranging from 0-13 would be considered low stress.
- ► Scores ranging from 14-26 would be considered moderate stress.
- ► Scores ranging from 27-40 would be considered high perceived stress.

RESULTS

The number of participants enrolled in the study were 228; out of which 156 and 72 were male and female doctors respectively. All the study participants had completed their MBBS graduation from a renowned medical college in South India just prior to or within one year before the onset of the COVID-19 pandemic and were yet to attain stability in their life in terms of pursuing higher education, employment or personal commitments. The participants had a mean age of 24 years. The response rate was better with the male doctors compared to the female doctors which could be due to more participation of male doctors compared to female doctors.

Table 1: Distribution of perceived stress scale responses of the participants

Variable	Male	Female	*P* value
PSS score	19.43±5.83	24.60±3.03	0.001**
Moderate stress (>14)	67(30)	109(48.8)	0.001**
Severe stress (>26)	0	47(21.07)	

** highly significant *P* value

The ten item -Perceived Stress Scale (PSS-10) was used to assess the stress of the participants. The participants are those undergraduate medical students of both genders who have completed internship just before or during COVID-19 infection. Most of the study participants (79.4%) showed evidence of moderate stress levels while 20.6% showed a high perceived stress scale with statistically significant higher values among the males (P=0.001).

Table 2: Distribution of general stressors among the participants

S. No	General Stressors	Males		Females		P value
		No	%	No	%	
1	Financial situations	68	29.82	44	19.3	0.04*
2	Parental expectations	80	35.08	56	24.56	0.05
3	Employment opportunities	48	21.05	28	12.28	0.01*
4	Choice of career	100	43.86	60	26.31	0.03*
5	Commute to university	4	1.75	20	8.77	0.05
6	Health (personal)	40	17.54	60	26.31	0.09
7	Health (family)	60	26.31	76	33.33	0.24
8	Health (friends)	20	8.77	8	3.51	0.06
9	Relationships (family)	44	19.3	68	29.82	0.02*
10	Relationships (friends)	60	17.54	36	15.79	0.05
11	Peer pressure	48	21.05	28	12.28	0.02*

*** Significant *P* value**

The responses of male doctors to general stressors were increased compared to female participants and showed statistically significant responses in many items.

Table 3: Distribution of academic stressors among the participants

S. No	Academic Stressors	Males		Females		P value
		No	%	No	%	
1	Multiple written examinations	44	19.3	32	14.04	0.09
2	Clinical acumen	32	14.04	20	8.77	0.07
3	Preparatory courses	76	33.33	48	21.05	0.02*
4	Criterion referenced assessments	12	5.26	8	3.51	0.21
5	Individual assessments	36	15.79	28	12.28	0.04*
6	Group assessments	20	8.77	12	5.26	0.19
7	Relationship building (peers)	52	22.8	40	17.54	0.08
8	Relationship building (senior colleagues)	40	17.54	24	10.53	0.05
9	Community hospital placements	24	10.53	20	8.77	0.56
10	Corporate hospital placements	16	7.02	12	5.26	0.91
11	Practical knowledge	52	22.8	44	19.3	0.39
12	Oral presentations	52	22.8	40	17.54	0.05
13	Job interviews	44	19.3	28	12.28	0.09
14	Workshops training	20	8.77	8	3.51	0.03*
15	Hands skills	28	12.28	20	8.77	0.54
16	Communication skills	48	21.05	40	17.54	0.89
17	Research knowledge	48	21.05	16	7.02	0.04*
18	Scientific materials	16	7.02	12	5.26	0.55
19	Volume of material to learn	84	36.84	56	24.56	0.04*

*** Significant *P* value**

Among the items under the academic stressors, males showed higher stressful responses in many items than females.

Table 4: Common stress coping mechanisms among the participants

S. No	Common stress coping mechanisms	Males		Females		P value
		No	%	No	%	
1	Get emotional support (family)	44	19.3	73	32.02	0.04*
2	Get emotional support (friends)	56	24.56	40	17.54	0.05
3	Talk to health care professionals	16	7.02	8	3.51	0.03*
4	Talk to trained counsellors or senior colleagues	16	7.02	8	3.51	0.03*
5	Self-distraction (watching television)	52	22.8	88	38.6	0.02*
6	Self-distraction (shopping)	24	10.53	48	21.05	0.03*
7	Denial of stress	24	10.53	28	12.28	0.88
8	Plan strategy to overcome	68	29.82	28	12.28	0.001**
9	Bring out something positive from the situation	60	26.32	36	15.78	0.02*
10	Indulging in exercise or sports	68	29.82	32	14.04	0.04*
11	Practice relaxation techniques or meditation	28	12.28	28	12.28	1
12	Smoke cigarettes	4	1.75	0	0	-
13	Consume alcohol in any form	8	3.51	0	0	-
14	Consume comfort foods or junk	24	10.53	56	24.56	0.03*
15	Take over the counter pills	12	5.26	0	0	-
16	Take prescribed medications	8	3.51	4	1.75	0.55

***: significant *P* value; **: highly significant *P* value**

The coping mechanisms were different for males and females which were statistically significant.

DISCUSSION

The word 'stress' was first coined by Seyle in 1936 to define a non-specific body response to any need for change (3). Stress is a harmful response both physical or emotional, occurring due to an imbalance between job requirements and the employee's capabilities, resources or needs (8). Substantial amount of stress is experienced by students too in this regard, which has shattered their dream and has affected their physical and mental health.

The common stressors include academic related clinical environment or the examinations and personal issues such as their relationships. Medical profession is highly demanding both physically and emotionally and doctors are at greater risk of experiencing professional untoward incidents compared to the general population. Doctors of the modern world experience a complex environment and display various adaptive responses. Few individuals experience a stimulating and exciting work environment while individuals who find coping up with heavy workloads and other demands feel burnt out and exhausted. Moreover, medical graduates have to be life-long learners to meet the changing demands of sciences and society (4). This results in insomnia, depression, anxiety, over- or under-weight, inability to concentrate, inappropriate relationships with peers, family members and friends. In the long run these factors lead to early onset of hypertension, diabetes mellitus, metabolic syndrome etc.,

Sleep deprivation during medical training leads to cognitive impairment and emotional fragility among physicians. Compartmentalizing feelings becomes a regular habit to most of the physicians taking more and more work as part of their medical school and residency training, eventually picking up 'workaholic standards and prolonged work hours and self-neglect. These factors allow the graduates to carry on their life in their own way as well as develop an illusion of self-sustainability and stability that they forget to get help from experts (5). The improper working conditions, prolonged duration of work hours, frequent night calls, poor leisure time, job monotony, uncertainty of academic career, irksome postgraduate entrance examinations, family and peer pressures, uncertainty of stability in personal and professional life, etc. can be some of the common stressors for young doctors. Increased incidence of judgement errors, higher psychological morbidity, depression, increased suicidal tendencies have been found among doctors than that of the general population (6).

All individuals of the society across the world including young medical graduates are going through difficult times during this COVID-19 era with many unanswered questions regarding their future. Substantial work has been carried out in this area involving students of medical, dental, nursing and pharmacy fields (7-9). The current research focuses on the perceived stress among the young medical graduates who are yet to pursue their post -graduation or finalising their career in terms of job planning, higher studies abroad or considering research and development. This work should help in determining the level of stress among the young doctors so that certain achievable coping mechanisms could be recommended in the medical graduate curriculum to enhance their professional and personal life.

In the present study, 228 young doctors participated with the majority of them being males in the age group

of 22-26 years. Perceived stress scales showed mean scores of 22.24±4.53. When classified as per gender, males had 24.6±3.03 and females had 9.43±5.83 as scores with significant statistical difference (P=0.001). Most of the study participants (79.4%) showed evidence of moderate stress levels while one fifth of the study group (20.6%) showed high perceived stress with statistically significant higher values among the males (P=0.001) (Table 1). Job stresses lead to poor work performance and have a negative impact on individuals' health. Stress is inevitable and inherent in the medical career leading to poor quality of life, hampering career longevity and leading to personal issues (10,11). In the study by Sathiya *et al.,* around 39.5% of healthcare professionals were found to be afflicted by mental stress. Doctors showed high mean PSS scores of 18.35 while nurses showed slightly lesser PSS scores of 17.16. The precipitating causes for the stress include insufficient number of employees, infrastructure facilities, inadequate sleep and rest (12).

According to Chatterjee *et al.,* in a cross-sectional study done in eastern India, the participants were predominantly male in the age group of 25 to 35 years (3). Various nation-wide surveys indicate that women showed higher stress levels compared to men which was more prominent at younger age, having poor literacy and socio-economic status. With regard to career, younger unemployed persons exhibited higher stress compared older individuals who have completed all their personal responsibilities (13). As per Kunwar *et al.,* with the changing requirements to meet the challenges of the society, medical students suffer in all the aspects such as academic and personal front. Among 538 students, 98.7% of the participants were 25 years of age, while 1.3% were of more than 25 years of age, females and males were 52% and 48% respectively. The study showed that anxiety, depression and stress was present in 41.1%, 29.9% and 27% respectively. Thus, it has been inferred that the medical students should be supported and encouraged throughout the undergraduate program and after that also (14).

In the present study, males showed more stress compared to females in the following items of general stressors: financial situations with P value of 0.04, parental expectations with P value of 0.05, employment opportunities with P value of 0.01, choice of career with P value of 0.03, relationships with friends with P value of 0.05 and peer pressure. But females had more stress compared to males in commuting to university (P=0.05), and relationships with families (P=0.02). In items health of family or friends the females are affected more than males; but statistically significant difference was not obtained due to lesser number of female participants. Males had higher stressors than the females (Table 2). Sahasrabuddhe *et al.,* has done study on first-year postgraduates. The new entrant postgraduates are forced to complete the entire task of meeting the health care needs of the patients, supported by taking help from seniors. The complex academic, situational and professional difficulties predispose them to physical and mental stress. The authors found that stress was not associated with gender or marital status. When the postgraduates have time-bound duty hours, canteen facilities, night duty rooms with adequate infrastructure and social support, they could benefit in the form of improvement of physical and mental wellbeing (15). As per Lorga *et al.,* depression is more prevalent in female students compared to male. Stress is common in individuals who scored higher course credits compared to people with lesser course credits. Depressed students also experienced anxiety a few times and they resorted to ingestion of alcohol, coffee, sweets or smoke cigarettes. Hence identification of stressors is mandatory and timely intervention with coping mechanisms is essential to decrease the degree of stress (16).

In the present study, among the items under the academic stressors, males showed higher stressful responses than females in certain items of academic stressors such as preparatory courses (P=0.02), individual assessments (P=0.04), relationship building with senior colleagues (P=0.05), attending workshops (P=0.03), and huge academic overload (P=0.04) (Table 3). Common stressors include employment and finance related issues. When it comes to academics the two most stressors were the quantity of the course material to be learnt and attempting the examination at the end of the course (17). According to Shriram *et al.,* first year medical students reported a higher level of PSS scores. But there was no significant difference with regard to gender, place of stay, their background etc (18). A study by Khoo *et al.,* has shown that there are many factors which cause emotional drain in health care professionals and includes, difficulty in handling patients with mental health problems, absence of cordial relationship with colleagues, no recognition from superiors, remote chances of promotions/ incentives, time management issues, setting unrealistic goals and dealing difficult parents (19).

Studies show that financial worries aggravate the academic stress especially in students from under privileged society. The worries related to financial aspects affected their studies and led to more debts and lower academic performance. Hence, financial worries are one of the causes of mental health disorders (20). Job stress is related to the amount and complexity of the work, management structure and working environment (21). Doctors and nurses experience stress when the number of inpatients are high, uncomfortable work environment, uneasy accommodation and lack of leisure time; irrespective of age and gender (22).

In addition to academic and clinical work, doctors also face problems with organization structure and hierarchy, and the freedom of health care delivery. The doctors are threatened by physical, psychological, social, and ergonomic factors. All these factors diminish the actual potential of a healthcare professional. Handling tough patients and their attenders is a huge task. There is rapid advancement in the information technology related to healthcare. This has indirectly helped the public to acquire substandard information which becomes a challenge to any health care professional in the team. The health care community has been neglected with respect to salary and other benefits which causes a sort of helplessness and depression (23). The public are aware of the importance of healthcare and the various avenues available to seek appropriate treatment. When physicians are burdened with many issues which are being unnoticed by the society at large, there could be a dip in the quantity and quality of service offered. Government should frame policies which could identify the stressors in the physician and give due attention regarding the various stress coping strategies available (23).

According to Hanna *et al.,* various management options adapted to handle stress include getting support from other members of the society or following their own strategies to handle stress. Female students readily seek psychological support from other members of the society compared to male students. The male students delayed non pharmacological approach probably because they might think they are inefficient, cause social stigma etc. They seek stress handling techniques such as procuring pharmacological pills over the counter, get addicted to smoking tobacco or drinking alcohol. These measures bring temporary benefits without treating the cause for the stress (17, 24).

In the present study, male and female doctors had differing stress coping skills. Males showed better coping mechanisms such as getting emotional support from family and friends (P=0.04), talk to health care professionals, trained counsellors or senior colleagues (P=0.03), plan strategies to overcome stress (P=0.001), bring out new positive effects from the situation (P=0.02), and indulge in exercises or sports (P=0.04). Female doctors resort to self-distraction in the form of watching television (P=0.02), distraction by shopping (P=0.03) or consume comfort or junk foods (P=0.03) to handle stress (Table 4).

It is imperative to foster effective team-working skills as the medical graduates can be team members, communicators or healthcare professionals after having graduated. Yet another probable explanation for the striking difference noted between the male and female doctors for the academic stressors could be the fact that most of the female doctors have to go-through marriage and take up family responsibilities earlier than their male counterparts in our society. Whereas, males try to stabilise in their careers – pursuing higher education and gaining employment prior to getting involved in a wedlock. In the present study, 5.2% of the study population (all males) claimed to have consumed alcohol followed by smoking as a stress buster. Similarly, 5.2% of the study group took over the counter pills and 3.5% participants took prescribed medications. These observations were potentially reassuring of the fact that the participants have decided themselves for getting support from friends and family members as well as various non-pharmacological treatment options compared to pharmacological interventions for alleviating the stress – which could have potential side effects.

Limitations

The sample size was small, so the generalizability of the results is not possible. The data collected in the study was self-reported by the participants which hold the risk of reporting bias. Nevertheless, the geographic distribution of the sample was wide-spread and the response rate was good which holds the credibility of the study.

CONCLUSION

The study highlights the vulnerable state of mind of the young medical doctors. The best way to deal with the stress is to eliminate it at the origin by recognising the problems early and dealing with them positively and proactively. The undergraduate medical students should be sensitized at the entry level and during the entire program regarding the ways to identify stressors and the mechanisms to handle them. This can be achieved by providing adequate resources, training to cope stress and ambient conditions for study and work. They should adapt themselves to achieve a reasonable work-family interface. In addition, social support and relaxation techniques do play a significant role in the well-being of the doctors. Thus, an integrated or holistic approach will help to manage stress both at individual and organisational levels.

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CONFLICT OF INTEREST

Authors declare that there were no financial or personal conflicts during conduct of the study as well as during publication of results.

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