

## A cross-sectional survey of stressors and coping strategies among the first-year medical students in Kerala

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### Abstract

**Introduction:** Compared to the general population medical students have to face more stress, which, if not handled properly, may negatively affect the career of future doctors and community health drastically. To counter this stress, they need appropriate coping strategies. Studies on stress and coping strategies among medical students in India are very few to date and show wide demographic variations in their results.

**Materials and Methods:** We carried out a cross-sectional survey to find out stressors using a validated Medical Students' Stressor Questionnaire (MSSQ) and we used Brief COPE scale to assess the coping strategies adopted by the first-year medical students in Kerala. Descriptive statistics was used to compile and summarize data.

**Result:** Most common stress inducer was found to be 'academic related stressor' domain, in which we observed that 88% students had moderate to high level of stress. In this domain, more common stressors were 'examinations' and 'large amount of content to be learnt'. 'Planning' was ranked first with mean score (SD) of 5.72 (1.42), while 'substance use', 2.07 (0.45) was least adopted coping method by them.

**Conclusion:** Academic stressors were found to be the most common stressor domain in first-year medical students. Timely reduction of such stress using various measures is expected from the educators. Maximum students employed constructive coping strategy i.e. 'planning' but maladaptive 'self-distraction' coping was also seen in substantial number of students who can be helped by guiding them for proper coping methods.

**Keywords:** Brief COPE, Coping strategy, MSSQ, Stressor.

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### Introduction

The World Health Organization (WHO) has estimated that stress-related disorders will be one of the leading causes of disability by the year 2020.<sup>1</sup> Medical education is one of the highly stressful curricula, wherein the medical students face different types of stressors. The sources of stressors can be academic, economical, personal, social, parental pressure, drive and desire etc. The stress levels were shown to vary in different studies carried out worldwide.<sup>2</sup> Studies on stress among Indian medical students report wide variations in the prevalence of stress (37.3–97%). This wide variation in prevalence may be due to demographic differences in the subjects or different investigating strategies.<sup>3</sup> Supe (1998) identified academic, physical, emotional, and social factors as the principal stressors in a cohort of medical students in Maharashtra, India.<sup>4</sup> Such stress has been suggested to adversely affect the student's health, professional life, and ultimately the health of the society.

Students need effective coping strategies in such a highly competitive educational field. Coping with these stressors needs motivation, guidance, individual and social support. Coping is

considered as a stabilizing factor which support an individual to effectively face the stressful situation.<sup>2</sup> Various coping methods used by students to reduce level of stress include effective time management, social support, spiritual activities, and involvement in entertaining activities. Some of the coping strategies are emotion focused that involve taking responsibility, positive reframing, venting and self-blame. Identifying and modifying these strategies at the entry level of medical education will prove crucial for the psychosocial wellbeing of the future doctors.

Studies on stress and coping strategies among medical students in India are very few till date. The present study is an attempt to explore these stressors and coping strategies employed by medical students at the very beginning of their medical education in a medical college in Kerala, India.

### Materials and Methods

A descriptive, cross-sectional survey was conducted in a private medical college in Kerala, India. Prior ethical permission was obtained from the Institutional Ethical Committee. The study

was carried out in eighty-nine undergraduate students of both genders, admitted in first year MBBS course. Before enrolment in the study, informed written consent was obtained from all the participants who were willing to take part in the survey. All the subjects were assured of anonymity of the data collected in the questionnaires. Subjects having history of any major illness or any history of recent incidence affecting the mental health were excluded from the study.

The nature of the study was explained to all participants before handing over the questionnaires to them in a physiology lecture class. Besides the questionnaires, basic data such as age and gender were recorded. Two questionnaires were given in printed form to each of the respondents.

The MSSQ (Medical Students' Stressor Questionnaire) which is a validated rating instrument developed in a medical school in Malaysia and also validated in Indian set up by Gupta et al (2015) to measure stress and its sources within the students.<sup>5,6</sup> It consists of 40 items addressing six domains of stressors as mentioned below:

1. Academic-related stressors, which include 'examination system', 'getting poor marks', 'large amount of content to be learnt', 'difficulty understanding the content', 'lack of time to do revision', 'learning context full of competition', and 'having difficulty to answer questions asked by teachers'.
2. Intrapersonal and interpersonal-related stressors include 'conflicts with other students', 'verbal or physical abuse by teachers', 'conflict with personnel'.
3. Teaching and learning-related stressors involve 'appropriateness of tasks given by teachers to students', 'teachers' competency to teach', 'feedback and recognition given by teachers'.
4. Social-related stressors, with items like 'Facing illness or death of patients' and 'discussing the problems of patients'. 'Not getting leisure time with family and friend'.
5. Drive and desire related stressors, like 'Unwillingness to study medicine', 'Parental wish to study medicine by you', 'wrongly choosing the course'.
6. Group activities related stressors including 'Participation in any group discussion and interaction'.

Participants had to respond to each item along a five point Likert scale (0-4) as per the increasing level of severity of stress. All items in the six stressor domains measure the overall stress of the medical student. Mean item scores for each

domain was calculated and ranked. Also, the percentage of students facing stress in each domain was measured according to mild (0–1), moderate (1.01–2), high (2.01–3), and severe (3.01–4) degree of stress. Mild stress means no stress or insignificant stress. Moderate stress signifies reasonable stress. Severe and high indicate reasonably significant emotional disturbances with and without interference in daily activities respectively.

Coping strategies were assessed using the "Brief COPE scale", which is a validated and abbreviated version of the COPE Inventory.<sup>7</sup> It consists of 14 scales/categories each having 2 items, thus total 28 items. These items ask what you've been doing to cope with each one. The scales are: 'self-distraction', 'active coping', 'denial', 'substance use', 'use of emotional support', 'use of instrumental support', 'behavioural disengagement', 'venting', 'positive reframing', 'planning', 'humour', 'acceptance', 'religion' and 'self-blame'. The answer choices depend upon how frequently each of these items are applied by the student, that is, 'I haven't been doing this at all', 'I've been doing this a little bit', 'I've been doing this a medium amount', 'I've been doing this a lot' which are scored from 1 to 4, respectively.

Descriptive statistics was used to compile and summarize data. The ranks of stressors and coping strategies based on the mean (SD) score as rated by the medical students were calculated using Microsoft Excel 2016. Also, distribution of subjects according to the severity of stress in each stressor domain was done.

## Result

Out of 100 students enrolled in first year MBBS, 94 were present for the scheduled lecture class on the day of this survey. A total of 89 students filled the questionnaires completely, including 28 male and 61 female students. The median age of the participants was 20 years.

None of the participants was found to have severe stress. As shown in table 1, academic related stressor ranked first among the other stressor domains, followed by group activities related stressor and social related stressor with the mean scores of 2.11, 1.57 and 1.38 respectively. Drive & desire related stressor domain had the least mean score of 0.69.

In academic related stressor domain, we observed that 88% students had moderate to high stress and 66% students had high degree of stress. Group Activities Related Stressor domain included 27% participants in high degree stress category as shown in table 2.

**Table 1: Stressor domains ranked by their mean scores**

Stressor domain	Mean (SD)
Academic Related Stressor	2.11 (0.72)
Group Activities Related Stressor	1.57 (0.82)
Social Related Stressor	1.38 (0.70)
Interpersonal & Intrapersonal Related Stressor	1.35 (0.82)
Teaching and Learning Related Stressor	1.31 (0.74)
Drive & Desire Related Stressor	0.69 (0.71)

**Table 2: Distribution of subjects according to the severity of stress in each stressor domain (N=89)**

Stressor domain	Mild stress N (%)	Moderate stress N (%)	High stress N (%)
Academic Related Stressor	8 (8.99)	22 (24.72)	59 (66.29)
Interpersonal & Intrapersonal Related Stressor	36 (40.45)	34 (38.20)	19 (21.35)
Teaching and Learning Related Stressor	37 (41.57)	39 (43.82)	13 (14.61)
Social Related Stressor	32 (35.96)	41 (46.07)	16 (17.98)
Drive & Desire Related Stressor	68 (76.40)	17 (19.10)	4 (4.49)
Group Activities Related Stressor	27 (30.34)	38 (42.70)	24 (26.97)

Planning was the most utilized coping method by the participating students, while substance use was least adopted by them in case of stressful situation (Table 3).

**Table 3: Coping strategies ranked by their mean scores**

Coping strategies	Mean (SD)
Planning	5.72 (1.42)
Self-distraction	5.60 (1.78)
Religion	5.51 (2.05)
Positive reframing	5.44 (1.74)
Acceptance	5.39 (1.60)
Active coping	5.38 (1.51)
Self-blame	5.21 (1.89)
Use of instrumental support	4.93 (1.83)
Use of emotional support	4.72 (1.69)
Venting	4.63 (1.55)
Humor	4.18 (2.04)
Behavioral disengagement	3.66 (1.51)
Denial	3.46 (1.60)
Substance use	2.07 (0.45)

## Discussion

Medical education and career in India are very stressful and many researchers have concluded that, compared to general population medical students are more subjected to stress. Such stress has been making them prone to suicide, depression and drug abuse. Efficient coping strategies can buffer the impact of stressful situations on the mental and physical wellbeing of medical students and finally improve patients' lives and community health.<sup>8</sup>

Plenty of literature is available proving the presence of stress among medical students in different countries, but few studies have been done to reveal different stressors and the coping

strategies, particularly in India. Considering this, an assessment was done in the present study using MSSQ to find out stressors and Brief COPE inventory was used to find out coping strategies among medical students in a medical college in Kerala.

The present survey revealed that maximum students were getting stressed due to the academic stressors, out of those, 66% had high stress. Out of the different factors included in academic domain of stressors, it was observed from their responses that, students were getting stressed more due to 'examinations', 'large amount of

content to be learnt', 'heavy workload', and 'learning context- full of competition'.

'Group activities related stressor was the next common stress inducing domain, wherein, 27% students had high stress. In this domain, students were having more stress in 'participation in class presentation' and 'feeling of incompetence'. Drive and desire related high stress was observed merely in 3% of the participants.

Similar result revealing academic stressors as the source of maximum stress was obtained by Gupta et al (2015) in India.<sup>6</sup> Saxena et al (2014) carried out a study in Dehradun, India and found that moderate to high academic stress was present among 79% of students.<sup>9</sup> Research by Yusoff et al (2011) in Malaysia and Sarkar et al (2015) in Chhattisgarh also found that academic related issues were the most common forms of stressors among the medical students.<sup>8,10</sup>

Contrary to the present study, Samira et al (2015) in Riyadh concluded that, high stress causing stressors were worrying about future, trouble with friends, room-mate conflict, hearing bad news, and low self-esteem.<sup>2</sup>

Regarding the coping strategies adopted by the students, we found maximum students adopted adaptive (constructive) coping strategies like 'planning' with mean score (SD) of 5.72 (1.42) more than maladaptive or avoidant strategies such as 'self-distraction', 5.60 (1.78). 'Substance use' was the least adopted coping method.

In a similar study by Shakthivel et al (2017) in Tamil Nadu, India, it was revealed that the most commonly employed coping mechanism was 'religion' followed by 'self-distraction'.<sup>11</sup> Results obtained by Samira et al (2015) showed 'self-blame' and 'self-criticism' as the common reactions to stress. Religious coping was frequently adopted as a coping measure, while use of alcohol or other drugs was found to be rare.<sup>2</sup> Sreeramareddy et al (2007) found positive reframing, planning as the coping strategies commonly used by students in their institution in Nepal.<sup>12</sup>

Such differences in the finding major stressors and coping mechanisms in different studies may be attributed to geographical, cultural, and social environment of the students and different rating scales used. Thus, it is crucial for the medical educators to assess the stressors and coping strategies of their students at the beginning of medical education and mentor them to use desirable coping strategies to reduce stress, which will ultimately help the society to have better doctors and better health.

Further research encompassing students from different semesters, correlation of stressors and

coping strategies with cultural and demographical parameters is suggested to get in to the deeper insights of these stressors.

## Conclusion

The first-year medical students in the present study setup showed to suffer maximally from the academic related stressors, particularly stress due to examinations and large amount of content to be learnt. This stress can be alleviated by mentoring and motivating them to improve their studying styles, plan the study time, maintain a healthy lifestyle, give plenty of time to revise and apply anxiety reduction techniques.

Maximum students employed constructive coping strategy i.e. 'planning' but maladaptive 'self-distraction' coping was also seen in substantial number of students. Such students can be helped by mentoring, establishing wellness clinics and organizing personality development programmes within the campus itself.

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## Conflict of interest

Authors declare that there is no conflict of interest about publishing this research article.

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