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Perceived Stress, Sources of Stress and Coping Strategies among Undergraduate Students at a Medical College in Assam

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Abstract- *Medical education is always considered as challenging and demanding. Unfortunately, the fact that doctors too can experience emotional disturbances like everyone else is overlooked and experiencing stress in medical life is considered to be a done thing. The undergraduate students, when bombarded with the burden of academic curriculum coupled with the necessity to become responsible and competent professionals, experience stress but hardly reach out to others for help. The coping styles of students who experience stress are also majorly maladaptive and that only adds on to their distress. Stress not only disturbs our emotional equilibrium but also takes a toll on our health and becomes a possible factor in the development of various mental health conditions. Identifying the stressors and understanding the coping mechanisms the individual employs becomes a significant determinant of treatment response in such cases. Studies have consistently reported that medical students experience a high level of stress during their undergraduate course resulting in deteriorating performance and other stress-related disorders. This study was carried out to shed light on the everyday stressful life of medical students and to understand how coping strategies can influence an individual's perception of stress. The perceived stress scale was used for measuring stress and brief COPE inventory was used to assess the coping styles the students employed. 92% (276) students reported the presence of moderate to severe levels of stress with females reporting more stress. This study found that the students used active coping strategies more than avoidant strategies but students with high levels of perceived stress used more of dysfunctional coping strategies such as denial, behavioural disengagement, venting, and self-blame. The main stressors in the current study were related predominantly not just to medical training but social and personal problems were also considered as significant stressors. Students need to be aware of how coping styles can influence their stress levels and what strategies need to be cultivated to help them reduce their distress.*

Keywords: *Stressor, Medical students, perceived stress, coping strategy*

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I. Introduction

Stress has become an indispensable component of our lives. In the face of stressful times, it becomes increasingly important to understand how to deal with this negative affective state. There lie a lot of differences in how people respond to stress, the approaches influenced by ethnic, cultural and socioeconomic characteristics. As stress is directly affected by the techniques an individual practices to grapple with the competing priorities, exploring the various coping strategies becomes noteworthy. Stress not only disturbs our emotional equilibrium but also takes a toll on our health and becomes a possible factor in the development of various mental health conditions. Identifying the stressors and understanding the coping mechanisms the individual employs becomes a significant determinant of treatment response in such cases. Harnessing coping strategies which support good mental health has been found to prove beneficial for the person. For example, a study conducted in Pakistan on patients with anxiety and depression (1) found that the majority of the participants sought comfort in religion as a coping style. This was however negatively related to the severity of depression and was found to be associated with the patient's understanding of his symptoms. Another study by

Benedysiuk and Tartas (2) on a group of 35 patients treated for major depressive disorder (MDD) compared with 35 healthy subjects identified differences in the ways of coping and found that people suffering from depression were more inclined to using confrontational and evasive coping strategies. A common finding observed in the majority of the studies found maladaptive coping methods to increase the dysfunction by maintaining and strengthening the disorder. Knowledge of coping styles by the clinician is therefore of paramount importance as it can have many implications and can influence the disease progression. Recognizing the coping mechanisms in the general population can also help prevent the emergence of neurotic states and timely interventions in this regard can also halt any further deterioration.

In the hustling busy lives of every day with the constant pressure to perform looming large over the head, stress is something which is encountered at every step. This picture gets more evident in medical schools where the burden of responsibility coupled with the necessity to become competent professionals greatly impacts their mental health. Studies have consistently reported that medical students experience a high level of stress during their undergraduate course resulting in deteriorating performance and other stress-related disorders. The estimated prevalence of emotional disturbance found in different studies on medical students is also higher than that in the general population. What is often overlooked is that chronic stress can reach burnout levels and may have a negative effect on cognitive functioning and the learning ability of students (3). It also becomes a predictor of future mental health problems but sadly enough, it is seldom prioritized or given any attention. In two British universities, the prevalence of stress was 31.2% (4), and it was 41.9% in a Malaysian medical school (5). A Swedish study reported that the prevalence of depressive symptoms among medical students was 12.9%, and 2.7% of students had made suicidal attempts (6). Besides academic pressures; psychosocial factors, financial issues, environmental changes, high parental expectations, difficulties with time management, sleep disturbances and even lack of recreational activities have been identified as factors contributing to stress in the various studies conducted in India and abroad.

Earlier studies have found that coping plays a crucial role in adaptation to stressful life events. Coping strategies, whether behavioral or psychological, employed to master or reduce stressful events, affect the medical students to a variable degree. Studies have shown that active coping strategies, which involves an awareness of the stressor, planning activities, accepting and reframing problems, as having a positive effect on mental health while avoidant coping strategies which is characterized by ignoring the issue, resulting in activities (drinking, sleeping, isolation) that aid in denial of the problem, as inefficient and maladaptive which only worsens the situation further. (7). In the light of the current scenario, where stress is pervasive at all levels of medical career, starting with the hardships of undergraduate years, struggling to get the postgraduate seat of interest to balancing life as physicians in the later years, an insight into the prevalence, nature and extent of this problem will help draw attention to this burning issue, spreading awareness in the medical fraternity, recognizing the need to devise ways to minimize the impact of this problem and providing early and timely intervention.

This study is carried out with the aim to shed light into the everyday stresses of medical students and to address the following questions:

1. What is the prevalence of stress in the undergraduate years of medical students in a government college of Assam.
2. What socio demographical factors are associated with their stress
3. What stressors are contributing to the student's perceived stress levels
4. What are the coping styles adopted by the students to deal with their stress.

II. Methodology

It is a cross-sectional study conducted among the undergraduate medical students in a government medical college of Assam between 01 January 2019 to 30 May 2019 in Tezpur Assam

Sample Description

In this study 300 undergraduate medical students from the first, second, third and fourth year of Tezpur Medical College and Hospital, Assam were included who gave their consent for participation in the study. All consenting students were included and no explicit exclusion criteria were employed. The nature and purpose of the study were explained to the participants and they were given detailed instructions on how to fill up the questionnaires which consisted of the following sections as mentioned below.

Tools used:

A) **Socio demographic profile:**The sociodemographic characteristics were collected by a semi-structured proforma containing gender, year, age, religion and some other particulars considered relevant to the study. Name and few other personal details were omitted to maintain the confidentiality.

B) **Perceived Stress Scale (PSS):**The students' stress was assessed using the perceived stress scale which is a widely used psychological instrument for measuring the perception of stress. There are 10 items in the scale scored on a 5-point response with 0 being "never" to 4 being "very often".

C) **Brief COPE Inventory:** To assess the coping strategies the 28 Item Brief COPE Inventory was used. This inventory assesses 14 coping styles with 28 questions (2 questions per type). The response format is a four-point Likert scale ranging from" I haven't been doing this at all" (1) to "I have been doing this a lot" (4)

D**) Sources of Stress** included in the questionnaire were derived by reviewing the literature and from the responses given by the students. Informal conversation was held with a group of students (internees) and they were asked to enumerate the potential stressors during their MBBS years. A total of 19 sources of stress were listed and for each potential stressor, the frequency of occurrence was classified as never, sometimes, often and very often and scored as 0, 1, 2, 3 respectively

III. Analysis plan

Data were entered and analyzed using Microsoft Excel for Windows. Perceived Stress was dichotomized into 2 categories: those scoring low (0 to 13) in perceived stress scale were categorized as "No perceived stress" and "moderate" (14 to 26), "severe" (27 to 40) were categorized as "Perceived stress". For the stressor variables, the Likert scale (never, sometimes, often, very often) was categorized dichotomously. "Often" and "very often" were categorized as "yes" and the remaining two as "no". For the coping mechanisms also, the outcome variable was categorized dichotomously as "yes" or "no" from the Likert scale of "never, little, medium, and a lot". "Never" and "little" were categorized as "no" and "medium" and "a lot" were categorized as "yes".

Descriptive statistics (mean, standard deviation, and percentages) were used for calculating the frequencies and proportions of demographic variables, sources of stress and coping strategies. To assess the association between perceived stress and other variables, the chi-square test was used. $P < 0.05$ was considered statistically significant. Descriptive statistics were used for summarizing the study and outcome variables.

IV. Result

Socio-demographic characteristics- Out of the 300 total participants 168 (56%) were male and 132 (44%) were female. The mean age of participants was 21.5 with a standard deviation of 2.4. The majority of the students were Hindu (66.7%) followed by Muslim (23%). 16% (48 students) of the participants reported taking some form of substance of which 62.4% were smokers. (Table 1)

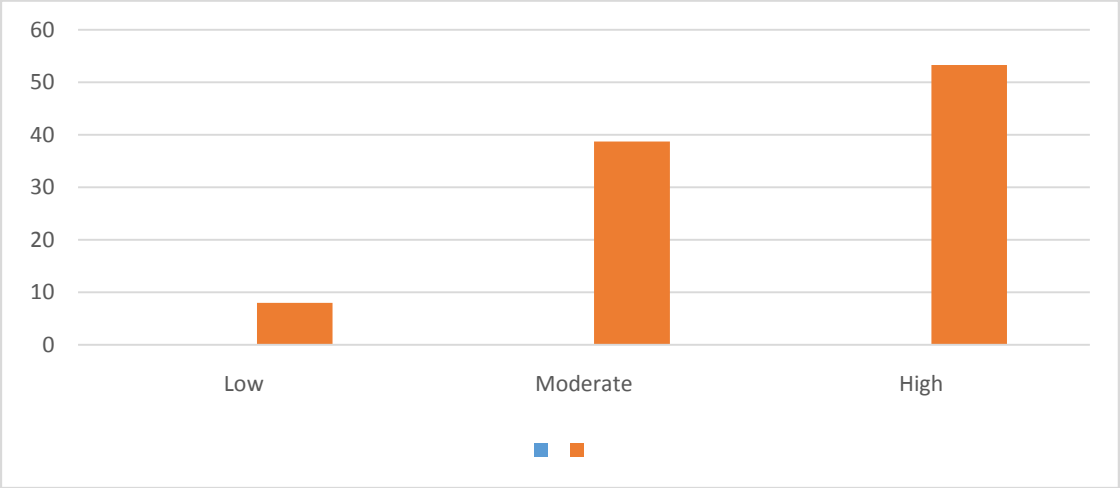
Table- 1: Socio- demographic data of the participant

Variables		n	%
Gender	Male	168	56.0
	Female	132	44.0
Religion	Hindu	200	66.7
	Muslim	69	23.0
	Others	31	10.3
Domicile	Rural	121	40.3
	Urban	179	59.7
Type of family	Nuclear	209	69.7
	Joint	91	30.3
Relationship status	Single	242	80.7
	In a relationship	58	19.3
Substance use	Yes	48	16
	No	252	84
Any parent as doctor	Yes	28	9.3
	No	272	90.7
Medium of language before MBBS	English	223	74.3
	Assamese	70	23.3
	Others	7	2.3
First time away from home	Yes	229	76.3
	No	71	23.7

Perceived Stress -There were total 160 students (53.3%) who reported having high level of stress, whereas 116 (38.7%) reported that they felt a moderate level of stress. Only 24 students (8 %) reported that they have mild level of stress. So dichotomously 92% (276) students reported presence of moderate to severe level of stress and only 8% (24) had no stress. (Table 2)

Table- 2

Perceived stress Score	n	%
Low	24	8
Moderate	116	38.7
High	160	53.3



Considering the sociodemographic variables, relationship status (those in a relationship) (p = 0.006, by Fisher's Exact Test) and being first time away from home (p = 0.021, by Fisher's Exact Test) were found to be significantly associated with perceived stress. (Table- 3)

Table- 3

Variable		Perceived Stress		p value
		Yes	No	
Relationship Status	Single	218 (90.1%)	24 (9.9%)	
	In a relationship	58 (100.0%)	0 (0.0%)	0.006*
First Time Away From Home	Yes	206 (90.0%)	23 (10.0%)	
	No	70 (98.6%)	1 (1.4%)	0.021*

*Fisher's Exact Test

Sources of stress among students: sources of stress ranked by the percentage of students who agreed that the items were sources of stress, are shown in table-4. The important sources of stress reported by students are given in the table.

Table-4

Stressors	Yes	No
Academic Pressure	295 (98.3%)	5 (1.7%)
Study In General	294 (98.0%)	6 (2.0%)
Violence Against Doctor	284 (94.7%)	16 (5.3%)
Worry About Future	251 (83.7%)	49 (16.3%)
Politics	210 (70.0%)	90 (30.0%)
Expectations	208 (69.3%)	92 (30.7%)
Recreation	196 (65.3%)	104 (34.7%)
Accommodation Problem	190 (63.3%)	110 (36.7%)
Eating Habit	174 (58.0%)	126 (42.0%)
Homesickness	160 (53.3%)	140 (46.7%)
Language Difficulty	134 (44.7%)	166 (55.3%)
Peer Relation Difficulty	123 (41.0%)	177 (59.0%)
Sleeping Difficulty	120 (40.0%)	180 (60.0%)
Low Self Esteem	98 (32.7%)	202 (67.3%)
Love Relationship	69 (23.0%)	231 (77.0%)
Family Problem	61 (20.3%)	239 (79.7%)
Financial Difficulty	57 (19.0%)	243 (81.0%)
Substance Problem	45 (15.0%)	255 (85%)
Illness	21 (7.0%)	279 (93.0%)

Out of 19 sources of stress, 9 sources were significantly associated with perceived stress($P<0.05$). The prevalence of stress was higher among students who agreed that these factors were sources of stress for them (table-5). Only sources of stress with significant association were shown in the table.

Table – 5

Stressors		Perceived Stress		P value
		Yes	No	
Recreation	Yes	185	11	0.036
	No	91	13	
Academic Pressure	Yes	274	22	0.033*
	No	2	2	
Peer Relation	Yes	118	5	0.036
	No	158	19	
Financial Difficulties	Yes	57	0	0.011*
	No	219	24	
Substance Problem	Yes	37	8	0.015*
	No	239	16	
Study In General	Yes	273	21	0.007*
	No	3	3	
Worry About Future	Yes	235	16	0.037*
	No	41	8	
Expectation	Yes	187	22	0.018*
	No	89	2	
Violence against Doctor	Yes	265	19	0.005*
	No	11	5	

*Fisher's Exact Test

90.4% students in their first year medical school reported accommodation problem as a source of stress against 45.9% of final year students. 89% and 58.9% of first year students reported changes in eating habit and language difficulty as sources of stress respectively. These percentages in first year students were higher in comparison to the other years of medical school. Also, 89.3%students with parents in medical profession, reported worry about future as a stressor.

Coping strategies used by students: the students in the study used active coping strategies such as acceptance, active coping, positive reframing, planning, religious coping; more than avoidant strategies such as denial, self -blame, substance help and disengagement (table-6)

Table- 6

Coping Strategies	Yes	No
Active Coping	145 (48.3%)	155 (51.7%)
Planning	145 (48.3%)	155 (51.7%)
Positive Reframing	119 (39.7%)	181 (60.3%)
Acceptance	150 (50.0%)	150 (50.0%)
Humour	78 (26.0%)	222 (74.0%)
Religious Coping	81 (27.0%)	219 (73.0%)
Emotional Support	61 (20.3%)	239 (79.7%)
Instrumental Support	74 (24.7%)	226 (75.3%)
Self-Distraction	47 (15.7%)	253 (84.3%)
Denial	35 (11.7%)	265 (88.3%)
Venting	49 (16.3%)	251 (83.7%)
Substance Help	9 (3.0%)	291 (97.0%)
Behaviour Disengagement	19 (6.3%)	281 (93.7%)
Self-Blame	23 (7.7%)	277 (92.3%)

There was a significant association between perceived stress and 5 of the 14 coping strategies. Students who felt stressed used venting (P< 0.029), denial (P<0.034), self-blame (P<0.000) and disengagement(P<0.010) more than non-stressed students did. Non –significant associations were omitted from the table. (table-7)

Table-7

Coping Strategies		Perceived Stress		P value
		Yes	No	
Venting	Yes	197	12	0.029
	No	79	12	
Denial	Yes	205	13	0.034
	No	71	11	
Self-Blame	Yes	167	5	0.000
	No	109	19	
Behaviour Disengagement	Yes	183	22	0.010*
	No	93	2	

*Fisher's Exact Test

V. Discussion

It can be said that undergraduate medical students face a lot of challenges in their medical life which is not just limited to the burden of the academic curriculum but it also encompasses adjusting with the environmental factors, balancing the personal life and handling the inner conflicts in terms of expectations and future concerns. All of this puts them under a lot of stress. Overall the perceived stress levels in this study were high with around 276 students reporting moderate to high-stress levels. This is comparable to other studies from India and abroad. In India, studies conducted in Mumbai (8) and Kolkata (9) among medical undergraduates reported a prevalence of moderate stress to be 57.7% and 55.7% while 5.97% and 35.4% of the students reported severe stress respectively. A study by Saipanish R in a Thai medical school showed that about 61% of medical students had some degree of stress. (10) A significant correlation of perceived stress is observed with the relationship status and with being away from home the first time. This suggests that medical students in a relationship experienced more stress as the heavy workload with the erratic working hours results in devoting less time towards oneself which ultimately can hamper the personal life and their relationships, resulting in stress. Also, students who are away from home the first time might experience difficulties in adjusting with the sudden environmental changes as they are not accustomed to living in hostels and experience homesickness more than others contributing to increased stress levels. Stress was found to be higher in females (around 93%) and more in the other (Sikhism, Christianity) religions (around 96%) followed by Islam (around 93%). This study found that the students used active coping strategies (active coping, religious coping, positive reframing, planning, and acceptance) more than avoidant strategies (denial, self-blame, disengagement, and substance use). Earlier studies in Malaysia (11) also reported similar findings. This is a positive observation but we cannot overlook the fact that the coping style in a substantial number of students is maladaptive and this is the population who stands at risk for the adverse responses to stress. An association between perceived stress and coping strategies was observed which may indicate that the strategy students employ to handle their stresses might affect their perception of stress. This study found that students with high levels of perceived stress used more dysfunctional coping strategies such as denial, behavioural disengagement, venting, and self-blame. While it is very encouraging to notice that only 9 students in our study reported to substances as a coping strategy, under-reporting cannot be ruled out because people in our society are very guarded regarding these issues as it is equated to our morality and our character often, more so with women. Therefore, it is very much likely for students to not be open about it despite assurances of anonymity and confidentiality. Studies conducted in southern India also had participants utilizing substances the least as a coping mechanism during stressful times (12,13) while active coping strategies were utilized the most. A study by Sreeramareddy et al in Nepal also reported the same. In contrast, studies from the United Kingdom found substance use as a very common coping strategy (14,15). A study in Saudi Arabia reported religious coping being frequently adopted as a coping measure by the students, while the use of alcohol or other drugs was found to be rare (16). A study by Shakthivel et al in Tamil Nadu, India, also observed 'religion 'as the most commonly employed coping mechanism followed by 'self-distraction' (17). In this study, older students (third and final years) used active Coping (around 60%), positive reframing (around 59%), planning (around 60%) and acceptance (around 75%) as coping style more than younger students (first and the second year) did. The reasons might be older students having accommodated in the college environment better, and also a longer period of association with professors and staff than younger students did. The main stressors in the current study were related predominantly to not just medical training but social and personal problems were also considered as significant stressors. While "academic difficulties" and "study in general'' were ranked the highest, around 95% of students identified "violence against doctors" as a matter of serious concern which has become a stressor for them. In the light of the current scenario when news of mob assaults and aggressive gestures towards doctors hit the headlines almost on an everyday basis, this is not an incidental finding. This is an expected concern for the students as reports on such incidents are not just demoralizing but it stands as a hindrance to the effective delivery of services. Very interestingly, the state of political affairs is also affecting around 70% of the students with communal violence and terrorism dominating the picture and the very concept of Indian democracy being questioned. Psychosocial factors like expectations, future worry, lack of recreation, accommodation problems, peer relations, and language difficulty are some other areas found contributing to the student's stress levels. Earlier studies had also reported that psychosocial factors are important sources of stress for medical students (10,18,19). Our study also observed that the first-year students experienced more difficulty concerning accommodation, changes in eating habit, change in the medium of language. This finding is expected and is related to adjustments in new surroundings and it often takes time for students to get adapted to the new place. For the majority of final year students who have been living in the campus for more than 4 years, these factors no longer concern them as it did earlier. Another interesting observation was that the students whose parents were medical doctors had a higher prevalence of stress. While it can be assumed that having parents as doctors would call for better guidance and more insight into the course and stress of medical life, our study found this factor associated with stress. This may probably be due to high parental expectations and the need to perform better and earn a good

name near the professors. A significant correlation was also observed between the perceived stress and substance as a stressor in the form of peer pressure which is often encountered in medical schools.

VI. Conclusion

Medical students were exposed to a variety of stressors in their undergraduate years and that resulted in a substantial number of students reporting stress in this study. How they deal with this state amidst their academics, balancing their duties and confronting their inner distress, is quite challenging. The fact that doctors too can experience emotional disturbances like everyone else is totally overlooked. Despite knowing illnesses and the consequences of dwelling in a negative affective state, they hardly reach out to others for help. To experience stress in the medical profession is considered to be a done thing, but quite often we fail to see that it can have detrimental effects on our mental state and might even hamper in delivering our duties. The coping styles of medical students who experience stress are also majorly maladaptive and that only adds on to their distress. The need of the hour is to address this crisis and change our outlook towards this problem and help students deal with this dilemma. A balanced academic environment is important for optimum growth so that students can channelize their energy towards more effective patient care. The vastness of the medical curriculum and the academic responsibility towards it is a difficult experience for anybody, but it is important to teach the students on how they can go about this phase in their lives. Certain things might not be amenable to changes, but if we can work with the stressors and change the way students respond to them, it will be productive in the long run. Conducting workshops on stress management during the academic years might help in this regard. Informal peer, faculty and professional support programs are essential for a healthy working environment and importance should be given to areas like difficult patient encounters and how to address such situations. Students need to be aware of how coping styles can influence their stress levels and what strategies need to be cultivated to help them reduce their distress. If only we recognize the implications that stress can lead on to, we can help students manage their lives better. This will not only contribute towards a more fruitful learning experience but will also aid in self-introspection, creating more observant and high yielding doctors.

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