

# Stress and Coping Among Students Preparing For Medical Entrance Examinations

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## Abstract

**Introduction:** Medical education is a demanding one with thousands of students appearing for the entrance examinations. The preparation for the examination can take a toll on the students. Despite this virtually no studies have looked into the mental health state of these students.

**Material And Method:** 261 students preparing for medical entrance examinations in a coaching institute were assessed using DASS-21 and Brief COPE Inventory.

**Results:** 63.8%, 82% and 51.3% of the participants reported suffering from depressive symptoms, anxiety and stress respectively of which 8%, 23% and 1.9% reported suffering from extremely severe depression, anxiety and stress respectively. Students mostly used planning, positive reframing and active coping to cope with the stress.

**Conclusion:** Students preparing for medical entrance suffered from considerable stress and psychological interventions need to be formulated to help them.

**Keywords:** stress, depression, anxiety, medical, students

## INTRODUCTION

Medical education is considered to be a stressful one and upto 56% of medical students have been shown to suffer from considerable stress.<sup>1</sup> There is ample evidence from our country as well which show that medical education has considerable adverse psychological effects on the students.<sup>2-4</sup> Recently researchers have started talking about the students who are preparing for entry into medical education and started arguing whether the stress of medical education is a carry over stress from the preparatory phase.<sup>5</sup> There are studies which say that before entering the medical field the mental health of students is similar to that of the general population.<sup>6,7</sup> On the other hand there are evidences that point to the contrary.

It has been shown that there is a correlation between premedical academic performance and medical academic performance.<sup>8</sup> And since mental health is an important predictor of academic performance,<sup>9</sup> it can't be fairly concluded that the mental health of medical aspirants is different than those in medical education. Also, studies have shown that

physician well being is diminished by the stress of both medical and premedical education.<sup>10</sup>

Lastly studies have shown a steady decline in the number of medical school applicants. In the United States the number of applicants fell from 47,000 in 1996 to 32,100 in 2002.<sup>11</sup> Following certain changes in policies, 2018 saw a slight increase in the number of medical school applicants. Still the Association of American Medical Colleges states that a shortage of upto 122,000 physicians is projected by the year 2032.<sup>12</sup> Similarly, in India, though there has been an increase in the applicants in recent years, there are state wise differences. For instance, Tamil Nadu saw a dip by 17% in the number of students appearing for entrance examinations for the 2018-19 session.<sup>13</sup> Though no such data could be found for our country, looking at the global trend it is fair to assume the same decline in Nepal as well. It is important to know what are the factors pushing the applicants away from medical education.

Another important aspect when it comes to medical aspirants is the increased rate of suicides. Reports from India show that there were 45 suicides between 2014-2017 and 19 more

in 2018.<sup>14,15</sup> Despite all these factors, very few studies have looked into the mental health problems faced by them. This study is an attempt to identify the mental health issues among the students from Nepal who are aspiring to be doctors.

**MATERIAL AND METHOD**

The study was conducted after obtaining ethical approval from the Departmental Research Unit of Department of Psychiatry, BPKIHS, Dharan. Students from a medical coaching institute were enrolled after obtaining consent from the institute and the students. The students were assessed using a sociodemographic proforma, DASS-21 and Brief COPE Inventory. The sociodemographic questionnaire included student's age, sex, address, staying at home/hostel, duration of preparation, reason of choosing field, board passed, type of school. DASS-21 is a 21 item divided into three subscales - depression, anxiety and stress. Each subscale consists of 7 items and each item is scored on a 4 point likert scale. The cumulative scores give the prevalence of stress, depression and anxiety among the students. The Brief COPE Inventory is a 28 item scale which measures 14 types of coping strategies. Data obtained was entered in Microsoft Excel 2007 and was converted into SPSS version 11.5 for stastical analysis.

**RESULT**

A total of 261 students participated in the study. Table 1 shows the sociodemographic characteristics of the participants. The mean age of the participants was 18.63 ± 0.81 years. Majority of the participants were female, Hindu, staying in a hostel, studied in a private school, and had been preparing for 6 months to 1 year. Majority reported that they had chosen medical field out of their own interest.

As shown in table 2, 63.8% of the participants reported suffering from depressive symptoms of which 8% reported suffering from extremely severe symptoms. Similarly 82% and 51.3% students reported suffering from anxiety and stress respectively. While 23% students reported extremely severe anxiety 1.9% reported extremely severe level of stress. The mean scores for depression, anxiety and stress were 12.84 ± 8.19, 13.38 ± 6.76 and 15.62 ± 7.26 respectively.

**Table: 1 Socio-Demographic Characteristics of Patients**

Character		Medical (N=261)
Age (Mean ± SD)		18.63 ± 0.81
Gender No. (%)	Male	149 (57.1)
	Female	112 (42.9)
Religion No. (%)	Hindu	238 (91.2)
	Muslim	11 (4.2)
	Buddhist	5 (1.9)
	Christian	6 (2.3)
	Others	1 (0.4)
Staying with No. (%)	Parents	87 (33.3)
	Local guardians	46 (17.6)
	Hostel	93 (35.6)
	Self	31 (11.9)
	Others	4 (1.5)
Type of school No. (%)	Private	204 (78.2)
	Public	57 (21.7)
Duration of preparation No. (%)	<3 months	2 (0.8)
	3-6 months	18 (6.9)
	6months-1 year	229 (87.7)
	>1 year	12 (4.6)
Reason for choosing field No. (%)	Interest	200 (76.6)
	Parental pressure	4 (1.5)
	To make money	11 (4.2)
	To help others	18 (6.9)
	To prove self worth	28 (10.7)

Tables 3 shows the relation between socio-demographic factors and presence of depression, anxiety and stress. Depression was not found to be significantly associated with any of the socio-demographic factors. More number of students who had studied from a public school reported suffering from anxiety. Lesser number of students who had chosen medical field out of interest reported suffering from stress.

There was a small positive correlation of age with depression (r value - 0.03), anxiety (r value - 0.06) and stress (r vaue - 0.11) but the findings were not statistically significant.

Table 4 shows the coping strategies commonly used by the students. As shown, the commonest strategies used were active coping, planning and positive reframing.

**Table 2: Depression, Anxiety and Stress Among the Participants**

Category		Medical aspirants (n=261)	
		Number	Percentage
Depression	None	97	37.2
	Mild	53	20.3
	Moderate	67	25.7
	Severe	23	8.8
	Extremely severe	21	8.0
<b>Total</b>		<b>261</b>	<b>100.0</b>
Anxiety	None	47	18.0
	Mild	27	10.3
	Moderate	87	33.3
	Severe	40	15.3
	Extremely severe	60	23.0
<b>Total</b>		<b>261</b>	<b>100.0</b>
Stress	None	127	48.7
	Mild	62	23.8
	Moderate	46	25.7
	Severe	21	8.0
	Extremely severe	5	1.9
<b>Total</b>		<b>261</b>	<b>100.0</b>

**Table 4: Mean scores of different coping strategies used**

Strategy	Mean ± SD
Self distraction	4.44 ± 1.67
Active coping	5.68 ± 1.65
Denial	3.70 ± 1.51
Substance use	2.50 ± 1.21
Use of emotional support	4.73 ± 1.72
Use of instrumental support	5.12 ± 1.76
Behavioral disengagement	3.67 ± 1.63
Venting	4.15 ± 1.49
Positive reframing	5.47 ± 1.58
Planning	5.59 ± 1.68
Humor	3.33 ± 1.70
Acceptance	5.20 ± 1.69
Religion	4.30 ± 1.78
Self blame	4.43 ± 1.86

**Table 3: Depression, Anxiety And Atrss In Students In Relation To Sociodemographic Factors**

Category		Depression No. (%)		Anxiety No. (%)		Stress No. (%)	
		No	Yes	No	Yes	No	Yes
Gender	Male	63 (42.3)	86 (57.7)	30 (20.1)	119 (79.9)	73 (49.0)	76 (51.0)
	Female	34 (30.4)	78 (69.6)	17 (15.2)	95 (84.8)	54 (48.2)	58 (51.8)
Religion	Hindu	89 (37.4)	149 (62.6)	44 (18.5)	194 (81.5)	114 (47.9)	124 (52.1)
	Muslim	2 (18.2)	9 (81.8)	2 (18.2)	9 (81.8)	4 (36.4)	7 (63.6)
	Buddhist	3 (60.0)	2 (40.0)	1 (20.0)	4 (80.0)	4 (80.0)	1 (20.0)
	Christian	2 (33.3)	4 (66.7)	0 (0.0)	6 (100.0)	4 (66.7)	2 (33.3)
	Others	1 (100.0)	0 (0.0)	0 (0.0)	1 (100.0)	1 (100.0)	0 (0.0)
Place of stay	Parents	33 (37.9)	54 (62.1)	14 (16.1)	73 (83.9)	49 (56.3)	38 (43.7)
	Local guardians	17 (36.9)	29 (63.1)	12 (26.1)	34 (73.9)	26 (56.5)	20 (43.5)
	Hostel	31 (33.7)	62 (66.3)	12 (12.1)	81 (87.9)	38 (40.1)	55 (59.9)
	Self	15 (48.4)	16 (51.6)	8 (25.8)	23 (74.2)	13 (41.9)	18 (58.1)
	Others	1 (25.0)	3 (75.0)	1 (25.0)	3 (75.0)	1 (25.0)	3 (75.0)
Type of school	Private	78 (38.2)	126 (61.8)	42 (20.6)	162 (79.4)	93 (45.6)	111 (54.4)
	Public	19 (33.3)	38 (66.7)	5 (9.6)	52 (91.4)*	34 (59.6)	23 (40.4)
Duration of preparation	<3 months	0 (0.0)	2 (100.0)	0 (0.0)	2 (100.0)	1 (50.0)	1 (50.0)
	3-6 months	7 (38.9)	11 (61.1)	5 (27.8)	13 (72.2)	10 (55.6)	8 (44.4)
	6-12 months	86 (37.6)	143 (62.7)	40 (17.5)	189 (82.5)	111 (48.5)	118 (51.5)
	>1 year	4 (33.3)	8 (66.7)	2 (16.7)	10 (83.3)	5 (41.7)	7 (58.3)
Reason for choosing field	Interest	75 (37.5)	125 (62.5)	36 (18.0)	164 (82.0)	101 (50.5)	99 (49.5)**
	Parental pressure	0 (0.0)	4 (100.0)	0 (0.0)	4 (100.0)	0 (0.0)	4 (100.0)
	To make money	1 (9.1)	10 (91.9)	1 (9.1)	10 (81.9)	3 (27.2)	8 (71.8)
	To help others	8 (44.4)	10 (55.6)	2 (11.1)	16 (89.9)	6 (33.3)	12 (66.7)
	To prove self worth	13 (46.4)	15 (53.6)	8 (28.6)	20 (71.4)	17 (60.7)	11 (39.3)

\*p value 0.04, \*\*p value 0.03

## **DISCUSSION:**

Our study showed that stress, depression and anxiety were present in 51.3%, 63.8% and 82% respectively. These figures are quite alarming and necessitate further studies and development of psychological intervention for these students. Preparing for medical education is highly demanding. Students undergoing medical preparation have lots of stress due to the vast field of study that has to be covered and that too in a limited time period along with the burden of expectations from the family and society. While there are many studies focusing on medical undergraduates, only few have looked into the problems faced by those aspiring to enter these fields.<sup>5</sup>

The studies that have looked into the premedical aspirants have mainly focused on two aspects – the attrition rate and the personality traits of premedical students. The studies focusing on attrition rate have found various factors leading to dropouts including female sex<sup>16</sup>, loss of interest in medicine<sup>17</sup>, difficulty with the required course work.<sup>18</sup> The studies focusing on personality traits are more concerned with widening the approach to select the medical school candidates.<sup>19,20</sup> A few others have tried to look into their perception and evaluate the reasons why there were increased dropouts in premedical program.<sup>21,22</sup>

The authors could come across only one study which has attempted to look into the stress faced by students. In this study the authors administered questionnaires to students preparing for medical, engineering and IIT examinations and found that 62% students were suffering from stress. The major causes of stress were tough selection procedure, family pressure, lack of friend circle, lack of involvement in games, music or leisure activity.<sup>23</sup>

There can be various causes for the stress faced by the students. It can be either self inflicted, peer inflicted or parent inflicted. Sharma and Sidhu in 2011 found that the common causes for self inflicted stress were putting extra effort for studies, bothering about failures, pressure to fulfill parental expectations. Similarly peer inflicted stress was caused by comparison of efforts, study hours and course coverage with peers. Finally parents enquiring for reason of poor performance, suggesting ways to study,

enquiry of course covered and expression of high expressed emotions were common causes of parent inflicted stress.<sup>24</sup> Ultimately this stress can make the students apprehensive about their performance and result in a loss of self esteem.<sup>24</sup> Studies have also shown that this stress leads to impaired attention and concentration and reduced academic performance.<sup>25</sup>

In order to deal with this stress, students come up with various coping strategies. These coping strategies can be either problem based or emotion based. Problem based strategies are aimed at solving the problem while emotion based strategies are aimed at reducing the emotional distress. Problem based strategies tend to predominate when the individual feels that something can be done about the stress while emotion based strategies tend to predominate when the individual feels that there is nothing that can be done about the stress and it must be endured.<sup>26</sup>

Further the coping strategies can be either adaptive or maladaptive. Adaptive coping is said to occur when the individual deals with a stressor in a constructive way. Examples of adaptive coping include planning, active coping. Maladaptive coping causes harm or threat to the person such as substance use, aggression towards others.<sup>27</sup>

In one study conducted by Shankar et al (2014) on 108 medical and premedical students using brief COPE, it was found that active coping, planning, positive reinterpretation and acceptance were the most common coping strategies used.<sup>28</sup> The findings from our study are similar to these. However the choice of coping strategy depends on a complex interaction between cognitive, socio-cultural, emotional and physical factors.<sup>27</sup>

## **CONCLUSION:**

Our study shows that the students preparing for medical entrance examinations suffered from significant stress with a significant proportion having depressive and anxiety symptoms. In response the students mostly used adaptive coping strategies but the use of certain maladaptive strategy such as self blame was also reported. Thus it is necessary that psychological interventions be formulated to help the students deal with the stress and enhance the coping strategies.

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