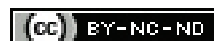


Critical Analysis of Perceived Stress among Medical Students Studying in Government Medical Colleges at Srinagar, Anantnag and Baramulla, Union Territory Jammu and Kashmir, India- A Cross-sectional Study

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ABSTRACT

Introduction: Stress is one of the most important issues among medical students, often defined as the “wear and tear” the body experiences and multiple factors contribute to its prevalence. It can exert a negative impact on the emotional/psychological well-being of an individual, if not treated at the proper time. Proper management and timely interventions will lessen the negative effects of stress, thereby enhancing their academic performance and skill development as medical graduates.

Aim: To measure and compare the perceived stress level among medical students studying in three main medical colleges located at Srinagar, Anantnag, and Baramulla (in the government sector), Jammu and Kashmir, India.

Materials and Methods: This cross-sectional study was multi-institutional, conducted in the first and second year medical students of Government Medical College (GMC)-Srinagar/GMC-Anantnag and GMC- Baramulla, Jammu and Kashmir, India in the age group of

18-25 years who voluntarily consented to participate. A total of 264 students were taken for the study. Data as per structured/standard questionnaire was collected on Google form in a password-protected electronic format. The already validated and reliable Perceived Stress Scale (PSS)- Cohen et al., 1983, was used to analyse the stress levels. Categorical data were analysed using the Pearson Chi-square test.

Results: Overall maximum students, 145 (54.9%) had moderate stress, followed by 83 (31.5%) who had high or perceived stress and 36 (13.6%) had low stress levels. College analysis indicated that perceived high stress was highest in GMC-Srinagar students with 38.1%, followed by 31.6% from GMC-Baramulla and 22.22% from GMC-Anantnag.

Conclusion: Present study indicate an overall high prevalence of moderate stress followed by perceived high stress among the medical students of three medical colleges located in Kashmir, India. Interestingly, the location of the medical colleges had little impact on the stress level among such undergraduate students.

Keywords: Multi-institutional, Stress levels, Undergraduate

INTRODUCTION

Every individual is designed to experience situations that may pose a real or perceived challenge or threat (called stress) to his well-being, to which he responds either physically or mentally. Although stress can be a motivator, it can also be harmful when the human body becomes triggered too easily, not being able to cope with the specific demands and events faced, that can undermine a person's mental and physical health and become harmful when steps are not taken for its management [1]. One of the common obstacles faced by medical students in the course of their medical education is that of stress, often defined as the “wear and tear”, the body experiences while adjusting to the situation and multiple factors contribute to its prevalence and high prevalence of stress among medical students is gaining more importance in recent decades [1-3]. Researchers have worked on factors causing anxiety about professional development amongst medical students and doctors which indicate that the course of Medicine is a period of significant anguish for students of this field. The prevalence of depressive and anxiety symptoms is higher among medical students than in the general population worldwide and if not managed correctly at a proper time, it can lead to high levels of depression, substance abuse, relationship problems, anxiety and even suicidal ideation [4-8]. Medical schools in the United States of America (USA) reported that in undergraduate medical students, 23% had clinical depression and 57% were under psychological stress [9,10]. Studies investigating stress among Indian medical

students report wide variations in the prevalence of stress (37.3–97%) which can be explained by demographic differences in the samples, different academic years of the students studied, varying case definitions, and non uniformity in measuring tools [11-15]. From a North Indian perspective, particularly from the Union Territory of Jammu and Kashmir, (where to our knowledge no such study has been carried out), it is important to have analysis on the physical and mental/emotional status of medical students in order to identify and understand correlations between unexpected situations and the impact of such factors that contribute to the development of stress in them. Early identification and possible necessary interventions will result in a less stressful academic life which in turn would lessen the negative effects of stress in the future, thereby enhancing their academic performance and skill development as medical graduates. The present study was carried out to measure and compare the perceived stress level among medical students studying in three main medical colleges of Jammu and Kashmir in the government sector. Such studies would help in the development of appropriate programmes for the recreation of medical students and support for stress prevention strategies may be developed in medical colleges to prevent a stressful environment.

MATERIALS AND METHODS

The present cross-sectional study was multi-institutional, conducted in the medical students of GMC-Srinagar/GMC-Anantnag and

GMC-Baramulla, Jammu and Kashmir, India from January 2021 to May 2021. Prior to the start of the study, computer-assisted consent was taken from the students. Confidentiality of the responses as well as anonymity of participating students was ensured and the study was recommended and approved by Institutional Ethical Committee (IEC)- Government Medical College, Srinagar, Kashmir vide reference No: IEC-GMC-Sgr/41 Dated: March 27, 2021.

Inclusion criteria: Inclusion criteria were the first and second year MBBS students in the age group of 18-25 years, who voluntarily consented to participate.

Exclusion criteria: MBBS students having any documented psychiatric problem or students who were on related drugs as well as those MBBS students not willing to participate in the study were excluded.

Sample size: To obtain a Confidence Interval (CI) of 95% and a 5% margin of error, a sample size of 220 participants was required. An additional 20% was added to ensure an adequate percentage response rate and to compensate for any non response from the students that measured out to be 260 participants. A total of 264 students were taken for the study.

Study Procedure

Details of the participating students- the Life Check Events (LCE) and perceived stress score, as per structured/standard questionnaire, collected confidentially on Google forms was protected in a password protected electronic format. Link of the questionnaire on concerned departmental WhatsApp groups was given to all MBBS Phase I students of GMC-Srinagar, Anantnag and Baramulla. The fields in the questionnaire being mandatory, unless marked by a student, the form could not be submitted. Link was open to students from January 2021 to March 2021 giving ample time to students for submission.

The potential stressors to assess sources of stress and their severity, given in the study questionnaire, were taken from the PSS-10 Cohen et al., 1983, as recommended by the National Institutes of Health (NIH) Centres for Population Health and Health Disparities (CPHHD) proven to possess substantial reliability and validity [16]. PSS is a globally used and self-report scale measuring perceived stress. Three versions of PSS (PSS-14, PSS-10, and PSS-4) are available which comprise 14, 10, and 4 items, respectively. In present study, PSS-10 comprising 10 items was used. The reliability of PSS was 0.85 (Cronbach's coefficient) with test-retest reliability during a short re-test interval (several days) [16]. The frequency of the occurrence of the potential stressors was classified as never, almost never, sometimes, fairly often, and very often and these were scored as 0, 1, 2, 3 and 4, respectively. Each stressor had its severity rated using a Likert scale (1-10) ranging from not severe to very severe.

The students were required to indicate the alternative that seemed like a reasonable estimate to them. Stress score on the basis of responses was calculated and determined for each student. Computation was done by reversing positive items' scores and then summing up all scores (as given by Cohen et al.), which was stratified into- Low Stress/Moderate Stress and Perceived Stress on the basis of scores ranging from 0-13/ 14-26 and 27-40, respectively. Individual scores on the PSS can range from 0-40 with higher scores indicating higher perceived stress. "The PSS does not tie appraisal to a particular situation; it is sensitive to the non occurrence of events as well as to ongoing life circumstances" [17]. PSS also is not a diagnostic instrument; there are no score cut-offs. There are only comparisons within your own sample [16]. Besides this LCE checklist (Events 1-17) classified as events that happened to the student (a), witnessed it as happened to someone else (b), learned about it (c), exposed to it as part of the job (d), not sure (e) or did not apply (f) was incorporated to measure the degree to which situations in one's life are appraised as stressful. This questionnaire was taken from the Post-Traumatic Stress Disorder (PTSD) checklist for DSM-5 (Diagnostic and Statistical Manual of Mental disorders-5th Edition) with Life Events Checklist for DSM-5 and criterion A and has been proven to possess substantial reliability and validity [18].

STATISTICAL ANALYSIS

Categorical data were analysed using the Pearson Chi-square test. The p-value <0.05 was considered to be statistically significant. The software used to analyse the data was version R 3.6.3.

RESULTS

Among the 264 students comprising almost an equal number of females 133 (50.4%) and males 131 (49.6%), highest students numbering 117 (44.5%) were from GMC-Baramulla, followed by 84 (31.9%) from GMC-Srinagar and 63 (23.6%) from GMC-Anantnag.

Results of PSS Score analysis revealed that the overall maximum number of students 145 (54.9%) had moderate stress, followed by 83 (31.5%) who had high or perceived stress and 36 (13.6%) had low-stress levels. College analysis indicated that: from GMC-Baramulla out of the total 117 students, the maximum number of students 64 had moderate stress, 37 had high levels of stress and 16 had low stress levels with a mean of 21.56 and SD of 7.05. From GMC-Srinagar, out of 84 students the maximum number of students 43 had moderate stress, 32 had high levels of stress and 9 had low-stress levels with a mean of 22.9 and SD of 7.09. From GMC-Anantnag out of 63 students the maximum number of students 38 had moderate stress, 14 had high levels of stress and 11 had low-stress levels with a mean of 20.46 and SD of 6.34. Overall college analysis indicated that perceived high stress was highest in GMC-Srinagar students with 38.09%, followed by 31.62% from GMC-Baramulla and 22.22% from GMC-Anantnag [Table/Fig-1].

College location	High stress	Medium stress	Low stress	Mean	Standard deviation	Total
GMC Srinagar	32	43	9	22.9	7.09	84
GMC Baramulla	37	64	16	21.56	7.05	117
GMC Anantnag	14	38	11	20.46	6.34	63

[Table/Fig-1]: College analysis of PSS score.

From the students' responses, items 1,2,3,4,5,6,7,9 and 10 were found to be statistically insignificant indicating these factors have no association with the stress of the students. Item-8, having a p-value of 0.008 was found to be statistically significant. Results showed that 31.0% of the students from GMC-Srinagar very often felt that they were on top of things, followed by 21.3% of students from GMC-Baramulla [Table/Fig-2-5].

Responses of LCE indicated that almost an equal percentage of students from GMC-Srinagar (53.6%) and GMC-Baramulla (53.8%) responded to Event 1 (Natural disaster) that had happened to them. Event 2 (Fire or explosion) was witnessed by 32.5% of GMC-Baramulla students, 20.2% of GMC-Srinagar and 15.9% of GMC-Anantnag students that happened to someone else. Event 3 (Transportation accident) was observed by 21.4% of GMC-Baramulla, 20.2% of GMC-Srinagar and 20.6% of GMC-Anantnag students, happening to someone else [Table/Fig-6] [18]. Event 4 (Serious accident at work, home, or during recreational activity) was reported by maximum students 60.3% GMC-Anantnag, 57.1% GMC-Srinagar and 50.4% GMC-Baramulla, that the event did not apply to them. Event 5 (Exposure to toxic substances) was reported by 73.8% GMC-Srinagar, 71.4% GMC-Anantnag and 62.4% GMC-Baramulla, event did not apply to them. Event 6 (Physical assault) was reported by 20.5% GMC-Baramulla students, 13.1% of GMC-Srinagar and 12.7% of GMC-Anantnag students as the event happening to them [Table/Fig-7] Event 7 (Assault with a weapon) was reported by maximum students that the event does not apply to them. Event 8 (Sexual assault) and Event 9 (Other unwanted or uncomfortable sexual experience) again was reported by maximum students that the events do not apply to them [Table/Fig-8]. Event 10 (Combat or exposure to a warzone -in the military or as a civilian) was reported by 21.4% GMC-Srinagar students, followed by 16.2% GMC-Baramulla students and 12.7% GMC-Anantnag students as the event happened to them. Event 11 (Captivity for example, being

Response	Anantnag	Srinagar	Baramulla
0	2 (3.1%)	8 (9.5%)	6 (5.2%)
1	8 (12.7%)	8 (9.5%)	9 (7.7%)
2	34 (54.0%)	36 (43.0%)	61 (52.1%)
3	9 (14.3%)	16 (19.0%)	15 (12.8%)
4	10 (15.9%)	16 (19.0%)	26 (22.2%)
Total	63 (100%)	84 (100%)	117 (100%)

Chi-square=7.1; p-value=0.526

Response	Anantnag	Srinagar	Baramulla
0	5 (7.9%)	9 (10.7%)	19 (16.2%)
1	10 (15.9%)	10 (11.9%)	9 (7.7%)
2	25 (39.7%)	22 (26.2%)	41 (35.0%)
3	11 (17.5%)	21 (25.0%)	16 (13.7%)
4	12 (19.0%)	22 (26.2%)	32 (27.4%)
Total	63 (100%)	84 (100%)	117 (100%)

Chi-square=11.9; p-value=0.152

Response	Anantnag	Srinagar	Baramulla
0	2 (3.1%)	2 (2.3%)	2 (1.7%)
1	3 (4.8%)	3 (3.6%)	8 (6.8%)
2	17 (27.0%)	31 (36.9%)	44 (37.6%)
3	19 (30.2%)	22 (26.2%)	29 (24.8%)
4	22 (34.9%)	26 (31.0%)	34 (29.1%)
Total	63 (100%)	84 (100%)	117 (100%)

Chi-square=3.8; p-value=0.875

[Table/Fig-2]: (Item 1-3): In the last month, how often have you... Students responses to the Perceived Stress Scale (PSS 10 items)- Cohen et al., 1983

Response	Anantnag	Srinagar	Baramulla
0	20 (31.7%)	10 (11.9%)	28 (23.9%)
1	13 (20.6%)	25 (29.7%)	28 (23.9%)
2	25 (39.7%)	36 (43.0%)	42 (35.9%)
3	4 (6.4%)	8 (9.5%)	13 (11.1%)
4	1 (1.6%)	5 (5.9%)	6 (5.2%)
Total	63 (100.0%)	84 (100%)	117 (100.0%)

Chi-square=11.3; p-value=0.181

Response	Anantnag	Srinagar	Baramulla
0	7 (11.1%)	4 (4.8%)	9 (7.7%)
1	17 (27.0%)	13 (15.5%)	25 (21.3%)
2	30 (47.6%)	38 (45.2%)	56 (47.9%)
3	5 (7.9%)	20 (23.8%)	16 (13.7%)
4	4 (6.4%)	9 (10.7%)	11 (9.4%)
Total	63 (100.0%)	84 (100.0%)	117 (100.0%)

Chi-square=11.3; p-value=0.180

Response	Anantnag	Srinagar	Baramulla
0	6 (9.5%)	6 (7.1%)	9 (7.7%)
1	8 (12.7%)	7 (8.3%)	14 (12.0%)
2	30 (47.6%)	30 (35.7%)	43 (36.7%)
3	9 (14.3%)	28 (33.3%)	29 (24.8%)
4	10 (15.9%)	13 (15.4%)	22 (18.8%)
Total	63 (100.0%)	84 (100.0%)	117 (100.0%)

Chi-square=8.2; p-value=0.407

[Table/Fig-3]: (Items 4-6). In the last month, how often have you... Students responses to the Perceived Stress Scale (PSS 10 items)- Cohen et al., 1983

Response	Anantnag	Srinagar	Baramulla
0	10 (15.9%)	15 (17.9%)	23 (19.6%)
1	21 (33.3%)	20 (23.8%)	39 (33.3%)
2	23 (36.5%)	37(44.0%)	34 (29.1%)
3	8 (12.7%)	7 (8.3%)	18 (15.4%)
4	1 (1.6%)	5 (6.0%)	3 (2.6%)
Total	63 (100.0%)	84 (100.0%)	117 (100.0%)

Chi-square=9.5; p-value=0.298

Response	Anantnag	Srinagar	Baramulla
0	3 (3.5%)	3 (3.5%)	3 (2.6%)
1	13 (20.6%)	3 (3.5%)	12 (10.3%)
2	29 (46.0%)	26 (31.0%)	50 (42.7%)
3	12 (19.1%)	26 (31.0%)	27 (23.1%)
4	8 (12.7%)	26 (31.0%)	25 (21.3%)
Total	63 (100.0%)	84 (100.0%)	117 (100.0%)

Chi-square=20.7; p-value=0.008* (significant)

Response	Anantnag	Srinagar	Baramulla
0	3 (4.8%)	8 (9.5%)	10 (8.6%)
1	9 (14.3%)	12 (14.3%)	17 (14.5%)
2	27 (42.9%)	29 (34.5%)	51 (43.6%)
3	17 (27.0%)	18 (21.4%)	24 (20.5%)
4	7 (11.1%)	17 (20.3%)	15 (12.8%)
Total	63 (100.0%)	84 (100.0%)	117 (100.0%)

Chi-square=5.6; p-value=0.691

[Table/Fig-4]: (Items 7-9). In the last month, how often have you... Students responses to the Perceived Stress Scale (PSS 10 items)- Cohen et al., 1983

Response	Anantnag	Srinagar	Baramulla
0	9 (14.3%)	11 (13.1%)	10 (8.6%)
1	8 (12.7%)	7 (8.3%)	22 (18.8%)
2	23 (36.5%)	25 (29.8%)	38 (32.5%)
3	11 (17.5%)	22 (26.8%)	26 (22.2%)
4	12 (19.0%)	19 (22.6%)	21 (17.9%)
Total	63 (100.0%)	84 (100.0%)	117 (100.0%)

Chi-square=7.7; p-value=0.460

[Table/Fig-5]: (Item 10). In the last month, how often have you... Students responses to the Perceived Stress Scale (PSS 10 items)- Cohen et al., 1983

College location	Event 1: Natural disaster (For example flood, hurricane, tornado, earthquake)						Total
	a	b	c	d	e	f	
Anantnag	24 (38.1%)	13 (20.6%)	5 (7.9%)	0	5 (7.9%)	16 (25.5%)	63 (100%)
Srinagar	45 (53.6%)	8 (9.5%)	3 (3.6%)	1 (1.2%)	11 (13.1%)	16 (19.0%)	84 (100%)
Baramulla	63 (53.8%)	9 (7.7%)	7 (6.0%)	0	18 (15.4%)	20 (17.1%)	117 (100%)

Chi-square=15.3; p-value=0.119

College location	Event 2: Fire or explosion						Total
	a	b	c	d	e	f	
Anantnag	6 (9.5%)	10 (15.9%)	8 (12.7%)	--	6 (9.5%)	33 (52.4%)	63 (100%)
Srinagar	4 (4.8%)	17 (20.2%)	6 (7.1%)	--	10 (11.9%)	47 (56.0%)	84 (100%)
Baramulla	8 (6.8%)	38 (32.5%)	13 (11.1%)	--	13 (11.1%)	45 (38.5%)	117 (100%)

Chi-square=11.7; p-value=0.161

College location	Event 3: Transportation accident (for example, car accident, boat accident, train wreck, plane crash)						Total
	a	b	c	d	e	f	
Anantnag	7 (11.1%)	13 (20.6%)	8 (12.7%)	0	6 (9.5%)	29 (46.0%)	63 (100%)
Srinagar	10 (11.9%)	17 (20.2%)	16 (19.0%)	0	7 (8.3%)	34 (40.5%)	84 (100%)
Baramulla	10 (8.5%)	25 (21.4%)	23 (19.7%)	1 (0.9%)	16 (13.7%)	42 (35.9%)	117 (100%)

Chi-square=5.6; p-value=0.846

[Table/Fig-6]: Students responses to life events checklist (1-3). PTSD checklist for DSM-5 with Life Events Checklist- Weather's FW et al., (2013) [18]

kidnapped, abducted, held hostage, prisoner of war) was reported by maximum students that the events do not apply to them. Event 12 (Life-Threatening illness or injury) was reported by 21.4% GMC-Baramulla students followed by 15.5% GMC-Srinagar students and 14.3% GMC-Anantnag students as happened to someone else [Table/Fig-9]. Event 13 (Severe human suffering) was reported by 22.2% GMC-Anantnag students, 16.2% GMC-Baramulla students

College location	Event 4: Serious accident at work, home, or during recreational activity						
	a	b	c	d	e	f	Total
Anantnag	1 (1.6%)	7 (11.1%)	7 (11.1%)	--	10 (15.9%)	38 (60.3%)	63 (100%)
Srinagar	1 (1.2%)	7 (8.3%)	10 (11.9%)	--	18 (21.4%)	48 (57.1%)	84 (100%)
Baramulla	6 (5.1%)	12 (10.3%)	15 (12.8%)	--	25 (21.4%)	59 (50.4%)	117 (100%)
Chi-square=5.0; p-value=0.751							
College location	Event 5: Exposure to toxic substances (for example, dangerous chemicals, radiation)						
	a	b	c	d	e	f	Total
Anantnag	2 (3.2%)	2 (3.2%)	1 (1.6%)	0	13 (20.6%)	45 (71.4%)	63 (100%)
Srinagar	1 (1.2%)	3 (3.6%)	4 (4.8%)	0	14 (16.7%)	62 (73.8%)	84 (100%)
Baramulla	4 (3.4%)	4 (3.4%)	3 (2.6%)	3 (2.6%)	30 (25.6%)	73 (62.4%)	117 (100%)
Chi-square=9.0; p-value=0.527							
College location	Event 6: Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)						
	a	b	c	d	e	f	Total
Anantnag	8 (12.7%)	11 (17.5%)	0	--	7 (1.1%)	37 (58.7%)	63 (100%)
Srinagar	11 (13.1%)	9 (10.7%)	4 (4.8%)	--	15 (17.9%)	45 (53.6%)	84 (100%)
Baramulla	24 (20.5%)	14 (12.0%)	6 (5.1%)	--	11 (9.4%)	62 (53.0%)	117 (100%)
Chi-square=10.0; p-value=0.261							

[Table/Fig-7]: Students responses to Life events checklist (4-6). PTSD checklist for DSM-5 with Life Events Checklist- Weather's FW et al., (2013)

College location	Event 7: Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)						
	a	b	c	d	e	f	Total
Anantnag	0	3 (4.8%)	3 (4.8%)	--	5 (7.9%)	52 (82.5%)	63 (100%)
Srinagar	0	2 (2.4%)	5 (6.0%)	--	7 (8.3%)	70 (83.3%)	84 (100%)
Baramulla	1 (0.9%)	5 (4.3%)	8 (6.8%)	--	17 (14.5%)	86 (73.5%)	117 (100%)
Chi-square=5.3; p-value=0.717							
College location	Event 8: Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)						
	a	b	c	d	e	f	Total
Anantnag	0	3 (4.8%)	1 (1.6%)	--	4 (3%)	55 (87.3%)	63 (100%)
Srinagar	1 (1.2%)	3 (3.6%)	3 (3.6%)	--	6 (7.1%)	71 (84.5%)	84 (100%)
Baramulla	5 (4.3%)	1 (0.9%)	4 (3.4%)	--	11 (9.4%)	96 (82.1%)	117 (100%)
Chi-square=7.9; p-value=0.437							
College location	Event 9: Other unwanted or uncomfortable sexual experience						
	a	b	c	d	e	f	Total
Anantnag	2 (3.2%)	1 (1.6%)	0	--	7 (11.1%)	53 (84.1%)	63 (100%)
Srinagar	2 (2.4%)	1 (1.2%)	4 (4.8%)	--	8 (9.5%)	69 (82.1%)	84 (100%)
Baramulla	9 (7.7%)	2 (1.7%)	2 (1.7%)	--	18 (15.4%)	86 (73.5%)	117 (100%)
Chi-square=9.5; p-value=0.300							

[Table/Fig-8]: Students responses to Life events checklist (7-9). PTSD checklist for DSM-5 with Life Events Checklist- Weather's FW et al., (2013)

and 13.1% GMC-Srinagar students witnessed as happened to someone else. Event 14 (Sudden violent death for example, homicide, suicide) was reported by 23.1% GMC-Baramulla students followed by 22.2% GMC-Anantnag students and 9.5%

College location	Event 10: Combat or exposure to a warzone (in the military or as a civilian)						
	a	b	c	d	e	f	Total
Anantnag	8 (12.7%)	5 (7.9%)	6 (9.5%)	--	4 (6.3%)	40 (63.5%)	63 (100%)
Srinagar	18 (21.4%)	5 (6.0%)	2 (2.4%)	--	13 (15.5%)	46 (54.8%)	84 (100%)
Baramulla	19 (16.2%)	9 (7.7%)	6 (5.1%)	--	14 (12.0%)	69 (59.0%)	117 (100%)
Chi-square=8.4; p-value=0.389							
College location	Event 11: Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)						
	a	b	c	d	e	f	Total
Anantnag	0	4 (6.3%)	3 (4.8%)	0	3 (4.8%)	53 (84.1%)	63 (100%)
Srinagar	1 (1.2%)	4 (4.8%)	4 (4.8%)	0	8 (9.5%)	67 (79.8%)	84 (100%)
Baramulla	0	2 (1.7%)	7 (6.0%)	1 (0.9%)	11 (9.4%)	96 (82.1%)	117 (100%)
Chi-square=7.5; p-value=0.671							
College location	Event 12: Life-Threatening illness or injury						
	a	b	c	d	e	f	Total
Anantnag	1 (1.6%)	9 (14.3%)	8 (12.7%)	0	4 (6.3%)	41 (65.1%)	63 (100%)
Srinagar	7 (8.3%)	13 (15.5%)	17 (20.2%)	0	6 (7.1%)	41 (48.8%)	84 (100%)
Baramulla	9 (7.7%)	25 (21.4%)	19 (16.2%)	1 (0.9%)	9 (7.7%)	54 (46.2%)	117 (100%)
Chi-square=10.2; p-value=0.422							

[Table/Fig-9]: Students responses to Life events checklist (10-12). PTSD checklist for DSM-5 with Life Events Checklist- Weather's FW et al., (2013)

GMC-Srinagar students witnessed as happened to someone else. Event 15 (Sudden accidental death) was reported by 33.3% GMC-Anantnag students and 23.1% GMC-Baramulla students witnessed as happened to someone else whereas 25.0% GMC-Srinagar students learned about it [Table/Fig-10]. Event 16 (Serious injury, harm, or death you caused to someone else) was reported by

College location	Event 13: Severe human suffering						
	a	b	c	d	e	f	Total
Anantnag	5 (7.9%)	14 (22.2%)	8 (12.7%)	0	7 (11.1%)	29 (46.0%)	63 (100%)
Srinagar	12 (14.3%)	11 (13.1%)	12 (14.3%)	1 (1.2%)	14 (16.7%)	34 (40.5%)	84 (100%)
Baramulla	8 (6.8%)	19 (16.2%)	14 (12.0%)	1 (0.9%)	26 (22.2%)	49 (41.9%)	117 (100%)
Chi-square=9.0; p-value=0.532							
College location	Event 14: Sudden violent death (for example, homicide, suicide)						
	a	b	c	d	e	f	Total
Anantnag	1 (1.6%)	14 (22.2%)	7 (11.1%)	--	6 (9.5%)	35 (55.6%)	63 (100%)
Srinagar	1 (1.2%)	8 (9.5%)	8 (9.5%)	--	9 (10.9%)	58 (69%)	84 (100%)
Baramulla	2 (1.7%)	27 (23.1%)	16 (13.7%)	--	18 (15.4%)	54 (46.2%)	117 (100%)
Chi-square=12.3; p-value=0.138							
College location	Event 15: Sudden accidental death						
	a	b	c	d	e	f	Total
Anantnag	3 (4.8%)	21 (33.3%)	5 (7.9%)	0	6 (9.5%)	28 (44.4%)	63 (100%)
Srinagar	2 (2.4%)	10 (11.9%)	21 (25.0%)	1 (1.2%)	8 (9.5%)	42 (50.0%)	84 (100%)
Baramulla	4 (3.4%)	27 (23.1%)	25 (21.4%)	0	14 (12.0%)	47 (40.2%)	117 (100%)
Chi-square=17.6; p-value=0.060							

[Table/Fig-10]: Students responses to Life events checklist (13-15). PTSD checklist for DSM-5 with Life Events Checklist- Weather's FW et al., (2013)

maximum students that the event does not apply to them. Event 17 (Any other very stressful event or experience) was reported highest by (41.7%) GMC-Srinagar students followed by almost equally by (39.7%) GMC-Anantnag students and (38.5%) GMC-Baramulla students witnessed as happened to them [Table/Fig-11].

College location	Event 16: Serious injury, harm, or death you caused to someone else						
	a	b	c	d	e	f	Total
Anantnag	1 (1.6%)	1 (1.6%)	0	--	7 (11.1%)	54 (85.7%)	63 (100%)
Srinagar	2 (2.4%)	3 (3.6%)	3 (3.6%)	--	8 (9.5%)	68 (81.0%)	84 (100%)
Baramulla	3 (2.6%)	7 (6.0%)	4 (3.4%)	--	11 (9.4%)	92 (78.6%)	117 (100%)
Chi-square=4.7; p-value=0.782							
College location	Event 17: Any other very stressful event or experience						
	a	b	c	d	e	f	Total
Anantnag	25 (39.7%)	4 (6.3%)	3 (4.8%)	0	12 (19.0%)	19 (30.2%)	63 (100%)
Srinagar	35 (41.7%)	4 (4.8%)	5 (6.0%)	0	14 (16.7%)	26 (31.0%)	84 (100%)
Baramulla	45 (38.5%)	4 (3.4%)	9 (7.7%)	1 (0.9%)	22 (18.8%)	36 (30.8%)	117 (100%)
Chi-square=2.9; p-value=0.983							

[Table/Fig-11]: Students responses to life events checklist (16,17). PTSD checklist for DSM-5 with Life Events Checklist- Weather's FW et al., (2013)

DISCUSSION

In present study, the results revealed that the overall maximum number of students 145 (54.9%) had moderate stress, followed by 83 (31.5%) who had high stress and 36 (13.6%) had low-stress levels. These results are in concordance with the study done by Heinen I et al., [19]. In one cross-sectional study carried out in a private medical college in India, the perceived stress was higher among higher age groups and final year students [20]. Yet another study has reported that stress amongst medical students is a dynamic process as the stressors keep changing with the year of study and constantly changing expectations of the students and the system [21]. The prevalence of stress has been reported by many studies worldwide. Mosley TH et al., in their study among third-year medical students at the University of Mississippi Medical Centre (UMMC) reported that 23% of students had a significant level of depression on the Centre for Epidemiologic Studies Depression Scale, and 57% had high levels of somatic complaints using the Wahler Physical Symptom Inventory [22]. In another study on first-year medical students at a university in the North of England, 36.8% had mental health problems as measured by the General Health Questionnaire [23] which is in accordance with present study.

Undertaking a medical degree in the Indian system involves a lengthy and expensive (in the private sector) MBBS program with the majority of selected students entering their first year (MBBS) directly after 10 plus 2 i.e., 12th standard who graduate five years later. Several factors have been suggested in the literature as having the potential to affect students' progression through training, leading to reduced performance in assessments and potentially the termination of their studentship. The factors include stress, gender, age, and location among others. Interestingly, present study did not find a significant association between stress and location of three medical institutions which was in line with the study carried out by Alzahem AM et al., according to which the five most commonly occurring stressors were: accommodation issues; personal factors; educational environment and location; academic issues; and clinical issues [24]. Main strength of the study was that it was multi-institutional with inclusion and participation of medical students (with adequate sample size) from three government medical colleges at three different locations in Kashmir. As the study participants were first and second year medical students, identification of susceptible

students in the early stage is possible. Providing essential possible support to such students will help to minimise the negative consequences of stress. This will be beneficial to these young medical graduates and to society at large in the future.

Limitation(s)

Present study was a questionnaire-based study, so reporting bias cannot be ignored.

CONCLUSION(S)

This study indicates an overall high prevalence of moderate stress followed by perceived high stress among the medical students of three medical colleges located in Kashmir. Interestingly, the location of the medical colleges had little impact on the stress level among such undergraduate students. Further studies wherein stress can be correlated with the academic performance of the students with equal participation of male and female medical students along with the coping strategies of students to relieve the stress need to be carried out.

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