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Perceived Stress and Coping Strategies among First Year Undergraduate Medical Students: A Cross-Sectional Study, Thrissur District, Kerala

Maria Mathew [α], Navya C J [σ] & Vidhu M Joshy [ρ]

Abstract- Coping strategies used by an individual for stress determine its effect on health and the body's functioning. Academic challenges make the first year medical students disparately susceptible to it. A cross-sectional study was conducted among the first year undergraduate medical students of a private medical college in Thrissur, Kerala to find the prevalence of stress and the coping strategies used with the help of pretested and validated questionnaire containing the Perceived Stress Scale 10 (PSS-10) and Brief COPE Inventory. 73% of the students had moderate stress and, 20% of the students had high-stress scores. Self-distraction and religion {(6.66 ±1.52), (6.55 ±1.58)} were the most common coping strategies used by the boys and girls respectively. The prevalence of stress was high among the first year undergraduate medical students and those with high-stress scores were found to use maladaptive coping strategies.

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I. Introduction

Coined by the endocrinologist Hans Salve in the 1930s[1], 'stress' is described as any factor that threatens the health of an individual or hurts the body's functioning[2]. Tertiary education is highly stressful to students[3], and various studies indicate that medical students face unique academic challenges that make them more vulnerable to it than students in other professional courses[4]. The vast syllabus, peer competition for academic performance, continuous evaluation and long duration of training include the most common stressors[5]. Although a minimal amount of stress is desirable and is necessary to spark a healthy competitive spirit, in excess it has undesirable impacts on the students[6]. It may lead to anxiety, substance abuse, and burnouts leading to the abandonment of studies, depression, and even suicidal thoughts[7, 8, 9]. There is impairment in academic performance as well as in the social life of the student[10]. Medical students seem to be stressed at all stages of their academic career, including pre-clinical, and clinical years[11-14]. First semester students were found particularly prone due to the transition to a new environment[11].

Coping strategies are specific efforts, both behavioral and psychological, that individuals employ to master, tolerate, reduce, or minimize stressful events[15]. Previous studies have shown that coping plays a pivotal role in adaptation to stressful life events[16]. Coping strategies are classified into active and avoidant strategies[17]. Active coping is considered a better way to deal with stress, while avoidant coping is a psychological risk factor for adverse responses to stressful events[18].

Stressed students may show decay in humanitarian attitudes[19] and a decline in empathy[20]. The students, being the future doctors, to ensure patient safety, it is essential to focus on their mental health. The gravity of the issue and the scarcity of information about the same validates the choice of this topic. The study aimed to find the prevalence of stress and the coping strategies used to overcome it in the first year undergraduate medical students of a private institution in Thrissur, Kerala.

II. Materials and Method

A cross-sectional study was conducted among the first year undergraduate medical students (100) enrolled in the year 2017-2018 in a private medical college in Thrissur, Kerala. After obtaining informed consent, a self-administered, pretested questionnaire was distributed to the students, and they were detailed with instructions to fill it.

There were questions regarding the socio-demographic details, the Perceived Stress Scale – 10 (PSS 10) Developed by Carver et al. in 1997, it categorized the coping strategies as an instrument for measuring the level of stress. To find coping strategies used by the students, an abbreviated version of the COPE Inventory called the Brief COPE was used. Developed by Carver et al. in 1997, that categorized the

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coping strategies as 'adaptive' and 'maladaptive' composites. Adaptive strategies include active coping, use of emotional and instrumental support, positive reframing, planning, humor, religion, etc. Maladaptive strategies are self-distraction, denial, substance abuse, venting, and self-blame. Students repeating their first year were excluded from the study.

The collected data was statistically analyzed using the Statistical Package for Social Sciences (SPSS) version 23 software. A p-value less than 0.05 was taken as statistically significant.

III. Results

a) Socio-demographic description

All the 100 students completed the questionnaire (response rate 100%). Majority of the students were girls (62%), and the mean age of the population was 19.71 with SD 0.92.

b) Perceived Stress Scores

The mean PSS score was 21.77±5.17. Moderate stress was reported by 73% of the students, and 20% had high stress (Table 1), which was found more in boys (23.68%) than girls (17.74%). But this was not found to be statistically significant. (Table 2)

c) Coping strategies among students

Among the coping strategies used by the students, self-distraction was found to be most common with mean score 6.38 ±1.376, and substance use was the least with a mean score 2.35±1.114 (Table 3). It was found that self-distraction was more popular among the boys (6.66 ±1.529), while religion was the main strategy used by the girls (6.55 ±1.586) which was found to have a significant difference (p=0.0001) than the boys. Substance abuse (p=0.001) and denial (p=0.010), which are maladaptive strategies were significantly used more by the boys. Adaptive strategies like planning (p=0.027) and use of instrumental support (p=0.049) were seen to be more with the girls (Table 4). Majority of the students used adaptive strategies. As the level of stress increased, the mean scores of students using maladaptive strategies to cope also increased, with a p-value of 0.001(Table 5). Between the high PSS scores and maladaptive strategies, the Pearson correlation coefficient was found to be r = 0.296 and the p-value was 0.003. (Table 6)

Table 1: Perceived stress using PSS-10

PSS-10 Score	%
Low stress (0-13)	7
Moderate stress (14-26)	73
High stress (27-40)	20
Total	100

Table 2: Gender distribution and PSS scores

Gender	PSS Total Score			Total
	Low stress	Moderate stress	High stress	
Female	2 (3.2)	49 (79.0)	11(17.7)	62
Male	5 (13.1)	24 (63.2)	9 (23.7)	38
Total	7	73	20	100

p value=0.108

Table 3: Coping strategies among the students

Coping Strategy	Mean	SD
Self-distraction	**6.38**	**1.376**
Active coping	5.83	1.164
Denial	3.70	1.655
Substance use	2.35	1.114
Use of emotional support	5.40	1.700
Use of instrumental support	5.46	1.726
Behavioral disengagement	4.20	1.706
Venting	5.08	1.489
Positive reframing	5.83	1.615
Planning	5.79	1.409
Humor	5.06	1.763
Acceptance	5.96	1.428
Religion	**6.01**	**1.904**
Self blame	4.65	1.690

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Table 4: Gender and coping strategies of the students

Coping Strategy	Female		Male		t value	p value
	Mean	SD	Mean	SD		
Self-distraction	6.21	1.256	6.66	1.529	1.593	0.114
Active coping	5.97	1.116	5.61	1.220	1.522	0.131
Denial	3.37	1.358	4.24	1.951	2.614	0.010*
Substance use	2.06	.400	2.82	1.642	3.451	0.001*
Use of emotional support	5.39	1.643	5.42	1.810	0.096	0.923
Use of instrumental support	5.73	1.681	5.03	1.732	1.997	0.049*
Behavioral disengagement	3.95	1.624	4.61	1.779	1.884	0.063
Venting	5.31	1.313	4.71	1.691	1.971	0.052
Positive reframing	5.90	1.399	5.71	1.930	0.577	0.565
Planning	6.03	1.414	5.39	1.326	2.240	0.027*
Humor	4.87	1.779	5.37	1.715	1.376	0.172
Acceptance	6.03	1.330	5.84	1.586	0.644	0.521
Religion	6.55	1.586	5.13	2.069	3.856	0.0001*
Self blame	4.53	1.576	4.84	1.868	0.889	0.376

* $p < 0.05$

Table 5: Levels of stress and maladaptive coping

PSS Score	%	Maladaptive coping		p value
		Mean	SD	
Low stress	7	24.00	6.000	0.001*
Moderate stress	73	25.56	4.658	
High stress	20	30.10	6.025	

*$p < 0.05$

Table 6: Correlation between coping strategies used and stress levels

Type of coping strategy	Pearson Correlation coefficient (r)	P value
Adaptive coping	-0.093	0.359
Maladaptive coping	0.296	0.003*

* $p < 0.05$

IV. Discussion

Medical students are expected to learn and master a vast amount of knowledge, attitudes, and skills for which they have to work hard which in turn put them under a lot of stress[21]. As per our study, the mean (PSS) Perceived Stress Score (SD) was 21.77 (5.17). A similar study done by Shakthivel et al. using PSS-10 had a mean stress score value of 17 with an SD of 6.5[22].Moderate levels of stress were experienced by 73% of the students and high levels by 20%. The rest of the students experienced low stress (7%).Results obtained by a similar study done in Maharashtra, India recorded that 85% of the first year medical students were stressed[23].

Various coping strategies were employed by the students to overcome stress, among which self-distraction (maladaptive), had the highest mean score (SD) of 6.38 (1.37), closely followed by religion (adaptive) with 6.01 (1.90). Results obtained by Samira et al. (2015) also showed maladaptive methods like 'self-blame' and 'self-criticism' as the common reactions to stress. Religious coping was frequently adopted as a coping measure, while the use of alcohol or other drugs was found to be rare[24].There were significant associations between coping strategies like substance use (p=0.001), denial (p=0.01) with the males and planning (0.027), religion (0.0001) with the females. With increasing levels of stress, the students used maladaptive strategies to cope up. An H et al. in their study also recorded that students using avoidant strategies experienced higher stress than others[25].

V. Conclusion

Moderate to high levels of stress were present in the first year medical students of this institution. To cope up with this, the students used different coping strategies of which self-distraction, religion, active coping, and acceptance were the most common. Students with high stress commonly used maladaptive strategies. Further studies are required to assess the long term effects of the stress in the students' lives.

Recommendations Stress among the medical students is seen from the first year of the course and therefore is to be managed from the beginning. Stress management workshops, counseling of the students, promote techniques for meditation like yoga, time management, educating the students about the ill effects of stress and maladaptive coping methods are necessary.

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