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Perceived Stress Levels Among First Year Medical Students at SBMCH: A Preliminary Investigation

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Abstract

Medical students, throughout their educational journey, may encounter stress when the demands of their curriculum surpass their coping resources. And it's been documented to experience elevated perceived stress levels compared to general academic population. Prolonged stress disrupts the body's internal equilibrium, homeostasis, and can lead to the onset of disease over time. Perceived stress involves the cognitive evaluation of a challenging situation and an individual's capacity to manage it utilizing accessible resources. The Perceives Stress Score (PSS)-10, a 10-item scale, is widely recognized as a psychological tool to assess stressful lives.

In this study, we evaluated the perceived stress in first year medical students (N=95) to classify into low, moderate or high stress, based on the PSS score, using PSS questionnaire. The results found that 76.84% had moderate and 5.26 % had high stress. There were no significant gender differences in the stress levels. These results highlight the need for more in-depth evaluations and interventions to improve medical education. Making healthy adjustments in physical health, psychological well-being, social relationships, and environmental factors is crucial for high quality life and to reduce perceived stress. This result, underscore the significance of embracing a healthy lifestyle to enhance overall well-being and minimize stress levels. Early intervention is critical in managing chronic stress, and targeting adolescents for such studies could be particularly beneficial.

Keywords – Oxidtive stress, Perceives Stress Score, Adolescence, Physical health, Medical students.

Introduction

Academic stress can be a significant stressor impacting the psychological well-being of college students. The late stages of adolescence and young adulthood are transitory ages characterized by significant physiological and psychological alterations, including increased stress (Matud, (2020).). According to studies, a stressor encountered in college may be a predictor of mental health diagnosis (Pedrelli, (2015).). College students are exposed to unique academic stressors, such as an intense academic course load, significant studying, time management, classroom competition, financial concerns, familial obligations, and adjusting to a new environment (Ketchen Lipson, (2015)). Moreover, the estimated prevalence of psychological disorders reported in numerous studies on medical graduates was considerably greater than that in the rest of the population (Sherina MS, 2004; R, 2003). Heavy burden of knowledge offers little opportunity for recreation, and occasionally leads to acute sleep deprivation. (Lee J, 2001).

Stress is a sequence of negative physiological responses that occur when people perceive challenges to their well-being that they are unable to fulfil (Lazarus, (1984)). Research showed that perceived stress is correlated to psychological depression and incident health issues (Stewart SM, 1999). Stress can cause cognitive symptoms like confusion, decreased decision-making skills, memory lapses, and difficulties organizing thoughts. The potential negative impacts of psychological stress on students in medicine include deterioration of performance in classroom and medical practice, stress-induced conditions and declining performance (Bramness JG, 1991). Doctors under excessive stress or burnout are less likely to deliver quality patient care, potentially jeopardizing patients due to poor decision-making or improperly executed operations.

Perceived stress is the degree to which incidents in the life of an individual are deemed stressful, unexpected, and unmanageable and, is often possible predictor of depression behaviours (Phillips, (2012)). Perceived stress encompasses feelings associated with the invincibility and uncertainty of one's life, the frequency with which one must deal with challenging issues, the amount of change in one's life, and confidence in one's ability to cope with problems or hurdles. It does not measure the sorts or frequency of stressful events that a person has experienced, but rather how an individual feels about the overall stressfulness of their life and their capacity to cope with such stress (A.C., 2013).

Few studies have been conducted to analyse perceived psychological stress and its impact on quality of life and their performance in Indian medical students. The significance of perceived stress in research necessitates the development of valid and reliable measurement tools. The perceived stress scale (PSS) is the most extensively used psychological tools for assessing stress (Cohen.,1983). In the current study, evaluation of perceived stress in MBBS students were performed using Perceived Stress Scale (PSS) questionnaire. The survey includes direct questions about present levels of stress and the questions aimed to assess respondents' perceptions of their lives as unpredictable, unmanageable, and overburdened. The capacity to consistently quantify stress among young adults during medical education would aid future study into how interventions and strategies can lower anxiety during the academic period. Addressing chronic stress symptoms gains significance with early intervention, and research efforts should focus on a demographic where corrective measures can yield a substantial impact. The adolescent age group emerges as an ideal target for such studies. Hence this study was designed to examine the perceived stress in first year MBBS students in Sree Balaji Medical college and hospital, Chrompet, Tamilnadu, India.

MATERIALS AND METHODS

Students pursuing first year MBBS degree were included in the study (N= 95; age 17-21 years). The study excluded students with known psychiatric disorders or those on antipsychotic or antidepressant drugs. To reduce bias from exam stress, students who had an exam within two months of the study day were eliminated. The study was approved by the institutional ethical committee and informed consent was provided to all participants.

Perceived stress scale is a self-screening, self-administered questionnaire, which consists of 10 questions with a five-level response scale. Students' reactions can indicate their level of psychological anguish, with cut-off score below 13 were considered no stress (Cohen 1983, 1988). Students responded to each question with one of five options: never, almost never, sometimes, pretty often, or very often. Individual scores were based on a numerical range of 0 to 40. PSS scores are calculated by inverting responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0) to the four positively answered questions (items 4, 5, 7, and 8) and then adding up all scale items. Scores between 0-13 were considered low, 14-26 were moderate, and 27-40 indicated an elevated state of stress.

DATA ANALYSIS

The data was recorded using MS Excel 2020 version and analyzed using SPSS software. The descriptive data were analysed based on total scores of each participant and were expressed in mean and standard deviation (SD). Continuous variables are expressed as means (±SD), whereas categorical variables were presented as percentages. A t-test was performed to examine gender difference in perceived stress. A p-value < 0.05 was considered statistically significant.

RESULTS:

Demographic data of the study population

A total of 95 students participated in the study. The mean age of the participants was 18.6±1.02 years. In our study population, females were more in proportion (76.8%) than males (23.2%). Dietary habits were surveyed, 64.2% reported to have normal, healthy diet, 19% had junk foods and 16.8% have mixed diet. In the participants included in the study, 42.1% included physical activity in their routine. Out of 95 participants, 31.6 % self-testified to have stress, while 20% stated that they were not in stress, and 48.4% were not sure about the response. The data collected from the participants were showed in Table 1.

Table 1: Demographic data of the study population (N=95).

Variables		**Number**	**Percent**
Gender	**Male**	**22**	**23.2**
	Female	**73**	**76.8**
Diet	**Normal**	**61**	**64.2**
	Junk food	**18**	**19**
	Mixed diet	**16**	**16.8**
Physical activity		**40**	**42.1**
Any medical issues		**14**	**14.7**
Self-reported stress		**30**	**31.6**

Status of Perceived Stress in participants:

A self-administered PSS questionnaire was provided to all the participants. The mean score for perceived stress was 18.49 (SD = 5.88). Furthermore, 52% of individuals (n = 52) reported moderate perceived stress, 20% (n = 20) severe perceived stress, and 28% (n = 28) low perceived stress (Fig1 and Table 2).

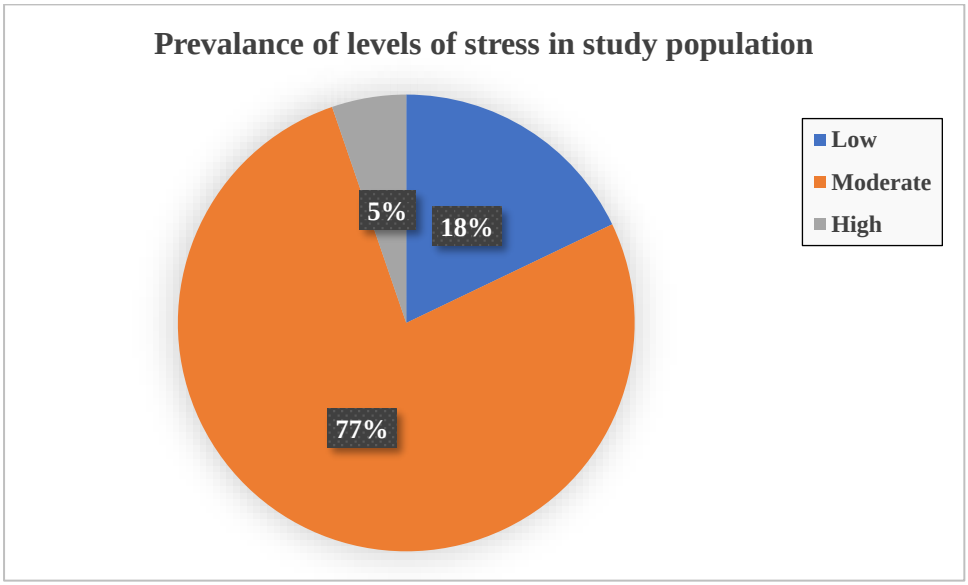

Table 2: Prevalence of level of stress in study population

Stress level	Number (*N* = 95)	(%)
Low *(PSS Score 0–13)*	17	17.90
Moderate *(PSS Score 14–26)*	73	76.84
High *(PSS Score 27–40)*	5	5.26

Further, we compared gender-based differences in perceived stress levels of the study population. The mean perceived stress in females was 16.34 (SD = 5.90), while in males it was 18.27 (SD = 5.19). Females reported high perceived stress at 6.85% (n = 5), moderate perceived stress at 73.97% (n = 54), and low perceived stress at 19.18% (n = 14). Males reported moderate perceived stress at 86.36% (n = 19), and low perceived stress at 13.64% (n = 3), however none

of the male participants stated high perceive stress. In addition, it was found that there was no significant difference in perceived stress between males and females (p >0.05) (Table 3).

Table 3: Comparison of PSS between male and female participants

	Low	***Moderate***	***High***	***Total***	***Mean***	***SD***	***t value***	***p value***
Female (n = 73)	19.18% (14)	73.97% (54)	6.85% (5)	73	16.34	5.90	0.84	0.75
Male (n = 22)	13.64% (3)	86.36% (19)	0% (0)	22	18.27	5.19		
Total (n= 95)	17.89% (17)	76.84% (73)	5.26% (5)	95	18.49	5.88		

Note: The t-value is significant at p<.05. PSS- Perceived Stress Scale. SD- Standard Deviation

The percentage distribution of question-wise scores given in Table 4.

Table 4: Item-wise percentage distribution of responses

	Perceived Stress Scale Items	**Percentage Distribution of Item Scores**				
		0	**1**	**2**	**3**	**4**
	Question 1	5.3	9.5	41.1	23.2	20
	Question 2	13.7	14.7	33.7	16.8	21.1
	Question 3	8.4	12.6	33.7	25.3	20
	Question 4	9.5	8.4	35.8	30.5	15.8
	Question 5	17.9	15.8	38.9	25.3	2.1
	Question 6	9.5	14.7	32.6	27.4	15.8
	Question 7	8.4	14.7	44.2	24.2	8.4
	Question 8	12.6	23.2	35.8	22.1	6.3
	Question 9	9.5	17.9	21.1	23.2	28.4
	Question 10	16.8	10.5	33.7	20	18.9

DISCUSSION:

Stress during undergraduate medical training has recently become a major source of concern. However, there have been little research on the subject at Indian medical colleges. In

this study, the perceived stress among medical students (n=95) were assessed. According to our results, majority of them faced moderate (76.85%) or high (5.26%) stress. In addition, there were no gender differences in stress perceived by student participants of our study.

A greater degree of stress among undergraduates has most commonly been associated with lower academic achievement. To improve our quality of life and reduce our perceived stress, we must make beneficial improvements to our physical health, psychological health, social interactions, and environment. The findings of this study highlight the importance of living a healthy lifestyle that promotes a higher quality of life and lower stress.

Previous studies indicated that healthcare students, particularly medical students, are subjected to more frequent stressors, including too many tests, time urgency, a lack of leisure time, academic pressure, and over work load (Saravanan et al., 2014). Perceived stress and quality of life are connected. By improving one, we can improve the other. Perceived stress was negatively correlated with quality of life, implying that low stress levels improve our quality of life. Our findings suggest that the stress prevention program should be focused on improving the academic environment in health care colleges. The current study's findings indicate the significance of developing counseling and stress management programs that can assist people in managing their physical and, emotional wellness, social relationships, and environmental health, as well as achieving balance in all aspects of life through a healthy lifestyle (Lee et al., 2016).

If students experience ongoing stress, it will have an impact not only on their mental health but also on their physical health, as stress has been linked to a variety of mental and physical conditions including hypertension, depression, diabetes, asthma, obesity, and cardiovascular disease (Stauder A, et al., 2018). As a result, the students demand appropriate attention, assistance, and support from their family and institutions (Cao et al., 2020). The institutions should review their course and program delivery mechanisms, techniques, and practices to ensure that students are not overly stressed, particularly due to the amount of exams, academic workload, and technological challenges they confront. Early intervention becomes essential for addressing chronic stress symptoms, with studies needing to focus on groups where corrective measures can yield significant impact. Consequently, the adolescent age group emerges as an ideal demographic for such research endeavours.

Although this study adds to the current knowledge, its conclusions are hampered by the small sample size. The self-administered questionnaire may have resulted in information bias due to respondent interpretations, inaccuracies, or desire to report emotions in a specific way.

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