Research Report

PERSONALITY, ADJUSTMENT STYLE AND ACADEMIC STRESS IN FIRST YEAR MEDICAL STUDENTS: A CROSS SECTIONAL STUDY

Rajmohan Velayudhan[1*], Sheela Sivan[2], Nimitha K Jayan[3], TM Raghuram[4].

[1]Associate Professor, Department of Psychiatry, MES Medical College, Perinthalmanna.
[2]Professor and Head, Department of Anatomy, MES Medical College, Perinthalmanna.
[3]Junior Resident, Department of Psychiatry, MES Medical College, Perinthalmanna.
[4] Professor and Head, Department of Psychiatry, MES Medical College, Perinthalmanna.
*Correspondence: Department of Psychiatry, MES Medical College, Perinthalmanna. E-mail: rajmohan.velayudhan@gmail.com

ABSTRACT

Background: Medical students especially in the first year of their academic life are under extreme stress.
Methods: Study was conducted on 76 first year medical students. They were given a semi-structured questionnaire to collect socio-demographic data. They were subsequently administered the Big Five Inventory scale to assess personality dimensions, the Academic Stress Scale and the Adjustment Style Inventory. The data were analysed with chi-square test, independent-sample T test, and Pearson's correlation.
Results: The personality dimensions, academic stress and coping scores showed no difference among both sexes. The academic stress score showed a negative correlation with coping scale ($p=0.019$). Students with high scores on agreeableness and conscientious reported significantly lesser academic stress ($p=0.24$ and 0.01). Students with a high score on the neuroticism dimension reported significantly more stress ($p=0.005$). The dimensions agreeableness and conscientious positively correlated with the coping score ($p= 0.005$ and $p<0.001$) and neuroticism negatively correlated with coping ($p=0.05$). Students with higher scores on agreeableness and conscientious showed significantly less scores on negative coping styles ($p<0.001$ and $p<0.001$) while those with neuroticism showed significantly more negative coping ($p=0.036$).
Conclusion: Agreeableness and conscientiousness were associated with lesser negative coping and students having neuroticism had more negative coping skills.

Keywords: personality, academic stress, adjustment style, positive coping, negative coping.

INTRODUCTION

First year in a medical school represent a major challenge for medical students. The prevalence of stress varies greatly across studies from 54% to 73%.[1,2,3] These studies have looked into general levels of stress and not estimated the academic stress which is a pertinent variable. Factors like time pressure, work load, and emotional issues play a dominant role in stress generation.[1] The vulnerability and intensity of stress depend on age, gender, intelligence, personality and adjustment styles.[2] Studies of stress in medical students reveal

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that majority of medical students' perceived stress and demographic and social factors like gender, socio-economic status, staying in hostels and taking up the course on parental pressure are variably attributed as the cause of stress.[2,4] Personality traits such as neuroticism, extraversion, sense of humour, persistence, conscientiousness, and openness to experience have a variable influence on stress.[1] A study showed that female students were more extroverted than males whereas male medical students were more neurotic than females.[4] The personality dimensions however showed no difference based on gender according to another study.[2] Stress among students also differ in terms of their coping strategies. A study also shows that adjustment (coping) strategies employed to confront stressful situations are independent of situational factors.[3] Another study shows students having positive coping styles have less stress than those with negative coping styles.[3] This study however has not shown the independent influence of coping styles on stress.[2] Abdulghani et al. shows that presence of physical problems had a significant association with a higher level of stress among the students.[3] This variable has not been specifically studied by others. The studies also differ in the year-wise distribution of its participants and most studies have studied medical students across their 5-year span.[1-4] We were also unable to find a study from a rural based medical college.

Due to the wide variance in the methodologies used, the inconsistency in the influence of socio-demographic factors and medical illness, the lack of agreement on personality factors and the gender wise difference in personality styles, and scant evidence on the role of positive and negative coping strategies, there is a need for further study. Moreover, most studies to date have studied general stress and have not focused on academic stress, which also is an area requiring further research. The aim of the present study was to measure academic stress in the first year medical students in a rural setting and to correlate it with socio-demographic variables, adjustment styles and personality dimensions.

MATERIALS AND METHODS

The current study with a cross-sectional design was conducted on 100 first year medical students in a rural medical college in Kerala in May 2015.

The college offers a programme of mentoring first year students which extends to their final year. The mentoring programme has been in existence for the past five years. The programme was started with the aim to decrease the stress of medical students. Here, a group of five or six students are assigned to faculty members from different departments. The students are free to discuss academic and personal issues with the faculty member. The faculty provides them with necessary assistance and guidance. The faculty member meets and follows up of these students at times of need. The programme helps build a strong bond between teachers and students, and teachers are perceived as facilitators and friends, which help in creating a more congenial environment. This programme exists in addition to other measures like anti-ragging committee and grievance and abuse reporting committees.

The study started after Institutional Ethical Committee approval. All students who gave written informed consent and completed the questionnaire were included in the study. The students were first given the socio-demographic questionnaire to collect the relevant variables. Subsequently they were administered the Big Five Inventory[5] to record the personality dimensions. The Academic Stress Scale,[6] a validated scale consisting of 40 questions to enumerate the level of stress, was given next. The scale is a five-point scale from 1 to 5 with 1 denoting no stress, 2 implying some stress, 3 as moderate stress, 4 as high stress and 5 as extreme stress. A score of 80 and above shows moderate stress. The students then completed the Adjustment Styles Inventory, a validated tool to assess positive and negative coping styles consisting of 40 questions.[7] The categorical data collected were analysed using the chi-square test, and the continuous data using the independent sample t test, Pearson's correlation and analysis of variance (ANOVA). All data were

analysed using the statistical package for social services version 17 (SPSS 17) for windows.[8]

RESULTS

Of the total of 100 students in the first year, only 76 completed the study. Four students didn't give consent for the study, five students were not present on the first session of study, eight students didn't complete the stress scale, and a further eight students didn't complete the assessment of personality and adjustment styles. Of the 76 students who completed the study, 86.8% were females and 13.2 % were males. Fifty percent of the students were from rural area and 50% were from urban area. Of the students, 93.4% were from middle socioeconomic class and 6.6% were from high socioeconomic class. 93.4% of students joined medical school according to their choice and 6.6% took it out of compulsion, especially from parents. Among the students, 68.4% had average performance (50-70 % marks) in the first year, 18.4% had good performance (above 70%), and 13.2% had poor performance (below 50%). 2.6% students were day-scholars and 97.4% of students stayed in the hostel. 7.9 % of the students had a medical illness of a chronic nature.

Mean age of the students was 19.39 years (SD=0.67). The mean mark obtained in plus two examinations was 90.39% (SD=6.7). There was no significant difference among boys and girls in terms of the socio-demographic variables like age (t= 0.635, p=0.716), residence (χ^2= 3.45, p=0.34), place of stay (χ^2= 3.124, p=0.52), or parental pressure to take medical course (χ^2= 2.942, p= 0.836).

79% of the students experienced stress, of which 48.7% experienced moderate stress while 30.3% had severe stress. There was no significant difference among the sexes in terms of 12th standard percentage, academic stress, personality, and adjustment styles (Table 1).

There was no significant association noticed between stress and any of the socio-demographic variables like age (t= 0.930, p=0.356), residence (χ^2= 2.757, p=0.252), place of stay (χ^2= 3.270, p=0.135), presence of medical illness (χ^2= 2.942, p=0.836) or parental pressure to take medical course (χ^2= 2.618, p= 0.316). There was also no significant association between the class 12 marks (t= -0.234, p=0.272) performance in the first year of medicine and stress (F= 2.875, p= 0.063) using ANOVA.

There was a significant correlation negative correlation between the academic stress score and adjustment style score (ρ= -0.268, p=0.019), implying students with better adjustment styles had lesser stress.

Table 1: *Sex and personality, stress, and adjustment style*

	Sex	Mean	Statistic
Extraversion	Female	27.35	t= 0.930
	Male	25.60	p=0.356
Agreeableness	Female	36.77	t= 0.598
	Male	35.70	p=0.552
Conscientiousness	Female	26.05	t= 0.362
	Male	25.40	p=0. 719
Neuroticism	Female	27.59	t= - 0.004
	Male	27.60	p=0.997
Openness	Female	35.03	t= 0.658
	Male	33.80	p=0.512
Academic Stress	Female	107.52	t= 1.198
	Male	97.10	p=0.235
Adjustment Style	Female	134.80	t= -0.022
	Male	134.90	p=0.982
Negative Coping	Female	79.94	t= -0.376
	Male	81.40	p=0.708
Positive Coping	Female	54.86	t= 0.398
	Male	53.50	p=0.672
Class 12 marks	Female	90.32	t= -0.24
	Male	90.89	p=0.805

Table 2: Correlation of personality dimensions with stress and adjustment style

	Academic Stress	Adjustment style	Positive Coping	Negative Coping
Extraversion	-0.045 0.698	.129 .268	0.105 0.366	0.050 0.669
Agreeableness	**-0.260*** **0.024**	**0.319**** **0.005**	-0.127 0.275	**0.466**** **<0.001**
Conscientiousness	**-0.293*** **0.010**	**0.448**** **0.000**	0.106 0.360	**0.403**** **0.000**
Neuroticism	**0.320**** **0.005**	**-0.318**** **0.005**	-0.126 0.277	**-0.241*** **0.036**

*p<0.05; **p<0.01

There was a significant negative correlation between the stress level and agreeableness (ρ= - 0.260, p=0.293) and conscientiousness (ρ= 0.403, p=0.01). Students with these personality dimensions therefore experienced lesser academic stress. A significant correlation was seen between stress and neuroticism (ρ= 0.320, p=0.005), indicating a higher level of stress in these students (Table 2).

Students with agreeableness had a significant positive correlation with negative coping skills score (ρ= 0.466, p<0.001). There was a significant positive correlation between conscientiousness and negative coping skill (ρ= 0.403, p<0.001). There was a significant negative correlation between neuroticism and negative coping, indicating more negative adjustment style use in them (ρ= -0.241, p=0.036). There was no significant correlation between any of the personality dimensions and positive coping (Table 2). Therefore, agreeableness and conscientiousness were associated with lesser negative coping and students having neuroticism had more negative coping skills.

DISCUSSION

Stress along with social, emotional, physical factors influences the learning ability and academic performance. This study shows a high prevalence of academic stress in medical students (79%), which was marginally higher than earlier studies (54-73%).[1,2,3] Earlier studies have shown that academic factors were greater perceived cause of stress than emotional, physical and social factors.[9,10,11] However, this is the first study to measure academic stress as opposed to stress in general, so further studies are needed to ascertain whether a higher proportion of students' experience academic stress than general stress. The current study did not demonstrate any difference in stress level on the basis of gender as opposed to an earlier study which showed that boys have higher stress levels.[9] The aforementioned study, however, measured social stress and attributed excess social stress in boys to over-involvement in social circles and lack of support from seniors.[9] However, these are not pertinent when considering academic stress. The policy of guiding (mentoring programme) students in academic matters and pertinent social matters, with each group assigned to a particular staff member, may be a reason why there was no difference in stress as far as boys and girls are concerned. A study showed that mentoring provides psychosocial support and improves career development. When students perceive their teachers as partners in the educational process, they are more likely to take on new and difficult tasks. Positive teacher-student relationships have been linked to students' satisfaction with college, their educational aspirations and their academic achievement.[12]

The current study shows that academic stress was similar among day scholars and hostellers.

However, hostellers were found to be having more stress in a previous study.[9] The factors that accounted for greater stress, including academic stress score, in this study were staying away from home, lack of social support, inadequate hostel facilities and improper food habits.[9] The mentoring programme providing adequate support and guidance and the active interest taken by the hostel wardens and management in ensuring quality stay and food might account for the similar stress levels among hostellers and day-scholars.

Personality characteristics of medical students influence their academic performance.[9] The relationship between personality and performance becomes increasingly significant as the student advances through medical training. Agreeableness and conscientiousness were personality traits associated with lesser academic stress in this study. An earlier study had demonstrated that students who had the above two qualities show less of negative coping skills than positive coping skills.[2] Further, the main personality characteristic repeatedly identified in literature associated with less stress and better adjustment was conscientiousness.[10,11,13] There is evidence from literature to cite that agreeableness and conscientiousness have been correlated with avoiding interpersonal problems and having positive emotional coping in response to stressful situations.[13] Agreeableness was found to be associated with greater subjective well-being, and lower risk for clinical symptoms, primarily externalizing problems, and suicide attempts.[15] Conscientiousness was strongly associated with positive appraisal and self-regulation. Planning and positive reappraisal were found to be related to conscientiousness, and evidence has emphasized its close association with self-efficacy.[15] Therefore, by influencing the positive systems involved in stress regulation, agreeableness and conscientiousness controls academic stress in students.

Neuroticism, on the other hand, was a detrimental trait associated with more academic stress. An earlier study has shown that students who had neuroticism showed more negative coping skills.[2] Individuals with high neuroticism are likely to experience negative emotions such as depression, anxiety and anger, which, in turn, lead to poor adjustment, possibly through maladaptive coping and antagonistic emotions as well as ambivalent interpersonal relationships. Neurotic people are more sensitive to life events, which they appraise more negatively. Due to poor emotional regulation, their emotions spill over from one area of life to another.[15] This poor emotional regulation may therefore create stress in academic matters.

The study found that negative coping styles were associated with more stress and that positive coping did not influence stress. This contradicts a previous study which showed that students having positive coping styles have less stress than those with negative coping styles.[2] Another study, done in Nepal, had shown that most of the students were using positive coping skills, while we found no significance for net positive coping skills.[10] However, a study on stress, coping and support concluded that stressful factors, negative coping style and social support all have main effects on mental symptoms, and positive coping style has no main effect on mental symptoms. In order to improve the psychological condition of students, aside from reducing the stress incidents, avoiding negative coping, is very important.[16] Negative coping strategies therefore probably offset the protective role of positive coping repertoire and make a person vulnerable to stress. Therefore, strategies aimed at reducing negative coping may play a greater role in stress reduction than increasing the positive coping repertoire.

Adequate sample size, focus on first year students, focus on academic stress, and use of scales validated to Indian condition were the major strengths of the study. The probable inclusion of students with mental illness, the use of self-administered questionnaires as opposed to rater-administered scales, and the over representation of girls in the sample may have affected the results.

The study is unique in that it looked exclusively into prevalence of academic stress of first year medical students in a rural setting and its relation to the various sociodemographic variables. It also sheds light, albeit indirectly, on the role of mentoring in decreasing the vulnerability to stress by softening the transition to a new social and academic environment, a fact which needs further study. The study also throws light on the association of chronic illness, personality and coping styles to academic stress. The study found no gender difference in personality traits, stress and adjustment styles. Agreeableness and conscientiousness played an important part in stress reduction. Neuroticism increased the vulnerability to academic stress. Chronic medical illness predisposes students to stress. Use of negative coping style significantly determined the stress predisposition than the protective effect of positive coping. Our study highlights the need for interventions in medical education targeted at identifying and relieving stress especially in vulnerable personalities. Stress management workshops, especially aimed at reduction of negative coping at the point of entry to a medical career, would be helpful in shaping better doctors.

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