Factors influencing academic performance among first year medical students- A cross sectional study

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Abstract

Background: Medical students especially in the first year of their college life are under extreme stress to perform academically. Materials and Methods: Study was conducted on 100 first year medical students. The students were given a semi-structured questionnaire to collect socio-demographic data; they were subsequently administered the Academic Stress Scale. The data was analyzed with chi-square test, independent-sample T test, paired T test and ANOVA. Results: The marks in twelfth standard was significantly higher for good and average performing first year students when compared to poor performers. (p<0.001) The academic stress and performance showed no difference among both sexes. Medical illness, stress and socio-demographic variables had no association with academic performance. Conclusion: Previous academic performance was the most important determinant of academic performance in the first year of medical school.

Keywords: Personality, academic performance, academic stress, twelfth marks

Introduction

First year in a medical school represent a major challenge for medical students. The onus on academic performance is a major determinant of stress. Factors like staying away from home, adjusting to new academic environment, stress levels, time pressure, work load, and emotional issues play a role in determining academic performance. [1,2,3,4] Studies of stress in medical students reveal 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] A study among medical students found stress and poor academic performance to be more in females. [5] A study also showed greater academic stress and poorer performance among students in hostel.[6] Abdul Ghani et al also showed that presence of physical problems had a significant association with a higher level of stress among the students and affects their academic performance. [3]

Most studies have looked at stress as the major variable on academic performance across the five years of

medical education. Studies looking into the academic performance among first year students are few. [4,6] They however have not determined the influence of socio-demographic, health, stress and past academic levels on academic performance in a comprehensive manner. Further no studies have come from rural regions or Kerala state. This study aimed to determine in a comprehensive manner the influence of socio-demographic variables, medical illness, past academic level, and stress on academic performance of students among a rural medical college in Kerala.

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 Academic Stress Scale [7] 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 categorical data collected were analyzed using the chi-square test, and the continuous data using the independent sample t test and analysis of variance (ANOVA). All data were analyzed using the statistical package for social services version 17 (SPSS 17) for windows.

Result

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, sixteen students didn't complete the questionnaires. Of the 76 students completed the study 86.8% were females and 13.2 % were males. Fifty percent of the students were from rural area and 50 % of students were from urban area. Of the students 93.4% were from middle socioeconomic class 6.6% students 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% students had good performance (above 70%) and 13.2% students 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 19.39yrs (SD=0.67). The average plus two percentage 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 ($\chi2$= 3.45, p= 0.34), place of stay ($\chi2$= 3.124, p= 0.52), and parental pressure to take medical course ($\chi2$= 2.942, p= 0.836).

79% of the students experienced stress, of which 48.7% experienced moderate stress while 30.3% had severe stress.

Table 1: Academic Performance and Twelfth Score.

	MBBS Performance	Mean	Statistic
Class 12 Marks	Poor	82.04	F= 12.89
	Average	91.10	P<0.001
	Good	93.68	

Academic performance showed a significant association with 12th standard marks, with those with good and average performance having significantly higher 12th score than those with poor performance on ANOVA. (F= 12.89, p<0.001) Students scoring good marks had on average 11.7% marks than poor performers and those who performed average in MBBS had 9.1% more marks than poor performers. In effect those who performed well during MBBS had more than 90% score in their 12th grade examination.

There was no significant association noticed between academic performance and any of the socio-demographic variables like sex ($\chi2$= 2.75, p= 0.25), residence ($\chi2$= 2.757, p= 0.252), place of stay ($\chi2$= 2.59, p= 0.27), socio-economic status ($\chi2$= 2.757, p= 0.252), medical illness ($\chi2$= 1.47, p= 0.47) and parental pressure to take medical course ($\chi2$= 2.618, p= 0.316). There was also no significant association between the performance in the first year of medicine and stress (F= 2.875, p= 0.063) using ANOVA.

Discussion

Academic performance in medical colleges is paramount for career advancement. Psycho-social, cognitive and emotional variables contribute to the stress levels of students which in turn influence academic performance. This study however shows that it is the cognitive capacity of a student as evidenced by their twelfth standard marks which solely determines the academic performance of the first-year medical students. The students who had marks above 90% put up average and above average performance during the first academic year. The good performers in first year MBBS had a superiority of around 11% marks in their twelfth exams compared to poor performers. This is in concordance with an earlier study that found that 10th and 12th marks were important factor which may influence the second-year performance in addition to marks in first year. [8]

The over representation of girls in the study is a reflection of the ever-increasing number of girls entering the medical profession. This trend of medicine becoming an increasingly female dominated profession has been echoed by an earlier study. [9] Despite the over representation of females, the current study did not demonstrate any difference in academic performance on the basis of gender. This contradicts an earlier study which showed that girls have higher academic stress and burn out [5] and another study which showed that boys have higher stress levels. [6] The aforementioned study mentioned however measured social stress and attributed excess social stress in boys to over-involvement in social circles and lack of support from seniors. [6] 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. [10]

Academic stress according to our study had no influence on academic performance, this probably is attributable to the fact that students with good previous performance are able to handle stress better. However other studies have shown that stress can hamper academic performance. [2, 3, 4] The current study shows that academic performance was similar among day scholars and hostlers. However, hostlers were found to be having more stress in a previous study. [6] 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. [6] 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 hostelers and day-scholars. The other variables like socio-economic status and urban-rural differences, showed no affect on academic performance. There were however no studies which correlated the role of these variables with academic performance.

The adequate sample size, focus on the first-year students, focus on academic stress, and use of validated scales 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 performance of first year medical students in a rural setting and its relation to the various socio-demographic variables, stress, medical health and past academic performance. The study without doubt affirms the view that previous academic performance is the most important factor that determines performance in the first year of MBBS. Therefore, academic excellence should be given top priority while inducting students to medical courses.

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