

Factors Affecting the Performance of Undergraduate Medical Students: A Perspective

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ABSTRACT

Context: Performance of medical students in developing nations like India is perceived to have largely declined. **Aims:** We attempted to assess the reasons behind such trends. **Settings and Design:** Students in their third year of medical study were given a predesigned, pretested structured and validated questionnaire that they filled in anonymously. The key areas assessed were concentration, interest and understanding of the subject and other perceived causes of poor performance. Tests for descriptive statistics were applied for evaluation. **Results and Conclusions:** One hundred and fifty students participated in the study. Fifty-five (36.66%) students performed poorly. Male gender, inability to clear the previous professional examination at the first attempt, difficulty in understanding medium of instruction, self-assessed depression, sleep disorders and perceived parental and peer pressure and dissatisfaction with career choice were significantly linked with poor performance ($P < 0.05$ for each factor). Socioeconomic status and regularity in class were not linked to academic performance.

Keywords: Depression, medical education, poor performance

Introduction

Undergraduate medical education in India and many developing nations is facing new challenges today. In spite of the best teachers applied to the medical students, performance of students as well as doctors in the community is perceived to have largely declined.

Multiple stressors including academic burden, parental and peer pressure and even psychological ailments affect medical students, and this shows up in their performance.⁽¹⁾ Depression, burn out and stress are seen more commonly among medical students.^(2,3) Earlier studies have shown a phenomenon of “burn out” that affects medical students. This increases psychiatric morbidity and affects performance.⁽⁴⁾

Objectives

Following a generally perceived poor performance of students in the continuous assessment tests in pharmacology and an unfortunate suicide, we attempted to find the causes of poor performance among the medical undergraduate students in our college. There have been studies exploring psychological and social factors separately as predictors of poor performance. We undertook this study to look into all factors that could affect performance.

Subjects and Methods

The study was conducted in the Department of Pharmacology at a tertiary care hospital and medical college in Eastern India. All students appearing for their second professional exam who were willing to participate in the study anonymously were included. This was a descriptive observational study. The study commenced after approval from the Institutional Ethical Committee.

A predesigned, pretested, structured and validated questionnaire in English with 20 questions was given to all students appearing for one of their continuous

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assessment tests, and their response was recorded. Because the medium of instruction in our institution is English, and the questions were fairly straightforward, it was assumed that there was no difficulty on the student's part to understand them. There were no reports of not understanding the questions. The students were given the questionnaires simultaneously while seated in the lecture hall and were not given scope for discussion while answering. The questionnaire was based on a 2010 study by Santen *et al.*, where they assessed the prevalence and associated factors leading to burn out among medical students, and was modified by a practicing psychiatrist to suit our objectives whereupon it was validated.⁽⁴⁾ We recorded the responses of all the questions from the 150 students who participated in the study anonymously. The teacher assessing the student was requested to put in their assessment of the student in the test in the questionnaire after the student returned the filled in proforma.

The questionnaire randomly asked questions focusing on the following areas based on factors associated with poor academic performance and burn out:^(4,5)

- Assessment of sincerity - lack of interest/concentration/regularity
- Language/expression/understanding problems
- Familial/socioeconomic problems and support systems
- Self-assessed medical/psychiatric problems and degree of optimism regarding future prospects

Although some of the questions asked students to rate within a scale of one to 10, some of the questions were left open-ended. Parents' occupation and number of family members were asked to assess the socioeconomic status using the Modified Kuppaswamy scale.⁽⁶⁾

Statistical analysis was performed using statistical software GRAPH PAD PRISM version 4.03 for Windows (Graph Pad Software Inc., San Diego, CA, USA). Standard tests for descriptive statistics were applied, which commonly included the use of percentage. Association between poor performance and other parameters was made using odds ratio (OR). *P*-value of less than 0.05 was considered to be statistically significant.

Results

Of the total of 150 students who participated in the study, 41 students were females. One of the students in the class of 151 refused to participate for unknown reasons and was excused. Males performed worse than females in the test (OR 0.2194, 95% CI 0.08069–0.5968, *P*<0.0001). Fifty-five students (36.66%) performed poorly in the test as assessed by the examiners. Poor performance was deemed as a score of less than 50%.

Of these 150 students, 120 had cleared their first professional examination at first attempt and 30 had cleared it in the second attempt. Students who had taken more than one attempt to clear the first professional exam fared worse compared with those who had cleared the exam in their first attempt (OR 7.250, 95% CI 2.938–17.89, *P*<0.0001).

The broad results from the study and the association of the study parameters with poor performance are depicted in Table 1. The medium of instruction in India is English. There is a large majority of students who have been instructed in their vernacular language before starting medical education. For these students, understanding as well as expressing themselves verbally and in writing in English becomes more difficult.⁽¹⁾ We noted that 14% of our study population faced difficulty in understanding the medium of instruction.

From our study, we found that 23.3% did not aim to be doctors. Of these, a large majority (45.7%) had originally wanted to pursue a career in engineering. Nearly a quarter (25.7%) had wanted to pursue basic sciences, and 17.14% had wanted to study arts and languages. We also enquired about boarding status in hostel and found that 57 (38%) were hostel boarders. We enquired about addictions and did not get satisfactory feedback. Only 22 male students admitted that they smoked, and no other addictions were reported. We discarded evaluation of this question due to our inability to assess the rate of various addictions.

Discussion

Earlier studies have shown a strong association between poor performance in preclinical years, burn out and serious professional misconduct in later practice.^(7,8) Studies have also shown that males from lower socioeconomic backgrounds who routinely performed badly in their initial years of medical study tend to perform serious errors in their clinical practice later. From our study, we attempted to gauge some reasons that could affect the performance of undergraduate medical students in continuous assessment tests. Other authors have noted that socioeconomic status and type of school attended did not affect academic performance.^(9,10) Our results showed that male students, especially those who had performed poorly in their first professional examinations, were likely to perform badly academically in their third year of medical education. We also did not find the socioeconomic background to be a significant factor affecting performance. Our study however shows a significant association between students who have difficulty in understanding the medium of instruction (English) and academic performance.

Table 1: Association of various factors and poor performance among undergraduate medical students using odds ratio

Parameter	Percentage of students with complaints			Odds of performing poorly with 95% confidence interval	P value
	Passed (%) N=95	Failed (%) N=55	Total (%)		
Lack of concentration	23 (24.21)	21 (38.18)	29.33	1.934; 0.9424–3.967	0.09
Lack of interest	2 (2.1)	3 (5.45)	3.33	2.591; 0.4197–15.99	0.36
Lack of regularity (from attendance records)	16 (16.84)	6 (10.9)	13.33	0.6046; 0.2215–1.650	0.4729
Difficulty in understanding the topic	19 (20%)	15 (27.27)	22.6	1.500; 0.6890–3.265	0.3184
Language problem	5 (5.2)	16 (29.09)	14	7.385; 2.527–21.58	0.0001*
Low socioeconomic status	7 (7.36)	9 (16.36)	10.6	2.460; 0.8604–7.031	0.1031
Self-assessed stress	10 (10.52)	3 (5.45)	8.66	0.4904; 0.1289–1.865	0.3750
Self-assessed and clinical depression	6 (6.31)	15 (27.27)	14	5.563; 2.010–15.39	0.0010*
Sleep disorders	10 (10.52)	13 (23.63)	15.33	2.631; 1.066–6.495	0.0370*
Perceived parental pressure	8 (8.42)	13 (23.63)	14	3.366; 1.295–8.746	0.0140*
Perceived peer pressure	15 (15.78)	20 (36.36)	23.3	3.048; 1.399–6.639	0.0052*
Poor or uncertain perception of future	52 (54.73)	25 (45.45)	51.33	0.6891; 0.3536–1.343	0.3111
Different career aims	17 (17.89)	18 (32.72)	23.3	2.232; 1.034–4.820	0.0462*

*Statistically significant

Depression and perceived stress have been reported commonly among medical students, with studies showing that at least one-fourth of the medical students in their first 2 years of study are affected by depression, with females being more susceptible. In spite of the fact that the rate of depression among students entering medical school is similar to that among other people of similar age, the prevalence increases disproportionately over the course of medical school.^(2,3,11) There are no concrete studies that study the effect of depression and stress on performance in the initial study years of medicine. There is however a suggestion of depression in medical students affecting patient care.⁽¹¹⁾ Studies also suggest that many medical students come in for psychiatric evaluation after their grades start suffering. Initially, many of them perceive depressive illnesses as stress of medical studies, which deters them from seeking help. A review also points out that most of the medical students work late into the night and do not get enough sleep. This makes sleep disorders as well as depression more difficult to diagnose.⁽¹²⁾ In our study, depression, sleep disorders, self-assessed burn out and self-reported stress was seen in less than 20% of the students. However, there was a significant correlation between depression, inability to sleep adequately and poor performance in our study population.

Parental and peer pressure has been significantly related to student's mental well being and levels of stress. However, there have been no studies correlating perceived parental and peer pressure with academic performance in medical school. We found that a significant number of poor performers in our study felt that they would be rejected by their parents and friends alike if they performed badly. There were also a significant number of students among the poor performers in our study who had not aimed to be doctors. This dissatisfaction with the career choice that may have been forced on them could be a reason for lack of

interest, lack of concentration, depression and, ultimately, poor academic performance. We also noted that nearly half of our study population was not optimistic about their future prospects. Good, average and poor performers did not differ in their attitude toward their future. We however concluded that this pessimism could be the reason for poor performance in general.

From the study, we concluded that male gender, early failures, inability to understand the medium of instruction, self-assessed depression, burn out, sleep disorders and perceived parental and peer pressure were significantly related to poor performance. Dissatisfaction with career choice was also related to poor performance. Socioeconomic status and regularity in class were not linked to academic performance.

Thus, the most important as well as correctable factors contributing to poor performance in our study population are psychological. Therefore, more focus on the emotional and psychological needs of medical students is warranted to ensure better academic performance and, thereafter, better clinical performance. Further studies are being planned from different medical institutions in order to gain a better insight into the matter.

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