

Medical Education

Motivation and preparedness of first semester medical students for a career in medicine

**Nilima Shankar¹, Satendra Singh², Shikha Gautam³
and Upreet Dhaliwal⁴**

Department of Physiology^{1,2,3} and Ophthalmology⁴,
University College of Medical Sciences, (University of Delhi),
Dilshad Garden, Delhi – 110 095

Abstract

Purpose : To determine motivation of medical students towards a medical career, and their knowledge of and preparation for it.

Methods : After ethical committee approval, students admitted in 2009, who volunteered, were administered an anonymous questionnaire. Descriptive analysis was done.

Results : Of 150 students admitted, 103 (68.7%) submitted completed questionnaires. Fifty-seven students (55%) got admission after ≥ 2 attempts; 65 (63%) decided on a medical career before class ten. Accurate knowledge about the curriculum was poor even though many had a family member in the health field and were encouraged to take up medicine. Only half had sought guidance from a medical person; most had never undergone career preparation activity.

Conclusion : Students are early deciders and highly motivated to join medicine. Family is a strong motivator and could encourage career preparation activities. Policy makers could design interventions to inform school students before they make the critical decision to join medicine.

INTRODUCTION

The medical profession is considered to be both satisfying and lucrative, drawing the best students to its ranks every year (1,2). However, several studies have indicated occupational burnout as a substantial and growing problem among current medical practitioners suggesting that enthusiasm is replaced, somewhere along the way, by pessimism and cynicism (3,4). Despite this unfavourable outcome of

the profession we find that thousands of students all over the country are still eager to pursue the medical profession. What motivates them to become doctors? Do these young men and women really know what kind of work environment awaits them during the course of their arduous medical education and training? Studies from other countries have indicated that students are not always aware of what they are getting into when they join the medical profession (1). Thus, they may have unrealistic perceptions of the medical curriculum and of medical practice later. Such gaps between expectations and reality may slowly lead to anxiety and disillusionment in their chosen career (5-7).

It has also been observed that many students in India prefer a career in medicine because of parental pressure and therefore lack motivation of their own

***Corresponding author :**

Dr. Nilima Shankar, Department of Physiology, University College of Medical Sciences, Delhi – 110 095; Phone number : 9811109089; Facsimile number : 011-22590495; E-mail address: nilushankar@yahoo.com

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nor do they display any professionalism (8). It is to be remembered that in our country the majority of children taking this decision are very young and have lead a very protected life with plenty of parental guidance but with not much career counselling. Little has been done to examine whether they understand the demands and rigors of a career in medicine once they decide to choose it.

The purpose of this study was to determine the motivation of the current cohort of first semester medical students towards a career in medicine, and their knowledge of and preparation for the demands of such a career. We feel that uncovering the gaps in students' understanding of these factors may assist us in designing interventions that target school students before they make the critical decision to join the medical community.

Materials and Methods

After receiving approval from the Institutional Ethical Committee, all first semester medical students admitted in August 2009 at this institution were included as volunteers in the study, two months after joining, when they were more settled in their college routine. On the day of the survey, the authors introduced the study being conducted and distributed the 20 point questionnaire to the students towards the end of one of the regularly scheduled Physiology lectures. Participants were also handed a written participant information sheet that detailed the aim and method of the study. Since students are a vulnerable population, the questionnaire was anonymous and self-administered.

To remove perception of coercion to participate, it was distributed and collected by the author not involved at the time in teaching first semester students. Further, the data confidentiality was also ensured over and above the anonymity. The questionnaire items were taken from the literature (1-8). To ensure content validity, the questionnaire was pre-tested in 10 volunteers of the target batch and suitably modified based on their feedback; the instrument was reliable (Cronbach's alpha varied from 0.7 to 0.9 for all items).

The primary outcome measures were the number of attempts taken by students for admission and the people who motivated them for a career in medicine. The secondary outcome measures were number and type of career preparation activities pursued prior to admission and the extent of knowledge about different aspects of the medical curriculum (see appended questionnaire).

Statistical analysis

Responses were entered into a Microsoft Excel Spreadsheet and descriptive analysis was done. The data was stored and analyzed in accordance with the tenets of the Declaration of Helsinki (1964; as amended in 2008).

Results

The number of students admitted to the first semester in 2009 was 150. On the day of the study 132 students were available and filled the questionnaires out of which 2 were returned unfilled and 27 were incomplete and were excluded from the final analysis; at final count 103 questionnaires were filled complete and were included in the study. The response rate, calculated using the AAPOR outcome rate calculator was 78.0% (9).

Demography and other characteristics of the respondents are shown in Table I. The average age of the students was found to be 18.55 years. The data revealed a gender disparity, the overall number of girls being very low (a total of 19 girls; 18.0% of the 103 students who responded). More than half of the students had appeared in the admission test twice and nearly two-thirds had made up their mind before class 10. Most students had not availed any career guidance nor career preparation activities prior to joining the medical course, though half of them had been influenced in one way or the other by another person, most often a parent (Table II, III). Less than 20% of the students had an accurate knowledge about medical subjects or the examinations to be taken in the medical curriculum (Table IV).

TABLE I: Demographic and other characteristics of first semester medical students.

<i>Student characteristic</i>	<i>First semester medical students (n=103)</i>
Age	Years
Range	17-22
Average (SD)	18.55 (0.99)
Gender	Number (%)
Male	81 (78.6)
Female	19 (18)
Not declared	3 (2.9)
Number of attempts in medical entrance exam	Number (%)
Single attempt	30 (29)
Two attempts	57 (55)
>2 attempts	13 (12.6)
Not declared	3 (2.9)
First decided on a health-related career	Number (%)
Before class 10	65 (63)
After class 10	37 (35.9)
During college other than medical, if any	1 (0.9)
Not declared	0
Family members in health related profession	Number (%)
None	39 (37.8)
First degree relatives are doctors	8 (7.7)
Second degree relatives are doctors	14 (13.5)
First degree relative in healthcare	0
Second degree relative in healthcare	4 (3.8)
Others	5 (4.8)
Multiple relatives are doctors or in healthcare	32 (31)

Discussion

The study included first semester students and the demographic data revealed a gender disparity; the overall number of girls being very low, a reflection of the gender composition in this institution. The University of Delhi regulates admissions to the three medical colleges under it; out of this one medical college is exclusively for girls and thus fewer girls are admitted in the other two colleges, including ours. Owing to the obvious disparity we did not attempt to study gender biases.

Our primary objective was to determine the level of motivation of new medical students for a career in medicine. That the students were highly motivated to enter the medical profession is suggested from

TABLE II: Guidance availed before admission to MBBS course.

<i>Form of guidance</i>	<i>First semester medical students (n=103)</i>
Influenced by a particular person	Number (%)
Yes*	52 (50)
No	47 (45.6)
Not mentioned	4 (4.4)
Encouraged or discouraged from choosing a medical career	Number (%)
Strongly discouraged	1 (0.9)
Discouraged	8 (7.8)
Neither	11 (10.6)
Encouraged	42 (40.7)
Strongly encouraged	39 (37.8)
No response	2 (2.2)
Sought career advice	Number (%)
From doctors or other health professionals	41 (29)
From medical students	32 (23)
From counsellors	8 (5.7)
From school teachers	28 (20)
None	30 (21.5)

*The persons influencing the student included a parent (n=29), sibling (n=5), father being a doctor (n=5), father being a patient (n=1), teacher (n=2), sibling being a doctor (n=3), family/grandfather (n=4), AIIMS (n=1), Dr Venugopal (n=1), family doctor (n=1), and self treatment (n=1).

TABLE III: Student experience with career preparation activity prior to joining medical college.

<i>Type of career preparation activity</i>	<i>No experience with career preparation activity (n=103) Number (%)</i>
Shadowing a physician	69 (66.9)
Volunteering in a healthcare setting	73 (70.8)
Clinical experience	79 (76.6)
Paid work in a health setting	82 (79.6)

TABLE IV: Student awareness about the medical curriculum (n=103).

<i>Aspect of medical curriculum considered</i>	<i>Correctly and completely reported Number (%)</i>
Duration of study in years	87 (84.0)
No. of University exams to be cleared	6 (5.8)
Preclinical subjects taught	13 (12.6)
Para-clinical subjects taught	3 (2.9)
Clinical subjects taught	0*

(*Considered to be complete if at least 6 subjects correctly identified)

Annexure
Medical Student Survey

The purpose of this survey is to gather information about Motivation and Preparedness of first semester medical students for a career in medicine.

Your responses will be kept completely confidential.

Your age : _____

Gender : male / female

Please indicate the correct response by putting a tick mark in the appropriate box.

1. How many attempts did you take to enter the medical college

Number of attempts in medical entrance exam	One	Two	More than two
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2. When did you first decide to choose a health-related career ?

Before class 10	After class 10	During college, elsewhere
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3. Have any of your family members ever worked in a health-related profession? If yes, in what occupation(s) ? Put a tick mark on all that applies.

Occupation	Father	Mother	Siblings	Grandparents/ aunt(s)/uncles(s)/cousin(s)	Others
Doctor					
Hospital administration					
Nursing					
Pharmaceuticals					
Research					
Medical educator					

4. Was your decision to pursue a medical career influenced by a particular person(s) ?
Yes / No Please briefly explain :

5. How much experience have you had with the following career preparation activities ?

Activity	Noexperience	Moderateexperience	Extensiveexperience
Shadowing a physician			
Volunteering in a healthcare setting			
Clinical experience			
Paid work in a health setting			

6. Have you been encouraged or discouraged from choosing a medical career ?

Strongly discouraged Discouraged Neither Encouraged Strongly encouraged

7. Have you spoken to any of the following people to get career advice? Please tick all that applies.

Doctors or other health professionals	Medical students	Counsellors	School teachers
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8. How informed are you about the medical curriculum ?

- A. Duration of study in years
- B. No. of University exams to be cleared
- C. Pre-clinical subjects taught
- D. Para-clinical subjects taught
- E. Clinical subjects taught
- F. Purpose of internship

the finding that more than half had appeared in the admission test twice, and some had tried more often than that. This is a good sign since the profession is highly demanding intellectually, physically, emotionally, and also in terms of time; thus, it needs high motivation (10). Rhoads et al have also referred to motivation appearing to be the determining factor in medical school admissions and student performance (11).

It was encouraging that nearly two-thirds of the students reported that they had relatives in the medical profession, suggesting at least a modicum of exposure to the kind of work involved in being a doctor. Most students were encouraged or strongly encouraged to take up medicine; most often they were motivated by a parent or other family members, confirming our belief that family is a very strong motivating force in India and should be utilized in career decisions.

Nearly two-thirds of our students had made up their minds on a career in medicine before class 10. In a similar previous study, Noble et al who investigated the factors influencing career choice of orthodontic residents in the United States, found that the career decision is often made early in life (12). Students in our country are expected to decide on a medical or non-medical stream after their class 10 exams when they are, on an average, about 16-years old. Whether a 16-year old completely understands what a medical career entails is debatable. This was borne out by the finding that our students were poorly informed about the course. Students were asked open-ended questions pertaining to the medical curriculum and though many were aware of the duration of the course, the vast majority was unable to completely report the subjects to be studied; their knowledge regarding number of summative university examinations was dismal. Studies have shown that students who are informed, handle the stress of a new curriculum better than their less informed peers (13, 15). Career preparation activities prior to choosing a career are an important means to this end and should be actively encouraged. Recommending career preparation activities may be seen by some as a controversial step, since school teachers and parents have hitherto been considered competent to advice students on career choices.

Two-thirds or more of our students had never undergone a career preparation activity prior to making the decision to study medicine. Such activities like shadowing a physician (13, 14), working as volunteers in a health care setting (16, 17), or getting paid for working in a clinical setting (18), are commonly pursued by medical aspirants in the West. The experience acquired helps them decide whether the medical profession is suited to their aspirations and lifestyle needs. Exposure to real-life situations would be expected to give a more complete picture of the profession than mere career counseling by professionals. Though most students had not availed any career guidance, half of them had been influenced by someone, most often a parent or a sibling especially if they were doctors or had been ailing. In our study, career counseling was sought by only a few students. While half the respondents had spoken to a health professional or medical student, 22% had consulted no one. Several of our students had spoken to school teachers; it is debatable whether teachers are capable of appreciating the inherent complexities of a medical career (19). Perhaps teachers, rather than advising on a career in medicine based on the students' performance in school, could recommend career preparation activities; such activities would better inform students about the demands of a medical career. Parents, an important influence in students' lives, may similarly advise students to seek experiences in health care before deciding on a future in that field. Certainly, no student should be 'encouraged' to make a career out of medicine unless completely certain of all that it entails. Perhaps students who make an informed choice will do better in the course (14, 15).

Our study has some limitations. To enhance response rate we used an anonymous questionnaire; anonymity removes perception of threat, stigma and social pressure, but makes it difficult to verify the accuracy of responses (20). Had a previously validated questionnaire been available it could have added to the strength of the study. Our other limitation is that the findings are from a single medical college; therefore, the results cannot be generalized to other medical colleges in India. Gender issues, as well as socio-economic and cultural issues, are likely to be interwoven with this complex problem; though we did not study them, perhaps

further studies may throw light on associations, if any. Nevertheless, the strength of this study is that it demonstrates that students who join the medical course are poorly informed and ill-prepared for it, paving the way for introduction of reforms that can make the students better informed.

Conclusion

This study, a subjective evaluation, sums up the first year medical students' cumulative motivation and preparedness for a career in medicine. The findings suggest that students are "early deciders" and are highly motivated to join the medical profession though a majority do not avail any career guidance nor do they pursue any career preparation activities. Thus, their knowledge about the medical curriculum and profession is poor which can lead to subsequent disillusionment. Activities like shadowing a physician and working as volunteers in a health care setting may be a feasible and cost effective approach, in our setup, to help students inform themselves about the course before joining it. Taking into consideration the responses obtained from the students, we feel that family being a strong motivating factor should encourage students, while still in school, to take up

career preparation activities to prepare them better for a career in medicine and thus, perhaps, to reduce subsequent occupational burnout.

Students' perspectives have been sought earlier for several aspects of training and healthcare that resulted in subsequent policy changes (21, 22). The findings of this study could also be used to design strategies that help students to prepare rationally for a career in a field as demanding as medicine. Perhaps a larger study, involving students from other parts of the country, will help give suitable direction to medical educators and policy makers.

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References

- Connell VA, Gupta J. The premedical student: Training and practice expectations. *Med Educ Online* [serial online] 2006; 11: 12. Available from: <http://www.med-ed-online.org>; [last cited on 2012 June 3].
- Draper C, Louw G. What is medicine and what is a doctor? Medical students' perceptions and expectations of their academic and professional career. *Med Teach* 2007; 29: 100–107.
- Kay J. Traumatic deidealization and the future of medicine. *JAMA* 1990; 263: 572–573.
- Prka M, Daniae A, Glavas E. What do medical students want from their professional and private life? *CMJ* 2002; 43: 80–83.
- Underwood MJ, Thompson M, McCaskie A. Insight of first-year medical students into their future working conditions. *Med Educ* 1990; 24: 210–221.
- Lal P, Malhotra C, Nath A, Malhotra R, Ingle GK. Career aspirations and apprehensions regarding medical education among first year medical students in Delhi. *Indian J Comm Med* 2007; 32: 217–218.
- Medical Colleges in India, Medical Council of India. 2010. Available from: http://www.mciindia.org/tools/medical_colleges/index.htm; [last cited on 2012 June 5].
- Sood R. Medical Education in India. *Med Teach* 2008; 30: 585–591.
- The American Association for Public Opinion Research. 2009. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 6th edition. AAPOR.
- Artino AR, La Rochelle JS, Durning SJ. Second-year medical students' motivational beliefs, emotions, and achievement. *Med Educ* 2010; 44: 1203–1212.
- Rhoads JM, Gallemore JL, Gianturco DT, Osterhout S. Motivation, medical school admissions, and student performance. *J Med Educ* 1974; 49: 1119–1127.
- Noble J, Hechter FJ, Karaikos N, Wiltshire WA. Motivational factors and future plans of orthodontic residents in the United States. *Am J Orthod Dentofacial Orthop* 2010; 137: 623–630.
- Larson J, Atkins RM, Tucker P, Monson A, Corpening B, Baker S. The University of Oklahoma College of Medicine summer medical program for high school students. *J Okla State Med Assoc* 2011; 104: 255–259.
- Graham P, Tso S, Wood E. Shadowing a foundation-year doctor: a third-year medical student's perspective. *Clin Teach* 2011; 8: 156–159.

15. Hernandez J, Al-Saadi S, Boyle R, Villadolid D, Ross S, Murr M, et al. Surgeons can favorably influence career choices and goals for students interested in careers in medicine. *J Am Coll Surg* 2009; 209: 62–67.
16. Chi BH, Fusco H, Goma FM, Zulu I, Simmers E, Stringer JS. HIV Corps: using volunteers to rapidly expand HIV health services across Zambia. *Am J Trop Med Hyg* 2006; 74: 918–921.
17. Shunkwiler SM, Broderick A, Stansfield RB, Rosenbaum M. Pilot of a hospice-based elective to learn comfort with dying patients in undergraduate medical education. *J Palliat Med* 2005; 8: 344–353.
18. Davis DJ, Moon M, Kennedy S, DelBasso S, Forman HP, Bokhari SA. Introducing medical students to radiology as paid emergency department triage assistants. *J Am Coll Radiol* 2011; 8: 710–715.
19. Shah H, Kumar D. Sensitizing the teachers towards school mental health issues: an Indian experience. *Community Ment Health J* 2011 Aug 3. [Epub ahead of print].
20. Boynton PM, Greenhalgh T. Selecting, designing and developing your questionnaire. *BMJ* 2004; 328: 1312–1315.
21. Straus SE, Straus C, Tzanetos K. International campaign to revitalise academic medicine. Career choice in academic medicine: systematic review. *J Gen Intern Med* 2006; 21: 1222–1229.
22. Kristina TN, Majoor GD, Van Der Vleuten CP. Does community-based education come close to what it should be? A case study from the developing world: students' opinions. *Educ Health* 2006; 19: 179–188.