

Medical Education

Career choices of undergraduate medical students

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ABSTRACT

Background. Many factors influence the career choices of undergraduate medical students. We sought to identify the career choices of medical students in an Indian medical college and what influenced these choices.

Methods. We conducted a questionnaire-based cross-sectional survey. We included medical students of all semesters at a medical college. The sociodemographic data, first choice of career on the day of the questionnaire and rating of 34 factors influencing choices were recorded.

Results. Two hundred and eighty-two questionnaires were analysed. The most preferred career choices were medicine and surgery, followed by orthopaedics; 3 students each chose obstetrics and gynaecology, and anaesthesia; none chose community medicine. Second-semester students made choices before and the rest after joining medical college. Significantly, senior students were disinclined to take up surgery ($p=0.003$), preferring orthopaedics instead ($p=0.017$). 'Personal interest' was rated by 80% of students as important in influencing their choice, followed by stability (58%), reputation of the specialty (56%) and lifestyle (55%).

Conclusion. The career choices of medical students at our institution were biased against some subjects. Often, choices develop during the course. Role modelling by faculty during departmental postings could be a factor influencing choice.

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INTRODUCTION

Diverse factors influence medical students' choice of eventual career; career preference at the time of admission to the medical course is thought to play an important role.^{1,2} Other factors that have been suggested to play a role include the characteristics of the medical college, lifestyle preferences, prestige, job opportunities, expected income, longitudinal care, preclinical and clinical experiences, and role models.^{3–5} Some career options are often overlooked by students.⁶

It has been suggested that an understanding of factors that influence career decisions may help in workforce planning,⁷ avoiding over- or under-supply of doctors in different specialties.^{8,9} Further, a knowledge of career preferences can assist in curriculum planning.⁸ It has also been suggested that the preclinical and clinical training period can be used to influence specialty preference.^{1,10} Factors that influence career decisions have been

reported from medical colleges around the globe; however, there is no information on the career preferences of medical students in India. We sought to identify the careers preferred by students at our institution, and the factors that influenced these choices. Our findings can help determine the future direction of the curriculum at our institution.

METHODS

We conducted a cross-sectional, questionnaire-based survey in March 2010. The questionnaire was modified for the Indian context from similar questionnaires available in the literature.^{1,6,8,9} For content validity, it was pretested on 10 volunteer medical students, 2 senior residents and 2 faculty members; they commented on the relevance and unambiguity of items. It was modified into its final form on the basis of their feedback. The levels of reliability were satisfactory; Cronbach correlation coefficient varied between 0.75 and 0.90 for all items.

After ethical clearance from the Institutional Ethics Committee-Human Research, medical students of all semesters (at that time, the second, fourth, sixth and eighth semesters) were requested to self-administer the questionnaire. Participation was voluntary and applied only to the students who were present in class on that day. The questionnaire requested sociodemographic details; in addition, based on their preference on that day, students were asked to select their first career choice out of 21 possible specialties. Finally, 34 factors that might possibly influence career choice were self-rated by students on a 4-point scale ranging from 'no influence' to 'very strong influence'. The response rate was calculated using the American Association of Public Opinion Research Calculator.¹¹ The returned data were coded for confidentiality; further, they were treated in accordance with the Declaration of Helsinki, 1975, as amended in 2008.

Statistical methods

The data were entered into an MS Excel worksheet; SPSS version 17 was used for analysis. The one-way ANOVA was used to compare the age of the students of the 4 semesters. Categorical demographic variables, first choice of specialty and student-rated influences were compared between semesters using the Chi-square and Fisher exact tests. A p value of <0.05 was considered significant.

RESULTS

The total number of students available for the study in all semesters was 433; 356 were present on the day the questionnaires were distributed. Thirty-four questionnaires were returned unfilled and 23 were incomplete and were excluded from the final analysis. Seventeen students did not plan to pursue a specialization (Table I). These questionnaires were also excluded, resulting in a response rate of 74.4%. At final count, 282 questionnaires were included. The demography and other characteristics of the respondents are shown in Table II.

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Women students did not opt for orthopaedics, ophthalmology, otorhinolaryngology, pharmacology or microbiology at all; men students did not choose obstetrics and gynaecology. Tables III and IV show the first choice of career by gender and by semester. Table V shows the 34 factors that were rated by students as influencing their career decisions; they have been arranged in descending order of 'very strong influence'.

DISCUSSION

We included students across all semesters in the course. While second-semester students had no exposure to clinical subjects, fourth-semester students had a preliminary exposure and sixth- and eighth-semester students were studying clinical subjects, having completed the pre- and paraclinical subjects. All semesters had similar sociodemographic characteristics, barring age. However, the number of girls was very small (31, 11%). This

was due to the centralized admission process of the 3 medical colleges of the University of Delhi, including ours. One of the other colleges is exclusively for girls, so fewer girls opt for the other colleges. We did not study gender differences in career preferences.

A small proportion of students did not plan to pursue a postgraduate course. The reasons for not doing so are worth discussing. Several of our students wanted to move to the civil services or management fields. The failure of students to continue in the medical profession represents a waste of resources. While a trained medical person may be an asset in the civil services, it does deplete the pool of already scarce healthcare providers. Some of the other reasons relate to dissatisfaction with the system of postgraduate medical education in India. The expectation of bottlenecks in the postgraduate training programmes makes some students consider careers outside the medical profession.⁷ A study

TABLE I. Reasons given for not pursuing a postgraduate course

Reason	<i>n</i>
Want to join the civil services	6
No reason given	4
Want to join a management course	1
Satisfied with graduation only	1
It is hard to qualify for a postgraduate seat	1
I cannot handle the burden of studies in first year	1
Career settlement is delayed	1
I am really confused about my career	1
The returns are not as good as the amount of labour involved	1
Total	17

TABLE II. Demographic and other characteristics of students

Characteristic	Semester				p value
	Second (<i>n</i> =61)	Fourth (<i>n</i> =74)	Sixth (<i>n</i> =81)	Eighth (<i>n</i> =66)	
Mean (SD) age in years	19.4 (0.93)	20.3 (0.83)	21.5 (0.89)	22.2 (1.18)	<0.001
Men	50 (82.0)	65 (87.8)	78 (96.3)	58 (89.0)	0.051
Urban background	59 (96.7)	73 (98.6)	80 (98.8)	66 (100.0)	0.459
Doctor in family: Yes	24 (39.3)	20 (27.0)	29 (35.8)	32 (48.5)	0.070
Developed an interest in the specialty during the course	16 (26.2)	54 (73.0)	64 (79.0)	51 (77.3)	<0.001

Values in parentheses are percentages, unless specified

TABLE III. First choice of specialty by gender

Specialty	Women (<i>n</i> =31)	Men (<i>n</i> =251)	Total (<i>n</i> =282)
Medicine or superspecialty	10 (32.2)	67 (26.7)	77
Surgery or superspecialty	3 (9.7)	69 (27.5)	72
Orthopaedics	0	38 (15.1)	38
Radiology	4 (12.9)	25 (9.9)	29
Dermatology	5 (16.1)	16 (6.4)	21
Paediatrics	4 (12.9)	15 (5.9)	19
Ophthalmology	0	10 (3.9)	10
Psychiatry	1 (3.2)	5 (1.9)	6
Anaesthesia	1 (3.2)	2 (0.8)	3
Obstetrics and gynaecology	3 (9.7)	0	3
Pharmacology	0	2 (0.8)	2
Otorhinolaryngology	0	1 (0.4)	1
Microbiology	0	1 (0.4)	1
Total	31	251	282

Values in parentheses are percentages

TABLE IV. First choice of specialty by semester

Characteristic	Semester				p value
	Second (n=61)	Fourth (n=74)	Sixth (n=81)	Eighth (n=66)	
Medicine or superspecialty	18 (29.5)	27 (36.5)	17 (20.9)	15 (22.7)	0.133
Surgery or superspecialty	25 (40.9)	21 (28.4)	17 (20.9)	9 (13.6)	0.003
Orthopaedics	4 (6.6)	5 (6.8)	15 (18.5)	14 (21.2)	0.017
Radiology	6 (9.8)	9 (12.2)	9 (11.1)	5 (7.6)	0.837
Dermatology	2 (3.3)	6 (8.1)	6 (7.4)	7 (10.6)	0.479
Paediatrics	2 (3.3)	3 (4.1)	6 (7.4)	8 (12.1)	0.169
Ophthalmology*	1 (1.6)	1 (1.4)	5 (6.2)	3 (4.5)	—
Psychiatry*	2 (3.3)	0	3 (3.7)	1 (1.5)	—
Anaesthesia*	1 (1.6)	0	1 (1.2)	1 (1.5)	—
Obstetrics and gynaecology*	0	0	1 (1.2)	2 (3.0)	—
Pharmacology*	0	1 (1.4)	0	1 (1.5)	—
Otorhinolaryngology*	0	0	1 (1.2)	0	—
Microbiology*	0	1 (1.4)	0	0	—

Values in parentheses are percentages

*Numbers too few for analysis

TABLE V. Student-rated factors that influenced choice of career

Factor (in order of ranking by students)	Semester				Total	p value
	Second	Fourth	Sixth	Eighth		
1. Personal interest in the specialty	77.4	76.9	82.9	80.9	79.7	0.684
2. Stable and secure future	59.7	57.7	56.1	60.9	58.4	0.968
3. Reputation of specialty	61.3	51.3	60.9	51.5	56.2	0.366
4. Lifestyle/prestige	53.2	55.1	51.2	62.3	55.3	0.748
5. Career progression	50	56.4	48.8	62.3	54.3	0.345
6. Scope of self practice	48.4	47.4	60.9	53.7	53.0	0.239
7. Professional independence	53.2	52.6	51.2	46.4	50.9	0.827
8. High income potential	56.5	41.0	50.0	55.1	50.2	0.252
9. Intellectual stimulation	46.8	44.9	40.2	63.8	48.5	0.066
10. Doctor-patient relationship	40.9	38.5	45.1	52.2	44.1	0.376
11. Good options for further training	50.0	33.8	31.7	44.1	39.1	0.140
12. Like surgery	46.8	34.6	37.8	34.8	38.1	0.464
13. Experience during posting in the specialty	4.9	46.2	43.9	50.7	37.9	<0.001
14. Wide variety of patient problems	38.7	34.6	34.1	34.8	35.4	0.985
15. Influence of a role model/teacher	38.7	33.3	31.7	34.8	34.4	0.897
16. Focus on urgent care	37.1	37.2	28.0	21.7	30.9	0.136
17. Influence of family	41.9	23.1	30.5	24.6	29.6	0.058
18. Options good for going abroad	40.3	26.9	17.1	30.9	27.9	0.035
19. Focus on in-hospital care	27.4	25.6	23.2	33.3	27.1	0.716
20. Workload flexibility/predictability	19.4	29.5	25.6	31.9	26.8	0.357
21. Acceptable hours of practice	24.2	26.9	22.9	33.3	26.7	0.582
22. Length of training	24.2	33.3	19.5	27.5	26.1	0.260
23. Research opportunities	22.6	24.7	20.7	27.9	23.9	0.918
24. Focus on patients in the community	24.2	25.6	21.9	20.3	23.0	0.708
25. Acceptable on-call schedule	29.0	26.9	13.4	23.2	22.7	0.075
26. Less work pressure	16.1	19.2	26.8	23.2	21.6	0.476
27. Influence of faculty	19.4	20.8	17.3	15.9	18.3	0.641
28. Friend/relative who suffers from disease of that specialty	24.2	15.6	13.4	11.8	15.9	0.336
29. Influence of friends	22.6	14.3	12.2	13.0	15.2	0.432
30. Teaching opportunities	9.7	10.4	10.9	20.6	12.8	0.287
31. Minimum exposure to infectious disease (HIV, tuberculosis)	17.7	15.6	8.5	8.8	12.5	0.116
32. Focus on non-urgent care	8.1	19.2	10.9	8.7	12.0	0.122
33. Narrow variety of patient problems	9.7	22.1	3.7	7.2	10.7	0.001
34. Dislike surgery	11.3	11.5	3.7	7.2	8.2	0.172

specifically designed to identify and modify bottlenecks may benefit the cause of medical education.

Only a handful of our students were considering a career in non-clinical subjects. In fact, anatomy, biochemistry, physiology, forensic medicine and pathology had absolutely no takers. It is

possible that students who eventually join these subjects do so out of a lack of any other choice. They may not have much passion for, or commitment to, the subject, resulting in mediocrity and frustration.¹² Career choices are dynamic and likely to change over time; however, if the disinclination towards these subjects persists,

there is likely to be a scarcity of teachers in pre- and paraclinical departments.^{13,14}

Medicine and surgery were the most preferred career choices, with more than half of our students opting for them. Another one-third were keen to take up orthopaedics. While radiology, dermatology and paediatrics were choices for some, the remaining subjects had very few takers. Medicine was favoured equally across all semesters. The inclination to take up surgery, however, decreased as students became more senior, while interest in orthopaedics increased. Students from the fourth, sixth and eighth semesters were more likely than those in the second semester to be influenced by 'experience during posting in the specialty'; they reportedly made their career choices after joining the medical course. Perhaps, in our set-up, student experiences in some subjects could be modified and rotations used as an opportunity to influence students' career choices.^{9,15} Studies have shown that role models from faculty and residents play an important role in career decisions.^{7,8}

Second-semester students did express a choice of specialization, their choices made before joining the medical course. However, they had not been exposed to the entire spectrum of specialties in the medical curriculum and thus had a narrower range of choices. The widest range was seen among sixth- and eighth-semester students. Career preferences change dynamically as students progress through the course, gaining exposure to different specialties.⁸ Though we did not follow up the students' choices, we presume that our students had certain choices when they first joined the course and that these changed to their present ones. It is just as likely that their choices will change in subsequent years.⁶

Surprisingly, obstetrics and gynaecology did not rank high as a preferred career choice. This could be due to the small number of women students. Also otorhinolaryngology, anaesthesia and community medicine had few takers. A detailed study to ascertain the reasons for students not taking up certain subjects would be useful. Once these reasons have been identified, it may be possible to design interventions to influence career choices. However, changing career preferences in one direction may have undesirable effects on choices in another direction.⁸

Across all semesters, nearly 80% of students chose a career based on 'personal interest'. Other factors that were rated as important by at least half the respondents included those relating to career stability, reputation, lifestyle/prestige, career progression, independence and income. These factors were not very different from those reported by students in other countries in Asia and in the West.^{6-8,16}

Many of our students appear for the United States Medical Licensing Examination after graduating, hoping to supplement their Indian degree with an American one. The results of our study demonstrate this trend. Over a quarter of our students chose a specialty on the basis of its usefulness abroad. Interestingly, this was more likely to be a deciding factor among second-semester students, followed by those in the eighth semester. The literature suggests that migration of doctors from countries such as India and Pakistan is related to an expectation of better income, infrastructure and security abroad.^{17,18} The inclination of senior students to migrate may have something to do with their peers' experiences in India and abroad.

Our study has certain limitations. The students' final career choice may be quite different from what they currently aspire to.

The study was an anonymous, questionnaire-based, cross-sectional one, with a response rate of less than 100%. Being confined to students from a single medical college, the results may not be applicable to other parts of India. The questionnaire was pretested; however, since it was close-ended, there may have been factors which we did not include that might influence career choices.

In conclusion, the career choices of medical students at our institution are biased in favour of a few departments. Pre- and paraclinical subjects, as well as clinical ones, such as community medicine, otorhinolaryngology, and obstetrics and gynaecology, do not figure prominently in the list of choices. A combination of factors before, during and even after the medical course may affect the choice of a career. A follow up study would be useful to determine continuing trends, if any, in career choices. Factors acting as barriers need to be investigated specifically for specialties that are under-represented in our set-up. Determining and modifying these factors may help in strengthening departmental programmes and curriculum planning.

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