



Perceptions About An Academic Career in Medicine Among First and Fourth Year Students of A Medical College in South India

KEYWORDS

academic medicine, medical students, teaching, research.

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ABSTRACT *Introduction: The purpose of this pilot study was to find out about the perceptions about a future career in academics in medical students. We also sought to identify different factors that promote an interest in pursuing a career in academic medicine.*

Methods: A cross-sectional study was conducted during June 2016 among first (2nd semester) and fourth year (6th semester) medical students by a 15-item questionnaire developed through literature review. Demographic data and information about participants' perceptions regarding careers in academia were assessed by a 5-point Likert scale.

Results: 240 participants gave their views on a future career in academics. First year students demonstrated greater interest in pursuing teaching and/ or research after residency. There was no significant difference in the attitudes of male and female undergraduate students towards academics in the future. There was no significant difference in the factors that influenced the likelihood of students in considering academics in their future. Factors like mentorship, previous teaching and / or research opportunities and patient contact were considered more significant in ensuring students to consider teaching and research. More students agreed that an academic career would lower their salary potential in the future.

Conclusions: Medical students represent a huge untapped population of potential researchers. Students' interest in academic medicine would be bolstered by formal mentorship programmes and more teaching and research opportunities. Changes in curriculum and attitudes that favour students to pursue academics in their future careers will unquestionably give a breakthrough in medicine, especially in our country.

Introduction

India has the highest number of medical colleges in the world [1, 2]. The number of registered doctors in India was 66,056 in 2005, which increased to 757,377 in 2009 [3]. Sixty years ago the total number of physicians in India was 47,524, with a doctor to population ratio of 1 to 6300. Overall doctor population ratio is now 1:1800, which reflects a 3-5 fold improvement. The number of student enrolment in the medical profession is nearly 52,965 in 2015-2016 [4]. As medical colleges in India expand their class sizes, it must be considered how these increases will impact their ability to sustain or grow a cadre of faculty dedicated to teaching the next generation of physicians. The declining number of physicians entering academic medicine and faculty retention pose serious challenges to meeting the teaching needs of medical colleges in an era of increased class sizes.

Heparin, insulin, the sinoatrial node, the pancreaticobiliary sphincter and ether anaesthesia were some of the extraordinary findings reported by medical students during their period of study which revolutionized the practice of medicine and surgery [5]. Some very gifted individuals, when given the right opportunity, can bring about remarkable changes in the medical profession.

Few literature reviews have tried to analyze the factors that influence doctors' decisions in choosing a career in academic medicine. Straus et al. [6] have reported that academic physicians recognized research experience, interest in teaching, a desire for intellectual challenge, and the influence of a mentor as factors influencing their career trajectories; the authors have called for new initiatives to engage and encourage trainees to such career paths. Borges et al. [7] have deduced that research-oriented programmes, gender, mentors and role models are more associated with academic medical careers; they recommend rigorous research efforts to understand better the motivation behind medical students' desire to enter academic medicine. Other recent works have also examined this issue of academic medical careers. Based on interviews with students, residents, and faculty at one US medical school, O'Sullivan et al. [8] identified five factors related to students developing an interest in pursuing an academic career in doctors: (1) early exposure to research; (2) role models and mentoring; (3) career pathways; (4) interplay of personal and social factors; and (5) career support for junior faculty.

Although these studies provide a foundation on academic career choice, they mostly include retrospective studies focused on physicians. Little is known, comparatively, about medical students' perceptions of academic medicine or what influences their interest in this career path,

especially in our country. The present study was aimed to find out about the perceptions about an academic career in medicine among first and fourth year medical students in a college in South India. At this time, it is unknown if there are any differences among the perceptions of junior and senior medical students about a future career in academic medicine. The objectives were to find out whether there were any differences in interest in a future career in academic medicine among first and fourth year students in our college. We further tried to assess various factors influencing their perceptions of a future career in academics.

Methods

This was a descriptive cross-sectional study conducted during the academic year 2016-2017 in ASRAM Medical College, Eluru, Andhra Pradesh. The requisite permissions were obtained for conducting the study. A 15-item survey was administered to first and fourth year students at the same time in June 2016.

Participants

All the first and fourth year students enrolled in the college during the academic year 2016-2017 were invited for the study, resulting in potential 305 participants. Due consent was taken from the students for their participation and 240 students took part in the study.

Survey design

A 15-item questionnaire was prepared based on literature review and factors previously identified as influential on future career choices. Following creation, the survey was reviewed for content and format by different medical educators in our college. Participants were asked to answer yes/ no to "Considering an academic career in medicine" and to rate the current likelihood that they will pursue academic medicine as a career after residency on a scale of 0-10. Perceptions of agreement to positively worded stems were measured using a 5-point Likert scale anchored with strongly disagree (1) and strongly agree (5). Opinions assessed included appeal of research and teaching both during and after residency, desire to be a role model, and the effects of a career in academic medicine on patient contact and potential annual salary. Lastly, the students were asked to report their thoughts regarding the most and least appealing factors about a future career in academic medicine in a free response item.

Data analysis

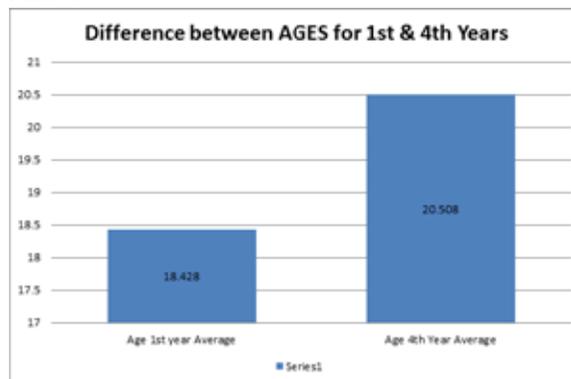
Data were analysed using SPSS Version 21.0. Normally distributed continuous variables were compared with independent t-tests. The critical p-value was set at < 0.05.

Results

Demographics

The survey was completed by 240 participants. There were 122 participants from the first year (2nd semester) and 118 were from the fourth year (6th semester). No significant differences of gender were found in the first year (42 males and 80 females) and fourth year (44 males and 74 females) cohorts. Independent T-tests demonstrated no significant differences between the cohorts' response rate or research experience. As expected, fourth year students were older than their first-year counterparts. The average age of first year students was 18.428 years whereas that for fourth year students was 20.508 years (Plate 1).

Plate 1



Likelihood of pursuing a career in academic medicine and Likert scale responses

In response to a yes/ no question as to whether the participants were considering a future career in academic medicine, first years were significantly more likely to report consideration of academic medicine (Plate 2). When asked to rate the self-reported likelihood of considering an academic career in medicine after residency on a scale of 0-10, we did not find any significant difference between the first and fourth year cohorts (first year average 24.86, fourth year average 24.86) (Plates 3, 4). The first year participants agreed more strongly to being open for teaching or research during/ after residency (Plate 5). There was no significant difference between the responses of females (1st and 4th year students) and males (1st and 4th year students) as seen in Plates 6-9.

In response to the query as to whether there was the presence of a mentor in the lives of the first and fourth year students, there was no significant difference (p-value 0.680). Independent T-tests were performed to compare Likert-scale responses between cohorts regarding attitudes and beliefs about future career goals. Both the cohorts more strongly agreed with the following statements: (1) Academics would increase opportunities for research, and (2) I want to be a role model (3) Patient contact will influence my choice of career in academic medicine. There was no significant difference in the responses of the first and fourth year students to statements that academics would increase their chances being at the top of the learning curve, in addition to increasing their chances of making new discoveries in medicine (p-value 0.890). Even though many of the participants indicated interest in a career in academic medicine, they were also more likely to indicate agreement with the belief that an academic career would reduce salary potential.

Plate 2: Response of 1st and 4th year students regarding a positive attitude towards a future career in academic medicine

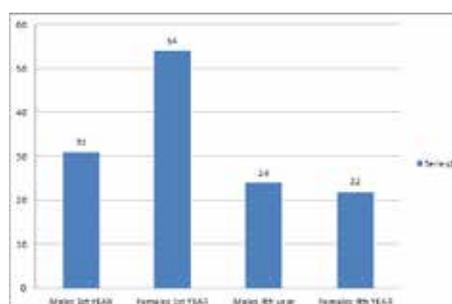


Plate 3: Overall response of first year students

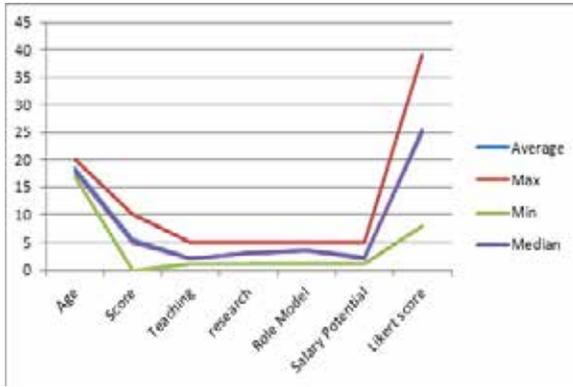


Plate 4: Overall response of 4th year students

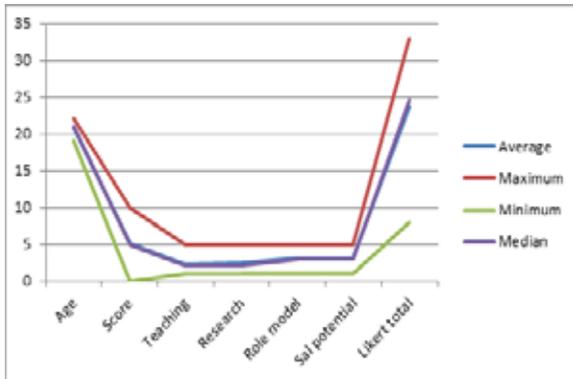


Plate 5: Interest in teaching or research during/ after residency

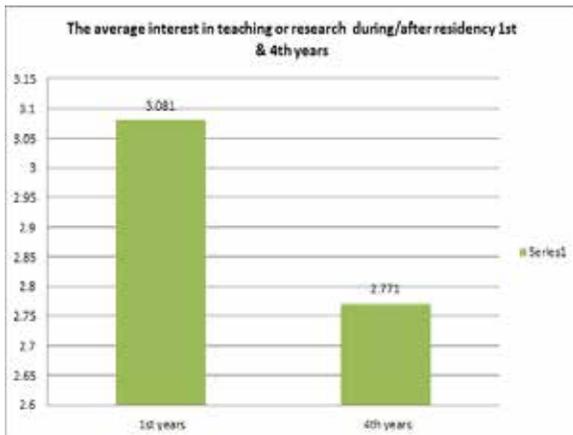


Plate 6: Female respondents in first year

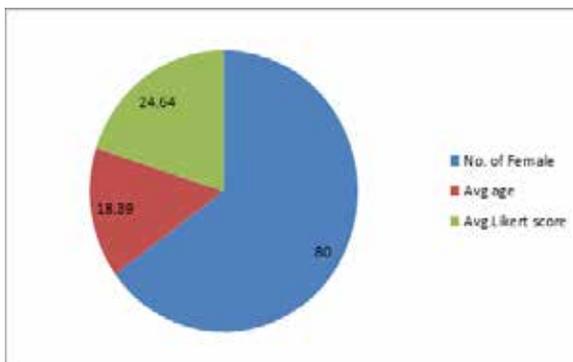


Plate 7: Female respondents in 4th year

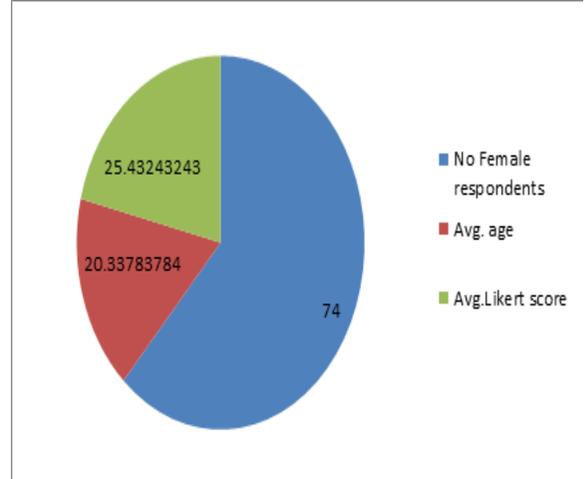


Plate 8: Male respondents in 1st year

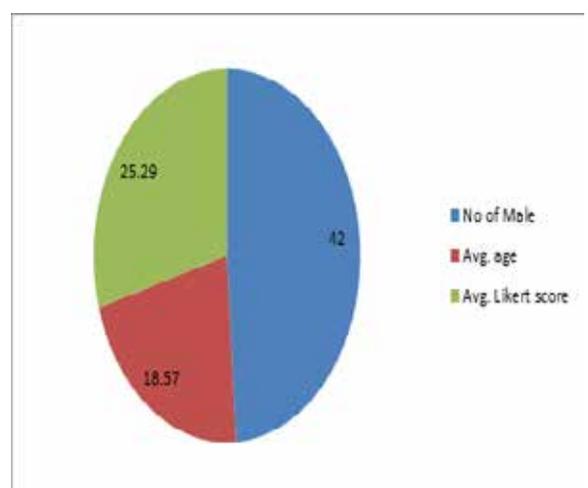
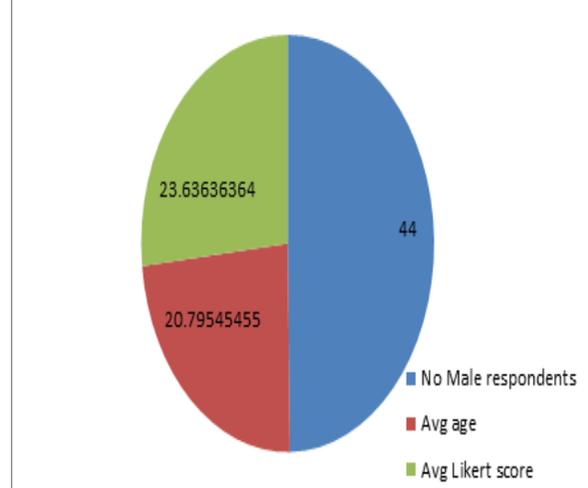


Plate 9: Male respondents in 4th year



The open-ended question about the factors seeming most and least appealing about a career in academic medicine generated a good response. Few of the responses are given in the table below (Table 1):

Table 1: Most appealing and least appealing factors about an academic medicine career: the views of students

Most appealing factors	Least appealing factors
Ability to teach new generation of physicians	
Being a part of the future career of juniors and have an impact on their education.	Societal and familial pressures
Being in an environment of newest research and technology	Lack of funding
New innovative medical treatments	Inadequate infrastructure
Room for advancement in career and prestige	Less job opportunities
Availability of continuing education	Less well-trained support staff like inexperienced nurses
Working in a team environment	No previous exposure, hence difficulties faced in research and publication
Less hassles of running one's own practice	Feeling powerless in decision-making
Getting a chance to serve underserved population	More responsibility
Participation in academic pursuits gives more stimulation and mental satisfaction	Feel lecturing is boring
Ability to follow in one's parents' footsteps who are teachers	Non-compliant, less educated patient populations

Discussion

The present study explored the perceptions and interest of medical students in an academic medical career in the future. Our results indicate that students previously engaged in teaching/ research activities, in howsoever minor scales, indicated more interest in pursuing an academic medical career. The influence of an academic role model/ mentor also had an influence on their decisions. Similar findings have been reported by Straus et al [6], Borges et al [7], Sullivan et al [8] and Greenberg et al [9].

We found increased idealism towards a career in academic medicine in 1st year students, which may be explained by their energetic responses towards teaching and research. All of them believed that patient contact will further influence their choice of career. We found no significant relationship between gender and the likelihood of considering an academic career, a finding previously reported by Andriole et al [10].

The anticipated likelihood of pursuing a career in academic medicine was positively correlated with the following factors: relationship with a mentor and academic activities will increase their opportunities for research in the future. The qualitative analyses regarding the most and least appealing factors about a future career in academic medicine generated some very definite responses. The most appealing factors included the zeal to teach and mould the lives of future physicians, being at the centre of cutting-edge expertise with technology and the chance to serve an underserved population. The lack of adequate infrastructure, funding, societal and familial expectations featured in a majority of responses that reduced the students' interest in teaching and research. The students also expressed a concern that teaching and research would limit the chances of a sizeable salary. Similar findings were reported by Vetter

et al [11]. As salary and debt concerns have been associated in numerous studies as factors contributing to lack of appeal in academic medicine, future research and educational policy changes in this area are warranted [9]. Diligent and appropriate funding will ensure quality research.

Our study tried to ascertain some of the factors that attract or detract students from venturing into the arena of academics. The interest of students in academic medicine can be bolstered by increased teaching and structured research opportunities in the undergraduate curriculum. Presently students feel that research is an added responsibility and not a graduation requirement. The thrill of seeing one's name in print will give a positive reinforcement for going into research at a future date. Formal mentorship programmes with academic physicians starting early will further strengthen the interest of students to emulate their trusted guides. Such mentoring relationships will further ensure better application of evidence-based medicine and better patient care [12]. Launching programmes like "medical students as teachers" and career workshops that openly address and discuss different aspects of academic medicine would also help to fortify the next generation of academic physicians [9].

The present study has some limitations. This pilot study was a single-institutional, cross-sectional study and the results need not apply outside the borders of our institution. Furthermore, the views were of medical students only and are potentially not applicable to the resident population. A multi-institutional study, preferably encompassing institutions beyond the limitations of state boundaries, would give a more representative sample of the medical student population and a prospective cohort study would allow us to monitor as to how interest may change in student populations as they progress from being beginners in the medical college to being residents.

Conclusions

Heparin, insulin, the sinoatrial node, ether anaesthesia and spermatozoa are some of the major discoveries made by medical students during their doctoral research work [5]. Medical students with zeal to work in academic medicine would not only take science a step ahead but would also help us to deal with issues of shortage of physicians, increasing medical students' enrolment in colleges, and decreasing retention of academic physicians in colleges. Understanding the motivational factors of the present generation of trainee doctors would go a long way in giving us a brighter future.

Conflicts of interest: The authors declare no conflicts of interest.

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