Socioeconomic Characteristics and Motivations For Entering a Medical College – Differences Between Graduate and Undergraduate Saudi Medical Students

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Abstract

Objective: The aim of this study is to investigate the reasons for and the factors associated with deciding to enter a medical school in our graduate and undergraduate medical students and whether differ between the two groups.

Method: This is a cross-sectional study. The survey we developed to investigate demographic and socioeconomic data and possible reasons for deciding to enter a medical school. The responses were scored using Likert scale 4-options.

Results: A total of 244 of 275 male students responded (a response rate of 89%). Of the responders, 26% were graduate students and 74% were undergraduates. Thirty nine percent of the students attended private schools. Compared to graduate students, undergraduate students were younger (p=0.0001), more likely to have gone to a private high school (p= 0.001) to have a father who is a doctor (p= 0.001) or a university graduate (p= 0.001), to belong a household with a monthly income exceeding $5,333 (p= 0.001). Significantly more undergraduates than graduates reported d that they were influenced to entre medical school by family (p=0.036), having had high academic achievement at high school (p=0.001), prestige of the profession (p=0.007), guaranteed employment (p=0.013) and desire to help others (p=0.003).

Conclusions: The graduate medical students had significantly different demographic factors which were more reflective of in the general population as well as different motivating when compared to the undergraduate medical students.

Keywords: Medical student, Medical college, Medical career, Saudi

1. Introduction

Although there are many studies on why medical students choose a specific medical specialty following their graduation (Hur Y, Kim S. 2009) (Lynch DC, Newton DA, Grayson MS, Whitley TW. 1998) (Hin Hin Ko TKL. 2007) (Kassler WJ, Wartman SA, Silliman RA. 1991), studies on what motivates students to choose to enter medical schools are very limited (Wierenga AR, Branday JM, Simeon DT, Pottinger A, Brathwaite B. 2005) (Crossley ML, Mubarik A. 2002). Furthermore there is very little that we know that can guide us how motivating factors can influence the final graduating results and achievements in these students. History of academic achievement and high examination scores predict academic success (Ferguson E, James D, Madeley L. 2002) (Jerry A. Colliver MSW, Randall S. Robbs, Devra S. Cohen & Mark H. Swartz. 1998), however studies have shown hand having inherent motivation and good attitudes or having had experience or education in humanities have a better predictor for a more patient-orientated success (Grey MR PS, Rolfe IE, Kay FJ, Powis DA. 2001) (Neame RL, Powis DA, Bristow T. 1992).

Generally speaking, the reasons for entering medicine could be summarized into 5 main categories: being good at science subjects, wanting a good interesting career, always having wanted to be a doctor, influenced by friends and relations, and wanting to help or work with people (Wierenga AR, Branday JM, Simeon DT, Pottinger A, Brathwaite B. 2005) (Crossley ML, Mubarik A. 2002).

Reports from different parts of the world consistently show demographic and socioeconomic bias influencing desire for or actual acceptance to medical schools. Such demographics include less admission of ethnic minorities, higher socioeconomic status of admittees (Greenhalgh T, Seyan K, Boynton P. 2004) (McManus IC. 2004) and high prevalence of admittees from medical families (McManus IC. 1997) (Billings K. 2004) (Lentz BF LD. 1988). These demographic biases have led some to express concern that this bias might lead to a lopsided motivations and interests driving the choice of in medicine as a career (Gough HG, Hall WB. 1977).

Socioeconomic and demographic factors can also influence who would choose to or gains admission to a medical school. Such demographics include the increased admissions of female students, less admission of ethnic minorities, higher socioeconomic status of admittees (Greenhalgh T, Seyan K, Boynton P. 2004) (McManus IC. 2004) and high prevalence of admittees from medical families (McManus IC. 1997).

Cultural and social perception of a profession can also impact on the motivation to take it up. For example, in one study from Tanzania, 88% of the high school students surveyed considers the good social image of a profession as being their most important motivator in their carrier choice(Mugonzibwa EA, Kikwilu EN, Rugarabamu PN, Ntabaye MK. 2000). In a retrospective study in New England medical schools graduating medical students surveyed that the opportunity to do research, doing procedure, high income, a favorable life style were strongest predictors of their choice among 12 factors the investigators proposed (Hin Hin Ko TKL. 2007).

For many students good “financial rewards” is a driver for wanting to enter a medical school. In a survey by Kaplan in 2008, money was found to be the primary motivator in 41% opting for medical studies. A much higher percentage of pre-law students (71%) chose money as their primary motivator. On the other hand 89% mentioned that a desire to help others, a genuine interest in the sciences, or personal exposure to medicine as the impetus for their decision (O'Brien CDaM. 2008).

Dropout rates among medical students have been variously estimated to be between 7% to 14.1% (13, 19, 20). Since medical career is very expensive, and demanding, it would be logical to investigate if the causes of dropouts include specific motivations for medical school entry in order to reduce dropout rates. . One other possible explanation is that the dropout phenomenon cause lies in the poor selection of college entrants. In a study on large number of UK students, it was found that the drop out in the first year was 3.8% and concluded that males are more likely to drop out than females and that it is influenced by the subjects studied and by the scores achieved at A-level. Neither the social class nor the type of high school had any significant impact on dropout rates (Arulampalam W, Naylor R, Smith J. 2004). On the other hand, in another study, it was reported that higher academic results by applicants to medical school were achieved by students with higher socioeconomic backgrounds and those who attended independent schools or grant-maintained schools (Powis D, James D, Ferguson E. 2007).

When comparing personality traits and a psychological makeup of graduate and undergraduate applicants to medical school, one study showed that the former were significantly more conscientious, confident, self-controlled, and less anxious than the latter. However, the graduate entrants were significantly less empathetic and conscientious than the school leavers (James D, Ferguson E, Powis D, Bore M, Munro D, Symonds I, et al. 2009).

To the best of our knowledge, no study exists that compares the motivation of undergraduate and postgraduate medical students for entering a medical school to study medicine. Our university is the first university in the Middle East to accept medical student straight from high school as well students with bachelor degree in paramedical science subjects.

We hypothesize that undergraduates who have no previous experience about healthcare as carrier may be influence by many socioeconomic factors compared to graduate student who have some experience during their postgraduate studies.

The aim of this study, is to investigate the reasons for and the factors associated with deciding to enter a medical school in our graduate and undergraduate medical students and whether these reasons and factors differ between the two groups. We further investigate if differences in socioeconomic factors exist between the two groups and if these factors impact of on these reasons for entering medical school. We do appreciate, however, that such reasons, if found, are likely to be culture specific and my well vary widely based on different cultures and societies.

2. Methodology

This is a survey-based cross-sectional study. The survey we developed by us and based on extensive personal experience on medical education as well as on world literature review on the motivations for selecting to enter a medical school. The survey was made up of three parts. The first part consisted of questions on demographic and socioeconomic data. The second part consisted of 15 questions on possible reasons and influences for deciding to enter a medical school and the third part of two questions enquiring on whether the student had second thoughts about his decisions to enter a medical school. The questions were selected based on previous published studies and others socioeconomic factors that we believe may influence the decisions of graduate schools compared to undergraduate. The survey was initially tested in a pilot group of 30 students for clarity and lack of ambiguity. The amended questionnaire was then distributed to all 244 medical students at our University between June and July 2011. The questionnaires were in English and were distributed by two medical students (co-investigators). Medical student were asked to answer all the questions but leaveing the data collection form anonymous .

The reason that only male students were included was because; although students of both genders are accepted for the undergraduate "track" only male students are admitted to the graduate "track"

The number of options allowed in a Likert scale does make a difference to the results outcome (Chomeya R. 2010). The responses were scored using 4-options Likert scale: strongly disagree, disagree, agree and strongly agree. We chose to use the 4-option rather than the 5-option Likert scale in order to extract specific responses from our respondents who otherwise would have a tendency to choose the "neutral" option to relive them from thinking of the appropriate response for them. The 4-point Likert scale is being used increasingly recently in social research specially (Yannakakis GN, &John Hallam. 2011), Privacy, confidentiality and volunteerism was assured and the IRB approval was sought and obtained (RC-10-061)

Descriptive and standard inferential statistics were generated. Quantitative data was analyzed as numbers and percentages. The Chi-square test and Odds ratio were used for the analysis of differences. Comparison of parametric means were calculated using independent samples t-test. P ± 0.05 was considered significant)

3. Results

All participants were from the College of Medicine at King Saud University for Health Sciences, all were Saudi students. A total of 244 male students responded (a response rate of (89%). Of the responders, 26% were graduate students and 74% were undergraduate students (this ratio reflects the existing graduate to undergraduate student ratio). The mean age was 21.5±3.2 years (20.0±1.7) for the undergraduate group and 26±2.3 years for the graduate group (p= 0.0001). Sixty-one percent of the students attended government high schools and 39% attended private schools. The father was a medical doctor in 15.2 % of the students and 58.2% of the student came from family with a monthly income of more than > 20,000SR ($5,333).

When comparing the graduates to the undergraduates, we found that the latter are younger (p=0.0001), almost 13-times more likely to have a father who is a doctor (p=0.001), 1.8 times more likely to have a father who was a university graduate (p=0.001), twice likely to have a household monthly income of more than $5,333 and 2.6 times likely to have attended a private high school (table 1).

Table 1. Demographic characteristics

	All	Undergraduate (n= 174)	Graduate (n= 63)	P- value
Age (years±SD)	21.48±3.2	20.0±1.	26±2.3	0.0001
Father is a doctor (%)	**15.2**	20.4	1.60	0.001
Father is University or higher education graduate (%)	**73.8**	86.3	47.5	0.0001
Household Income > $5,333 (%)	**58.2**	70.5	34.5	0.001
Attended private high school (%)	**38.9**	43.8	16.9	0.001

The motivating influences to pursue a medical carrier that scored more than 60 % were the student's interest in science (93.8%), desire to help others (93.7%), financial rewards (89%), guaranteed employment (84.9%), prestige of the profession (84.6%) and having good high school score (64%) **(table 2)**. Less reported influences were attributed to media reports (35 %,) friends (33.9%), acquiring easy access to medical care (32. %) and member of the family being in the medical profession (40.1%).

Table 2. Factors influencing medical student decision to choose medicine

My decision was influenced primarily by	Agree (%)			p –value
	All	Undergraduate students	Graduate students	
My family	47.8	53.1	34.8	0.036
Media reports	35.0	34.9	35.4	0.947
My Friends	33.9	33.6	34.6	0.899
My interest in science	93.8	92.9	96.1	0.522
Being one of the top 10 in my class at high school	64	70.6	42.9	0.001
Prestige of the Medical profession	84.6	89	73.1	0.007
Financial rewards	89	91.5	81.6	0.056
Guaranteed Employment	84.9	88.4	73.3	0.013
Easy Access to medical Care	32.9	37.4	21.7	0.056
Member of family is in medical profession	40.1	44.1	29.6	0.136
Desire to help others	93.7	96.7	85.4	0.003
I am satisfied with my choice of medicine as a career	89.1	86.9	95.8	0.085
If I have another chance I will choose another career	25.6	24.2	29.2	0.503

Significant differences in some of the influencing/motivating factors for entry into medical school were observed when comparing the graduate and undergraduate group. Significantly more undergraduates than graduates reported influences by family (p=0.036), having had high academic achievement at high school (p=0.001), prestige of the profession (p=0.007), guaranteed employment (p=0.013) and desire to help others (p=0.003). In all the other influencing factors tested we found no significant differences between the two groups (Table 2).

In our study 70.5% of the undergraduate students and 34.5% of the graduate students came from households with annual income of > $60.000(the average annual income for a Saudi household in general is $16000)

4. Discussion

There are very limited studies especially from our region to examine the factors influencing the student's decision to join medical college. We have indentified few factors that may be specific to our culture that may not be generalizable. Other major limitation of this study is that it did not include female students as the number of female students was small in our college and also as there are no female postgraduate students to allow for proper comparison. "Prestige of the medical profession" was reported as a factor in 84.6% of our respondents. In a study from Tanzania, 88% of the high school students surveyed considered the good social image of a profession as being their most important motivator in their carrier choice (Mugonzibwa EA, Kikwilu EN, Rugarabamu PN, Ntabaye MK. 2000), "Desire to help others" is a consistently quoted motivating factor (O'Brien CDaM. 2008). This was also the case in our groups (93.7%).

In our survey we found that 43.8% of the undergraduate group attended a fee-paying private high school as opposed to a free government school. This compares to only 13.4 present of students among the general population. Interestingly this general population rate is similar to that we found in our graduate group which was 16.9%.

In a Canadian study, 39.0% of fathers of the medical students had university degrees as compared with 6.6% of the Canadian population aged 45 to 64, (Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. 2002). In a study from New Zealand, 63.2% had a university-educated parent (Heath C, Stoddart C, Green H. 2002). In a study from Denmark 40% had a parent who had a higher education (Pedersen LT, Bak NH, Petersson BH. 2010). This compares to 73. 8% in our study with significant differences seen between the undergraduate (86.3%) and graduate students 47.5% (p=0.0001)

In studies from Denmark, New Zealand and Canada the frequencies of students with at least one parent who is a physician were 17% (Pedersen LT, Bak NH, Petersson BH. 2010), 13.1% (Heath C, Stoddart C, Green H. 2002) and 15.6% (Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. 2002) respectively. This compares to 15. 2 % in our study with significant differences seen between the undergraduate (20.4%) and graduate students 1.6% (p=0.0001)

In the study form Denmark (Pedersen LT, Bak NH, Petersson BH. 2010), it was found that 80% of the students were from social class I and II. These rates are much higher than those seen in the Danish population as a whole or in students at colleges of psychology and the humanities. This trend has not changed over the years. (Pedersen LT, Bak

NH, Petersson BH. 2010). Another study form New Zealand reported that 70% of medical students were from socioeconomic levels one and two (Collins JP, Jones J, White GR. 1993). In the Canadian study, the medical students were more likely to have higher socioeconomic status, as measured by parents' education (Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. 2002), 69.3% of the fathers' were in professional or high managerial posts as compared to 12.0% of Canadians (Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. 2002). In this Canadian study, 84.6 % of the parents have annual household incomes exceeding $40,000, and 17% had an income exceeding $160,000, this compares to 60.3% and 2.% respectively of Canadian households in general (Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. 2002). In our study 70.5% of the undergraduate students and 34.5% of the graduate students came from households came from annual income of > $60.000 which much higher than average annual income for Saudi in general.

Accepting graduates students has been shown to widen access to medical school entry allowing more socially deprived, older and those with lower high school score to enter medical schools (James D, Ferguson E, Powis D, Symonds I, Yates J. 2008). This has been confirmed in our study.

All the above studies, including ours, show that students at medical schools tend to come from families of higher socioeconomic and educational status as well as from families whose parents work in the medical profession. One can argue that there this is due an unfair bias student admission selection against lower classes by the university medical fraternity where "the old school tie network" may be at work here It is, however, more likely to be a normal selection as we see similar patterns in other professional faculties besides Medicine (such as law and engineering as faculties)

5. Conclusions

The conclusion of this study is that undergraduate medical students tended to be come from high income households, to have attended a private high school and to have a father who is a medical doctor or a university graduate. On the other hand, the graduate medical students had significantly different demographic and motivating factors which more reflective of in the general population. It will be interesting to do further study to compare student performance among undergraduate and graduate students, and also to assess the factors influencing the admittee and their school performance. It should be stressed that these findings may be socially and culturally related and may not be extrapolated to other countries although the literature tends to suggest that similar socioeconomic and demographic influences exist

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