

## Medical students' attitude toward anesthesia as a future career

### ABSTRACT

**Objectives:** The purpose of this study is to understand the attitude of medical students at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) toward anesthesia as a specialty and to determine common factors influencing their career choice options.

**Study Design:** This was a cross-sectional study.

**Methods:** The study was conducted between March 25, and April 20, 2017, at KSAU-HS. The survey was distributed among 5<sup>th</sup> and 6<sup>th</sup> years medical students. Data were collected through a validated hardcopy questionnaire of 16 multiple choice questions. The questionnaire included demographic characteristics, specialty preferences, what factors attract Saudi medical students to choose their preferred specialty and how they view the option of choosing anesthesiology as a career.

**Results:** A total of 236 students completed the questionnaire. The majority of respondents were in their 5<sup>th</sup> year of medical school representing (62%). The distribution of medical field interest ranged from (38%) surgery to (1%) anesthesiology. approximately, (60%) thought that controllable lifestyle was an important factor to consider in choosing a residency program. Only (45%) of respondents thought that prestige of specialty is a major factor that would influence their choice for a specialty.

**Conclusion:** Based on the outcome of the study, it is recommended that medical undergraduate students exposure to anesthesia specialty should be magnified. Greater efforts have to be made to increase the number of medical students preferring anesthesia through emphasizing on the positive aspects of the specialty.

**Key words:** Anesthesia; career; medical students

### Introduction

Anesthesiology is one of the medical specialties that are concerned in relieving pain and administrating of anesthesia medication during surgical and medical procedures. Clinically, anesthesia is classified into three main categories general, regional as well as monitored anesthesia care. General anesthesia results in a complete loss of consciousness and sensation while regional anesthesia is done only to a part of the body without affecting the level of consciousness.

However, local anesthesia is not limited to anesthesiologists, all health-care providers (doctors, dentists, and nurses) are using anesthesia to some degree in their medical procedures. In Saudi Arabia, anesthesia was first introduced in the mid-fifties, but not till the eighties when medical schools started to provide the anesthesiology training programs officially.<sup>[1]</sup> However, advancement of medical care and demands revealed a huge shortage of anesthesiologists.<sup>[2]</sup>

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Orbach-zinger stated that the percentage of medical students whom are interested in anesthesiology as a specialty is 0% in Israel compared to 12% among medical students in the United States due to better working conditions and salaries.<sup>[3]</sup> In addition, evidence showed that some factors are affecting the career choice in anesthesiology. However, Tyagi conducted a survey regarding which factors medical students consider important while opting for anesthesiology. Results showed economic security was chosen by the majority of students (67.7%) as one of the important factors affecting their choice to specialize in anesthesiology, but when asked to enumerate three first factors for choosing the anesthesiology, the majority rated the intellectual challenge of the specialty as the first factor. Influence of doctor – patient relationship was not considered by a large number of students.<sup>[4]</sup> Another important element while formulating a career choice is the gender of the student.<sup>[5]</sup> Multiple studies showed that females are more likely to consider a career as an anesthesiologist.<sup>[6]</sup> In a more recent study, Rehman *et al.* found that interest among female physicians to pursue anesthesiology is 9.9% compared to 4.5% in male.<sup>[7]</sup> Locally, unfortunately, there is no available knowledge of the attitude of medical students toward anesthesia as a specialty or the influencing factors.

Objectives of this study are to understand the attitude of medical students at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) toward anesthesia as a specialty and to determine common factors influencing their career choice options. Realizing students' point of view toward anesthesia and factors affecting their preferences will help the anesthesiology scientific council in the Saudi commission for health specialty to attract more students to choose anesthesia as their career specialty. In addition, it will contribute to identify the disadvantages in the eye of medical students toward anesthesia to rectify it.

## Methods

### Setting and participants

A cross-sectional study was conducted at KSAU-HS in Riyadh, Saudi Arabia. This type of study has been chosen due to its ability to analyze data collected from a group of subjects at specific time frame, which was the best method to achieve the objectives of this study. The survey was distributed to all fifth and sixth (final) year medical students to be filled anonymously. The sample size was calculated using (openepi.com) with a confidence interval of 95% and 5% margin of error. The response distribution was estimated to be 50%. The total population size of the 5<sup>th</sup> and 6<sup>th</sup> year medical students was estimated to be 300 medical students. The estimated sample size was 169 medical students of KSAU-HS. The sampling

techniques used for the study was convenient sampling since it is the most feasible technique to do.

### Data collection

The study was conducted between March 25, 2017, and April 20, 2017. Data were collected through a hardcopy questionnaire of 16 multiple-choice questions has been validated by using pilot test. The study has been explained to the participants, and a copy of the Institutional Review Board and consent has been attached to the survey. The questionnaire included demographic characteristics, specialty preferences, what factors attract Saudi medical students to choose their preferred specialty and how they view the option of choosing anesthesiology as a career. The questionnaire was distributed during the problem-based learning sessions as well as lectures, and then, collected 10 min later. Confidentiality was insured as we did not take names or numbers. Ethical approval was obtained from King Abdullah International Medical Research Center, Riyadh.

### Data analysis

The data were entered using Microsoft Excel, and all statistical analyses were performed using IBM Corp, released 2011. IBM SPSS Statistics for windows, version 21.0. Armonk, NY IBM Corp. The descriptive statistical analyses were conducted for the study participants and expressed as number and proportion. Scores measuring attitudes toward the choice of residency program were expressed as mean and standard deviation or percent selecting most important or important.

## Results

A total of 236 students completed the questionnaire. Descriptive statistics of the respondents are displayed in Table 1. The majority of respondents were in their 5<sup>th</sup> year of medical school representing (62%); males physician represent (65%) of those surveyed. The vast majority of respondents were single (94%) and had no children (97%). The distribution of medical field interest was as follows: 22% internal medicine, 15% pediatrics, 38% surgery, 9% family medicine, 3% obstetrics and gynecology, and 12% other fields (including 1% anesthesiology).

The results in Table 2 showed that while 53% of respondents had a mandatory clinical rotation in anesthesiology (80% of whom for at least two weeks), the vast majority of respondents reported not considering anesthesiology for their future career. Seventy-four percent of respondents indicated that their choice of a residency program is heavily influenced by training in medical school years 5–6. In addition, about 64% reported that their choice of a residency program is affected by the residents or faculty in the program

**Table 1: Profile of respondents (n=236)**

	Total, n (%)
Gender	
Male	153 (64.8)
Female	82 (34.7)
Missing	1 (0.5)
Medical school level	
5 <sup>th</sup> year	147 (62.3)
6 <sup>th</sup> year	86 (36.4)
Missing	3 (1.3)
Marital status	
Single	221 (93.6)
Married	13 (5.5)
Missing	2 (0.9)
Children	
No	230 (97.4)
Yes	3 (1.3)
Missing	3 (1.3)
Field of medicine	
Surgery	89 (37.7)
Internal medicine	52 (22.0)
Pediatrics	36 (15.3)
Other (please specify)	26 (11.0)
Family medicine	22 (9.3)
Obstetrics and gynecology	6 (2.5)
Anesthesiology	2 (0.8)
Radiology	1 (0.4)

that they are planning to apply to; only 14% were influenced by a family member and family expectations or health care practitioners (HCPs) before medical school.

Results from analyzing respondents' attitudes toward choices of residency programs measured using Likert scale items which displayed in Table 3. Sixty percent of respondents thought that controllable lifestyle (ability to control work hours) was an important factor to consider in choosing a residency program. The presence of doctor-patient relationship and income were found to be significant by 55% and 53%, respectively. Only 45% of respondents thought that prestige of specialty is a major factor that would influence their choice for a residency program.

Results from analyzing responses to other questions (not shown in tables) related to the income of anesthesiologists revealed that 88% of respondents estimated that the average monthly salary for anesthesiologists is high (30,000) or more. Nevertheless, the vast majority of that surveyed 87% reported that despite the fact that anesthesiologist is one of the highest-paying jobs in the USA; this will not impact their choice for a residency program. Finally, respondents reported that the factors that may affect their decision to pursue anesthesiology are as follows: 30% lifestyle, 19% pressure from family and peers, 17% patient care aspects,

**Table 2: Responses to anesthesiology/other residency program-related questions (n=236)**

Questions	Frequency (%)
Are you considering anesthesiology as a future career?	
A. No	210 (89.0)
B. Yes	25 (10.6)
C. Missing	1 (0.4)
Do you have a required (mandatory) rotation in anesthesia during your 5 <sup>th</sup> or 6 <sup>th</sup> year of medical school?	
A. No	124 (52.5)
B. Yes	109 (46.2)
C. Missing	3 (1.3)
Do you take an elective anesthesia rotation during your 5 <sup>th</sup> or 6 <sup>th</sup> year of medical school?	
A. No	225 (95.3)
B. Yes	9 (3.8)
C. Missing	2 (0.8)
If you took a clinical rotation in anesthesia, how long was the rotation? (please skip this question, if both your previous two answers were no)	
A. 2 weeks	140 (59.3)
B. 3 weeks or more	48 (20.3)
C. Missing	37 (15.7)
D. 1 week	11 (4.7)
If you took a clinical rotation in anesthesia, please select the best choice	
A. I decided against a career in anesthesia	62 (26.3)
B. This rotation inspired an interest in anesthesia, but I did not apply because I did not think that I could successfully match into this field	57 (24.2)
C. Other factors more heavily influenced my decision to pursue anesthesia	55 (23.3)
D. Missing	35 (14.8)
E. This rotation inspired me to pursue a career in anesthesia.	19 (8.1)
F. I had already decided to pursue anesthesia before this rotation	8 (3.4)
My decision regarding the type of residency program I choose has been most heavily influenced by	
A. Training in medical school years 5 and 6	174 (73.7)
B. Training in medical school years 3 and 4	38 (16.1)
C. Experiences before medical school	21 (8.9)
D. Missing	3 (1.3)
Individuals that have most influenced my choice of residency training are	
A. Faculty in program I am applying	103 (43.6)
B. Residents in program I am applying	48 (20.3)
C. Health-care providers before medical school	32 (13.6)
D. Family member and/or expectations	32 (13.6)
E. Other	20 (8.5)

15% basic science/research aspect, and 14% income and 5% other [Figure 1].

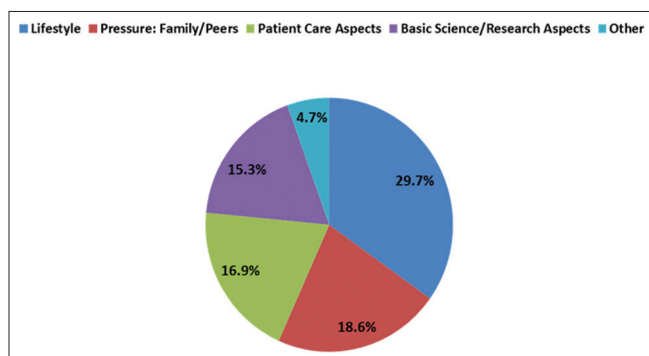
### Discussion

In this study, we explored future career interests for medical students approaching graduation year in anesthesia. Taking the

**Table 3: Attitudes toward choice of residency program (Likert items)\***

Item	Mean	SD	Percentage most important/important
Controllable lifestyle (ability to control work hours)	3.77	1.06	59.7
Presence of doctor–patient relationship	3.65	1.27	54.7
Income	3.66	1.08	53.4
Prestige of specialty	3.31	1.21	45.3

SD: Standard deviation

**Figure 1: Factors impacting decision to pursue (or not) anesthesiology as reported by respondents**

personal traits of each student in choosing a specialty, there are common influencers such as manageable lifestyles with fixed working hours and attitude toward research which are important to acknowledge in understanding the attitude of medical students at toward specialties, specifically anesthesia.<sup>[8-10]</sup>

The number of medical students who are interested in anesthesia (1%) is significantly less than the other major disciplines in medicine (surgery 38%, internal medicine 22%, pediatrics 15%, family medicine 9.3%) which is imputed to the different factors that impact medical students decision. Surprisingly, interest of medical students in radiology (0.4%) is less than anesthesiology (1%) which does not correlate with other studies, and this could be as a result of the absence of clinical rotation in this specialty in local medical schools.<sup>[4,12]</sup> About 13.4% of female students seemed to be more likely to consider a career in anesthesia in comparison to 8.4% of male students. This finding corresponds with multiple studies.<sup>[6,7]</sup> When examining the aspect of a doctor–patient relationship, 54.7% of the participants considered it of importance to their future career practice. On the other hand, Tyagi found that doctor–patient relationship was not a major factor in choosing a future career for 74% of students.<sup>[4]</sup> Doctor–patient relationship can be viewed as an obstacle in the eyes of a fresh graduate concerning it being difficult to maintain. This difficulty can be solved by explaining a procedure, sustaining communication, or having an acceptable bedside manner.<sup>[12,13]</sup>

Similarly, controllable lifestyle was important to 55% of the participants in considering a specialty in medicine. Looking at lifestyle, as a factor to consider anesthesia for future specialty or not, only 30% of the participants thought it was an issue. Unfortunately, 2% of postgraduate student chose anesthesia for this reason.<sup>[14]</sup> In agreement with other studies, the expected work schedule have a high impact on the students' choice. However, the income ranked second most important factor for choosing future specialty (relevant to 53% of the participants). Despite the fact of anesthesia is one of the highest paying jobs in the USA that did not affect the decision of 87% of the participants. Similarly, Khader found that income influenced the decision of 58% the participants.<sup>[6]</sup> The contribution of prestige in selecting a specialty was 45.3% in our study. This factor varied throughout literature ranged from 2% to 58.9% in different studies.<sup>[6,14]</sup>

When addressing individuals who had the influence on the participants' choice of the residency program, the following observation occurred. However, positive role models such as faculty members in a residency program have a significant influence on 43.6% of participants. Whereas, Khadar found that only 11.1% of medical students considered the advice of a faculty member.<sup>[6]</sup> In addition, residents as a role model have influenced 20.3% of participants, especially when the member is applying to the same residency program. The clinical role models have a significant impact on students' residency preferences, several studies have affirmed it.<sup>[8,15,16]</sup>

Finally, the exposure to specific health-care providers before starting medical school helped 13.6% of the participants' forms an idea about their future career choices. Furthermore, family member and expectations had limited effect on career choices 13.6%. Similarly, Kamat found the same limitation with family and peer influence in choosing a specialty for 9.4% of participants.<sup>[14]</sup>

## Conclusion

Based on the outcome of the study, it is recommended that medical undergraduate students' exposure to anesthesia specialty should be magnified. Greater efforts have to be made to increase the number of medical students preferring anesthesia through emphasizing on the positive aspects of the specialty among undergraduates. Another important point to attract more students to anesthesia is improving local training programs as well as the quality of instructors. There is a need to inform medical students about national requirements on the labor market. It is the responsibility of the medical school to counsel their

students regarding specialty choices, as the majority of students not aware of all the personal and social aspects of their choices. Finally, further studies are needed to determine the factors of preferred specialties among students at nationwide.

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#### Conflicts of interest

There are no conflicts of interest.

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