ORIGINAL ARTICLE

# Factors Influencing Saudi Medical Students' Choice of Emergency Medicine as a Career Specialty

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## Abstract

**Introduction:** Emergency medicine (EM) is a relatively new but rapidly expanding specialty in Saudi Arabia. However, research into the specific factors influencing Saudi medical students' decision to pursue EM remains limited. **Objectives:** The main objective of this study is to identify and evaluate the factors influencing Saudi medical students' choice of EM as a future specialty. **Materials and Methods:** This study was a cross-sectional study conducted from July 2025 to December 2025. A validated, self-administered questionnaire was distributed to a representative sample of medical students aged 18 and above across public and private universities in Saudi Arabia. The questionnaire covered demographic data, exposure to EM, lifestyle perceptions, role models, and personality traits. The target sample size was 384, calculated using Raosoft, and the data were analyzed using the Statistical Package for the Social Sciences version 25. **Results:** Participants had a mean age of 23.1 years; most were male (74.6%), Saudi (99.4%), single (92%), and in clinical years (75.8%). Overall, 89% approved EM as a residency specialty. Knowledge scores showed that 29.2% had high knowledge, 37.2% moderate, and 33.6% low knowledge regarding EM as a career specialty. Attitude scores indicated that 26.8% had a high attitude, 53.0% moderate, and 20.2% low attitude toward EM. Awareness of key EM characteristics was high; for example, 76.4% recognized EM's focus on acute care, 65.8% acknowledged its broad clinical diversity, and 60.8% recognized high patient turnover in emergency departments. Influencing factors scores showed that 23.4% reported high positive influence, 33.4% moderate, and 43.2% low influence toward choosing EM. Lifestyle attributes (controlled work schedule, shift work), salary perception, perceived prestige, stress and burnout risk, prior EM exposure, mentorship, personality fit, and perceived competitiveness were commonly endorsed as relevant influences. **Conclusion:** Saudi medical students show high approval but only moderate knowledge and attitudes toward EM, with many reporting limited positive influence from the measured factors. Targeted curricular exposure, structured mentorship, and accurate communication about EM's scope, lifestyle, and career pathways may enhance informed interest in EM as a future specialty.

**Key words:** Emergency medicine, medical students, Saudi Arabia, specialty selection

## INTRODUCTION

In many countries, medical education lacks structured career counseling for students. Consequently, initiatives have been proposed to formalize career guidance systems within national guidelines and accreditation standards.[1] This is particularly important in specialties like emergency medicine (EM),

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where trained physicians are responsible for managing millions of patients annually.[2]

EM is a relatively recent specialty in Saudi Arabia, with its training programs modeled after international systems. In 2000, Saudi graduates began training in EM, and by 2004, the first cohort completed the Saudi Board of EM program.[3]

In 2018, U.S.-based cross-sectional study involving 793 medical students found that 64.3% chose EM during or after their 3rd year. Early exposure – such as clinical rotations and volunteering in emergency departments – played a critical role in this decision-making process. Factors such as clinical variety, work-life balance, and job satisfaction were also key motivators.[4]

In 2021, a multi-center U.S. study surveyed 453 final-year medical students to assess lifestyle factors influencing specialty choice. EM was the third most selected specialty. Compared to others, EM-bound students placed significantly greater importance on having time off ($P < 0.05$), work-life balance ($P < 0.001$), and flexible scheduling ($P < 0.001$), while fewer prioritized low-stress workdays ($P < 0.001$). These findings suggest lifestyle preferences strongly shape EM career decisions, despite the specialty's known high burnout rates.[5]

Locally, a 2023 Saudi study with 764 respondents found that 44.4% were interested in EM. Among the influencing factors were EM coursework (52%) and electives (79.1%). In addition, 78.4% of participants believed that Saudi Vision 2030 might influence their career choices. The highest-ranked motivators were flexible working hours and a good work-life balance.[6]

Despite this growing interest, few studies focus exclusively on the motivations behind Saudi students' pursuit of EM. Understanding these factors can help inform curriculum development, student advising, and national workforce planning.

### Objectives

The main objective of this study is to identify and evaluate the factors influencing Saudi medical students' choice of EM as a future specialty and to assess the student's level of knowledge and attitudes toward EM.

## MATERIALS AND METHODS

### Study design

This cross-sectional study targeted undergraduate medical students in Saudi Arabia. Data were collected using a validated, self-administered questionnaire designed to assess career preferences and the factors influencing these choices. The questionnaire was distributed to male and female medical students across medical colleges throughout Saudi Arabia.

### Inclusion and exclusion criteria

All medical students registered at Saudi universities, regardless of academic year, were eligible to participate in this study. The exclusion criteria were individuals under the age of 18 and those who were not medical students at the time of data collection.

### Sample size

Calculation of sample size was done to ensure the minimum number of respondents. Needed to be a representative sample for the entire population. The sample size was determined using Raosoft sample size calculator. Keeping an indicator percentage of 0.50, margin of error of 5%, and confidence interval of 95%, the calculated sample size was 384.

### Method for data collection and instrument (Data collection technique and tools)

Data collection was done in the form of the students' responses to a standardized questionnaire; this instrument was conducted from previous studies that's what was used in this online questionnaire.[7,8] The final version consisted of a total 47 questions divided into five main sections, section A present the goal of the study with the informed consent, section B present 7 questions about the student's social demographic information, and section C present 12 questions to determine the students' knowledge of EM as a specialty. Section D present 15 questions to explore students' attitude to EM specialty. Section E present 13 influencing factors for the students to rate to indicate whether they are interested to pursue a career in EM.

### Scoring system

#### *Part I: Knowledge*

Knowledge was assessed using a 12 items questionnaire, options given were "Yes," "No," and "I don't know." Each correct answer was scored as one point, and incorrect answers scored zero. He overall level of knowledge was assessed using Bloom's cutoff point. Based on this cutoff point, the score between 80% and 100% (more than 10 points) was good knowledge, 60–79% (8–10 points) moderate knowledge, and <59% (<7) were scored as poor precautionary measures.

#### *Part II: Attitude*

Attitude was also assessed by 15 quotations in total rated on a five-point Likert scale used to rate each item: Strongly agree, agree, neutral, disagree, and strongly disagree. Responses

indicating "Strongly Agree" or "Agree" were given one point for statements about EM that were positively worded, while all other responses received zero points. "Strongly Disagree" or "Disagree" responses received one point for statements with negative wording, while all other responses received zero points. Each participant's overall attitude score, which can range from 0 to 15, was calculated by adding the points from each of the 15 items. Higher scores denoted a more positive attitude toward EM. Sing Bloom's cutoff points, scores <9 were classified as low, scores of 10–12 as moderate, and scores of 13 and more as high attitude toward EM.

### *Part III: The influencing factors*

The influencing factors section comprised items total, rated on a five-point Likert scale (1 being "strongly influencing me not to pursue EM," 3 being "neutral," and 5 being "strongly influencing me to pursue EM,") made up the influencing factors section. In terms of scoring, answers with a score of 4 or 5 indicated a positive influence on pursuing EM, while answers with a score of 1 or 2 indicated a negative influence. Three neutral answers received zero points. Higher positive scores indicate greater positive influence, while higher negative scores indicate greater negative influence. The total score was determined by adding the points from each of the 13 items. Using Bloom's cutoff points, scores <8 were classified as low influence, scores from 8 to 10 as moderate influence, and scores of 11 and more as high influence.

### Pilot test

Pre-testing of the questionnaire was conducted among Saudi medical students to assess the acceptability and clarity of the questions, confirm its validity, and gather participants' feedback and comments.

### Analyzes and entry method

The data had been entered into the device using the "Microsoft Office Excel Software" Windows (2021). The collected data were subsequently transmitted to the Statistical Package for the Social Science Software application, version 25 for statistical analysis. Descriptive statistics were used to summarize the numerical variables for baseline characteristics. For categorical variables, frequencies and percentages were calculated. The Chi-square test was used to identify associations between categorical variables.

## RESULTS

Table 1 displays various demographic parameters of the participants with a total number of (500). The sample showed a young population (mean age 23.1 years), with most participants aged 24–25 (26.2%) and 21 or less (23.2%). Males constituted 74.6% of the sample, and Saudis represented 99.4%. Most were single (92%). Regionally, the southern (32%) and central (31.2%) areas contributed the highest proportions. Clinical-year students formed 75.8%

**Table 1:** Sociodemographic characteristics of participants (*n*=500)

| Parameter | No. | Percentage |
|---|---|---|
| Age (Mean: 23.1, STD: 2.9) | | |
| 21 or less | 116 | 23.2 |
| 22 years old | 110 | 22.0 |
| 23 years old | 85 | 17.0 |
| 24–25 | 131 | 26.2 |
| 26 or more | 58 | 11.6 |
| Gender | | |
| Female | 127 | 25.4 |
| Male | 373 | 74.6 |
| Nationality | | |
| Non-Saudi | 3 | 0.6 |
| Saudi | 497 | 99.4 |
| Marital status | | |
| Single | 460 | 92.0 |
| Married | 37 | 7.4 |
| Divorced | 3 | 0.6 |
| Residential area | | |
| Northern region | 24 | 4.8 |
| Southern region | 160 | 32.0 |
| Center region | 156 | 31.2 |
| Eastern region | 36 | 7.2 |
| Western region | 124 | 24.8 |
| Academic level | | |
| Clinical years | 379 | 75.8 |
| Pre-clinical years | 121 | 24.2 |
| Medical school | | |
| Albaha University | 90 | 18.0 |
| Hail University | 21 | 4.2 |
| King Abdulaziz University | 36 | 7.2 |
| King Saud University | 60 | 12.0 |
| Najran University | 62 | 12.4 |
| Others | 131 | 26.2 |
| Shqra University | 22 | 4.4 |
| Taibah University | 78 | 15.6 |
| Grade point average | | |
| Excellent (≥3.50 out of 4.00) Or (≥4.50 out of 5.00) | 189 | 37.8 |
| Very good (from 2.75 to 3.49 out of 4.00) Or (from 3.75 to 4.49 out of 5.00) | 204 | 40.8 |
| Good (1.75–2.74 out of 4.00) Or (2.75–3.74 out of 5.00) | 80 | 16.0 |
| Satisfactory (1.00–1.74 out of 4.00) OR (2.00–2.74 out of 5.00) | 27 | 5.4 |

of participants. The number of medical schools that were represented was varied and the highest number of shares was occupied by "other universities" (26.2%), Al-Baha University (18%), and Taibah University (15.6%). Academic achievement was good with 40.8% indicating the value of very good and 37.8% indicating the value of excellent.

As shown in Figure 1, 89% of participants approved of EM as a residency specialty, with 3% disagreeing and 8% uncertain regarding EM.

Table 2 shows than most of the participants demonstrated good baseline knowledge of EM, with 88.6% of them being aware of its existence as a residency specialty and 92.4% being aware of its presence in Saudi Arabia. Awareness in the training hospitals of availability was less though (70.6), and 21.2% were unsure. The subspecialty knowledge was quite different. Even though more than half recognized disaster medicine (56.4%) and critical care (67.8%) as valid subspecialties, wilderness (49.2%), aerospace (47.2%), and forensics EM (36.8%) were less certain. Other subspecialties such as sports medicine, addiction medicine, as well as population health reflected moderate awareness but significant uncertain answers.

As shown in Figure 2, most participants viewed an EM rotation as beneficial, with 266 (53.2%) strongly agreeing and 136 (27.2%) agreeing. Only 87 (17.4%) were neutral, while disagreement was minimal at 9 (1.8%) and strongly disagreeing at 2 (0.4%).

Table 3 reveals that majority of the respondents agreed that EM is a legitimate specialty (74.8%) and considered emergency rotations to be helpful (80.4%). A significant number of them recognized the complete care competency of emergency doctors (69.6%). Nonetheless, feelings of mental ability were divided with 57% of the respondents thinking that other experts have a harder job to do. Attitudes toward income favored specialists, and 46.4% wanted them to earn more. The desire to be a leading career was relatively low because only 51.8% were in agreement with EM. About 63.4% found a broad range of presentations of patients attractive. It is worth mentioning that support was high on the implementation of the EM in the Saudi health system, such as the introduction of the residency program in the country (76.2%), and the acknowledgment of the professional status of emergency physicians (57.4%).

Table 4 indicates that most of the respondents emphasized interest-type motivators, including emphasis on acute care (76.4%), clinical diversity (65.8%), high turnover (60.8%), and a regulated work schedule (68.2%). Nevertheless, perceived difficulties were also a contributing factor, as 68% admitted potential stress and burnout. The lack of long-term relationships with patients was perceived by 58.6% of respondents, whereas the shift work affected 63.8%. Career views were also influenced by salary perceptions (57.8) and perceived prestige

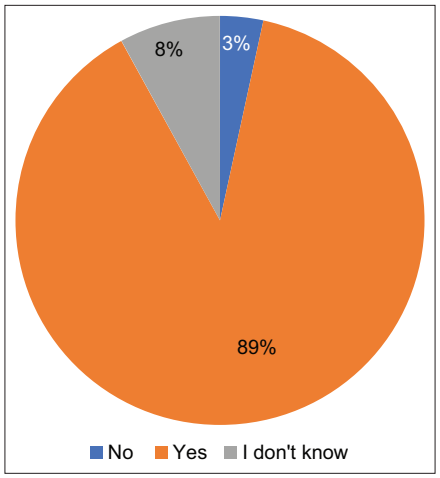


**Figure 1:** Knowledge of emergency medicine among participants

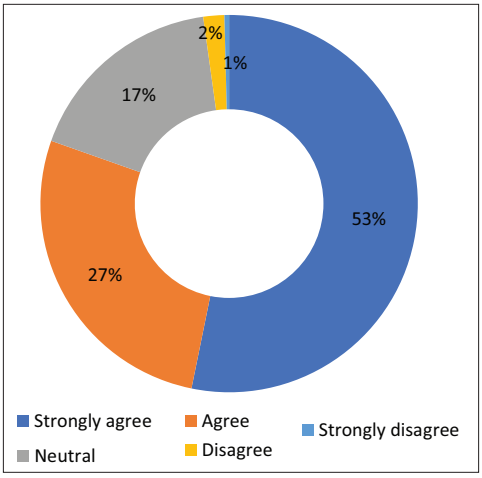


**Figure 2:** The effect of emergency medicine rotation on future physicians among participants

(52%). Important factors were prior exposure to EM (57.8%) and motivation of mentors or family (59.4%). Personality fit was cited by 56.6% of participants, and more than half (58.4%) felt that EM was competitively selective.

Table 5 shows that most participants showed moderate knowledge (37.2%), while 29.2% demonstrated high understanding. However, 33.6% had low knowledge regarding EM as a career specialty.

Table 6 reveals that most participants showed a moderate attitude toward EM (53%), with 26.8% displaying high attitudes. However, 20.2% reported low attitudes.

Table 7 shows that most participants reported low levels of influence (43.2%) regarding factors shaping interest in EM, while 33.4% showed moderate influence. While only 23.4% demonstrated a high level of influence.

Table 8 shows that knowledge level of EM has statistically significant relation to age ($P$ = 0.003), residential area

**Table 2:** Parameters related to knowledge of emergency medicine as a career specialty (*n*=500)

| Parameter | No. | Percentage |
|---|---|---|
| Is emergency medicine a residency specialty? | | |
| No | 17 | 3.4 |
| Yes | 443 | 88.6 |
| I do not know | 40 | 8.0 |
| Is it available in Saudi Arabia? | | |
| No | 11 | 2.2 |
| Yes | 462 | 92.4 |
| I do not know | 27 | 5.4 |
| Is it available in your training hospital? | | |
| No | 41 | 8.2 |
| Yes | 353 | 70.6 |
| I do not know | 106 | 21.2 |
| The following are subspecialties of emergency medicine: Disaster medicine? | | |
| No | 47 | 9.4 |
| Yes | 282 | 56.4 |
| I do not know | 171 | 34.2 |
| The following are subspecialties of emergency medicine: Wilderness medicine? | | |
| No | 90 | 18.0 |
| Yes | 164 | 32.8 |
| I do not know | 246 | 49.2 |
| The following are subspecialties of emergency medicine: Aerospace medicine? | | |
| No | 111 | 22.2 |
| Yes | 153 | 30.6 |
| I do not know | 236 | 47.2 |
| The following are subspecialties of emergency medicine: Forensics emergency medicine? | | |
| No | 136 | 27.2 |
| Yes | 180 | 36.0 |
| I do not know | 184 | 36.8 |
| The following are subspecialties of emergency medicine: Population health and social emergency medicine? | | |
| No | 55 | 11.0 |
| Yes | 243 | 48.6 |
| I do not know | 202 | 40.4 |
| The following are subspecialties of emergency medicine: Sports medicine? | | |
| No | 146 | 29.2 |
| Yes | 191 | 38.2 |
| I do not know | 163 | 32.6 |
| The following are subspecialties of emergency medicine: Addiction medicine? | | |
| No | 143 | 28.6 |
| Yes | 166 | 33.2 |
| I do not know | 191 | 38.2 |
| The following are subspecialties of emergency medicine: Critical care? | | |
| No | 46 | 9.2 |
| Yes | 339 | 67.8 |
| I do not know | 115 | 23.0 |

(*Contd*...)

**Table 3:** Participants' attitude toward emergency medicine as a career specialty (*n*=500)

| Parameter | No. | Percentage |
|---|---|---|
| Like internal medicine or surgery, emergency medicine is a legitimate field | | |
| Strongly agree | 205 | 41.0 |
| Agree | 169 | 33.8 |
| Neutral | 103 | 20.6 |
| Disagree | 15 | 3.0 |
| Strongly disagree | 8 | 1.6 |
| Having an emergency medicine rotation is beneficial to future physicians, regardless of their chosen specialty | | |
| Strongly agree | 266 | 53.2 |
| Agree | 136 | 27.2 |
| Neutral | 87 | 17.4 |
| Disagree | 9 | 1.8 |
| Strongly disagree | 2 | 0.4 |
| Comprehensive care is something that emergency medicine physicians are especially skilled at giving | | |
| Strongly agree | 163 | 32.6 |
| Agree | 185 | 37.0 |
| Neutral | 115 | 23.0 |
| Disagree | 34 | 6.8 |
| Strongly disagree | 3 | 0.6 |
| Compared to emergency medicine, the work of a hospital specialist is more intellectually challenging | | |
| Strongly agree | 129 | 25.8 |
| Agree | 156 | 31.2 |
| Neutral | 152 | 30.4 |
| Disagree | 48 | 9.6 |
| Strongly disagree | 15 | 3.0 |
| A specialist (such as a Cardiologist) should earn more than an emergency physician | | |
| Strongly agree | 109 | 21.8 |
| Agree | 123 | 24.6 |
| Neutral | 182 | 36.4 |
| Disagree | 58 | 11.6 |

(*Contd*...)

**Table 3:** (*Continued*)

| Parameter | No. | Percentage |
|---|---|---|
| Strongly disagree | 28 | 5.6 |
| I would be frustrated if I could not work in a field apart from emergency medicine | | |
| Strongly agree | 105 | 21.0 |
| Agree | 116 | 23.2 |
| Neutral | 176 | 35.2 |
| Disagree | 71 | 14.2 |
| Strongly disagree | 32 | 6.4 |
| Counseling and caring for people with chronic illnesses is less interesting than treating acute illnesses | | |
| Strongly agree | 114 | 22.8 |
| Agree | 140 | 28.0 |
| Neutral | 162 | 32.4 |
| Disagree | 66 | 13.2 |
| Strongly disagree | 18 | 3.6 |
| Emergency medicine is one of the three most fascinating fields of medicine if I had to choose just three | | |
| Strongly agree | 120 | 24.0 |
| Agree | 139 | 27.8 |
| Neutral | 154 | 30.8 |
| Disagree | 64 | 12.8 |
| Strongly disagree | 23 | 4.6 |
| Working as a specialist is more appealing than being an emergency physician | | |
| Strongly agree | 112 | 22.4 |
| Agree | 135 | 27.0 |
| Neutral | 178 | 35.6 |
| Disagree | 60 | 12.0 |
| Strongly disagree | 15 | 3.0 |
| A wide variety of patient presentations in all age groups is interesting | | |
| Strongly agree | 153 | 30.6 |
| Agree | 164 | 32.8 |
| Neutral | 150 | 30.0 |
| Disagree | 22 | 4.4 |
| Strongly disagree | 11 | 2.2 |
| Internists are more skilled than emergency medicine doctors | | |
| Strongly agree | 83 | 16.6 |
| Agree | 104 | 20.8 |
| Neutral | 198 | 39.6 |
| Disagree | 79 | 15.8 |
| Strongly disagree | 36 | 7.2 |
| When treating critically ill patients, an emergency medicine doctor should always seek advice from a specialist | | |
| Strongly agree | 124 | 24.8 |

(*Contd*...)

**Table 3:** (*Continued*)

| Parameter | No. | Percentage |
|---|---|---|
| Agree | 153 | 30.6 |
| Neutral | 150 | 30.0 |
| Disagree | 63 | 12.6 |
| Strongly disagree | 10 | 2.0 |
| The inclusion of emergency medicine physicians in the Saudi health system would improve its efficiency | | |
| Strongly agree | 170 | 34.0 |
| Agree | 171 | 34.2 |
| Neutral | 137 | 27.4 |
| Disagree | 19 | 3.8 |
| Strongly disagree | 3 | 0.6 |
| Emergency medicine doctors deserve to have the same level of reputation as experts like neurosurgeons. | | |
| Strongly agree | 139 | 27.8 |
| Agree | 148 | 29.6 |
| Neutral | 156 | 31.2 |
| Disagree | 41 | 8.2 |
| Strongly disagree | 16 | 3.2 |
| Emergency medicine residency programs should be set up in all parts of Saudi Arabia | | |
| Strongly agree | 229 | 45.8 |
| Agree | 152 | 30.4 |
| Neutral | 103 | 20.6 |
| Disagree | 11 | 2.2 |
| Strongly disagree | 5 | 1.0 |

**Table 4:** Parameters related to influencing factors of emergency medicine as career specialty (*n*=500)

| Parameter | No. | Percentage |
|---|---|---|
| The lack of longterm relationships with patients | | |
| No | 113 | 22.6 |
| Yes | 293 | 58.6 |
| Unsure | 94 | 18.8 |
| The focus on acute care and management | | |
| No | 70 | 14.0 |
| Yes | 382 | 76.4 |
| Unsure | 48 | 9.6 |
| High patient turnover | | |
| No | 58 | 11.6 |
| Yes | 304 | 60.8 |
| Unsure | 138 | 27.6 |
| Wide range of diversity in clinical conditions | | |
| No | 51 | 10.2 |
| Yes | 329 | 65.8 |

(*Contd*...)

**Table 4:** (*Continued*)

| Parameter | No. | Percentage |
|---|---|---|
| Unsure | 120 | 24.0 |
| The shift work | | |
| No | 97 | 19.4 |
| Yes | 319 | 63.8 |
| Unsure | 84 | 16.8 |
| Controlled work schedule | | |
| No | 71 | 14.2 |
| Yes | 341 | 68.2 |
| Unsure | 88 | 17.6 |
| Salary perception in relation to other specialties | | |
| No | 95 | 19.0 |
| Yes | 289 | 57.8 |
| Unsure | 116 | 23.2 |
| The perceived prestige of emergency medicine in comparison to other specialties | | |
| No | 119 | 23.8 |
| Yes | 260 | 52.0 |
| Unsure | 121 | 24.2 |
| Stress perception and burnout risk | | |
| No | 81 | 16.2 |
| Yes | 340 | 68.0 |
| Unsure | 79 | 15.8 |
| Previous experience with emergency medicine through a posting or elective | | |
| No | 94 | 18.8 |
| Yes | 289 | 57.8 |
| Unsure | 117 | 23.4 |
| The influence of influence from mentors/seniors/tutors/family member | | |
| No | 97 | 19.4 |
| Yes | 297 | 59.4 |
| Unsure | 106 | 21.2 |
| The perceived personality fit as an EM doctor | | |
| No | 61 | 12.2 |
| Yes | 283 | 56.6 |
| Unsure | 156 | 31.2 |
| The perceived competitiveness for being accepted into EM residency compared to other specialties | | |
| No | 75 | 15.0 |
| Yes | 292 | 58.4 |
| Unsure | 133 | 26.6 |

EM: Emergency medicine

($P = 0.001$), and academic level ($P = 0.018$). It also shows statistically insignificant relation to gender, nationality, marital status, and grade point average (GPA). Participants aging 26 or more, residing in central region were found to have higher knowledge level than the others.

**Table 5:** Knowledge of emergency medicine as a career specialty score results

| Knowledge level | Frequency | Percentage |
|---|---|---|
| High knowledge level | 146 | 29.2 |
| Moderate knowledge level | 186 | 37.2 |
| Low knowledge level | 168 | 33.6 |
| Total | 500 | 100.0 |

**Table 6:** Attitude toward emergency medicine as career specialty score results

| Attitude level | Frequency | Percentage |
|---|---|---|
| High attitude level | 134 | 26.8 |
| Moderate attitude level | 265 | 53.0 |
| Low attitude level | 101 | 20.2 |
| Total | 500 | 100.0 |

**Table 7:** Influencing factors of emergency medicine as career specialty score results.

| Level of influence | Frequency | Percentage |
|---|---|---|
| High level of influence | 117 | 23.4 |
| Moderate level of influence | 167 | 33.4 |
| Low influence level | 216 | 43.2 |
| Total | 500 | 100.0 |

Table 9 shows that attitude level toward EM has statistically significant relation to gender ($P = 0.005$) and residential area ($P = 0.005$). It also shows statistically insignificant relation to age, nationality, marital status, academic level, and GPA. Participants of male gender, residing in northern region were found to have better attitude level than the others.

Table 10 shows that knowledge level of EM has statistically significant relation to GPA level ($P = 0.0001$). It also shows statistically insignificant relation to gender, age, nationality, marital status, residential area, academic level, and GPA. Participants with excellent GPA were found to have higher influencing factors toward EM than the others.

## DISCUSSION

This cross-sectional study aimed to identify and evaluate the factors influencing Saudi medical students' choice of EM as a future specialty, while simultaneously assessing their knowledge and attitudes toward EM. The findings provide valuable insights into specialty selection among Saudi medical students and contribute to the growing international literature on factors shaping career decisions in EM.

**Table 8:** Relationship between knowledge level of emergency medicine and sociodemographic characteristics

| Parameters | Knowledge level of emergency medicine | | Total ($n$ = 500) | *P*-value |
|---|---|---|---|---|
| | High or moderate knowledge | Low knowledge level | | |
| Gender | | | | |
| Female | 83 | 44 | 127 | 0.773 |
| | 25.0% | 26.2% | 25.4% | |
| Male | 249 | 124 | 373 | |
| | 75.0% | 73.8% | 74.6% | |
| Age | | | | |
| 21 or less | 72 | 44 | 116 | 0.003 |
| | 21.7% | 26.2% | 23.2% | |
| 22 years old | 77 | 33 | 110 | |
| | 23.2% | 19.6% | 22.0% | |
| 23 years old | 45 | 40 | 85 | |
| | 13.6% | 23.8% | 17.0% | |
| 24–25 | 90 | 41 | 131 | |
| | 27.1% | 24.4% | 26.2% | |
| 26 or more | 48 | 10 | 58 | |
| | 14.5% | 6.0% | 11.6% | |
| Nationality | | | | |
| Non- Saudi | 1 | 2 | 3 | 0.224 |
| | 0.3% | 1.2% | 0.6% | |
| Saudi | 331 | 166 | 497 | |
| | 99.7% | 98.8% | 99.4% | |
| Marital status | | | | |
| Single | 301 | 159 | 460 | 0.276 |
| | 90.7% | 94.6% | 92.0% | |
| Married | 29 | 8 | 37 | |
| | 8.7% | 4.8% | 7.4% | |
| Divorced | 2 | 1 | 3 | |
| | 0.6% | 0.6% | 0.6% | |
| Residential area | | | | |
| Northern region | 17 | 7 | 24 | 0.001 |
| | 5.1% | 4.2% | 4.8% | |
| Southern region | 107 | 53 | 160 | |
| | 32.2% | 31.5% | 32.0% | |
| Center region | 117 | 39 | 156 | |
| | 35.2% | 23.2% | 31.2% | |
| Eastern region | 27 | 9 | 36 | |
| | 8.1% | 5.4% | 7.2% | |
| Western region | 64 | 60 | 124 | |
| | 19.3% | 35.7% | 24.8% | |
| Academic level | | | | |
| Clinical years | 241 | 138 | 379 | 0.018 |
| | 72.6% | 82.1% | 75.8% | |
| Pre- clinical years | 91 | 30 | 121 | |
| | 27.4% | 17.9% | 24.2% | |
| Grade point average | | | | |
| Excellent | 113 | 76 | 189 | 0.051 |
| | 34.0% | 45.2% | 37.8% | |
| Very good | 140 | 64 | 204 | |
| | 42.2% | 38.1% | 40.8% | |
| Good | 57 | 23 | 80 | |
| | 17.2% | 13.7% | 16.0% | |
| Satisfactory | 22 | 5 | 27 | |
| | 6.6% | 3.0% | 5.4% | |

**P*-value was considered significant if ≤0.05

**Table 9:** Attitude level of emergency medicine in association with sociodemographic characteristics

| Parameters | Attitude level of emergency medicine | | Total ($n$ = 500) | *P*-value |
|---|---|---|---|---|
| | High attitude level | Moderate or low attitude | | |
| Gender | | | | |
| Female | 22 | 105 | 127 | 0.005 |
| | 16.4% | 28.7% | 25.4% | |
| Male | 112 | 261 | 373 | |
| | 83.6% | 71.3% | 74.6% | |
| Age | | | | |
| 21 or less | 26 | 90 | 116 | 0.435 |
| | 19.4% | 24.6% | 23.2% | |
| 22 years old | 29 | 81 | 110 | |
| | 21.6% | 22.1% | 22.0% | |
| 23 years old | 21 | 64 | 85 | |
| | 15.7% | 17.5% | 17.0% | |
| 24–25 | 43 | 88 | 131 | |
| | 32.1% | 24.0% | 26.2% | |
| 26 or more | 15 | 43 | 58 | |
| | 11.2% | 11.7% | 11.6% | |

(*Contd*...)

(*Contd*...)

**Table 9:** (*Continued*)

| Parameters | Attitude level of emergency medicine | | Total ($n$ = 500) | *P*-value |
|---|---|---|---|---|
| | High attitude level | Moderate or low attitude | | |
| Nationality | | | | |
| Non-Saudi | 0 | 3 | 3 | 0.293 |
| | 0.0% | 0.8% | 0.6% | |
| Saudi | 134 | 363 | 497 | |
| | 100.0% | 99.2% | 99.4% | |
| Marital status | | | | |
| Single | 127 | 333 | 460 | 0.298 |
| | 94.8% | 91.0% | 92.0% | |
| Married | 7 | 30 | 37 | |
| | 5.2% | 8.2% | 7.4% | |
| Divorced | 0 | 3 | 3 | |
| | 0.0% | 0.8% | 0.6% | |
| Residential area | | | | |
| Northern region | 14 | 10 | 24 | 0.005 |
| | 10.4% | 2.7% | 4.8% | |
| Southern region | 42 | 118 | 160 | |
| | 31.3% | 32.2% | 32.0% | |
| Center region | 43 | 113 | 156 | |
| | 32.1% | 30.9% | 31.2% | |
| Eastern region | 6 | 30 | 36 | |
| | 4.5% | 8.2% | 7.2% | |
| Western region | 29 | 95 | 124 | |
| | 21.6% | 26.0% | 24.8% | |
| Academic level | | | | |
| Clinical years | 98 | 281 | 379 | 0.400 |
| | 73.1% | 76.8% | 75.8% | |
| Pre-clinical years | 36 | 85 | 121 | |
| | 26.9% | 23.2% | 24.2% | |
| Grade point average | | | | |
| Excellent | 53 | 136 | 189 | 0.319 |
| | 39.6% | 37.2% | 37.8% | |
| Very good | 57 | 147 | 204 | |
| | 42.5% | 40.2% | 40.8% | |
| Good | 15 | 65 | 80 | |
| | 11.2% | 17.8% | 16.0% | |
| Satisfactory | 9 | 18 | 27 | |
| | 6.7% | 4.9% | 5.4% | |

*$P$-value was considered significant if $\leq 0.05$

Our study revealed that 89% of the 500 participating medical students approved of EM as a residency specialty, indicating substantial interest and approval of the field within the Saudi medical education system. However, the distribution of knowledge levels was more heterogeneous, with only 29.2% demonstrating high knowledge, 37.2% moderate knowledge, and 33.6% low knowledge regarding EM as a career specialty. Similarly, while 26.8% exhibited high attitudes toward EM, the majority (53.0%) demonstrated moderate attitudes, and 20.2% reported low attitudes. Notably, 43.2% of participants reported low levels of influence from factors promoting EM career pursuit, though 23.4% experienced high levels of positive influence.

The observed gap between approval and knowledge is consistent with previous literature. A study assessing awareness and knowledge among Egyptian medical students similarly revealed a substantial lack of awareness and knowledge toward EM across all academic years, despite general enthusiasm for the specialty.[9] Among 391 Egyptian medical students, only 7.7% were classified as having "excellent knowledge" of EM, 23.5% as "good knowledge," 40.4% as "fair knowledge," and 28.4% as "poor knowledge".[9] This pattern aligns with our findings, suggesting that awareness and formal knowledge about EM scope, training pathways, and career prospects may not develop passively and requires intentional educational interventions.

The high approval rate found in our cohort (89%) is noteworthy when compared to global patterns. A multi-center Saudi Arabian study involving 764 respondents reported that 44.4% expressed interest in pursuing EM as a career.[10] This significant increase to 89% approval in our study may reflect changing perceptions of EM within the Saudi medical education context, potentially attributed to increased visibility of the specialty, curriculum improvements, or broader healthcare transformation initiatives. The same 2023 study emphasized that exposure to EM coursework (52%) and electives (79.1%) were substantial influencing factors, and that 78.4% of participants believed that Vision 2030 might influence their career choices.[10]

Regarding attitudes toward EM, our finding that 53.0% of students exhibited moderate attitudes aligns with international data on specialty selection. A comprehensive survey of UK medical students found that work-life balance (84.1%), positive training experiences (85.2%), and future specialty outlook (74.9%) were key considerations in specialty choice, emphasizing that attitude formation is multifactorial.[11] The moderate attitude levels in our cohort may reflect realistic appraisal of the specialty's demands versus rewards, as students demonstrated awareness of multiple dimensions of EM practice.

The diverse knowledge demonstrated regarding EM subspecialties is particularly relevant. Our results showed strong recognition of critical care (67.8%) and disaster medicine (56.4%) as valid subspecialties, but lower

**Table 10:** Attitude level of emergency medicine in association with sociodemographic characteristics

| Parameters | Influence level of emergency medicine | | Total ($n$ = 500) | *P*-value |
|---|---|---|---|---|
| | High or moderate influence | Low influence level | | |
| Gender | | | | |
| Female | 63 | 64 | 127 | 0.058 |
| | 22.2% | 29.6% | 25.4% | |
| Male | 221 | 152 | 373 | |
| | 77.8% | 70.4% | 74.6% | |
| Age | | | | |
| 21 or less | 56 | 60 | 116 | 0.255 |
| | 19.7% | 27.8% | 23.2% | |
| 22 years old | 67 | 43 | 110 | |
| | 23.6% | 19.9% | 22.0% | |
| 23 years old | 47 | 38 | 85 | |
| | 16.5% | 17.6% | 17.0% | |
| 24–25 | 78 | 53 | 131 | |
| | 27.5% | 24.5% | 26.2% | |
| 26 or more | 36 | 22 | 58 | |
| | 12.7% | 10.2% | 11.6% | |
| Nationality | | | | |
| Non-Saudi | 2 | 1 | 3 | 0.729 |
| | 0.7% | 0.5% | 0.6% | |
| Saudi | 282 | 215 | 497 | |
| | 99.3% | 99.5% | 99.4% | |
| Marital status | | | | |
| Single | 259 | 201 | 460 | 0.741 |
| | 91.2% | 93.1% | 92.0% | |
| Married | 23 | 14 | 37 | |
| | 8.1% | 6.5% | 7.4% | |
| Divorced | 2 | 1 | 3 | |
| | 0.7% | 0.5% | 0.6% | |
| Residential area | | | | |
| Northern region | 15 | 9 | 24 | 0.464 |
| | 5.3% | 4.2% | 4.8% | |
| Southern region | 96 | 64 | 160 | |
| | 33.8% | 29.6% | 32.0% | |
| Center region | 81 | 75 | 156 | |
| | 28.5% | 34.7% | 31.2% | |
| Eastern region | 18 | 18 | 36 | |
| | 6.3% | 8.3% | 7.2% | |
| Western region | 74 | 50 | 124 | |
| | 26.1% | 23.1% | 24.8% | |
| Academic level | | | | |
| Clinical years | 216 | 163 | 379 | 0.878 |
| | 76.1% | 75.5% | 75.8% | |
| Pre-clinical years | 68 | 53 | 121 | |
| | 23.9% | 24.5% | 24.2% | |
| Grade point average | | | | |
| Excellent | 132 | 57 | 189 | 0.0001 |
| | 46.5% | 26.4% | 37.8% | |
| Very good | 97 | 107 | 204 | |
| | 34.2% | 49.5% | 40.8% | |
| Good | 36 | 44 | 80 | |
| | 12.7% | 20.4% | 16.0% | |
| Satisfactory | 19 | 8 | 27 | |
| | 6.7% | 3.7% | 5.4% | |

**P*-value was considered significant if ≤0.05

awareness of wilderness medicine (49.2%), aerospace medicine (47.2%), and forensic EM (36.8%). This pattern of selective awareness suggests that awareness of emerging and specialized domains of EM requires dedicated educational exposure. The international EM training landscape increasingly emphasizes subspecialty training; therefore, ensuring students understand the breadth of EM practice beyond traditional acute emergency care is essential for career planning.

Students' perception of EM characteristics revealed robust awareness of key distinctive features. Specifically, 76.4% acknowledged the focus on acute care and management, 65.8% recognized the wide range of clinical diversity, and 60.8% understood the high patient turnover characteristic of emergency departments. These findings demonstrate that students grasp fundamental operational features of EM practice. This awareness is important because previous research has shown that clinical variety is a critical motivator for EM selection. A descriptive study of Saudi medical students found that among 793 medical students surveyed, the recognition of clinical variety, work-life balance, and job satisfaction emerged as key motivators for EM career selection.[12]

Lifestyle considerations prominently featured in students' perceptions, with 68.2% affirming that a controlled work schedule positively influences EM career choice, and 63.8% recognizing the role of shift work as an influencing factor. A landmark prospective cohort study of 453 graduating

medical students found that EM-preferred students differed significantly from their peers in valuing flexible work schedules (67% vs. 47% of non-EM students; $P < 0.001$), time outside of work (93% vs. 76%; $P < 0.001$), and work-life balance (100% vs. 81%; $P < 0.001$).[13] Notably, only 7% of EM-preferring students, compared to 23% of non-EM students, endorsed having a "low-stress work day" as important ($P < 0.001$).[13] This finding underscores an important paradox: students select EM partly for perceived lifestyle flexibility despite the specialty's well-documented high burnout rates. Our study's finding that 68.0% of students perceived stress and burnout risk as influencing factors suggests some awareness of this challenge, though the mechanisms by which they reconcile this with their career choice warrant further investigation.

The influence of role models and mentorship was evident in our findings, with 59.4% of students acknowledging the influence of mentors, seniors, tutors, or family members on their EM career decisions. International literature strongly supports mentorship's importance. A recent cross-sectional survey of EM applicants found that positive interactions with EM faculty and residents, combined with positive clinical experiences, were primary attractors to the specialty.[14] Conversely, 73.3% of those receiving negative advisement about EM received it from non-emergency physicians.[14] This underscores that adequate EM mentorship and positive role modeling are essential for specialty recruitment.

The personality fit dimension was recognized by 56.6% of our cohort as relevant to EM career choice. Research on specialty selection has increasingly emphasized person-specialty fit. A cross-sectional study examining specialty preferences found that general interest in the specialty field (95.9%), job security (81.3%), and job availability (70.3%) were among the most influential factors in specialty selection, suggesting that personality alignment with clinical work style is intrinsically linked to career satisfaction.[15]

Our finding that only 23.4% of participants reported high levels of positive influence from the measured factors is particularly important for curriculum planning. This suggests that while students may have positive general attitudes toward EM, specific factors motivating them toward the specialty are not universally present or salient. The majority experiencing low-to-moderate influence levels indicates potential for intervention through curriculum enhancement, mentorship programs, and exposure opportunities. Prior literature has demonstrated that early exposure dramatically impacts specialty choice; a multi-center study found that among 764 medical students in Saudi Arabia, exposure to EM courses, particularly when taught by EM physicians, and participation in EM electives positively influenced career choice.[10]

Our results also reflect important knowledge gaps that require attention. The lower awareness of EM subspecialties among students suggests insufficient curricular integration of this material. In addition, the 33.6% of students with low knowledge scores, despite high general approval rates, indicates a disconnect between enthusiasm for the specialty and understanding of its educational requirements and career pathways.

The high perception of stress and burnout among our cohort (68.0%) is significant given the international context. A recent cross-sectional survey of EM residency program leaders found that 42.0% of program directors and 26.9% of assistant directors experienced burnout, primarily driven by negative impacts on personal health and relationships.[16] In addition, 27.7% of program directors and 23.8% of assistant directors expressed intentions to leave their positions within 18 months.[16] Despite this concerning data, students continue pursuing EM, suggesting either underestimation of burnout severity or different prioritization of career factors than practicing physicians.

Regarding salary perception, 57.8% of our participants believed that salary considerations influenced EM career choice relative to other specialties. While financial compensation was not consistently reported as the primary motivator in international studies, it remains a relevant consideration. Recent data from EM applicants in the United States indicate that applicants continue to be attracted by high-acuity patient care, variety of pathology (mean 4.66 on a 1–5 scale), and flexible lifestyle (4.63), even as concerns about job security have increased.[14]

The perceived competitiveness of EM residency positions was acknowledged by 58.4% of our cohort, reflecting accurate awareness of the specialty's historically competitive nature, though this has recently shifted in some countries. Recent national survey data from the United States showed that EM faced significant match challenges starting in 2022–2023, driven by workforce concerns, corporate influence, emergency department crowding, and burnout.[14] These global trends may eventually affect Saudi EM recruitment as the specialty matures.

This study has several important limitations that should be considered when interpreting the results. First, the cross-sectional design precludes determination of causality; we can identify associations but cannot establish temporal relationships or causal mechanisms. Second, while the sample size of 500 students is substantial, participation was voluntary and may have introduced selection bias, as students with stronger opinions about EM may have been more likely to participate. Third, the knowledge assessment was limited to 12 items, potentially not capturing the full breadth of EM knowledge domains. Sixth, the influencing factors section was restricted to 13 predetermined items; unmeasured factors may be equally or more important in career decision-making. Finally, the study did not assess longitudinal outcomes; whether students reporting

positive attitudes and high influence actually pursued EM residencies remains unknown, limiting assessment of predictive validity.

## CONCLUSION

This multicenter cross-sectional study demonstrates that while most Saudi medical students approve EM as a residency option, substantial proportions have only moderate knowledge and attitudes, and many report low overall influence from the factors measured in this survey. Students clearly recognize core operational features of EM, including acute care focus, high patient turnover, and broad clinical diversity, yet gaps remain in detailed understanding of EM subspecialties and training pathways. Lifestyle perceptions, perceived stress and burnout, salary and prestige, prior EM exposure, mentorship, and personality fit all play important roles, but do not uniformly translate into strong motivation to pursue EM. These findings highlight the need for structured, EM-led educational activities, earlier and more meaningful clinical exposure, and formal career guidance integrated into undergraduate curricula. Such strategies may support better-informed specialty decisions and contribute to aligning the future EM workforce with national healthcare needs in Saudi Arabia.

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## ETHICAL APPROVAL

The study was fully explained to all participants, and it was emphasized that participation was voluntary. Written informed consent was obtained from each participant before enrollment. All collected information was securely stored and used exclusively for research purposes.

## INFORMED CONSENT

Written informed consent was obtained from all study participants.-

## DATA AND MATERIALS AVAILABILITY

All data generated or analyzed during this study are included in this published article.

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