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ORIGINAL ARTICLE

Factors affecting emergency residents' selection of a training center in Saudi Arabia

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ABSTRACT

Background: The Emergency medicine (EM) residency program in Saudi Arabia spans 4 years, equipping trainees with the necessary knowledge, skills, and attitudes to excel as emergency physicians. This study aims to elucidate the factors influencing EM residents' choice of training centers in Saudi Arabia.

Methods: We conducted a cross-sectional study using an online questionnaire to gather data from EM residents across Saudi Arabia. We employed a convenience, non-random sampling technique. The questionnaire was divided into two sections, gathering sociodemographic data and factors influencing the choice of training center.

Results: The study included 223 EM residents. Of these, 134 (60.1%) were male, and the majority (43.9%) were in their first year, with most respondents hailing from Jeddah (59.2%). The "friendliness of the residents/staff" was deemed most critical, with a mean score of 4.51, while "prestige" was the least important, scoring 2.55. "Closeness of location," "number of consultants," "availability of different subspecialties," "friendly environment," and "influence by others" were prioritized by male residents. Female residents favored "prestige" and "reputation of the program." Senior residents valued "proximity to homeland," "supervision and mentoring," and "career opportunities and mentoring" highly.

Conclusion: While many factors influence the choice of an EM residency, interpersonal dynamics, supervisory relationships, and geographical preferences play pivotal roles. Residency programs could enhance training quality by integrating these insights into more flexible, inclusive policies and ensuring equitable distribution across regions. Due to the limited local research on this topic, further studies are recommended to enhance understanding of these dynamics.

Keywords: Emergency medicine, training center, residency, factors.

Introduction

Selecting a residency program marks a critical juncture in the lives of medical students, signifying the start of their professional careers. Emergency medicine (EM) is a particularly attractive specialty for students and interns during medical rotations. The EM residency is a 4-year program in Saudi Arabia that equips trainees with essential knowledge and skills to excel as emergency physicians in diverse settings. Numerous EM residency training centers are accredited by the Saudi Commission of Health Specialties [1]. Despite this, evidence remains limited in Saudi Arabia regarding the factors influencing residents' decisions to select specific training centers. Understanding these factors is crucial for senior medical students and interns interested in EM, as it assists them in making well-informed decisions about their training locations and aligning their career goals with the capabilities of the training centers. Moreover, identifying these factors could enhance the quality of training programs through modifications to the curriculum, educational activities, hospital and educational protocols, and emergency rotations for residents not specializing in EM.

Previous studies have highlighted several factors that influence the choice of a training center. According

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to Ng et al. [2], the nature of the training, mentorship, and clinical experiences are significant determinants in the decision-making process of applicants. Other influential factors include the quality of the program [3], flexibility in work schedule and workload [4], the interview experience [5,6], academic interests [3,6], a positive work environment [3,6], income potential [3], interactions with residents and their friendliness [5,6], the reputation of the program [5], the reputation of the program director [7], and the facilities of the center [7]. Location preferences, such as proximity to significant others or specific regions, also play a crucial role in the choices of EM residents [4,6].

Given the paucity of local studies on this topic, our primary objective is to investigate the factors that EM residents in Saudi Arabia consider influential when selecting a training center.

Subjects and Methods

Study design and setting

We conducted a cross-sectional study where investigators recruited subjects through text messaging applications, social media groups, and emails. The researchers employed a non-probability consecutive sampling technique. Following a pilot study with 18 participants, we completed the survey based on variables in a data collection sheet. These variables were divided into two sections: demographics (age, gender, marital status, year of residency, city, and training center) and a rating system. The rating system, used to evaluate 23 factors influencing the choice of the training center, ranged from 1 ("Not at All Important") to 5 ("Extremely Important").

Identification and study participations

The study included EM residents enrolled in the Saudi Board program across various regions of Saudi Arabia, specifically from October 2020 to September 2021, and first-year postgraduate residents for the following academic year (October 2021 to September 2022). General practitioners, rotating residents, and medical interns were excluded. The Institutional Review Board of the King Abdullah International Medical Research Center additionally approved this research (approval number: SP20J/109/20). The target population of EM residents in Saudi Arabia was approximately 300. Using a 5% margin of error, a 95% confidence interval, and an anticipated 40% response rate, the Roasoft Inc. sample size calculator determined that a sample of 166 was necessary [8,9]. The actual response rate exceeded 40%, resulting in 223 participants.

Study measures and data analysis

Investigators ensured the completeness and accuracy of the data, developing and distributing a questionnaire to participants in the Saudi residency program for EM. All data were entered into an Excel spreadsheet file (Microsoft, Inc., Redmond, WA), maintained with strict confidentiality. Categorical variables were presented as frequencies and percentages, while continuous variables were reported as means and standard deviations. We presented the 23 decision-making factors as mean ± SD. The Mann-Whitney *U* test analyzed the relationship between gender and these factors due to non-parametric data, while simple linear regression assessed the age-related differences. We performed all analyses using IBM SPSS Statistics for Windows, Version 23.0. (IBM Corp., Armonk, NY), within a 95% confidence interval.

Study questions, primary objectives, and secondary objectives

The central question was: What factors influence the selection of an EM residency training program among Saudi residents? The primary objective was to identify these influential factors. The secondary objectives were to determine if there are gender-based preferences in the choice of an EM residency training center and to evaluate how the importance of these factors varies between junior and senior EM residents in Saudi Arabia.

Results

In this study, 223 EM residents in Saudi Arabia participated (mean age, 28.0 ± 3.2 years), achieving a 94% response rate. Participant mean age was 27.9 ± 3.21 years, and 134 (60.1%) were male. The majority, 98 (43.9%), were first-year residents in their programs, as detailed in Table 1.

Most respondents were trained in Jeddah (n = 132; 59.2%) followed by Riyadh (n = 50; 22.4%). Figure 1 presents the distribution of training locations by city. Most participants (n = 144; 64.6%) were trained at King Abdulaziz Medical Center. Other significant contributors included King Faisal Specialist Hospital and Research Center and King Saud Medical City, with 16 (7.2%) and 10 (4.5%) residents, respectively. Residents training at other centers are listed in Figure 2.

When analyzing the factors influencing residency program selection, "Friendliness of the residents/staff" emerged as the most critical, with a mean score of 4.51 (± 0.832). "Supervision and mentoring" followed closely with a mean of 4.49 (± 0.799), and "Reputation

Table 1. *Baseline characteristics of residents (N = 223).*

Characteristics	*N* (%)
Gender	
Male	134 (60.1)
Female	89 (39.9)
Marital status	
Single	126 (56.5)
Married	85 (38.1)
Separated	12 (5.4)
Year of residency	
First	98 (43.9)
Second	60 (26.9)
Third	46 (20.6)
Fourth	19 (8.5)

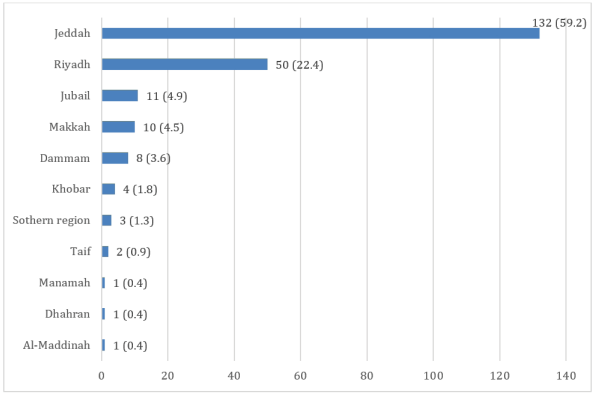

Figure 1. *City of residency training, n (%).*

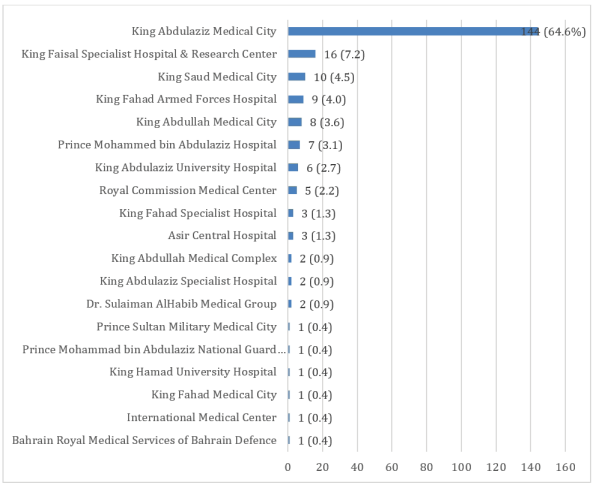

Figure 2. *Training center, n (%).*

of the program" was also highly rated at 4.46 (± 0.849). Conversely, "Prestige" was deemed the least important, scoring 2.55 (± 1.290), with "Choosing this region would provide additional CV points" also ranking low at 2.83 (± 1.602). All factors are further elaborated in Table 2.

Gender analysis of these 23 factors revealed significant differences in 8 factors. Six factors were more important to male residents, including "Friendly environment" (males 4.75, females 4.3), "Number of consultants" (males 4.31, females 3.79), and "Working hours/Flexible work schedule" (males 4.07, females 3.63). Other factors favoring male importance were "Availability of different subspecialties" (males 3.97, females 3.58), "Influence by others" (males 3.66, females 3.35), and "Closeness of location" (males 3.37, females 2.77). Conversely, "Prestige" and "Reputation of the program" were more important to female participants, scoring 2.79 versus 2.4 and 4.56 versus 4.4, respectively, as shown in Table 3.

The influence of age was evident in three factors, with older participants placing more importance on "Proximity to the homeland," "Supervision and mentoring," and "Prestige." "Career opportunity including fellowship" was valued less by older participants. No significant age-related differences were noted for the other 19 factors, as detailed in Table 4.

Table 2. *Factors responsible for choosing a residency program.*

Q. No.	Factors	Mean	SD
Q1	Closeness of location	3.12	1.214
Q2	Number of consultants	4.09	0.996
Q3	Availability of different subspecialties	3.81	1.169
Q4	Friendly environment	4.58	0.904
Q5	Availability of effective security system	3.94	1.175
Q6	Number of cases	4.32	0.861
Q7	Different quality cases	4.38	0.882
Q8	Reputation of the center	4.15	1.063
Q9	Proximity to homeland	3.39	1.354
Q10	Choosing this region would provide additional CV points	2.83	1.602
Q11	Reputation of program director	4.17	0.997
Q12	Teaching quality	4.48	0.869
Q13	Friendliness of the residents/Staff	4.51	0.832
Q14	Supervision and mentoring	4.49	0.799
Q15	Rotation/elective experience as a medical student/intern	3.60	1.262
Q16	Influence by others (peers, faculty, etc.)	3.54	1.089
Q17	Income/Salary	3.21	1.296
Q18	Career opportunity including fellowship	3.69	1.294
Q19	Working hours/Flexible work schedule	3.89	1.184
Q20	Interview experience (how the applicant felt about the interview)	3.77	1.089
Q21	Prestige (choice was made mainly based on prestigious center name)	2.55	1.290
Q22	Reputation of program	4.46	0.849
Q23	Reputation of alumni	3.75	1.082

Abbreviation: CV, curriculum vitae.

Discussion

EM is an appealing specialty for medical students and interns. This study, involving 223 EM residents, found that 60% were male and 43% were first-year residents. A significant portion (64.6%) were from King Abdulaziz Medical Center. Among the 23 factors evaluated for choosing a training center, "Friendliness of the residents/staff" emerged as the most critical, mirroring findings by DeSantis et al. [6], who reported that 95% of residency applicants rated "Friendliness" as "important" or "very important". This preference may stem from the high-stress environment of emergency departments, where a supportive community can significantly alleviate stress.

Contrasting with findings from Love et al. [5], our study identified "Supervision and Monitoring" as the second most important factor, whereas it was the ninth in Love et al. [5]'s survey of medical students [10]. This difference likely reflects the varying needs between students and residents; residents may value more direct supervision, which can enhance both their satisfaction and autonomy.

Table 3. *Relationship between residency program choosing factors and gender.*

Q. No.	Factors	Male		Female		*p*-value
		Mean	SD	Mean	SD	
Q1	Closeness of location	3.37	1.131	2.77	1.243	<.001
Q2	Number of consultants	4.31	0.884	3.79	1.064	<.001
Q3	Availability of different subspecialties	3.97	1.151	3.58	1.163	0.008
Q4	Friendly environment	4.75	0.569	4.34	1.184	0.011
Q5	Availability of effective security system	4.06	1.073	3.77	1.290	0.167
Q6	Number of cases	4.39	0.751	4.23	0.990	0.451
Q7	Different quality cases	4.47	0.701	4.24	1.073	0.365
Q8	Reputation of the center	4.21	0.941	4.06	1.211	0.668
Q9	Proximity to homeland	3.40	1.371	3.38	1.336	0.898
Q10	Choosing this region would provide additional CV points	2.93	1.664	2.67	1.498	0.235
Q11	Reputation of program director	4.13	0.964	4.21	1.050	0.310
Q12	Teaching quality	4.54	0.791	4.38	0.971	0.270
Q13	Friendliness of the residents/Staff	4.57	0.750	4.42	0.939	0.348
Q14	Supervision and mentoring	4.55	0.655	4.40	0.974	0.688
Q15	Rotation/elective experience as a medical student/intern	3.45	1.335	3.82	1.114	0.052
Q16	Influence by others (peers, faculty, etc.)	3.66	1.103	3.35	1.046	0.016
Q17	Income / Salary	3.27	1.399	3.12	1.126	0.167
Q18	Career opportunity including fellowship	3.78	1.301	3.56	1.279	0.156
Q19	Working hours/Flexible work schedule	4.07	1.105	3.63	1.256	0.007
Q20	Interview experience (how the applicant felt about the interview)	3.84	1.096	3.66	1.076	0.184
Q21	Prestige (choice was made mainly based on prestigious center name)	2.40	1.257	2.79	1.310	0.026
Q22	Reputation of program	4.40	0.817	4.56	0.890	0.026
Q23	Reputation of alumni	3.79	0.994	3.68	1.206	0.794

Abbreviation: CV, curriculum vitae.

"Prestige" was the least valued factor in our study, with a mean score of 2.55. While no specific studies on the prestige of EM programs were found, a systematic review by Yang et al. [4] reported that "Prestige" was a low-priority factor for medical students choosing a subspecialty. This parallel suggests a consistent undervaluing of prestige among both groups when selecting educational programs.

Gender differences were notable in factor preferences. Male residents tended to prioritize proximity to the hospital more than female residents, scoring 3.37 compared to 2.77. This contrasts with DeSantis et al. [6], where a larger percentage of female participants considered location "important" or "very important". The discrepancy might be explained by different interpretations of "location," with our study specifically focusing on proximity to the hospital, possibly conflating it with other location-related aspects such as safety.

Furthermore, male residents rated a "Friendly environment" higher than female residents (4.75 *vs.* 4.34), aligning with DeSantis et al. [6]'s findings, where a higher percentage of males valued this factor. However, unlike Laskey et al. [7], our study found that female participants placed higher importance on "Reputation of the program". This difference may reflect cultural and regional variations that affect how gender influences preference for program reputation.

Age also played a significant role in prioritizing factors. Older residents preferred programs close to their homeland, similar to findings by DeSantis et al. [6]. They also valued "Supervision and monitoring" more, potentially because closer relationships with supervisors may lead to greater involvement in patient care, enhancing their satisfaction and learning experience. Interestingly, older residents placed less emphasis on "Career opportunity including fellowship," suggesting that their career priorities or perceptions of value might shift with age.

Limitations and Recommendations

This study faces three primary limitations. First, the reliance on self-administered surveys means the self-reported data could not be independently verified. Second, the lack of a unified definition for the factors assessed could lead to varied interpretations by different participants. Third, over half (59.2%) of the respondents were from the Jeddah Region, potentially skewing the representation of other regions across Saudi Arabia.

To address these issues, further investigation into the factors influencing the selection of residency training centers is essential, given the limited literature confirming our results. We recommend the following strategies for future research: conducting in-person interviews to validate self-reported data and clarify any ambiguities

Table 4. *Relationship between residency program choosing factors and age.*

Factors	Coefficients of linear regression	*t*	Sig.
Closeness of location	-0.029	-0.307	0.759
Number of consultants	-0.155	-1.567	0.119
Availability of different subspecialties	0.168	1.624	0.106
Friendly environment	0.048	0.394	0.694
Availability of effective security system	-0.066	-0.736	0.463
Number of cases	-0.034	-0.308	0.759
Different quality cases	0.154	1.316	0.190
Reputation of the center	0.012	0.116	0.907
Proximity to homeland	0.236	2.874	0.005
Choosing this region would provide additional CV points	0.050	0.601	0.548
Reputation of program director	-0.018	-0.178	0.859
Teaching quality	-0.205	-1.938	0.054
Friendliness of the residents/ Staff	0.021	0.227	0.820
Supervision and mentoring	0.238	2.036	0.043
Rotation/elective experience as a medical student/intern	-0.052	-0.587	0.558
Influence by others (peers, faculty, etc.)	-0.038	-0.446	0.656
Income/Salary	0.050	0.496	0.620
Career opportunity including fellowship	-0.252	-2.302	0.023
Working hours/Flexible work schedule	0.042	0.370	0.712
Interview experience (how the applicant felt about the interview)	-0.032	-0.421	0.674
Prestige (choice was made mainly based on prestigious center name)	0.318	3.784	0.000
Reputation of program	-0.113	-0.963	0.337
Reputation of alumni	-0.130	-1.467	0.144

Abbreviation: CV, curriculum vitae.

regarding the factors employing a stratified and more geographically representative sample to include all regions in Saudi Arabia. Ultimately, after accumulating sufficient research on this topic, conducting a systematic review and meta-analysis would be beneficial to synthesize and analyze all relevant data comprehensively.

Conclusion

This study aimed to investigate the factors that EM residents in Saudi Arabia consider influential when selecting a training center. According to our findings, candidates weigh various factors when selecting a residency program in EM, with "Friendly Environment" and "Supervision and Mentoring" emerging as the most significant. Additionally, we found notable differences in preferences based on the participants' age and gender. Incorporating these findings into residency program policies could enhance training environments and mentorship quality tailored to meet the diverse needs of residents. Given the variations in preferences related to age and gender, programs should consider implementing flexible and inclusive strategies to attract and retain a diverse resident population. Additionally, the regional concentration of respondents highlights the need for equitable distribution of quality training opportunities across all areas. Given the scarcity of local research on this subject, we recommend further studies in Saudi Arabia to better understand the dynamics of choosing an EM residency center.

List of Abbreviations

EM Emergency medicine

Conflict of interests

The authors declare no conflicts of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Consent to participate

The study used online survey data without identifying information of the participants. All the collected data will be kept in a password-protected laptop accessible by the researchers only.

Ethical approval

The King Abdullah International Medical Research Center Institutional Review Board approved this study (study number: SP20J/109/20). The approval number is JED-20-427780-61439. The initial IRB approval date was May 10th, 2020, and the IRB approval was extended.

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