

# Public perception of female paramedics at King Fahad Medical City, Saudi Arabia

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**Abstract:** The Saudi emergency medical system now presents significant difficulties for female paramedics (EMS). The purpose of this study was to examine how EMS specialists, leaders, managers, and academics perceived the difficulties Saudi Arabian female paramedics faced in the country's EMS workforce.

This was a cross-sectional survey design using convenience sampling of the public in Riyadh city by self-administered English and Arabic language questionnaires. Questionnaire validity was assessed by face and content validity. The survey received 312 responses, with men making up 67% of the total. The sample included 56.73% non-medical individuals and 44% medical participants (40% paramedics, 22% doctors, 12% nurses, and 23% other), of whom 53% and 63%, respectively, strongly agreed about the significance of female paramedics. Additionally, 20% of medical participants and 30% of non-medical participants in the male participant group declined medical assistance because female paramedics weren't available, and 6% of medical participants and 8% of non-medical participants strongly disagreed with how their female relatives were treated by male paramedics.

**Keywords:** emergency medical system, female paramedics, EMS specialists, EMS workforce.

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## 1. INTRODUCTION

### Background

Outside of hospitals, when paramedics or emergency medical technicians serve as the principal personnel, the purpose of emergency medical services (EMS) is to provide patient care (EMTs). In the event of urgent or emergency medical conditions occurring outside of a hospital, the EMS discipline is regarded as a first responder. (1,2) Although the EMS was established in the Kingdom of Saudi Arabia in 1934, the Saudi Board of Emergency Medicine was established in 2005, making emergency medicine in the nation a relatively recent discipline. (3)

EMS providers are aware that women can also hold the profession of paramedic. Women must therefore be encouraged to pursue specialization in this area. Women took the place of male firefighters who joined the military during World War II. The Chicago Fire Department launched the country's first basic EMT training program in the

1950s (4). Women started to appear more frequently in the ranks of conventional volunteer fire departments by the 1970s (5) and have since proven that they can work in the EMS sector. The Los Angeles Fire Department hired three newly graduated female paramedics in 1978 (6).

However, there are obstacles for female paramedics in the nation, notably in terms of family and culture. According to research done by ALobaid AM (7), the country's female paramedics had social and familial obligations, such as caring for their families and kids, which had an impact on their ability to perform their jobs. Other obstacles were shown to be connected to psychological issues with working in the field, in addition to the strenuous physical requirements. These obstacles serve as a reminder of the need for policies that will facilitate female paramedics' admission into the field and encourage their decision to practice as paramedics or EMTs.

According to Saudi Vision 2030's vision, the integration of female paramedics would show to be a successful strategy for improving service delivery because paramedics' skill levels and expertise are not based on sex. Therefore, it is crucial and relevant for a study to look at Saudi society's attitudes toward female paramedics and determine what they think about their function in the EMS industry. The current study aimed to comprehend and investigate Saudi Arabian community opinions on including Saudi female paramedics in the EMS field in order to inform such effort

In the present study, a survey was conducted to measure public perceptions of female paramedics in King Fahad Medical City (KFMC), Riyadh.

## **2. METHODS**

The KFMC emergency department, which sees 300–450 patients per day, and the paediatric emergency department, which sees 260–400 patients per day, both participated in this cross-sectional observational study. Additionally, EMS providers from National Guard Health Affairs were included in the study group. Participants from the KAMC and paediatric emergency centre waiting rooms, Saudi Arabian healthcare professionals employed by KFMC and Pediatrics ER, and Saudi rescue personnel made up an acceptable sample as per approval from the institutional review board. The study excluded patients who had been moved from the resuscitation unit of the KAMC Emergency Center, children, the illiterate, and those who were not Saudi citizens. Prior to data collection, each respondent provided their informed consent.

Because there is a lack of current research, we created a self-administered survey in English and Arabic to gauge public opinion on female paramedics in Saudi Arabia. 15 paramedics and paramedic students participated in pilot research to evaluate the questions' logic and intelligibility. Responses were scored using a 5-point Likert scale to ensure dependability.

## **3. STATISTICAL ANALYSES**

Descriptive statistics were used to portray categorical data as frequencies and percentages. A 5-point Likert scale was used to measure levels of agreement, which were represented as percentages. The percentages of doctors and non-doctors were compared using the Mann-Whitney U test. Participants who supported or opposed hiring female paramedics. If  $p < .05$ , the effect magnitude was deemed significant. The questionnaire's internal consistency and reliability were evaluated using Cronbach's alpha. For statistical analysis, SPSS version 20 (SPSS, Inc., Chicago, IL, USA) was utilised. The study's design adhered to the Declaration of Helsinki's guidelines.

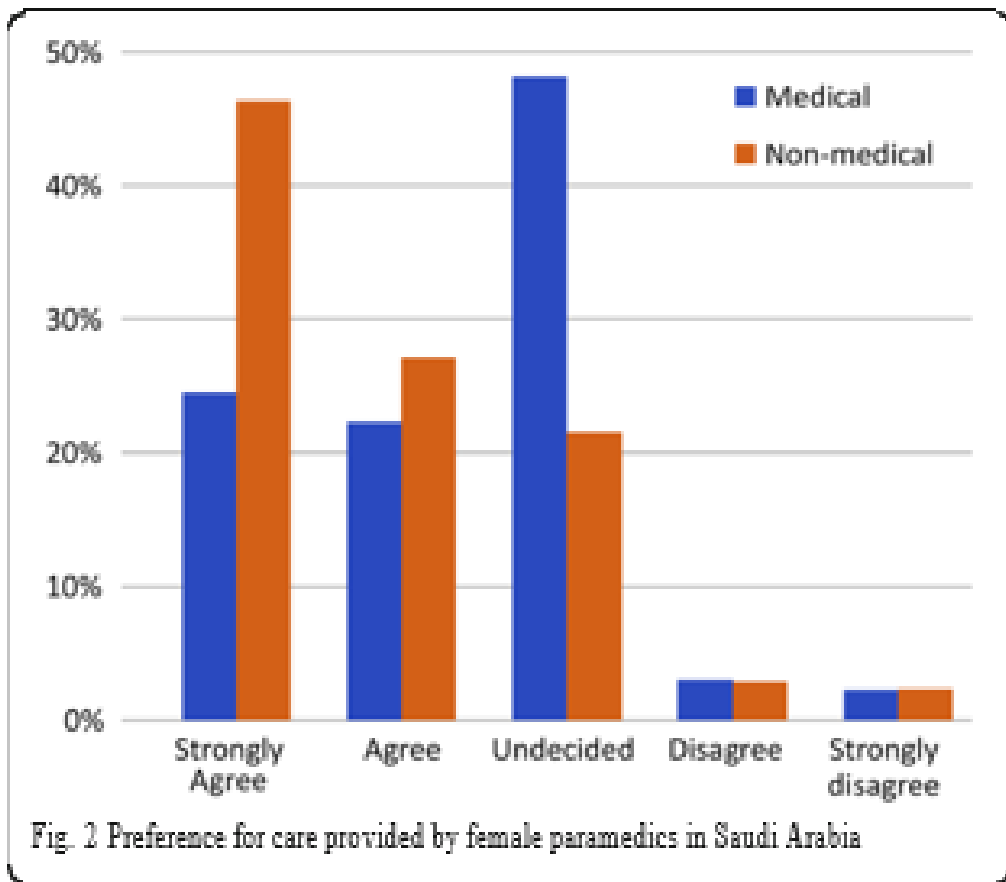
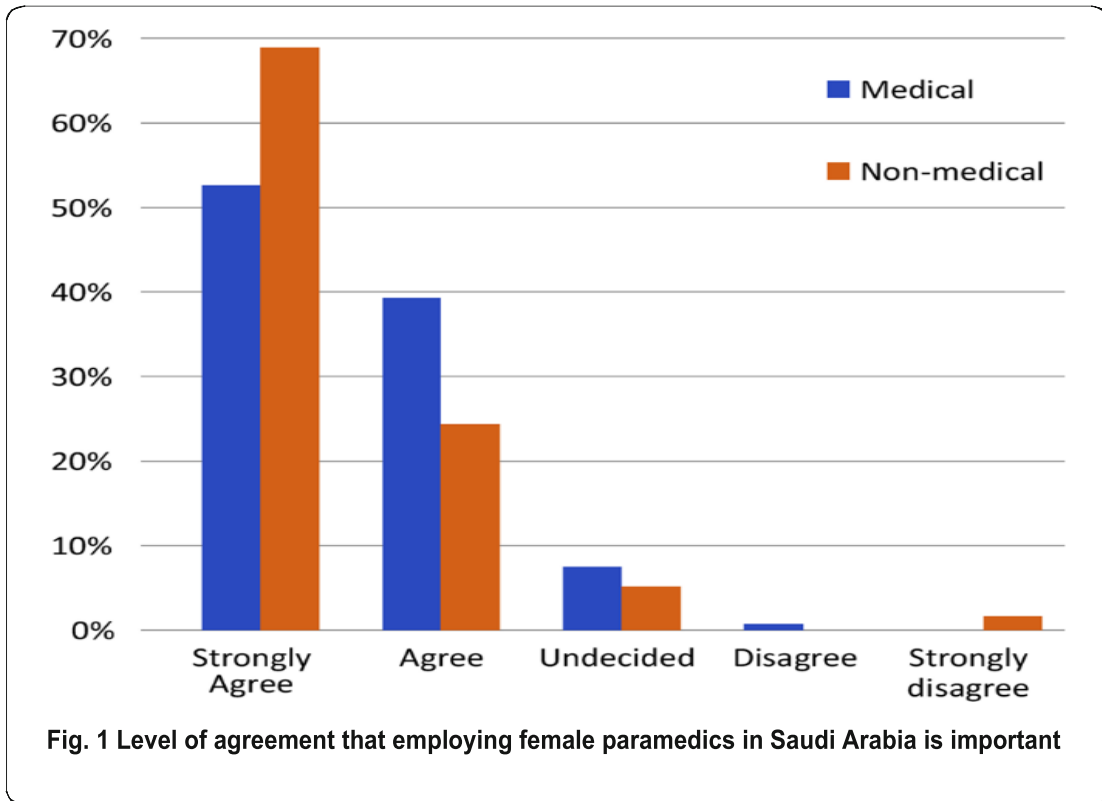
## **4. RESULTS**

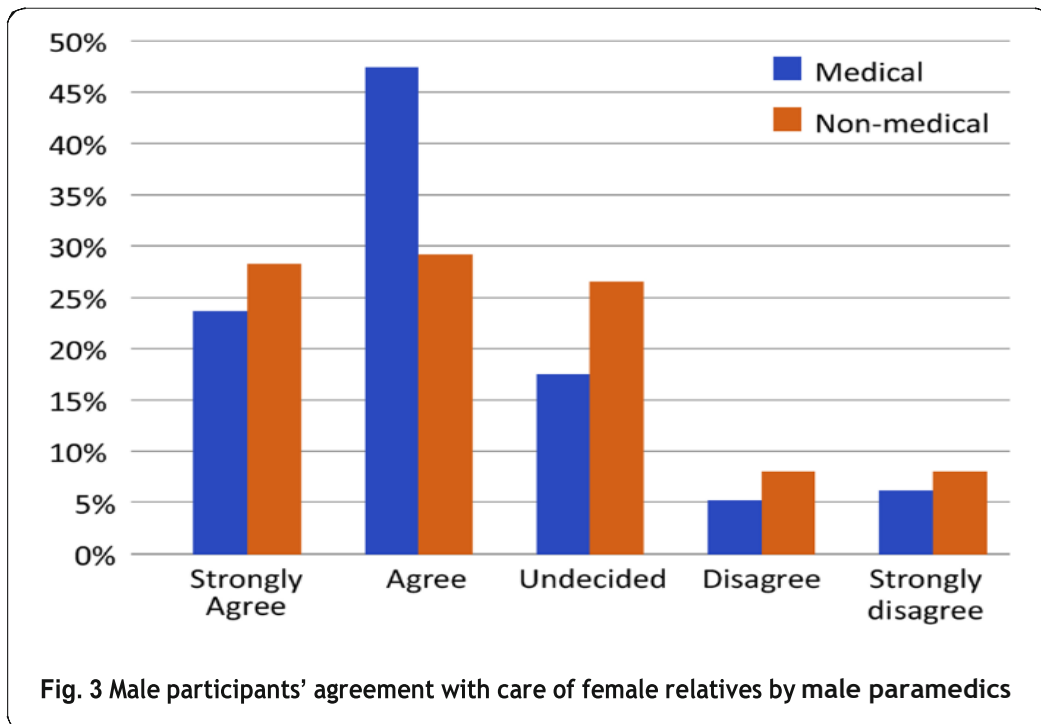
The study included 312 participants, with a response rate of 80% and a gender distribution of 67.30% males. The questionnaire's internal consistency was moderately reliable according to Cronbach's alpha, which was 0.676. In Table 1, the participant's demographics are shown. In the sample, there were 43.27% doctors (including 40% paramedics, 22% doctors, 12% nurses, and 23% others) and 56.73% non-doctors. Employing female paramedics is crucial, according to the majority of participants from the medical field (63%) and non-medical field (53%) (Fig.1). Of the latter group, 21% were unsure and 2.26% completely disagreed, with 46.33% saying they prefer to be treated by female paramedics. Instead, 24.44% of healthcare professionals said they strongly preferred paramedic care, while 48% were unsure, and 2.22% were highly opposed (Fig. 2). Paramedic; However, 20% of medical workers and  $\geq 30\%$  of non-medical participants reported previously avoiding contact with emergency services due to a shortage of female paramedics. In the male participant group, 6.19% of medical staff and 7.96% of non-medical participants agreed that male paramedics should not attend to their wives, mothers or sisters; however, between 30% and 40% indicated that

male paramedics could do so, and between 25% and 30% were undecided (Fig. 3). The analysis found significant agreement regarding the presence of female paramedics.

**Table 1: Participants’ demographic characteristics and medical personnel’s responses regarding work experience with female**

paramedics						
Variable	Frequency			Percentage		
	Medical	Non-medical	Total			
<b>Age (years)</b>						
18–20	6	8	14			<b>4.49</b>
21–30	83	83	166			<b>53.20</b>
31–40	40	60	100			<b>32.05</b>
41–50	6	20	26			<b>8.33</b>
> 51	0	6	6			<b>1.92</b>
<b>Total</b>	<b>135</b>	<b>177</b>	<b>312</b>			<b>100</b>
<b>Sex</b>						
Male	97	113	210			<b>67.30</b>
Female	38	64	102			<b>32.69</b>
<b>Total</b>	<b>135</b>	<b>177</b>	<b>312</b>			<b>100</b>
<b>Level of education</b>						
Primary	0	7	7			<b>2.24</b>
Secondary	0	15	15			<b>4.80</b>
High school	15	76	91			<b>29.16</b>
Bachelor’s degree	83	65	148			<b>47.43</b>
Master’s degree	8	1	9			<b>2.88</b>
PhD	8	2	10			<b>3.20</b>
Other	21	11	32			<b>10.25</b>
<b>Total</b>	<b>135</b>	<b>177</b>	<b>312</b>			<b>100</b>
<b>Current status</b>						
Employed	101	105	206			<b>66.02</b>
Self-employed	0	9	9			<b>2.88</b>
Looking for work	0	30	30			<b>9.61</b>
A student	34	18	52			<b>16.66</b>
Retired	0	14	14			<b>4.48</b>
<b>Total</b>	<b>135</b>	<b>177</b>	<b>312</b>			<b>100</b>
<b>Percentage</b>	<b>43.27%</b>	<b>56.73%</b>	<b>100%</b>			
<b>The response of the medical personnel of work experience with female paramedics</b>						
Question	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Total
Are female paramedics skilled enough to perform 51 (63.75%) their work?		19 (23.75%)	9 (11.25%)	1 (1.25%)	0 (0%)	<b>80 (59.26%)</b>
Your level of agreement regarding working with 38 (47.5%) female paramedics?		33 (41.25%)	8 (10%)	0 (0%)	1 (1.25%)	<b>80 (59.26%)</b>





Between nonmedical and medical participants; further, there was no significant difference between other medical participants and paramedics (Table 2).

**Table 2: Comparison of mean scores between medical and nonmedical participants/other medical respondents and paramedic**

Group	Mean ± standard deviation	Test used	Test statistic	P value
Medical	1.563 ± 0.664	Mann-Whitney test	U = 10,189	.009
Nonmedical	1.435 ± 0.788			
Other medical	1.513 ± 0.595			
Paramedic	1.636 ± 0.754	Mann-Whitney test	U = 2060	.482

## 5. DISCUSSION

EMS at KSA currently only employs male paramedics. However, patients may experience delays in pre-hospital care due to the conservative culture, increasing the need for trained female paramedics.

Recently some universities have started to offer structured EMS training for female students. For example, King Saud bin Abdulaziz University for Health Sciences has introduced an EMS program for women, which is among the first structured curricula in this area at a public university. This EMS program aims to provide well-trained female paramedics for service in the area. Despite these new programs, public knowledge and perceptions of women paramedics have not been studied previously in Saudi Arabia. Therefore, our study is unique due to its focus on public perceptions of female paramedics. Our results showed that most participants recognized the importance of employing female paramedics in the KSA. Furthermore, public concerns about respect for women's privacy and shared cultural and religious beliefs in KSA were reflected in consent, with between 20% and 30% of participants having refused to contact EMS in the past because it was about female paramedics acted unavailable.

Regarding sex preferences, female participants expressed strong agreement with accepting care from female paramedics, particularly in critical situations in which the presence of a male paramedic would be inconvenient. The existing literature also describes the refusal of hospital and other care because of sex preferences [10,9]. Male participants indicated strong disagreement with the provision of care to their wives, mothers, and sisters by male paramedics, and they strongly agreed that male paramedics should be accompanied by female paramedics to overcome these sex limitations when treating female patients.

In KSA, public awareness of this issue has increased following multiple media reports in which patients experienced serious complications due to cultural restrictions that delayed male paramedics entry into female-only areas [11]. Most respondents reported that female paramedics were able to reach female-only areas and address female patients in public places. In addition, most participants agreed that female paramedics were capable of treating very ill patients, regardless of gender or age. Perceived Skills and Patient Management The skills of paramedics in a prehospital setting were examined in a previous study that showed a lower rate of rejection of prehospital care in paramedic-treated patients compared to their paramedic-treated male counterparts. [8].

Additionally, most participants supported women's ambitions to become paramedics given societal limitations. Participants could provide limits like: in the suggestion box on our survey. B. the confinement of female paramedic positions to settings exclusively for females, such as B. Schools, universities, and women's health facilities. Other participants called attention to the formal attire and advised that it be modest in keeping with the KSA's Islamic traditions. The ability to operate in a chaotic crowd, emotional responsibility, and physical fitness are among qualities that participants cited as possibly influencing women's performance.

According to these recommendations, the public is aware of workplace risks, particularly those that paramedics confront, which is in line with other studies. Who identified gender as a risk factor for post-traumatic stress disorder and occupational violence [12, 13]. A local review of the development of EMS in KSA showed that despite the progress made in recent years, there is still significant scope for further improvement, particularly through increased public awareness and better paramedical education [14]. Our study is unique in that we used a survey to assess public knowledge and approval of the existence of female paramedics, as this issue contributes to public concern. in relation to sexual preferences.

Despite the lack of existing literature, we examine public perceptions of female paramedics. Paramedics according to increased demand and advances in education [15]. However, the generalizability of our results was limited by the sample size and the study setting. We therefore recommend a nationwide survey of the public perception of paramedics.

## 6. CONCLUSIONS

Finally, efforts should be made to empower women paramedics and meet the needs of the public. This effort should aim to raise public awareness and assess the future challenges for women paramedics.

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### Funding

Not applicable

Availability of data and materials

The datasets used or analyzed during the current study are available from the corresponding author on reasonable request.

### Ethics approval and consent to participate

The study design adhered to the principles of the Helsinki Declaration Informed consent was obtained from respondents prior to data collection.

### Competing interests

The authors declare that they have no competing interests.

## REFERENCES

- [1] AlShammari T, Jennings P, Williams B. National study of emergency medical services core competencies: a confirmatory factor analysis. *Australas J Paramed*. 2019;16. doi: 10.33151/ajp.16.706 [CrossRef] [Google Scholar]
- [2] Sheikhbardsiri H, Khademipour G, Nekoei-Moghadam M, Aminizadeh M. Motivation of the nurses in pre-hospital emergency and educational hospitals emergency in the southeast of Iran. *Int J Health Plann Manage*. 2018;33(1):255–264. doi: 10.1002/hpm.2455 [PubMed] [CrossRef] [Google Scholar]

- [3] Khattab E, Sabbagh A, Aljerian N, et al. Emergency medicine in Saudi Arabia: a century of progress and a bright vision for the future. *Int J Emerg Med.* 2019;12(1):1–8. doi: 10.1186/s12245-019-0232-0 [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- [4] Pozner C, Zane R, Nelson S, Levine M. International EMS systems: the United States: past, present and future. *Resuscitation.* 2004;60(3):239–44.
- [5] History of Women in Firefighting. 2016. <https://i-women.org/firefighters/history-of-women-in-firefighting/>. Accessed 13 July 2017.
- [6] History of LAFD – Join LAFD: Los Angeles Fire Department. [Joinlafd.org](http://www.joinlafd.org/historyoflafd.html). 2016. <http://www.joinlafd.org/historyoflafd.html>. Accessed 9 June 2017.
- [7] ALobaid AM, Gosling C, McKenna L, Williams B. Perceptions of EMS leaders and supervisors on the challenges faced by female paramedics in Riyadh Saudi Arabia: a qualitative study. *Int J Emerg Services.* 2021;10(2):235–246. doi: 10.1108/IJES-09-2020-0055
- [8] Waldron R, Finalle C, Tsang J, Lesser M, Mogelof D. Effect of gender on prehospital refusal of medical aid. *J Emerg Med.* 2012;43(2):283–90.
- [9] Hamam A, Bagis M, AlJohani K, Tashkandi A. Public awareness of the EMS system in Western Saudi Arabia: identifying the weakest link. *Int J Emerg Med.* 2015;8(1):35.
- [10] Alarabiya. Death of Saudi female student stirs uproar. 2014. <http://english.alarabiya.net/en/News/middle-east/2014/02/06/Death-of-Saudi-female-student-raises-uproar.html>. Accessed 13 July 2017.
- [11] International Business Times. Female King Saud University student dies after officials deny access to male paramedics. 2014. <http://www.ibtimes.co.uk/female-king-saud-university-student-dies-after-officials-deny-access-male-paramedics-1435516>. Accessed 13 July 2017.
- [12] Donnelly E, Siebert D. Occupational risk factors in the emergency medical services. *Prehosp Disaster Med.* 2009;24(5):422–9.
- [13] Koritsas S, Boyle M, Coles J. Factors associated with workplace violence in paramedics. *Prehosp Disaster Med.* 2009;24(5):417–21.
- [14] Alshammari T, Jennings P, Williams B. Evolution of emergency
- [15] Medical services in Saudi Arabia. *J Emerg Med Trauma Acute Care.* 2017;2017:4.
- [16] Nagraj A. Women should be allowed to work as paramedics, opticians - Saudi officials. *Gulf Business* 2016. [Http://gulfbusiness.com/saudi-officials-say-women-allowed-work-paramedics-opticians/](http://gulfbusiness.com/saudi-officials-say-women-allowed-work-paramedics-opticians/). Accessed 9 June 2017.