

Public Perceptions of Surgeon Attire in Saudi Arabia

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Introduction: Surgeon attire significantly affects patients' perceptions and can improve patient-surgeon relationships, which are crucial for patient comfort, experience, satisfaction, and treatment adherence. Understanding patient preferences for surgeon attire is essential, particularly in Saudi Arabia, for establishing appropriate dress codes in healthcare institutions. This national cross-sectional study aimed to fill this gap by assessing patient preferences for surgeon attire and its impact on patients' confidence in their surgeons across various medical settings.

Methods: The study used a questionnaire with 16 questions and images of surgeons in different attire styles, focusing on trust, care, approachability, and comfort ratings. The questionnaire included options like scrubs with a white coat, formal attire, and traditional Saudi attire for male surgeons, and various options including niqab and skirts for female surgeons. The survey had four sections covering ratings, attire preferences, opinions on white coats, and demographic data.

Results: A total of 612 patients completed the questionnaires, mainly aged 35–54 (33%). Skirt and niqab and white coat attire for females received the highest ratings. Attire other than scrubs, especially jeans and heels with a white coat, had significantly lower ratings. Scrubs and white coats were the most preferred attire for male (23.7%) and female (17%) surgeons. Additionally, 71.24% of participants agreed that surgeons should wear white coats.

Conclusion: In Saudi Arabia, male surgeons are preferred in scrubs and white coats, while female surgeons are preferred in skirts with white coats and niqabs. These preferences reflect notions of formality, professionalism, and cultural influences. Jeans received the lowest ratings, possibly due to perceptions of informality. Patients favor scrubs and white coats for hygiene benefits and conveying dedication and expertise. Future research should validate these findings across diverse cultures and medical fields.

Keywords: surgeon attire, public perception, infection control, health policy, patient-physician relationship

Introduction

Surgeon attire impacts patients' perceptions and can enhance patient-surgeon relationships.¹ Several studies have shown that establishing a strong patient-surgeon relationship is key to improving patients' comfort, experience, satisfaction, and adherence to treatment. One notable study was in USA since 2015, which has been done in ten academic hospitals in the USA with Convenience sample of 4062 patients which revealed that Patients have important expectations and perceptions for physician dress that vary by context and region. Nuanced policies addressing physician dress code to improve patient satisfaction appear important.² The second study has been done in southern Korea with a total number of 143 patients and their result confirmed that The doctor's attire can function as an effective tool of non-verbal communication in order to signal confidence, trust and empathy and establish a good patient-doctor relationship.³ Furthermore, in Saudi Arabia, knowing patients' preferences for surgeon attire can be beneficial for establishing dress codes in healthcare institutions,⁴ because of many reasons like Saudi Arabia has a rich cultural heritage where traditional dress is highly

valued, also. The majority of the Saudi population identifies as Muslim, and religious beliefs often influence dress codes.⁵ Surgeons and medical staff who dress in a manner that respects Islamic values can help establish trust and comfort in a healthcare setting.⁶ Attire that aligns with local customs can foster a sense of respect and understanding between patients and healthcare providers.⁷ Finally, Saudi population is closely-knit, and community norms can heavily influence individual preferences. Attire that is acceptable in one community may not be in another, making it essential to consider local variations.⁸ However, there is a lack of research examining patients' preferences for surgeon attire in Saudi Arabia, and international studies may not be applicable due to cultural nuances.⁹ To date, no studies have examined the influence of surgeon attire in Saudi Arabia. Thus, this nationwide survey was carried out to evaluate patients' perception on the dress code of surgeons and to investigate how a surgeon's attire impacts the patients' trust.

Method

Between October 1, 2023 and February 31, 2024, a total of 612 patients were surveyed in the waiting areas of general surgery, orthopedics, and obstetrics and gynecology outpatient clinics at the authors' institution. The questionnaire comprised 16 questions and included depictions of male and female surgeons wearing different types of attire. At all locations, research personnel administered the questionnaire using tablets after respondents had given written consent. Participants' personal information was not gathered.

This study objective was to investigate patients' experiences and preferences, yet they were not engaged in the design, recruitment, or implementation of the study. Since participation was anonymous, dissemination of results to participants was not possible.

The questionnaire, which was adapted with permission from Petrilli et al² and adjusted to align with the cultural context of the current study, investigated preferences regarding surgeon attire. For male surgeons, options included scrubs with a white coat, formal attire with a white coat, and Saudi traditional attire (thawb). For female surgeons, options included scrubs with a white coat, scrubs with a white coat and face cover (niqab), jeans with high heels and a white coat, and a skirt with a white coat and niqab. Images of females in scrubs and males in traditional attire were sourced from a prior study conducted in western of Saudi Arabia.⁴

To minimize bias, 12 different versions of the questionnaire were developed, and their distribution was randomized among respondents. All versions featured a blend of male and female individuals in different attire styles, aimed at mitigating potential biases related to ordering, priming, or anchoring effects. The questionnaire was organized into four sections. In the first, respondents rated the depicted surgeons based on four key domains: trust, care, approachability, and comfort. These ratings were assessed on a scale of 1–10, where a 1 indicated "somewhat prefer" and 10 indicated "extremely prefer". A male in scrub and white coat and a female in scrub and white coat were chosen as reference groups to compare other attires with them for statistical analysis. The second section featured seven photographs showing surgeons of both genders in various styles of attire. The participants were asked to select their preferred attire for surgeons and physicians from these options. The third section used a Likert-style assessment to gather general opinions regarding surgeon attire and the importance of wearing white coats. Finally, the fourth section was dedicated to collecting demographic information, such as age, gender, education level, and the frequency of interactions with surgeons.

The survey underwent preliminary testing with a convenient sample of patients before its official administration to ensure the functionality and appropriateness of the photographs, questions, ratings, and randomized survey order. Data analysis was performed using SPSS 24.0 software, presenting categorical variables as frequencies, percentages, mean and standard deviation (SD). A Chi-squared test determined associations between outcomes and variables, with statistical significance set at $p < 0.05$.

Results

A total of 612 patients completed the questionnaires, the majority of which were female, (61.4% of the total sample). The predominant age group among patients was 35–54 years (33%), and most patients held a bachelor's degree (56.5%). Regarding interactions with the healthcare system, 26.6% of respondents had consulted a surgeon or physician in the past year (Table 1).

Table 1 Characteristics of Study Respondents

Characteristics	Frequency	%
Gender		
Male	236	38.6
Female	376	61.4
Age		
18–25	192	31.4
26–34	141	23.0
35–54	202	33.0
55–64	66	10.8
65+	11	1.8
Education		
Primary school	8	1.3
Secondary school	17	2.8
High school	122	19.9
College	346	56.5
High education	119	19.4
Number of visits to different doctors in the past year		
1	163	26.6
2	125	20.4
3	96	15.7
4	69	11.3
5	55	9.0
6+	104	17.0

To assess perceptions across the four domains—trustworthy, caring, approachable, and comfortable—the attire of a reference group (scrubs and a white coat) was compared for statistical significance. The results for male reference group respondents were 7.82 (SD = 2.33), 7.95 (SD = 2.20), 7.94 (SD = 2.21), and 7.91 (SD = 2.23) across the respective domains. For female reference group respondents, the results were 7.83 (SD = 2.36), 8.06 (SD = 2.15), 7.99 (SD = 2.18), and 7.93 (SD = 2.25) across the respective domains. Notably, the highest ratings across all domains were for females wearing a skirt and niqab, with mean scores of 8.14 (SD = 2.27), 8.23 (SD = 2.16), 8.04 (SD = 2.30), and 8.17 (SD = 2.22), respectively, showing statistical significance in all domains except for approachability. Attire other than scrubs yielded significantly lower results. The lowest ratings were observed for females wearing jeans and heels with a white coat (Figure 1).

Male surgeons were preferred by 62.1% of participants. Among the male participants, scrubs and a white coat was the most preferred attire for male surgeons (23.7%), followed by a thawb (19.9%) and a formal suit and white coat (18.5%). For female surgeons, scrubs and a white coat received 104 votes (17%), while a skirt and niqab received 69 votes (11.3%). A smaller percentage of the participants preferred scrubs, a white coat, and a niqab (31 votes, 5.1%) or jeans and heels with a white coat (28 votes, 4.6%). (Figure 2).

The survey highlighted the significance of surgeon attire, with 78.92% of the participants emphasizing its importance and 76.31% believing that it directly affected their satisfaction with care. The majority of the participants (51.63%) agreed that casual attire during patient consultations was inappropriate. Regarding white coats, 69.77% of the participants preferred surgeons wearing these in office settings, and an even larger majority (75.49%) expressed agreement with the idea that surgeons should wear white coats while attending to patients in the hospital. This preference extended across all settings, with 71.24% agreeing or strongly agreeing that surgeons should wear white coats regardless of location (Table 2).

Discussion

Our study provides insights into how surgeon attire affects patient perceptions in Saudi Arabia, underscoring the cultural importance of professional appearance in building trust and comfort within patient-provider relationships. The findings



Figure 1 Rating of Surgeon Attire Across Preference Domains ^a; * p-value <0.001 when compared to the referent attire (scrubs and a lab coat), ^a Data presented as mean (SD), ^b only significant when compared with male referent attire.

resonate with international research, where attire often significantly influences patients' perceptions of trustworthiness, caring, approachability, and comfortability.² However, our results also highlight distinct cultural nuances in Saudi Arabia, especially regarding preferences for attire that may be perceived as conservative and professional, aligning with values of respect and propriety prevalent in Saudi society. The patients who completed the survey greatly preferred a skirt with a white coat for female surgeons (Figure 1, G) and scrubs and a white coat for male surgeons. The impact of surgeon attire related to the domains of trustworthiness, caring, approachability, and comfortability was rated based on pictures of different surgeons.² Firstly, the patients who completed the survey preferred a female surgeon wearing a skirt and a lab coat this could be due to culture preferences as similar studies done in different regions in Saudi Arabia should a similar finding to ours, where people preferred this attire for female physician.^{4,10} Combining all these studies shows how strong

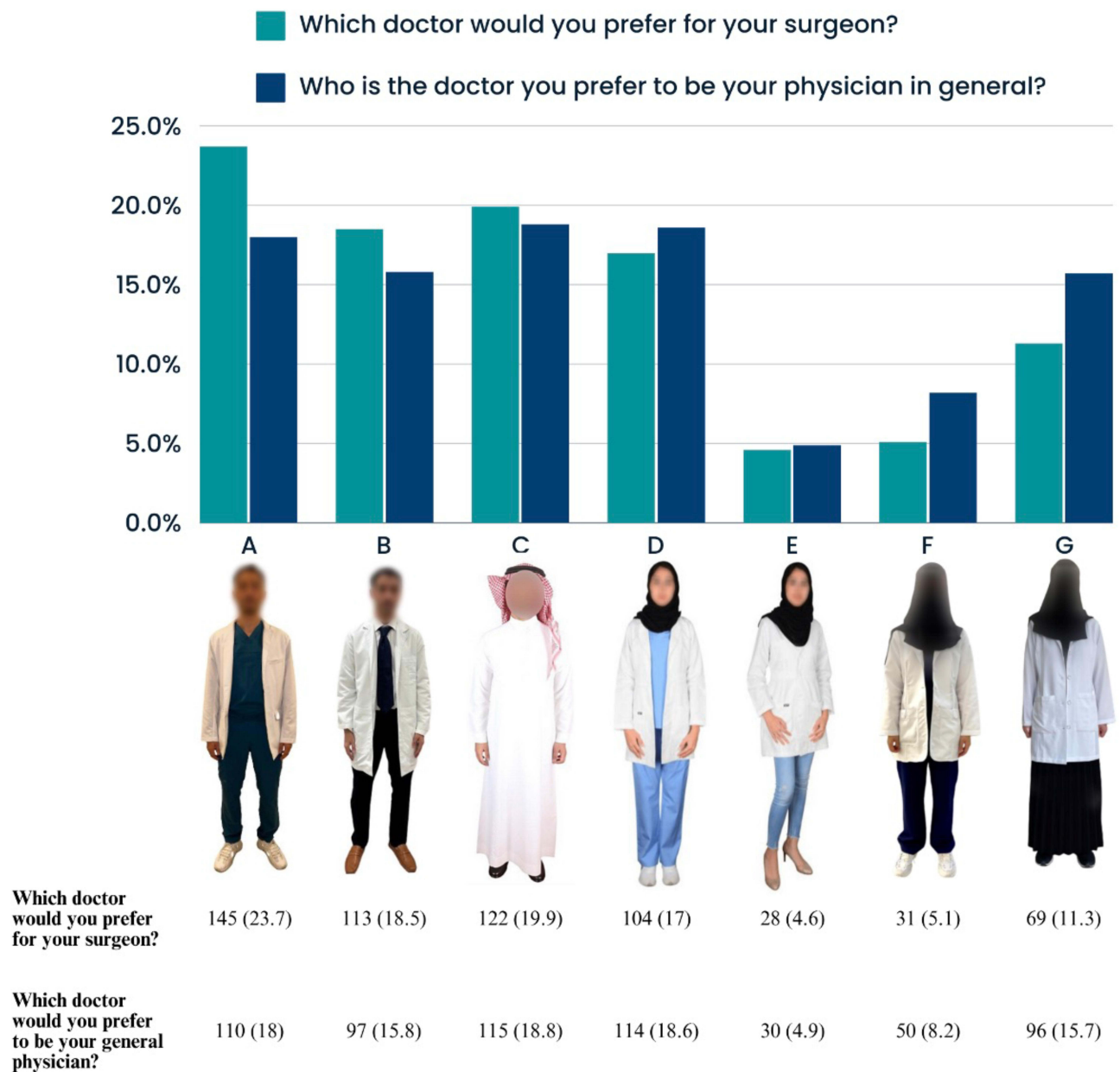


Figure 2 Respondents' Preferences for Surgeon and Physician Attire ^{a, a} Data presented as frequency (percentage).

culture can affect the patient prefers of physician attire. Secondly, the sample feeling the form preferred male doctor wearing a lab coat and a scrub. One reason could be the prevention of infectious disease. Studies have shown that bacteria and pathogens can be isolated and transmitted from the coats, neckties, and sleeves of medical providers.¹¹⁻¹⁷ These studies are one of the reasons a bare-below-the-elbows policy exists in some countries. This matter was not included in the questionnaire of the current study, but it is an important point that should be investigated further. A second reason for the participants' preferences for scrubs and a white coat could be the perception that a doctor wearing scrubs and a white coat has more dedication to their task as well as more knowledge and experience.^{18,19}

A study performed in western of Saudi Arabia that included 395 patients revealed that the majority of the 395 patients included in the research preferred scrubs and a white coat for both male and female doctors; however, the study examined emergency room consultants rather than surgeons.⁴ Combining these results with those of the current study supports the reasons patients may have chosen the attire they did for male surgeons which was a scrub and a lab coat.

Table 2 Respondents' Opinions Regarding Importance of Surgeon Attire

Characteristics	Frequency	%
How my surgeon dresses is important to me.		
Strongly agree or agree	483	78.92
Neither agree nor disagree	78	12.75
Disagree or strongly disagree	51	8.33
How my surgeon dresses influences how happy I am with the care I receive.		
Strongly agree or agree	467	76.31
Neither agree nor disagree	95	15.52
Disagree or strongly disagree	50	8.17
It is appropriate for a surgeon to dress casually when seeing patients.		
Strongly agree or agree	173	28.27
Neither agree nor disagree	123	20.10
Disagree or strongly disagree	316	51.63
Surgeons should wear a white coat when seeing patients in their office.		
Strongly agree or agree	427	69.77
Neither agree nor disagree	141	23.04
Disagree or strongly disagree	44	7.19
Surgeons should wear a white coat when seeing patients in the hospital.		
Strongly agree or agree	462	75.49
Neither agree nor disagree	115	18.79
Disagree or strongly disagree	35	5.72
Surgeons should always wear a white coat when seeing patients in any setting.		
Strongly agree or agree	436	71.24
Neither agree nor disagree	129	21.08
Disagree or strongly disagree	47	07.68

However, several international studies are mentioning that the preference for casual physician attire is likely to keep rising due to various factors, such as comfort, convenient transitions between home and work, ease of laundering at home, and the influence of similar trends in comfortable sportswear.^{20–22} The research that was mentioned earlier⁴ showed that a long skirt was rated as the second most preferred attire for female doctors, again indicating that there may be a preference for long skirts due to cultural reasons.²³ Jeans were the lowest rated attire in terms of all four domains: trustworthy, caring, approachable, and comfortable. This may be due to patients viewing such attire as culturally inappropriate and the most informal.²⁴ Therefore, Healthcare provider attire should not be standardized globally; instead, policies should consider local preferences to better meet the expectations of each community.²⁵ In the second part of the survey, seven images of surgeons of both genders in various forms of attire were included on a single page, and the participants chose which they would prefer as a surgeon and which they would prefer as a general physician. Most of the participants preferred male over female surgeons. One supporting reason to this point is that Female physicians are often less recognized as doctors compared to their male counterparts and are more frequently mistaken for roles such as nurses, medical technicians, or physician assistants.¹⁹ Moreover, Greater public exposure to male doctors and female nurses reinforces gender-based professional stereotypes and fosters related biases.¹⁹ These biases can contribute to ongoing career disadvantages for female physicians, often leading them to spend more time on tasks that offer limited career advancement opportunities.²⁶ These disadvantages also encompass the time, energy, and resources female physicians must dedicate to managing gender biases and frequent misidentification in their roles.¹⁹

Limitation

Our study has several notable limitations that warrant consideration. Firstly, we acknowledge the presence of Sampling Bias due to our surveying of patients from a single medical institution. This limited scope may not fully represent the diverse population of Saudi Arabia. To enhance the generalizability of findings, future research should aim for a more comprehensive and diverse sample, encompassing patients from multiple healthcare facilities across different regions.

Secondly, our study had Limited Attire Options, focusing primarily on various attire options for surgeons. However, this approach may have overlooked other potential attire preferences or variations relevant to Saudi cultural norms. Including a broader range of attire options in future studies could provide a more nuanced understanding of patient preferences and cultural sensitivities.

Thirdly, We acknowledge the potential for Self-Reporting Bias, given that our research is based on data provided directly by the patients themselves. This method may introduce biases or inaccuracies. To strengthen the validity of findings, future research could consider incorporating objective measures or observational methods alongside self-reported data.

Moreover, our study's Limited Scope of Attitude Assessment is another aspect to note. While we assessed patients' preferences for surgeon attire and its impact on perception across key domains, we did not explore potential underlying reasons or factors driving these preferences, such as cultural influences or personal experiences. Future research could delve deeper into these underlying factors, providing a more comprehensive understanding of patient attitudes towards surgeon attire.

Conclusion

Scrubs and white coat were the most preferred surgeon attire for male surgeons, while the participants preferred skirts with a white coat for female surgeons. These preferences may stem from perceptions of formality and professionalism as well as cultural biases. The lowest rated attire was jeans, likely due to perceptions of informality. Patients may prefer scrubs and white coats for surgeon attire due to hygiene benefits and the creation of a sense of dedication and expertise. Healthcare attire should not be globally standardized. Instead, policies should reflect local preferences to align with community expectations. Further research is needed to validate these findings across different cultures and medical specialties.

Data Sharing Statement

The datasets produced and/or analyzed in this study are not publicly accessible; however, they can be obtained from the corresponding author upon request.

Ethics, Approval, and Consent to Participate

The study was approved by the Institutional Review Board at the College of Medicine, King Saud University, Ref. No. E-23-8104. This study was conducted in accordance with the declaration of Helsinki. All participants provided written informed consent prior to the commencement of the study.

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Disclosure

The authors declare that they have no competing interests.

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