

Patients' attitudes towards the participation of medical students in clinical examination and care in Western Saudi Arabia

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ABSTRACT

Background and Objectives: Patients are essential for the acquisition and development of medical students clinical skills for their tasks. The study aimed to identify factors that influence patients' attitudes towards the involvement of medical students in clinical examination and care in Western Saudi Arabia. **Methods:** A cross-sectional study using self-administered questionnaire was conducted among Saudi and non-Saudi patients at two university hospitals in Jeddah, Western Saudi Arabia. Information sought included demographic characteristics (age, gender, educational level, job, income, and marital status); patients' attitude and comfort level towards different types of students' involvement; factors influencing patients' cooperation with medical students (students' level of training, manner, skills, and attire. All these were assessed on a five-point Likert scale. Data was entered and analyzed using SPSS v 19. **Results:** Four hundred and seventeen adult patients participated. Fifty-one percent indicated a positive attitude towards involving medical students in clinical examination and care. Female and young patients (<45 years old) were more likely to be negative in their attitude and be less comfortable towards involving medical students in their care. The highest overall mean comfort score was with medical students taking history followed by observations and less invasive examination. Patients' mean confidence scores regarding students' attire were the highest for female traditional attire and for scrub suit for males. **Conclusion:** Of the influential factors that could affect patients' willingness to cooperate with medical students, clinical skills followed by manner and level of training ranked first. Ensuring that students mastered specific procedures before coming into direct contact with patients using patient simulators, for example, would improve patients' acceptance of student participation.

Key words: Attitude, medical, patients, students

INTRODUCTION

Patient–student relationship is just as important as patient–doctor relationship. Patients are considered the cornerstone in medical education^[1] and essential

for the acquisition and development of clinical skills in the performance of their tasks, represented by history taking and clinical examination culminating in the performance of procedures and development of management plans.

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Patients' right to accept or refuse the involvement of medical students is a challenging issue which could interfere with medical education. Addressing patients' attitudes towards medical students' involvement and highlighting factors that affect their acceptance of this involvement are critical.^[2]

Variation in the patients' acceptance and comfort level towards medical students' involvement in their care are attributable to numerous factors including patients' sociocultural and educational levels as well as the kind of students' involvement.^[2,3] For example, patients' comfort level towards involving medical students in performing less invasive examination and minor procedures was consistently high across different specialties in the US;^[4,5] however, in Kuwait^[6] and Ethiopia,^[7] more than half the patients refused that kind of involvement.

Male and female students' attire could be a significant contributing factor in patients' acceptance and comfort in having medical students involved in their care. Although it has been reported that general appearance of medical students affected cooperation of patients,^[2] the impact of specific traditional attire worn by medical students has not been well documented, especially in a country like Saudi Arabia where some medical students and physicians wear traditional attire when seeing their patients.

Accordingly, the current study was conducted among Saudi patients at two tertiary care university hospitals in Jeddah, Western Saudi Arabia (i.e. King Khalid National Guard Hospital [KKNHG] and King Abdulaziz University Hospital [KAUH]), to assess patients' attitude and comfort level towards the involvement of medical students in clinical examination and care in Western Saudi Arabia and to identify factors that influence patients' preferences including students' specific attire.

METHODS

A cross-sectional study was conducted in KKNHG and KAUH, Jeddah, Western Saudi Arabia, where adult patients (more than 18 years old) who attended the outpatient clinics or were admitted in the medical, surgical, or obstetrics and gynecology wards during the study period (from June 17 to June 27, 2014) were enrolled in the study. Patients with acute illnesses, or who were critically ill, clinically unstable, or cognitively impaired were excluded from the study.

Anonymous self-administered questionnaire was used. However, for patients who were unable to read, the questionnaire was administered by the researchers in a face-to-face interview.

The questionnaire was composed of following sections (a total of 50 questions): (1) Demographic data (age, gender, educational level, job, income, and marital status); (2) patients' attitude and comfort level towards different types of students' involvement; (3) factors influencing patients' cooperation with medical students (students' level of training, manner, skills, and attire). All questions were assessed on a five-point Likert scale.

In addition, eight students' attires were displayed to the patients to assess their preference and confidence level. The displayed styles depicted in Figure 1 were as follows:

- a. Male styles: (1) Traditional Saudi customary "Thoub and Shemach without white coat;" (2) formal attire: "Shirt, neck tie, and closed white coat, mid-length or jacket;" (3) Surgical scrub and open white coat or jacket; (4) casual attire: T-shirt, open white coat or jacket, jeans, sport shoes, and beaded necklace
- b. Female styles: (1) White coat, long skirt, scarf, and veil; (2) closed white coat "mid-length," long skirt, scarf, and light makeup; (3) surgical scrub, scarf and open white coat-mid length and light makeup; (4) jeans, high heels, colored scarf, makeup, and white coat "mid-length."

In all displayed photographs, stance, position of the stethoscope "placed around the neck," facial expression, hairstyle, and backgrounds were kept constant.

Ethical approval was granted by the Institutional Review Board/Research Ethics Committee of King Abdullah International Medical Research and KAUH. Informed consent was obtained verbally from each patient to voluntarily participate in the study. Patient anonymity was assured.

Data were analyzed using IBM SPSS (IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp). Descriptive analysis included computing frequency and percentages for categorical variables, whereas, mean and standard deviation for quantitative variables. Mann-Whitney *U*-test and Kruskal-Wallis tests were used for the nonparametric quantitative variables. Univariate logistic regression analysis was used, and odds ratio and 95% confidence intervals (CIs) were computed to identify factors influencing patients' attitude. Level of significance was determined at $p < 0.05$.

RESULTS

Three hundred and sixty-seven Saudi patients participated in the study (overall response rate was 88.01%). The majority of the participants were females (77.9%), <45 years old (78.0%), and married (75.5%). Almost fifty percent of the participants (48.2%) had university or higher education. More than half of the patients were from KAUH (65.1%)

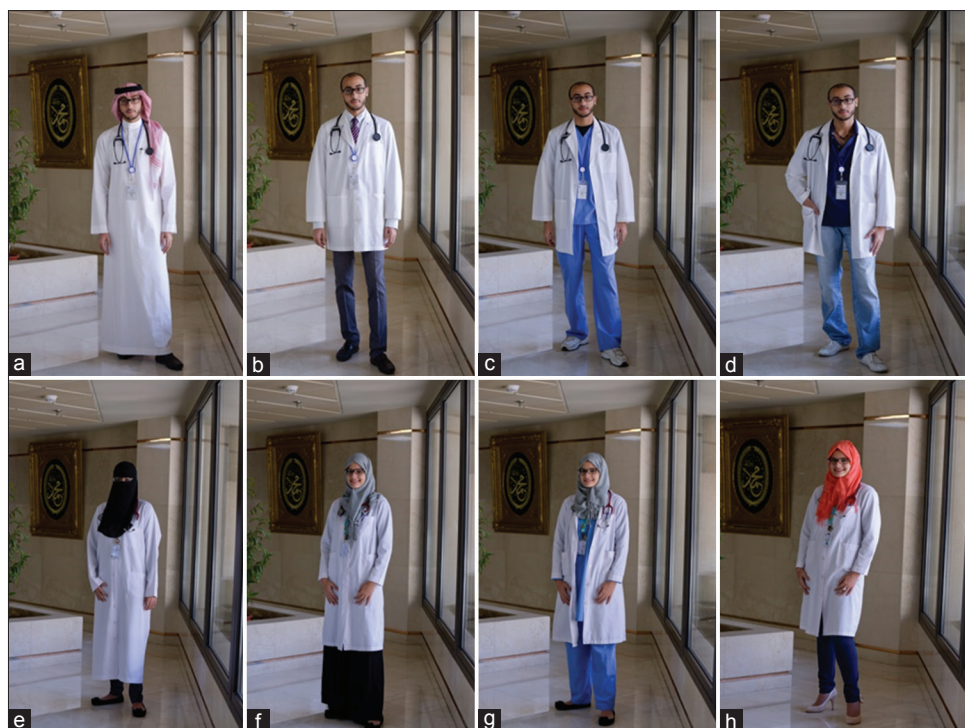


Figure 1: Students'attires shown to each patient to assess his/her confidence level. (a) Traditional Saudi costume "Thoub and Shemach" without white coat. (b) Formal attire: "Shirt, neck tie, and closed white coat." (c) Surgical scrub and open white coat. (d) Casual attire: T-shirt, open white coat, jeans, sports shoes, and beaded necklace. (e) White coat, long skirt, scarf, and veil. (f) Closed white coat "mid length," long skirt, light-colored scarf, and light makeup. (g) Surgical scrub, light-colored scarf, and open white coat -mid length - and light makeup. (h) Jeans, high heels, colored scarf, makeup, and white coat "mid-length"

and 74.7% were visiting outpatient departments. About one-third of the participants (33.0%) attended the medical department followed by 21.8% who were attending obstetrics, 19.2% surgical, 12.9% gynecology, and 13.2% other departments including Ophthalmology, ENT and those who accompanied pediatric patients. Two-thirds of the participants reported previous experience of contact with medical students (66.8%) [Table 1].

Female patients and young patients (<45 years old) were more likely to have a negative attitude towards the involvement of medical students in their care compared to male and older age patients (odds ratio [OR] = 1.73, 95% CI = 1.04, 2.86; OR = 1.68, 95% CI = 1.01, 2.81, respectively). Similarly, patients in the obstetrics department were more likely to have a negative attitude compared to those in the medical department (OR = 2.31, 95% CI = 1.27, 4.19). Other studied variables (e.g., marital status, education level, type of the hospital, inpatient and outpatient departments, and previous experience with medical students) did not show any statistical significant association with patients' attitude towards the involvement of medical students [Table 1].

The highest overall mean (\pm standard deviation [SD]) comfort score was with medical students taking history and

clinical questioning (4.1 ± 0.76) followed by observations and less invasive examination, i.e., observing the doctor asking clinical questions (4.01 ± 0.91), performing and observing, less invasive examination (3.99 ± 0.89 and 3.95 ± 0.95 , respectively), and observing surgery (3.80 ± 1.07). The lowest comfort scores reported were on performing minor procedures (mean \pm SD 3.46 ± 1.13), assisting in surgery (mean \pm SD 3.31 ± 1.15), and performing and observing invasive examinations (mean \pm SD 2.51 ± 1.25) [Table 2].

Male patients reported higher mean comfort scores with various types of students' involvement than females. Differences were statistically significant ($p < 0.05$), except for assisting in surgery ($p > 0.05$). Similarly, patients aged more than 65 years old had statistically higher comfort scores on students observing and performing invasive examination compared to younger patients ($p < 0.05$). Patients in obstetrics and gynecology departments had lower mean comfort scores compared to those in medicine and surgery specialties in performing invasive examination and assisting in surgery ($p < 0.05$) [Table 2].

Of the various factors affecting patients' willingness to cooperate with medical students, skills followed by manner, and level of training (i.e., study year) ranked first among

Table 1: Demographic characteristics and patients' attitude towards medical students' involvement in providing clinical examination and care

Variables	Patients' attitude*		OR (95% CI)
	Negative attitude (n=179) N (%)	Positive attitude (n=188) N (%)	
Gender			
Male (n=81, 22.1%)	31 (38.3)	50 (61.7)	1
Female (n=286, 77.9%)	148 (51.7)	138 (48.3)	1.73 (1.04-2.86)
Age (years)			
<45 (n=273, 78.0%)	145 (53.1)	128 (46.9)	1.68 (1.01-2.81)
≥45 (n=77, 22.0%)	31 (40.3)	46 (59.7)	1
Marital status			
Single (n=65, 17.9%)	33 (50.8)	32 (49.2)	1
Married (n=274, 75.5%)	136 (49.6)	138 (50.4)	0.96 (0.56-1.64)
Widowed/divorced (n=24, 6.6%)	9 (37.5)	15 (62.5)	0.58 (0.22-1.52)
Educational level			
Cannot read or write/elementary and intermediate school (n=55, 15.1%)	27 (49.1)	28 (50.9)	0.84 (0.46-1.54)
High school (n=134, 36.7%)	58 (43.3)	76 (56.7)	0.67 (0.42-1.05)
University or higher education (n=176, 48.2%)	94 (53.4)	82 (46.6)	1
Hospital			
King Abdulaziz University Hospital (n=239, 65.1%)	118 (49.4)	121 (50.6)	1.07 (0.70-1.65)
King Abdulaziz Medical City (n=128, 34.9%)	61 (47.7)	67 (52.3)	1
Service			
Inpatient (n=93, 25.3)	50 (53.8)	43 (46.2)	1.31 (0.82-2.09)
Outpatient (n=274, 74.7%)	129 (47.1)	145 (52.9)	1
Department/specialty			
Medical (n=115, 33.0%)	49 (42.6)	66 (57.4)	1
Surgical (n=67, 19.2%)	28 (41.8)	39 (58.2)	0.97 (0.53-1.78)
Obstetrics (n=76, 21.8%)	48 (63.2)	28 (36.8)	2.31 (1.27-4.19)
Gynecology (n=45, 12.9%)	21 (46.7)	24 (53.3)	1.18 (0.59-2.36)
Others** (n=46, 13.2%)	22 (47.8)	24 (52.2)	1.23 (0.62-2.45)
Previous experience with medical students			
Yes (n=245, 66.8%)	119 (48.6)	126 (51.4)	1
No (n=122, 33.2%)	60 (49.2)	62 (50.8)	1.02 (0.66-1.58)

*Level of attitude was determined as positive (> average score) and negative (≤ average score). **Others include: Ophthalmology, ENT and companions of pediatric patients, OR: Odds ratio; CI: Confidence interval; ENT: Ear, nose and throat

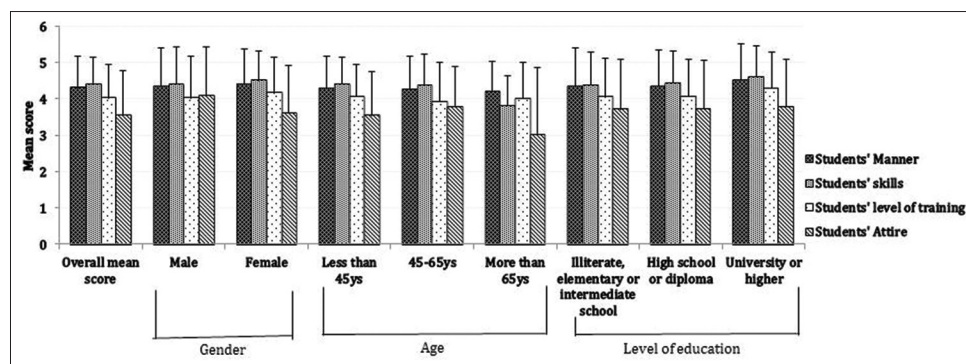


Figure 2: Mean score (± standard deviation) of factors influencing patients' willingness to cooperate with medical students according to patients' gender, age and educational level

female and young patients (i.e., ≤65 years old) regardless of the level of education. Two exceptions were reported among males (attire mean score ranked third after skills and manner) and elderly patients (>65 years old) level

of training was second after students' manner, followed by skills. Statistically significant association was reported between the level of education and students' manner, skills, and level of training ($p < 0.05$). However, no statistically

Table 2: Mean and standard deviation of patients' comfort level scores towards specific types of students' involvement

Type of involvement	Patients' comfort level scores (Mean±SD)									
	Patient's overall comfort score	Patient's gender		Patient's age (years)			Department where patient was seen			
		Male	Female	<45	45-65	>65	Medical	Surgical	Obstetrics	Gynecology
I would be comfortable to have a medical student involved by observing the doctor asking me questions	4.01±0.91	4.26±0.87	3.94±0.91*	3.99±0.94	4.06±0.8	4.40±0.54	4.02±0.84	4.05±0.9	3.83±1.03	4.13±0.86
I would be comfortable having a medical student observe less invasive exam	3.95±0.95	4.34±0.70	3.85±0.98*	3.90±1	4.09±0.73	3.40±1.51	3.96±0.89	4.02±0.95	3.76±1.06	4.11±0.87
I would be comfortable having a medical student observe invasive exam	2.51±1.25	3.04±1.33	2.38±1.2*	2.40±1.21	2.82±1.24	3.20±1.78*	2.58±1.32	2.34±1.28	2.29±1.14	2.75±1.18
I would be comfortable having a medical student observe surgery	3.80±1.07	4.12±0.88	3.72±1.1*	3.7±1.12	3.96±0.93	4.40±0.54	3.83±1.05	3.90±1.03	3.61±1.11	3.82±1.14
I would be comfortable having a medical student perform the questioning	4.10±0.76	4.28±0.74	4.05±0.76*	4.08±0.75	4.17±0.75	4.20±0.83	4.13±0.74	4.16±0.76	4.03±0.67	4.05±0.93
I would be comfortable having a medical student perform less invasive exam	3.99±0.89	4.22±0.76	3.93±0.91*	3.95±0.92	4.12±0.74	3.75±1.89	4.10±0.79	3.98±0.97	3.79±0.98	4.09±0.78
I would be comfortable having a medical student perform invasive exam	2.51±1.25	2.98±1.31	2.39±1.21*	2.37±1.19	2.93±1.34	3.00±1.87*	2.63±1.33	2.46±1.31	2.19±1.14	2.55±1.16*
I would be comfortable having a medical student perform minor procedures	3.46±1.13	3.70±1.02	3.39±1.15*	3.40±1.16	3.64±1.02	3.60±1.34	3.47±1.13	3.60±1.16	3.18±1.17	3.46±1.14
I would be comfortable having a medical student assist in surgery	3.31±1.15	3.45±1.13	3.27±1.15	3.28±1.15	3.37±1.16	3.00±1.41	3.30±1.12	3.40±1.14	3.10±1.22	3.11±1.13*

*P<0.05, SD: Standard deviation

significant difference was reported between the level of education and students' attire [Figure 2].

Patients' self-reported mean \pm SD confidence scores on female students' attire were highest for female traditional custom attire (wearing the veil), followed by female professional formal attire (4.17 ± 0.88 , 4.05 ± 0.87 , respectively), and the lowest mean \pm SD score was reported for female casual attire (2.94 ± 1.12). On the other hand, regarding male students' attire, the highest mean \pm SD confidence score was reported for the scrub suit (3.99 ± 0.88) followed by formal attire, (3.96 ± 0.94), and similarly, the lowest was reported for casual attire (3.33 ± 0.98) [Table 3]. Patients' self-reported confidence mean scores based on medical students' attire did not show statistically significant association with patients' gender, age, and level of education, with the exception of the female traditional attire (wearing the veil) which showed statistically significantly higher confidence mean \pm SD score (4.22 ± 0.87) among patients who were <45 years old compared to patients between 45 and 65 and above 65 years old (4.00 ± 0.88 and 3.00 ± 1.41 , respectively) ($p < 0.05$) [Table 3].

DISCUSSION

The current study showed that almost half of the patients had a negative attitude towards the involvement of medical students in their care. Although this finding is consistent with previously conducted studies,^[2-4,7,8] it emphasizes the need to prepare medical students for their first contact with patients.

Patients in outpatient clinics have a better attitude towards the involvement of medical students than those in the inpatient wards, most probably because of the kind of involvement, which is usually observational, history taking, and noninvasive.^[3,4] On the other hand, the negative attitude of patients in the obstetrics department may be explained by their concern for privacy.^[7,9-11] Marwan *et al.* reported that patients in teaching hospitals in Kuwait allowed minimal involvement of medical students and minimal direct contact (e.g, taking history in the presence of supervisor, attendance at ward rounds, and outpatient consultations). This was explained by the low trust patients had in students' skills and their unwillingness to discuss personal matters or to be examined by students especially in the obstetrics/gynecological or urological specialties.^[6] A study by Graber *et al.* in Iowa, USA, revealed that the majority of patients in the ER would not let medical students perform any procedure, including venipuncture^[12] This is in contrast to another study by Santen *et al.* in which a majority of patients, even when informed of the students' inexperience,

Table 3: Mean and standard deviation of self-reported patients' confidence level scores and medical students' attire (as presented in Figure 1) according to patient gender, age, and educational level

Students' attire	Patients' confidence level scores (Mean±SD)								
	Overall confidence level	Patient's gender		Patient's age in years			Patient's education level		
		Male	Female	<45	45-65	>65	Illiterate/ elementary/ intermediate	High school	University and higher
Male scrub suit	3.99±0.88	4.10±0.91	3.96±0.88	3.97±0.91	4.02±0.82	4.25±0.50	4.00±0.81	3.88±0.95	4.07±0.85
Male casual	3.33±0.98	3.45±0.88	3.29±1.00	3.34±0.99	3.26±0.91	2.75±1.50	3.32±1.02	3.31±0.97	3.34±0.98
Male formal	3.96±0.94	4.06±0.91	3.94±0.95	3.95±0.95	4.04±0.90	3.00±1.41	3.87±1.00	3.96±0.92	4.00±0.94
Male Saudi costume	3.65±1.06	3.67±0.90	3.65±1.10	3.60±1.11	3.78±0.93	3.75±0.50	3.76±1.01	3.64±1.08	3.62±1.07
Female scrub suit	3.85±0.92	3.88±0.91	3.84±0.92	3.84±0.94	3.85±0.86	4.00±0.81	3.87±0.87	3.73±0.91	3.94±0.93
Female casual	2.94±1.12	2.97±1.70	2.93±1.14	2.90±1.14	3.04±1.12	3.25±0.95	3.19±1.15	2.94±1.05	2.86±1.15
Female formal	4.05±0.87	4.21±0.72	4.01±0.90	4.04±0.89	4.14±0.83	3.25±0.95	3.98±0.92	4.07±0.85	4.07±0.86
Female Saudi costume (wearing veil)	4.17±0.88	4.19±0.81	4.17±0.90	4.22±0.87	4.00±0.88	3.00±1.41*	4.10±0.83	4.19±0.87	4.19±0.91

*P<0.05. SD: Standard deviation

allowed them to perform minor procedures (starting an IV, applying a splint, and suturing).^[13]

Female patients' acceptance of medical students' involvement is generally lower than males. This finding is consistent with several studies, which indicates the discomfort of the females to being exposed in front of students.^[6]

Marwan *et al.* indicated that female patients had a higher refusal of male students and concluded there was no association between patient's religion and acceptance of medical students' involvement.^[6] In accordance with other similar reports in Western settings,^[14,15] McLean *et al.* discussed the increasing difficulty experienced by male students in seeing Muslim female patients during obstetrics and gynecology rotations.^[16] These studies insisted on looking for alternative training opportunities (e.g., patient simulators).^[6,16] Our findings on Saudi and non-Saudi participants revealed that patient acceptance of medical students is determined by the kind of involvement, specialty, and the trust patients had in students' skills.

The current study showed that neither the patients' education nor any previous experience with medical students had an effect on patients' attitude and comfort level towards the involvement of medical students in their care. This is at variance with Sayed-Hassan *et al.*,^[13] who reported that lack of previous experience with medical students was the main factor for the discomfort of the patients. In this study, when patients were asked to identify factors that could influence their willingness to cooperate with medical students, similar to previous studies conducted in Kuwait,^[5,6] clinical skills, manner, and level of training were the most reported influencing factors regardless of the patient's age or level of education. Educators/mentors have a crucial role to play in effective communication to

ensure that students master clinical skills before coming into direct contact with patients. One possibility is the use of patient simulators and virtual reality programs.^[17] The role of students should be explained to patients since they have the right to be fully informed of the experience of their care providers. In the meantime, students need to understand the religious and cultural implications of their practices.

Patients were more confident with female students who wore formal attire and with male students who wore scrub suit and less confident with casual attire for both male and female students. These findings are not different from other similar studies on physicians' attire.^[12,18-21] In the study by Rehman *et al.*, patients were more committed to the therapy prescribed, willing to return for follow-up, and talk about their sexual, psychological, and personal matters with physicians who dressed more professionally.^[20] Moreover, in the same study, the authors discussed the importance of professional appearance of women physicians to be different from other groups that have traditionally been predominantly female (e.g., nurses, dietitians, social workers, etc.). Some studies showed either patients preferred physicians in a more casual outfit^[22] or the attire had no influence on their satisfaction,^[23] reflecting the impact of cultural backgrounds on the preferences of the studied patients. In our study, female traditional attire ranked first followed by the professional attire reflecting the cultural influence of the studied patients, which was more noteworthy among young than elderly participants. However, for male physicians, the scrub suit was the most preferred followed by formal attire. Although this finding was different than Rehman *et al.* in which the scrub suit was ranked second for male patients in the emergency department, this could be similarly attributed to patients' personal past experience.^[20] Rehman *et al.* also argued the

influence of television in showing physicians in scrub suits in the emergency department.^[20]

CONCLUSION

Patients' attitude and comfort towards the involvement of medical students in their care is affected by students' clinical and communication skills and the type of involvement. Gender, age, and specialty are also important influencing factors to be considered. Casual attire worn by students could negatively impact on patients' confidence towards their involvement.

It is recommended that educators ensure their students master specific procedures before coming into in direct contact with patients. Teaching communication skills should be extended, integrated, and reinforced throughout the students' clinical years. However, in the absence of actual patient contact and the lack of faculty role models for effective communication, decline over time is expected.^[24-26] Teaching hospitals should work on improving patients' attitude towards the nature of medical education and the significance of involving medical students in real patient care.^[16]

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Conflicts of interest

There are no conflicts of interest.

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