

Participation of medical students in patient care: How do patients perceive it?

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ABSTRACT

Introduction: Clinical teaching helps students develop clinical reasoning, decision-making, professionalism, empathy, and patient management. These benefits can only be obtained if patients show reasonable acceptance towards medical students. The aim of this study was to assess patients' perceptions regarding their level of acceptance towards students' participation in their healthcare. **Methods:** This descriptive cross-sectional study was conducted at King Fahd University hospital between December 2018 and March 2019. The data were collected via face-to-face interviews with patients from four clinical departments using a self-administered questionnaire. A total of 196 patients were approached for an interview, of whom 187 agreed to participate (a response rate of 95.4%). **Results:** Overall, patients showed a positive attitude towards students' participation in their care. The acceptance rate was higher in cases where there was minimal or no student-patient physical contact, such as reading patient's medical records (88.8%) and attending outpatient clinics (83.3%). On the other hand, the refusal rate increased dramatically (from 11% to 43.3%) when permission was sought from patients to perform diagnostic procedures. In a comparison of specialties, the highest refusal rate was observed in the obstetrics/gynecology department, whereas the lowest refusal rate was observed in the pediatrics department. **Conclusions:** Patients seeking healthcare services in a tertiary care teaching hospital have an overall positive attitude towards the involvement of undergraduate students in their medical care. The higher refusal rate with regard to students performing a physical examination and diagnostic procedures is alarming and demands alternative clinical teaching solutions, such as simulation-based training.

Keywords: Clinical teaching, healthcare, medical students, patient perceptions

Introduction

The growing burden on healthcare system highlights the need of producing competent general physicians to reduce the 'demand and supply' gap in health sector. As a result, medical schools have

started focusing more on clinical teaching dedicated to primary care setting in their undergraduate training to augment clinical exposure and practice opportunities.^[1,2]

The clinical teaching provides a practical platform that enables students to implement and translate their theoretical knowledge into a clinical skillset.^[3] During clinical rotations, students engage with patients of various specialties where they observe patients, take histories, and perform physical examinations to build their clinical proficiency.^[4]

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Clinical training help students develop their core competencies such as clinical reasoning, decision-making, communication skills, professionalism, empathy, and patient management.^[3,4] However, this is only possible if there are healthy, consensual, and professional patient–student interactions and patients show a positive attitude toward student participation. A productive interaction between the trainee students and patients facilitates the process of history taking, helps regulate patients’ emotions, and allows for a better understanding of patients’ needs and expectations.^[3] This effective patient–student bond can also encourage patients to share detailed and accurate information about their condition and adhere to a management plan, which can lead to improvements in health outcomes.^[5]

Whilst clinical teaching is the primary source of developing clinical skillset, it also has some known limitations. Since the students are not usually directly involved in providing healthcare services, their presence may not benefit patients as such.^[5] Hence, they are not viewed as an essential part of the medical team for patients’ clinical management. This situation can lead to an ethical dilemma in which it is necessary to strike a balance between providing patients with optimal care and the clinical training of medical students.^[6] Although patients feel compelled to let students observe them as they are being treated in a teaching hospital, they still have the right to decline the involvement of students whenever they feel uncomfortable.^[7] Moreover, the participation of medical students in patient care may not be well received by the patients.^[8,9] Literature suggests that the willingness of patients to discuss their personal information and to be examined by medical students is often affected by their sociocultural background and educational levels.^[2,10,11] The emotional stress from the pathological, social, and economic burden of illness could further jeopardize patients’ attitudes towards student participation.^[12] Therefore, to acquire the optimal benefits of clinical teaching sessions, patients’ acceptance and willingness to be handled by undergraduate medical students is extremely important.

Many international studies have previously examined the attitudes of patients towards students’ participation.^[7-13] However, less is known about the perceptions and preferences of local patients visiting our teaching hospital, and it is important to gain an insight into how patients in the eastern province of Saudi Arabia feel regarding the participation of medical students in their healthcare. The findings of this study may encourage students to take patients’ preferences into consideration during their clinical rotations. This study should also make an important contribution to ensuring patients’ comfort and satisfaction, leading to a better healthcare experience at King Fahd University Hospital. Therefore, this study aimed to assess patients’ perceptions and views regarding the level of acceptability of medical students.

Materials and Methods

Study settings and participants

This descriptive, questionnaire-based, cross-sectional study was conducted between December 2018 and March 2019

at King Fahd University Hospital, a tertiary care teaching hospital. In this study, face-to-face interviews were conducted with patients from four main departments (Internal Medicine, Surgery, Obstetrics and Gynecology, and Pediatrics). These four departments cater to a maximum patient influx of both genders and different age groups. Patients with special needs or impaired judgment were excluded from the study. Since the study was based on the aforementioned departments, patients from other departments, such as physiotherapy, ophthalmology, and the emergency department were also excluded. The sample size was calculated by using Epi Info™, which resulted in a sample size of 196 with a confidence interval of 95% and a margin of error of 5%.

Data collection

A self-administered questionnaire developed and validated by Marwan *et al.* was used in this study.^[8] To improve understanding and clarity, the questions were translated from English to Arabic. The questionnaire was distributed to patients using Google Docs and the data were collected either during their outpatient clinic visit or in-patient admission. For pediatric patients, answers were obtained from their parents.

The online questionnaire (see Annex 1) consisted of two main sections: sociodemographic information and patient perception. In the sociodemographic section, the information regarding the patients’ age, gender, marital status, and level of education was obtained. In the age category, the answers were categorized into three age groups (<25, 25-60, and >60). Similarly, in the education category, the answers were categorized into three groups (no formal education, basic education, and higher education). Patients with a Bachelor’s degree or less were categorized as having a basic qualification and those with a professional qualification, Master’s or higher degree were categorized as having higher education. The second section included questions about patients’ attitudes towards medical students and their acceptability.

Data analysis

The data were entered into Microsoft Excel 2019 and analysis was carried out using the Statistical Package for Social Sciences software, version 23.0 (SPSS Inc., Chicago, IL, USA). A *P* value of less than 0.05 was considered statistically significant, with a confidence interval of 95%. All descriptive data were represented as counts and percentages. A Chi-squared test was used to establish an association between each sociodemographic characteristic and patients’ attitudes.

Ethical considerations

Prior to starting the data collection, the purpose of the study was explained to all participants and their informed consent was obtained. Patients were assured of the confidentiality of their information, and they were informed that they had the right to withdraw from the study if at any time they felt uncomfortable. The ethical approval to conduct this study was obtained from the

Institutional Review Board committee of Imam Abdulrahman Bin Faisal University under reference # IRB UGS-2018-01-302.

Results

Characteristics of the participants

A total of 196 patients were approached, of whom 187 agreed to participate (a response rate of 95.4%). The mean age of all participants was 36.8 ± 18.76 , of which 121 (64.7%) were females, and only 66 (35.3%) were males. The full demographic characteristics of all the included patients are shown in Table 1.

Patients' attitudes towards medical students

Of the 187 interviewed patients, 166 (88.8%) stated that they would allow both male and female students to read their medical files. In addition, the majority of participants (152/81%) said they would allow both genders to attend the outpatient clinic (OPD) during their consultation. In addition, 119 (63.6%) of them would permit students of both genders to be present in the operation room, while 39 (20.9%) refused. Regarding history taking, 167 (89.3%) of participants said they would permit medical students of either gender to take their history under the supervision of a doctor, and 137 (73.3%) would allow students to take their history without the supervision of a doctor. Although half of the participants said they would refuse permission for medical students of either gender to examine them without the supervision of a doctor, the majority of patients were comfortable with both genders observing and examining them

Table 1: Socio-demographic characteristics of the patients

Characteristics	N	Percentage
Age		
≤ 25	52	27.8%
26-60	113	60.4%
> 60	22	11.8%
Gender		
Male	66	35.3%
Female	121	64.7%
Marital Status		
Married	129	69.0%
Unmarried	58	31.0%
Educational Level		
No formal education	23	12.3%
Basic education	156	83.4%
Higher education	8	4.3%
Department		
Medicine	63	33.7%
Surgery	60	32.1%
Obstetrics/Gynecology	44	23.5%
Pediatric	20	10.7%
Type of Care		
Outpatient	108	57.8%
Inpatient	79	42.2%

under the supervision of a doctor. Regarding procedures, nearly half of the participants refused to allow students of either gender to perform procedures on them. However, three-quarters of the participants would permit students of both genders to observe procedures carried out by a senior doctor. The responses of the participants with respect to their gender preferences regarding students are shown in Table 2.

Reading medical records and attending in- and out-patients: With respect to reading patients' medical files, no statistically significant association was found with any socio-demographic characteristic. With reference to the presence of medical students in the OPD, a significant correlation was found with the gender of the patients ($P = 0.002$) and attending the department ($P = 0.004$), whereas, with reference to their presence in the OR, the only significant association was found with the gender of the patients. The gender and department preferences of patients are shown in Table 3.

Taking history with/without senior doctor supervision: In terms of patients allowing history taking in the presence of a supervising doctor, the only significant association found was with the departments. With regard to taking history without the presence of a doctor, the only significant association found was with the gender of the patients [Table 4].

Observing/performing physical examination with/without a doctor's supervision: With regard to allowing students to observe physical examinations, a significant correlation was observed with gender ($P < 0.001$), marital status ($P = 0.004$) and department ($P < 0.001$) [Table 5]. In a comparison of genders, 36 (29.8%) the female patients preferred to be seen by female students only. Nearly half of obstetrics/gynecology patients (43.2%) preferred only female students for their medical care. In the marital status comparison, a higher refusal rate was observed in married female patients compared to unmarried ones.

Examining patients in the presence of a supervising doctor was significantly associated with age ($P = 0.04$), gender ($P < 0.001$), marital status ($P = 0.02$), department ($P < 0.001$), and type of care ($P = 0.02$). A higher refusal rate was observed among married female patients (20.9%). In a comparison of departments, patients in the obstetrics/gynecology department had the highest preference for female students (38.6%).

Patients' attitudes towards being examined by medical students without the presence of a supervising doctor were significantly associated with gender ($P < 0.001$), department ($P = 0.02$), and type of care ($P = 0.04$), as shown in Table 5. Just 19% of females would permit only female students to examine them without a doctor, while no male patients would accept female students only. In a comparison of departments, obstetrics/gynecology patients showed the highest refusal rate (68.2%) when asked if they would permit students to examine them without a supervising doctor. A higher number of OPD patients refused to be examined by students in comparison with ward

Table 2: Patients' attitude towards the involvement of medical students in their care

Questions	Answers N (%)			
	Males only	Females only	Both	Neither
Would you permit medical students to read your medical file?	0	8 (4.3)	166 (88.8)	13 (7)
Would you permit medical students to be present in the outpatient clinic if you were having a consultation with your doctor?	1 (0.5)	22 (11.8)	152 (81.3)	12 (6.4)
Would you permit medical students to be present in the operation room if you were having a surgery?	2 (1.1)	27 (14.4)	119 (63.6)	39 (20.9)
Would you permit medical students to take your medical history and personal details from you with the presence of a doctor?	0	13 (7)	167 (89.3)	7 (3.7)
Would you permit medical students to take your medical history and personal details from you without the presence of a doctor?	0	11 (5.9)	137 (73.3)	39 (20.9)
Would you permit medical students to be present while your doctor examining you?	1 (0.5)	36 (19.3)	128 (68.4)	22 (11.8)
Would you permit medical students to examine you with the presence of a doctor?	0	37 (19.8)	118 (63.1)	32 (17.1)
Would you permit medical students to examine you without the presence of a doctor?	1 (0.5)	23 (12.3)	74 (39.6)	89 (47.6)
Would you permit medical students to be present while you're having diagnostic/other procedures (e.g. drawing blood, inserting catheter, etc.)	0	27 (14.4)	138 (73.8)	22 (11.8)
Would you permit medical students to perform diagnostic/other procedures on you (e.g. drawing blood, inserting catheter...etc.)	1 (0.5)	23 (12.3)	82 (43.9)	81 (43.3)

Table 3: Patients' attitude toward students attending OPD and OR

	Present in OPD N (%)					Present in OR N (%)				
	Male students	Female students	Both	Neither	P	Male students	Female students	Both	Neither	P
Age										
≤ 25	0	6 (11.5)	43 (82.7)	3 (5.8)	0.844	0	5 (9.6)	33 (63.5)	14 (26.9)	0.784
26-60	1 (0.9)	15 (13.3)	88 (77.9)	9 (7.9)		2 (1.8)	19 (16.8)	69 (61.1)	23 (20.3)	
> 60	0	1 (4.5)	21 (95.5)	0		0	3 (13.6)	17 (77.3)	2 (9.1)	
Gender										
Males	1 (1.5)	1 (1.5)	62 (93.9)	2 (3)	0.002	2 (3)	1 (1.5)	48 (72.7)	15 (22.7)	0.001
Females	0	21 (17.4)	90 (74.4)	10 (8.3)		0	26 (21.5)	71 (58.7)	24 (19.8)	
Marital status										
Married	1 (0.8)	17 (13.2)	102 (79.1)	9 (7)	0.657	1 (0.8)	22 (17.1)	81 (62.8)	24 (19.4)	0.425
Unmarried	0	5 (8.6)	50 (86.2)	3 (5.2)		1 (1.7)	5 (8.6)	38 (65.5)	14 (24.1)	
Education level										
No formal education	0	10 (15.2)	54 (81.8)	2 (3)	0.773	1 (1.5)	11 (16.7)	46 (69.7)	8 (12.1)	0.754
Basic education	1 (0.9)	10 (8.8)	93 (82.3)	9 (8)		1 (0.9)	15 (13.3)	68 (60.2)	29 (25.6)	
Higher education	0	2 (25)	5 (62.5)	1 (12.5)		0	1 (12.5)	5 (62.5)	2 (25)	
Department										
Medicine	1 (1.6)	4 (6.3)	54 (85.7)	4 (6.3)	0.004	1 (1.6)	7 (11.1)	44 (69.8)	11 (17.5)	0.250
Surgery	0	4 (6.7)	53 (88.3)	3 (5)		1 (1.7)	6 (10)	39 (65)	14 (23.3)	
BO/GYN	0	13 (29.5)	26 (59.1)	5 (11.4)		0	12 (27.3)	21 (47.7)	11 (25)	
Pediatrics	0	1 (5)	19 (95)	0		0	2 (10)	15 (75)	3 (15)	
Type of care										
Outpatient	1 (0.9)	13 (12)	88 (81.5)	6 (5.6)	0.790	1 (0.9)	19 (17.6)	68 (63)	20 (18.5)	0.476
Inpatient	0	9 (11.4)	64 (81)	6 (7.6)		1 (1.3)	8 (10.1)	51 (64.6)	19 (24.1)	

patients, and more OPD patients preferred female students only compared to inpatients.

Observing/performing diagnostic procedures: The statistical analysis showed that age ($P = 0.03$), gender ($P < 0.001$), department ($P < 0.001$), and type of care ($P = 0.009$) were significantly associated with patients' attitude towards the presence of students during diagnostic procedures [Table 5]. Patients aged between 25 and 60 years showed the highest preference for female students only (22; 38.9%). Older patients (>60) and younger patients (<25) showed fewer gender preferences and

were willing to allow both female and male students to observe diagnostic procedures. Obstetrics/gynecology patients showed a greater acceptance of female students as compared to those in other departments. However, there was no noticeable difference in the refusal rate between obstetrics/gynecology patients and those in other departments.

Table 5 shows a significant association between students performing diagnostic procedures and the gender of the patient, department, and type of care ($P = 0.001$, 0.009, and 0.012, respectively). Just 19% of female patients would permit female

Table 4: Patients' attitude toward students taking history with and without the supervision of a doctor

	Taking history with a doctor N (%)					Taking history without a doctor N (%)				
	Male students	Female students	Both	Neither	P	Male students	Female students	Both	Neither	P
Age										
≤ 25	0	5 (9.6)	47 (90.4)	0	0.691	0	3 (5.8)	39 (75)	10 (19.2)	0.930
26-60	0	7 (6.2)	99 (87.6)	7 (6.2)		0	7 (6.2)	79 (69.9)	27 (23.9)	
> 60	0	1 (4.5)	21 (95.5)	0		0	1 (4.5)	19 (86.4)	2 (9.1)	
Gender										
Male	0	2 (3)	60 (90.9)	4 (6.1)	0.153	0	0	53 (80.3)	13 (19.7)	0.034
Female	0	11 (9.1)	107 (88.4)	3 (2.5)		0	11 (9.1)	84 (69.4)	26 (21.5)	
Marital status										
Married	0	10 (7.8)	114 (88.3)	5 (3.9)	0.801	0	9 (7)	93 (72.1)	27 (20.9)	0.630
Unmarried	0	3 (5.2)	53 (91.4)	2 (3.4)		0	2 (3.4)	44 (75.9)	12 (20.7)	
Education level										
No formal education	0	7 (10.6)	59 (89.4)	0	0.153	0	6 (9.1)	47 (71.2)	13 (19.7)	0.602
Basic education	0	6 (5.3)	100 (88.5)	7 (6.2)		0	4 (3.5)	83 (73.5)	26 (23)	
Higher education	0	0	8 (100)	0		0	1 (12.5)	7 (87.5)	0	
Department										
Medicine	0	0	59 (93.7)	4 (6.3)	0.011	0	4 (6.3)	45 (71.4)	14 (22.2)	0.633
Surgery	0	3 (5)	56 (93.3)	1 (1.7)		0	2 (3.3)	48 (80)	10 (16.7)	
OB/GYN	0	8 (18.2)	34 (77.3)	2 (4.5)		0	4 (9.1)	28 (63.6)	12 (27.3)	
Pediatrics	0	2 (10)	18 (90)	0		0	1 (5)	16 (80)	3 (15)	
Type of care										
Outpatient	0	8 (7.4)	96 (88.9)	4 (3.7)	0.960	0	8 (7.4)	78 (72.2)	22 (20.4)	0.584
Inpatient	0	5 (6.3)	71 (89.9)	3 (3.8)		0	3 (3.8)	59 (74.7)	17 (21.5)	

Table 5: Patients' attitude toward students observing physical examination, examining them with and without the supervision of a doctor, observing diagnostic procedures, and performing diagnostic procedure

	Observe examination					Perform examination with a doctor				
	N (%)				P	N (%)				P
	Male students	Female students	Both	Neither		Male students	Female students	Both	Neither	
Age										
≤ 25	1 (1.9)	6 (11.5)	41 (78.9)	4 (7.7)	0.073	0	9 (17.3)	36 (69.2)	7 (13.5)	0.045
26-60	0	28 (24.8)	68 (60.2)	17 (15)		0	26 (23)	62 (54.9)	25 (22.1)	
> 60	0	2 (9.1)	19 (86.4)	1 (4.5)		0	2 (9.1)	20 (90.9)	0	
Gender										
Males	1 (1.5)	0	64 (97)	1 (1.5)	< 0.001	0	0	62 (93.9)	4 (6.1)	< 0.001
Females	0	36 (29.8)	64 (52.9)	21 (17.4)		0	37 (30.6)	56 (46.3)	28 (23.1)	
Marital status										
Married	0	31 (24)	79 (61.2)	19 (14.7)	0.004	0	29 (22.5)	73 (56.6)	27 (20.9)	0.020
Unmarried	1 (1.7)	5 (8.6)	49 (84.5)	3 (5.2)		0	8 (13.8)	45 (77.6)	5 (8.6)	
Education level										
No formal education	1 (1.5)	11 (16.7)	47 (71.2)	7 (10.6)	0.692	0	17 (25.8)	42 (63.6)	7 (10.6)	0.501
Basic education	0	23 (20.4)	77 (68.1)	13 (11.5)		0	18 (15.9)	72 (63.7)	23 (20.4)	
Higher education	0	2 (25)	4 (50)	2 (25)		0	2 (25)	4 (50)	2 (24)	
Department										
Medicine	0	9 (14.3)	48 (76.2)	6 (9.5)	< 0.001	0	13 (20.6)	44 (69.8)	6 (9.5)	< 0.001
Surgery	1 (1.7)	8 (13.3)	44 (73.3)	7 (11.7)		0	6 (10)	42 (70)	12 (20)	
OB/GYN	0	19 (43.2)	16 (36.4)	9 (20.5)		0	17 (38.6)	13 (29.5)	14 (31.8)	
Pediatrics	0	0	20 (100)	0		0	1 (5)	19 (95)	0	
Type of care										
Outpatient	0	27 (25)	67 (62)	14 (13)	0.055	0	28 (25.9)	60 (55.6)	20 (18.5)	0.024
Inpatient	1 (1.3)	9 (11.4)	61 (77.2)	8 (10.1)		0	9 (11.4)	58 (73.4)	12 (15.2)	

Contd...

Table 5: Contd...

	Examine without a doctor				Observe diagnostic procedures				Perform diagnostic procedures						
	N (%)				N (%)				N (%)						
	Male students	Female students	Both	Neither	P	Male students	Female students	Both	Neither	P	Male students	Female students	Both	Neither	P
Age															
≤ 25	0	7 (13.5)	17 (32.7)	28 (53.8)		0	4 (7.7)	38 (73.1)	10 (19.2)		0	2 (3.8)	18 (34.6)	32 (61.6)	
26-60	1 (0.9)	14 (12.4)	43 (38)	55 (48.7)	0.174	0	22 (19.5)	79 (69.9)	12 (10.6)	0.032	1 (0.9)	20 (17.7)	49 (43.4)	43 (38)	0.106
> 60	0	2 (9.1)	14 (63.6)	6 (27.3)		0	1 (4.5)	21 (95.5)	0		0	1 (4.5)	15 (68.2)	6 (27.3)	
Gender															
Males	1 (1.5)	0	39 (59.1)	26 (39.4)	< 0.001	0	0	63 (95%)	3 (4.5)	< 0.001	1 (1.5)	0	36 (54.5)	29 (43.9)	0.001
Females	0	23 (19)	35 (28.9)	63 (52.1)		0	27 (22.3)	75 (62)	19 (15.7)		0	23 (19)	46 (38)	52 (43)	
Marital status															
Married	1 (0.8)	16 (12.4)	52 (40.3)	60 (46.5)	0.894	0	23 (17.8)	92 (71.3)	14 (10.9)	0.139	0	19 (14.7)	59 (45.7)	51 (39.5)	0.115
Unmarried	0	7 (12.1)	22 (37.9)	29 (50)		0	4 (6.9)	46 (79.3)	8 (13.8)		1 (1.7)	4 (6.9)	23 (39.7)	30 (51.7)	
Education level															
No formal education	1 (1.5)	11 (16.7)	27 (40.9)	27 (40.9)		0	10 (15.2)	52 (78.8)	4 (6)		0	11 (16.7)	31 (46.9)	24 (36.4)	
Basic education	0	10 (8.9)	45 (39.8)	58 (51.3)	0.258	0	16 (14.2)	81 (71.6)	16 (14.2)	0.455	1 (0.9)	11 (9.7)	47 (41.6)	54 (47.8)	0.629
Higher education	0	2 (25)	2 (25)	4 (50)		0	1 (12.5)	5 (62.5)	2 (24)		0	1 (12.5)	4 (50)	3 (37.5)	
Department															
Medicine	0	10 (15.9)	30 (47.5)	23 (36.5)		0	5 (7.9)	51 (81)	7 (11.1)		1 (1.6)	7 (11.1)	31 (49.2)	14 (38.1)	
Surgery	1 (1.7)	5 (8.3)	26 (43.3)	28 (46.7)	0.022	0	5 (8.3)	48 (80)	7 (11.7)	< 0.001	0	3 (5)	25 (41.7)	32 (53.3)	0.009
OB/GYN	0	7 (15.9)	7 (15.9)	30 (68.2)		0	16 (36.4)	21 (47.7)	7 (15.9)		0	13 (29.5)	15 (34.1)	16 (36.4)	
Pediatrics	0	1 (5)	11 (55)	8 (40)		0	1 (5)	18 (90)	1 (5)		0	0	11 (55)	9 (45)	
Type of care															
Outpatient	0	17 (15.7)	35 (32.4)	56 (51.9)	0.044	0	22 (20.4)	71 (65.7)	15 (13.9)	0.009	0	20 (18.5)	42 (38.9)	46 (42.6)	0.012
Inpatient	1 (1.3)	6 (7.6)	39 (49.4)	33 (41.8)		0	5 (6.3)	67 (84.8)	7 (8.9)		1 (1.3)	3 (3.8)	40 (50.6)	35 (44.3)	

students only to perform diagnostic procedures. The refusal rate was almost the same among both male (43.9%) and female patients (43%). Similar to other types of student involvements, 29.5% of obstetrics/gynecology patients would only allow female students to see them. Refusal was the highest among surgical patients, where half of the patients refused to have students perform diagnostic procedures on them. In terms of the type of care comparison, 18.5% of OPD patients preferred female students only. Refusal was almost the same between in- and outpatients.

Discussion

Patients are as essential for optimal clinical training as oxygen to life. They help students acquire clinical skills, and without their acceptance, it would probably be impossible to train medical students. This study has attempted to gain an insight into the perceptions of Saudi patients towards the involvement of medical students in their healthcare. In general, the results showed an overall positive attitude of patients toward student participation in their care. This is in agreement with previous studies conducted in Arab countries^[7-9,12,14] and worldwide.^[10,11,13-15] However, in comparison to local studies, some results turned out to be different. The participants in this study showed more acceptance compared to the findings of Abdulghani *et al.* and Aljouidi *et al.*^[16,17] who reported reduced patient receptivity to being interviewed or examined by medical students. This relatively positive attitude can be attributed to the higher patient satisfaction level with the attending physicians and the general standards of health services provided by our teaching hospital. Another important contributing factor could be the increased focus of doctors and students on patients' reported health concerns. Previous studies^[7,9,18] also suggest that when doctors discuss cases with students, it enhances patients' understanding about their own health conditions, leading to a higher acceptance of students. However, this rationale may have limited significance in situations where doctors use medical terminology during clinical teaching.

It is worth noting that the results showed varying levels of positivity according to the extent of students' involvement. The results indicate that patients usually showed a higher acceptance of students when they have minimal or indirect contact with them, such as when students read medical files or attend clinics during consultations. Not surprisingly, most patients preferred to be observed and examined under the supervision of a senior doctor and half of them refused to be examined by a student in the absence of a supervising doctor. A similar trend has been observed in many other studies,^[7,16,18] where patients showed reluctance in letting students examine them without a senior doctor. This attitude may result in reduced hands-on experience and learning when students are positioned within a teaching encounter as a passive observer, with minimal direct interaction with the patient.^[5] It also results in reducing the chances to develop a meaningful student-patient relationship that helps the patients internalize the purpose and value of students' learning.

The high level of refusal to examinations may also be attributed to the patients' distrust of students' clinical competence, or their reluctance to expose themselves to students merely for training purposes.^[8,10] Forbes and Nolan^[19] suggested that such situations can be catered by reassurance from the senior doctor prior to student examination of the patient. This finding also suggests that future training should focus more on developing students' confidence, communication skills, professionalism, and patient privacy so that the patients show a more accepting attitude toward medical students.^[20]

A relatively higher refusal rate was noted when patients were asked if they would permit students to be present in the operation room (OR) during their surgical intervention. As patients are usually unaware of students' specific role inside the OR, they fear that students might participate in the surgical procedure, leading to unwanted outcomes. In addition, the extensive exposure and lack of privacy could also be a contributing factor.^[8] When it comes to diagnostic procedures (for example drawing blood samples or inserting a catheter), the majority of patients would allow students to observe, and minimal refusal was documented. However, the refusal rate increased dramatically (from 11% to 43.3%) when patients were asked if they would permit students to perform diagnostic procedures instead of observing them. This high refusal rate could also be due to distrust of students' competence or an unpleasant past experience when a student might have failed to successfully perform the required procedure on the first attempt or might have taken longer than a trained practitioner.^[21]

The level of acceptance of medical students differed across the four specialties. Not surprisingly, the highest refusal rate was observed in obstetrics/gynecology patients, and a higher preference was given to female students which could be attributed to the cultural norms. The lowest refusal rate was recorded in pediatrics, probably because consent is usually taken from children's guardians. This high refusal rate is most likely related to privacy concerns, as patients in obstetrics/gynecology may routinely require the exposure and examination of the female pelvic region.^[6,8] This high refusal rate is alarming, and efforts are required to seek alternative solutions, such as advanced simulation-based training centers. This would also provide a safe and effective learning opportunity in which medical students could practice without hesitation and obtain mastery in desired clinical competencies. In addition, it would also boost their confidence to deal with real patients.

Limitations

As this study was conducted in a single teaching hospital where patients deal with students on a daily basis, the results may not be generalizable to the Saudi population. Nonetheless, a comparison with other non-teaching hospitals may reflect more accurate results. Furthermore, to gain an extensive understanding of patients' perceptions, a qualitative study could be a useful option for future researchers.

Conclusions

This study builds on existing literature on student participation in patient care. The Saudi patients of eastern province showed a positive attitude towards the involvement of medical students in their healthcare. Patients' attitude was largely affected by students' clinical skill set, and type of involvement. Additionally, gender and specialty were also important influencing factors. The lowest acceptance level in obstetrics/gynecology patients and their preference of female students to males can be attributed to local cultural norms. Patients were more lenient towards students in situations involving minimal or indirect physical contact, such as reading medical records and observing. A vast majority of patients preferred that the presence of a senior doctor during patient–student interaction. A higher refusal rate was observed in cases where permission was sought to perform physical examinations and procedures. This attitude may result in reduced hands-on experience and learning due to minimal procedural exposure. This high refusal rate may suggest the need to revisit training curricula and also look for alternative solutions, such as simulation-based training. Moreover, teaching hospitals should work on improving patients' attitudes towards the nature and significance of student involvement in patient care.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. Kost A, Cawse-Lucas J, Evans DV., Overstreet F, Andrilla CH, Dobie S. Medical student participation in family medicine department extracurricular experiences and choosing to become a family physician. *Fam Med* 2015;47:763-9.
2. Zhu G, Tan T. Medical student mistreatment by patients in the clinical environment: Prevalence and management. *Singapore Med J* 2019;60:353-8.
3. Ha JF, Longnecker N. Doctor-patient communication: A review. *Ochsner J* 2010;10:38-43.
4. Golden BP, Henschen BL, Gard LA, Ryan ER, Evans DB, Bierman J, *et al.* Learning to be a doctor: Medical students' perception of their roles in longitudinal outpatient clerkships. *Patient Educ Couns* 2018;101:2018-24.
5. Park SE, Allfrey C, Jones MM, Chana J, Abbott C, Faircloth S, *et al.* Patient participation in general practice based undergraduate teaching: A focus group study of patient perspectives. *Br J Gen Pract* 2017;67:e260-6.
6. Passaperuma K, Higgins J, Power S, Taylor T. Do patients' comfort levels and attitudes regarding medical student involvement vary across specialties? *Med Teach* 2008;30:48-54.
7. Ben Salah A, El Mhamdi S, Bouanene I, Sriha A, Soltani M. Patients' attitude towards bedside teaching in Tunisia. *Int J Med Educ* 2015;6:201-7.
8. Marwan Y, Al-Saddique M, Hassan A, Karim J, Al-Saleh M. Are medical students accepted by patients in teaching hospitals? *Med Educ Online* 2012;17:1-14.
9. Sayed-Hassan RM, Bashour HN, Koudsi AY. Patient attitudes towards medical students at Damascus University teaching hospitals. *BMC Med Educ* 2012;12:13.
10. Temesgen WA. Patients' attitude towards medical students involvement in their health care at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2010. *Ethiop J Health Sci* 2013;23:158-64.
11. Ramanayake RPJC, Sumathipala WLAH, Rajakaruna IMSM, Ariyapala DPN. Patients' attitudes towards medical students in a teaching family practice: A sri lankan experience. *J Fam Med Prim Care* 2012;1:122-6.
12. Alawad AAM, Younis FH. Patients' attitude towards undergraduate medical students at university charity teaching hospital in Sudan. *Int J Med* 2014;2:28-31.
13. Onotai LO, Asuquo EO, Amadi E, Amadi-Oparelli A, Ali DU. Patients' perception and attitude towards medical students' involvement in patients care at a Nigerian university teaching hospital. *Educ Res* 2012;3:732-43.
14. Sweeney K, Magin P, Pond D. Patient attitudes: Training students in general practice. *Australian Family Physician* 2010;39:1-6.
15. Cooke F, Galasko G, Ramrakha V, Richards D, Rose A, Watkins J. Medical students in general practice: How do patients feel? *Br J Gen Pract* 1996;46:361-2.
16. Abdulghani HM, Al-Rukban MO, Ahmad SS. Patient attitudes towards medical students in Riyadh, Saudi Arabia. *Educ Health* 2008;21:69.
17. Aljoudi S, Alsolami S, Farahat F, Alsaywid B, Abuznadah W. Patients' attitudes towards the participation of medical students in clinical examination and care in Western Saudi Arabia. *J Fam Community Med* 2016;23:172-8.
18. Coleman K. Patients' views and feelings on the community-based teaching of undergraduate medical students: A qualitative study. *Fam Pract* 2002;19:183-8.
19. Forbes DR, Nolan D. Factors associated with patient-satisfaction in student-led physiotherapy clinics: A qualitative study. *Physiother Theory Pract* 2018;34:705-13.
20. Al Ghobain M, Alghamdi A, Arab A, Alaem N, Aldress T, Ruhyiem M. Patients' perceptions towards the participation of medical students in their care. *Sultan Qaboos Univ Med J* 2016;16:224-9.
21. Chipp E, Stoneley S, Cooper K. Clinical placements for medical students: Factors affecting patients' involvement in medical education. *Med Teach* 2004;26:114-9.