

Are medical students accepted by patients in teaching hospitals?

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Background: Worldwide, patients are the cornerstone of bedside teaching of medical students. In this study, the authors aimed to assess patients' acceptability toward medical students in teaching hospitals of the Faculty of Medicine of Kuwait University.

Methods: Ninehundred and ninety five patients were approached in 14 teaching hospitals; 932 patients agreed to participate (refusal rate is 6.3%). A self-administered questionnaire was used to collect data.

Results: In general, higher acceptance of students by patients was found when there is no direct contact between the patient and the student (e.g., reading patients' files, presenting in outpatient clinic, observing doctors performing examination or procedures) compared to other situations (e.g., performing physical examination or procedures). Pediatrics patients showed higher acceptance of students compared to patients in other specialties, while Obstetrics/Gynecology patients showed the highest refusal of students. Gender of patients (especially females) and students appeared to affect the degree of acceptance of medical students by patients. Majority of the patients (436; 46.8%) believed that the presence of medical students in hospitals improves the quality of health care.

Conclusion: Patients are an important factor of bedside teaching. Clinical tutors must take advantage of patients who accept medical students. Clinical tutors and medical students should master essential communication skills to convince patients in accepting students, thus improving bedside teaching. Also, using simulation and standardization should be considered to address scenarios that most patients are unwilling to allow students to participate.

Keywords: *bedside teaching; patients' acceptability; medical students; medical education; clinical skills*

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Bedside teaching comprises a major part, and presents an essential tool for learning in teaching curriculums of medical schools worldwide. Medical students, trainees and teachers fully support this teaching activity (1). Studies suggest that bedside teaching provides the advantages of learning in context, opportunity for role modeling, teaches transferable skills, increased learner motivation, increased professional thinking, and integration of clinical skills, communication skills, problem-solving, decision-making and ethical challenges (1, 2).

Medical education researchers suggested that bedside teaching is affected by four factors: teaching curriculum, clinical tutors (i.e., teachers), medical students and patients (3). To optimize bedside teaching, medical schools need to have a good, well-planned bedside teaching curriculum, well-trained clinical tutors to teach the students, medical students who are keen to learn and

develop their bedside skills and patients who allow students to learn and practice on them.

Studies had been conducted to know the feelings of the patients toward the involvement of medical students in their care. It has been noticed in many hospitals worldwide that a minority of patients refuse, or feel negative about the involvement of medical students in their care (4–10). Coleman and Murray (6) found that the reasons behind the positive feelings of the majority of the patients about participating in a community-based teaching program were altruism (i.e., provision of a service to the community and repaying the system) and personal gain (improved knowledge, improved self-esteem and companionship). However, the comfort levels of patients regarding medical students found to be different between patients of different specialties. For example, Urology patients reported higher comfort levels with male students, while Obstetrics/Gynecology patients showed

higher comfort levels with female students (10, 11). In London and Newcastle, the majority of patients were happy with the presence of medical students during their consultations of sore throat, chest infection or emotional problems; however, the majority refused this when internal examination was required or a sexual problem was discussed (12).

The bedside teaching in the Faculty of Medicine of Kuwait University (FOM, KU) is designed to allow students to spend a lot of time in hospitals to learn and practice clinical skills, thus exposed to a larger number of patients in various specialties. However, patients' acceptability toward the presence of medical students in teaching hospitals of FOM, KU was not assessed. Our objectives are to determine if patients' acceptability of medical students differ according to the patients' socio-demographic characteristics and in between major specialties and to assess if the student's gender has an effect on the patients' acceptability. We also aim to support curriculum planners in FOM, KU in improving the bedside teaching of medical students.

Methods

Study design and participants

This is a cross-sectional study that was conducted during March and April 2010. It aimed at assessing the extent patients accepted medical students in teaching hospitals of FOM, KU. Therefore, the population of this study includes patients across a variety of hospitals and clinics in Kuwait. The teaching hospitals/clinics that students rotate in are 10 primary care centers, four secondary care centers and 10 tertiary care centers covering all specialties.

Data collection tools and activities

We developed a self-administered structured questionnaire in English, and then we translated it into Arabic. It included 22 questions under two main sections. Section I had a set of eight questions about the sociodemographic characteristics which are age, gender, nationality, religion, marital status, educational level, current occupation and monthly family income. The second section was about the patients' reactions toward, and acceptability of, medical students. We asked if the patients permit medical students to read their medical file, present in the outpatient clinic during their consultations, attend ward rounds if they were admitted in the same ward, present in the operation theatre if their condition required a surgical intervention (or delivery room in cases of pregnancy), take their history with or without the presence of the clinical tutor, present in the room while the doctor is examining them, examine them with or without the presence of a clinical tutor, present in the room while they are undergoing any

diagnostic procedure, and perform diagnostic procedures on them (examples given were drawing blood, inserting urinary catheter and endoscopy). The participants had to choose between permitting male students only, female students only, both males and females, or not permitting both genders. Moreover, in this section of the questionnaire, we asked about who did the patients think was treating them in teaching hospitals (doctor or student), which type of hospital did they prefer to be treated in (teaching or non-teaching hospital) and how did the presence of medical students in teaching hospitals affected the quality of health care. The questionnaire was pretested on 10 random patients in one of the teaching hospitals to ascertain the clarity of questions.

We approached 995 patients in which 63 patients refused to participate (refusal rate of 6.3%). The participants were inpatients and outpatients of four secondary care hospitals and 10 tertiary care hospitals/centers.

Ethical considerations

A written informed consent was obtained from each participant. The study objectives were explained to the participants. Also, the participants were assured the confidentiality of the collected information and that they were free to decline participation in the study. Regarding pediatrics patients, parents were involved in filling the questionnaire. We excluded psychiatric patients from the study. The study protocol and data collection instrument were reviewed and approved by the Ethics committee of FOM, KU and Ministry of Health's joint committee for the protection of human subjects in research. Permission to administer the questionnaire to the study population was obtained from the administration of each hospital.

Statistical analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) with a two-tailed p -value $<5\%$ which is considered as the cut-off value for statistical significance. We computed descriptive statistics for all variables to present their frequencies and percentages. Also, we did cross-tabulations between each of the 'patients' reaction toward students' variables and the sociodemographic variables. For age, we did a stratified cross-tabulation. This was done by cross-tabulating the age of pediatrics patients with our outcome variables separately from the age of patients of other specialties. Variables such as marital status, educational level and occupation of pediatrics patient were not cross-tabulated with the outcome variables because all patients in this specialty were not married, not employed, and not high school graduates.

Results

Characteristics of the participants

More than 75% (713) of the participants were either Medical or Surgical patients, while the rest were either Pediatrics or Obstetrics/Gynecological patients (Table 1). Half of the participants (466; 50%) were younger than 36 years old (mean \pm standard deviation = 36.79 \pm 19.841). The majority of them were Kuwaiti (572; 61.4%). Of the 932 patients, 498 (53.4%) were females, and 587 (63%) were married. Almost all participants were Muslims (876;

Table 1. Sociodemographic characteristics of patients in teaching hospitals; Kuwait, April 2011

Characteristic	Sub Group	
	n	%
Total	932	100
Age (years)		
< 36	466	50.0
\geq 36	466	50.0
Range	0–89	
Nationality		
Kuwaiti	572	61.4
Non Kuwaiti	359	38.6
Gender		
Male	434	46.6
Female	498	53.4
Marital status		
Married	587	63
Not married	345	37
Religion		
Muslim	876	94
Not Muslim	56	6
Educational level		
< Secondary	204	21.9
Secondary	114	12.2
High school	194	20.8
Diploma	178	19.1
\geq University	242	26.0
Occupation		
Not employed	515	55.3
Employed	417	44.7
Family monthly income		
< 1000 KD ^a	575	61.7
\geq 1000 KD	357	38.3
Specialty/Department		
Medicine	383	41.1
Surgery	330	35.4
Pediatrics	107	11.5
Obstetrics/Gynecology	112	12.0

^aKD, Kuwait Dinar.

94%). Around three-quarters (690; 74%) of the patients were non-university/college graduates, and more than half of them (515; 55.3%) were not employed. Regarding the monthly family income of the participants, 61.7% (575) had an income of less than 1000 Kuwaiti Dinars (KD) per months.

Patients' reactions toward medical students

Over 85% (801) of our participants permit both male and female students to read their medical file (Table 2). Also, around three-quarters of the patients permit both genders of medical students to present in the outpatient clinic (OPD) during their consultation (685; 73.5%), and during ward rounds if the patients were admitted in the same ward (720; 77.3%). When patients were asked about their acceptance regarding the presence of medical students in the operation theatre if their condition required a surgical intervention, 26.7% (249) of them refused both males and females students to be present, while 57.7% (538) agreed on both genders of students to be present. Regarding history taking, about 80% (742) of the participants would permit both genders of medical students to take their history with the presence of a supervising doctor; however, this acceptance dropped to 51.2% (477) when the patients were asked if they would permit the students to take their history without the presence of a supervising doctor. Although patients showed a high refusal (580; 62.2%) in allowing both genders of medical students to examine them without a supervising doctor, the majority of the patients would allow both genders of students to be present while the doctor is examining them (535; 57.4%), and to examine them with the presence of a supervising doctor (503; 54%). The same applied to observing and performing procedures, where more than half of the participants refused both genders of students to perform diagnostic/other procedures for them, but 60.9% (568) of them would allow both genders of students to observe these procedures done for them by a doctor.

The chi-square analysis showed that patient's gender, occupation and income were statistically associated (p -value <0.001, 0.04 and 0.006 respectively) with the acceptance of patients in allowing medical students to read their medical files (Table 3). Male patients were more likely to accept male students, while female patients preferred female students more. Also, it appeared that patients who allow a specific gender of students to read their medical files were not employed and had low income. Moreover, Obstetrics/Gynecology patients were more likely to accept only female students in reading their medical files (p -value <0.001).

Table 3 shows that the acceptance of patients in allowing medical students to be present during ward rounds if they were admitted in the same ward was found to be statistically associated to the patient's gender (p -value <0.001), occupation (p -value 0.004) and

Table 2. Patients' reactions toward the presence of medical students in teaching hospitals; Kuwait, April 2011 ($n = 932$)

Question	Answers			
	Only males <i>n</i> (%)	Only females <i>n</i> (%)	Both males and females <i>n</i> (%)	Neither males nor females <i>n</i> (%)
Would you permit medical students to read your medical file?	27 (2.9)	49 (5.3)	801 (85.9)	55 (5.9)
Would you permit medical students to be present in the outpatient clinic if you were having a consultation with your doctor?	45 (4.8)	100 (10.7)	685 (73.5)	102 (10.9)
Would you permit medical students to be present in the ward rounds if you were admitted in the same ward?	35 (3.8)	88 (9.4)	720 (77.3)	89 (9.5)
Would you permit medical students to be present in the operation room if you were having a surgery?	47 (5.0)	98 (10.5)	538 (57.7)	249 (26.7)
Would you permit medical students to take your medical history and personal details from you with the presence of a doctor?	22 (2.4)	51 (5.5)	742 (79.6)	117 (12.6)
Would you permit medical students to take your medical history and personal details from you without the presence of a doctor?	14 (1.5)	48 (5.2)	477 (51.2)	393 (42.2)
Would you permit medical students to be present while your doctor examining you?	50 (5.4)	129 (13.8)	535 (57.4)	218 (23.4)
Would you permit medical students to examine you with the presence of a doctor?	52 (5.6)	119 (12.8)	503 (54.0)	258 (27.7)
Would you permit medical students to examine you without the presence of a doctor?	27 (2.9)	62 (6.7)	263 (28.2)	580 (62.2)
Would you permit medical students to be present while you're having diagnostic/other procedures (e.g. drawing blood, inserting catheter, endoscopy...etc)?	43 (4.6)	108 (11.6)	568 (60.9)	213 (22.9)
Would you permit medical students to perform diagnostic/other procedures on you (e.g. drawing blood, inserting catheter, endoscopy...etc)?	31 (3.3)	78 (8.4)	315 (33.8)	508 (54.5)

specialty (p -value <0.001). Female patients preferred female students, while male patient preferred male students to present during ward. In addition, employed patients revealed higher acceptance to students compared to unemployed patients. Obstetrics/Gynecology patients preferred female students, and were more likely to refuse medical students to join ward rounds.

Regarding the acceptance of patients toward the presence of medical students in OPD (Table 4), patient's gender, marital status, occupation and specialty were found to be statistically associated (p -value <0.001 , 0.023, 0.001 and <0.001 respectively). In general, female patients appeared to have a higher refusal of students. Moreover, patients would prefer that the student attending the OPD to be of the same gender as theirs. Patients who were not married would accept students to be present in the OPD during their consultation compared to married patients. Moreover, patients who were not employed showed a higher acceptance of only female students to be present in the OPD compared to employed patients. The highest acceptance of students to be present in the OPD was found among Pediatrics patients, while the highest refusal was found among Obstetrics/Gynecology patients. Obstetrics/Gynecology patients reported

higher acceptance of only female students compared to patients from other specialties, while surgical patients reported a higher acceptance of only male students.

Both the acceptance of the patients to allow students to take their history with the presence of a doctor and without the presence of a doctor (Table 4) were found to be statistically associated to the gender of the patient (p -value <0.001 for both), where a higher refusal was noted among female patients. Acceptance of patients to allow medical students to take their history with the presence of a supervising doctor was also statistically associated to the specialty (p -value 0.014). The highest acceptance of students to take the history with a doctor was found among Pediatric patients, while the highest refusal of students was found among Obstetrics/Gynecology patients.

Table 5 demonstrates that the patients' gender was found to be significantly associated to the patients' permission of medical students to be present while the doctor is examining them, to examine them in the presence of a supervising doctor, and to examine them without the presence of a doctor (p -value <0.001). Female patients revealed a higher refusal for both genders of students compared to male patients. It was

Table 3. Patients' reactions regarding medical students reading their medical files and present during ward rounds in teaching hospitals; Kuwait, April 2011 ($n=932$)^a

Characteristic	Read file				Present during ward round			
	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females
Age (years)								
Without pediatrics patients ^b								
< 41	14 (3.2)	32 (7.3)	367 (83.2)	28 (6.3)	17 (3.9)	51 (11.6)	326 (73.9)	47 (10.7)
≥ 41	11 (2.9)	16 (4.2)	335 (87.2)	22 (5.7)	17 (4.4)	36 (9.4)	301 (78.4)	30 (7.8)
Only pediatrics patients ^c								
< 2	1 (1.8)	0 (0)	52 (92.9)	3 (5.4)	0 (0)	0 (0)	50 (89.3)	6 (10.7)
≥ 2	1 (2)	1 (2)	47 (92.2)	2 (3.9)	1 (2)	1 (2)	43 (84.3)	6 (11.8)
Nationality								
Kuwaiti	17 (3)	27 (4.7)	491 (85.8)	37 (6.5)	26 (4.5)	45 (7.9)	441 (77.1)	60 (10.5)
Non Kuwaiti	10 (2.8)	22 (6.1)	310 (86.1)	18 (5)	9 (2.5)	43 (11.9)	279 (77.5)	29 (8.1)
Gender								
Male	22 (5.1)	3 (0.7)	383 (88.2)	26 (6)	32 (7.4)	5 (1.2)	365 (84.1)	32 (7.4)
Female	5 (1)	46 (9.2)	418 (83.9)	29 (5.8)	3 (0.6)	83 (16.7)	355 (71.3)	57 (11.4)
Marital status^d								
Married	14 (2.4)	36 (6.1)	507 (86.4)	30 (5.1)	24 (4.1)	69 (11.8)	438 (74.6)	56 (9.5)
Not married	11 (4.6)	12 (5)	195 (81.9)	20 (8.4)	10 (4.2)	18 (7.6)	189 (79.4)	21 (8.8)
Religion								
Muslim	27 (3.1)	49 (5.6)	748 (85.4)	52 (5.9)	35 (4)	84 (9.6)	669 (76.4)	88 (10)
Not Muslim	0 (0)	0 (0)	53 (94.6)	3 (5.4)	0 (0)	4 (7.1)	51 (91.1)	1 (1.8)
Educational level^d								
≤ Secondary	9 (4.3)	12 (5.7)	175 (82.9)	15 (7.1)	7 (3.3)	20 (9.5)	168 (79.6)	16 (7.6)
High school	10 (5.2)	14 (7.2)	153 (78.9)	17 (8.8)	11 (5.7)	18 (9.3)	143 (73.7)	22 (11.3)
Diploma	3 (1.7)	7 (3.9)	162 (91)	6 (3.4)	11 (6.2)	19 (10.7)	135 (75.8)	13 (7.3)
≥ University	3 (1.2)	15 (6.2)	212 (87.6)	12 (5)	5 (2.1)	30 (12.4)	181 (74.8)	26 (10.7)
Occupation^d								
Not employed	14 (3.4)	33 (8.1)	336 (82.4)	25 (6.1)	17 (4.2)	59 (14.5)	296 (72.5)	36 (8.8)
Employed	11 (2.6)	15 (3.6)	366 (87.8)	25 (6)	17 (4.1)	28 (6.7)	331 (79.4)	41 (9.8)
Family monthly income								
< 1000 KD	21 (3.7)	39 (6.8)	483 (84)	32 (5.6)	20 (3.5)	61 (10.6)	443 (77)	51 (8.9)
≥ 1000 KD	6 (1.7)	10 (2.8)	318 (89.1)	23 (6.4)	15 (4.2)	27 (7.6)	277 (77.6)	38 (10.6)

Table 3 (Continued)

Characteristic	Read file				Present during ward round			
	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females
Specialty/Department								
Medicine	12 (3.1)	20 (5.2)	324 (84.6)	27 (7)	15 (3.9)	29 (7.6)	305 (79.6)	34 (8.9)
Surgery	13 (3.9)	12 (3.6)	287 (87)	18 (5.5)	19 (5.8)	34 (10.3)	253 (76.7)	24 (7.3)
Pediatrics	2 (1.9)	1 (0.9)	99 (92.5)	5 (4.7)	1 (0.9)	1 (0.9)	93 (86.9)	12 (11.2)
Obstetrics/Gynecology	0 (0)	16 (14.3)	91 (81.3)	5 (4.5)	0 (0)	24 (21.4)	69 (61.6)	19 (17)

^aSignificant *p*-values are discussed in the text.

^bThe total number of patients without Pediatrics patients is 825.

^cThe total number of Pediatrics patients is 107.

^dThe association of these variables was tested without including Pediatrics patients.

also noted that patients' acceptance was higher for students of similar gender to theirs. The refusal was very high for situations where students examine the patients without the presence of a supervising doctor. Furthermore, a higher refusal was found among Obstetrics/Gynecological patients in accepting medical students to present during their examination by a doctor, examine them with the presence of a supervising doctor and without a supervising doctor compared to patients of other specialties (*p*-value <0.001). Obstetrics/Gynecology patients also had a higher acceptance of female students, while surgical patients had a higher acceptance of male students. Regarding the same patient-student interaction scenarios, a higher acceptance of only female students was found in patients who were not employed (*p*-value 0.031). In addition, Kuwaiti and Muslim patients appeared to have a higher refusal to be examined by both genders of student with the presence of a doctor compared to non-Kuwaiti and non-Muslim patients (*p*-value 0.015 and 0.044 respectively).

Our statistical analysis (Table 6) showed that the patients' gender, occupation and specialty were significantly associated to the patients' permission of medical students to observe procedures done on them, perform procedures on them and being present in the operation theatre if their condition required a surgical intervention. Similar to other outcomes, a higher percentage of female patients refused both genders of student to observe or perform procedures on them, and to present in the operation theatre compared to male patients (*p*-value <0.001). Also, a higher percentage of female patients would permit only female students to do so, while a higher percentage of male patients would permit only male students. It was also noted that a higher percentage of patients who were not employed would permit only female students to observe procedures (*p*-value 0.001) or perform procedure on them (*p*-value <0.001) and present in operation theatre (*p*-value 0.017). Moreover, a higher percentage of Obstetrics/Gynecology patients would refuse both genders of students, and accept more female students to observe procedures done for them, perform procedures on them and to be present in the operation theatre during their surgeries (*p*-value <0.001, 0.006 and <0.001 respectively). The age of patients in specialties other than Pediatrics found to be statistically associated to the allowance of medical students to be present in operation theatre (*p*-value 0.021).

When asked about whom is treating them in teaching hospitals, 14.7% (137) of the patients thought that medical students were treating them, while 85.3% (795) thought that the doctors were doing so. Moreover, about two-thirds (616; 66.1%) of the participants preferred to receive their treatment in teaching hospitals more than non-teaching hospitals. A minority (73; 7.8%) of our participants believed that the presence of medical

Table 4. Patients' reactions regarding medical students presenting in outpatient clinics (OPD) and taking history with and without the presence of a supervising doctor in teaching hospitals; Kuwait, April 2011 ($n = 932$)^a

Characteristic	Present in OPD				Take history with doctor				Take history without doctor			
	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females
Age (years)												
Without pediatrics patients ^b												
< 41	25 (5.7)	59 (13.4)	301 (68.3)	56 (12.7)	13 (2.9)	29 (6.6)	329 (74.6)	70 (15.9)	5 (1.1)	32 (7.3)	205 (46.5)	199 (45.1)
≥ 41	17 (4.4)	38 (9.9)	294 (76.6)	35 (9.1)	8 (2.1)	21 (5.5)	322 (83.9)	33 (8.6)	8 (2.1)	14 (3.6)	214 (55.7)	148 (38.5)
Only pediatrics patients ^c												
< 2	1 (1.8)	3 (5.4)	47 (83.9)	5 (8.9)	0 (0)	0 (0)	50 (89.3)	6 (10.7)	0 (0)	0 (0)	26 (46.4)	30 (53.6)
≥ 2	2 (3.9)	0 (0)	43 (84.3)	6 (11.8)	1 (2)	1 (2)	41 (80.4)	8 (15.7)	1 (2)	2 (3.9)	32 (62.7)	16 (31.4)
Nationality												
Kuwaiti	30 (5.2)	54 (9.4)	424 (74.1)	64 (11.2)	12 (2.1)	25 (4.4)	458 (80.1)	77 (13.5)	8 (1.4)	25 (4.4)	284 (49.7)	255 (44.6)
Non Kuwaiti	15 (4.2)	46 (12.8)	261 (72.5)	38 (10.6)	10 (2.8)	26 (7.2)	284 (78.9)	40 (11.1)	6 (1.7)	23 (6.4)	193 (53.6)	138 (38.3)
Gender												
Male	40 (9.2)	11 (2.5)	348 (80.2)	35 (8.1)	20 (4.6)	8 (1.8)	355 (81.8)	51 (11.8)	13 (3)	3 (0.7)	243 (56)	175 (40.3)
Female	5 (1)	89 (17.9)	337 (67.7)	67 (13.5)	2 (0.4)	43 (8.6)	387 (77.7)	66 (13.3)	1 (0.2)	45 (9)	234 (47)	218 (43.8)
Marital status ^d												
Married	27 (4.6)	81 (13.8)	412 (70.2)	67 (11.4)	12 (2)	39 (6.6)	466 (79.4)	70 (11.9)	9 (1.5)	33 (5.6)	293 (49.9)	252 (42.9)
Not married	15 (6.3)	16 (6.7)	183 (76.9)	24 (10.1)	9 (3.8)	11 (4.6)	185 (77.7)	33 (13.9)	4 (1.7)	13 (5.5)	126 (52.9)	95 (39.9)
Religion												
Muslim	44 (5)	96 (11)	638 (72.8)	98 (11.2)	22 (2.5)	49 (5.6)	693 (79.1)	112 (12.8)	14 (1.6)	48 (5.5)	448 (51.1)	366 (41.8)
Not Muslim	1 (1.8)	4 (7.1)	47 (83.9)	4 (7.1)	0 (0)	2 (3.6)	49 (87.5)	5 (8.9)	0 (0)	0 (0)	29 (51.8)	27 (48.2)
Educational level ^d												
≤ Secondary	8 (3.8)	22 (10.4)	162 (76.8)	19 (9)	2 (0.9)	16 (7.6)	170 (80.6)	23 (10.9)	4 (1.9)	12 (5.7)	125 (59.2)	70 (33.2)
High school	16 (8.2)	23 (11.9)	132 (68)	23 (11.9)	13 (6.7)	12 (6.2)	142 (73.2)	27 (13.9)	6 (3.1)	11 (5.7)	98 (50.5)	79 (40.7)
Diploma	11 (6.2)	17 (9.6)	133 (74.7)	17 (9.6)	4 (2.2)	10 (5.6)	140 (78.7)	24 (13.5)	1 (0.6)	9 (5.1)	86 (48.3)	82 (46.1)
≥ University	7 (2.9)	35 (14.5)	168 (69.4)	32 (13.2)	2 (0.8)	12 (5)	199 (82.2)	29 (12)	2 (0.8)	14 (5.8)	110 (45.5)	116 (47.9)
Occupation ^d												
Not employed	17 (4.2)	66 (16.2)	284 (69.6)	41 (10)	9 (2.2)	34 (8.3)	313 (76.7)	52 (12.7)	6 (1.5)	32 (7.8)	211 (51.7)	159 (39)
Employed	25 (6)	31 (7.4)	311 (74.6)	50 (12)	12 (2.9)	16 (3.8)	338 (81.1)	51 (12.2)	7 (1.7)	14 (3.4)	208 (49.9)	188 (45.1)
Family monthly income												
< 1000 KD	28 (4.9)	72 (12.5)	407 (70.8)	68 (11.8)	16 (2.8)	37 (6.4)	446 (77.6)	76 (13.2)	10 (1.7)	34 (5.9)	293 (51)	238 (41.4)

Table 4 (Continued)

Characteristic	Present in OPD				Take history with doctor				Take history without doctor							
	Only		Neither males & nor females		Only		Both males & females		Neither males nor females		Only		Both males & females		Neither males nor females	
	males	females	males	females	males	females	males	females	males	females	males	females	males	females	males	females
≥ 1000 KD	17 (4.8)	28 (7.8)	278 (77.9)	34 (9.5)	6 (1.7)	14 (3.9)	296 (82.9)	41 (11.5)	4 (1.1)	14 (3.9)	184 (51.5)	155 (43.4)				
Specialty/Department																
Medicine	18 (4.7)	37 (9.7)	288 (75.2)	40 (10.4)	10 (2.6)	27 (7)	299 (78.1)	47 (12.3)	6 (1.6)	20 (5.2)	207 (54)	150 (39.2)				
Surgery	24 (7.3)	33 (10)	243 (73.6)	30 (9.1)	11 (3.3)	15 (4.5)	271 (82.1)	33 (10)	7 (2.1)	17 (5.2)	168 (50.9)	138 (41.8)				
Pediatrics	3 (2.8)	3 (2.8)	90 (84.1)	11 (10.3)	1 (0.9)	1 (0.9)	91 (85)	14 (13.1)	1 (0.9)	2 (1.9)	58 (54.2)	46 (43)				
Obstetrics/ Gynecology	0 (0)	27 (24.1)	64 (57.1)	21 (18.8)	0 (0)	8 (7.1)	81 (72.3)	23 (20.5)	0 (0)	9 (8)	44 (39.3)	59 (52.7)				

^aSignificant p-values are discussed in the text.

^bThe total number of patients without Pediatrics patients is 825.

^cThe total number of Pediatrics patients is 107.

^dThe association of these variables was tested without including Pediatrics patients.

students in hospitals worsen the quality of health care, while the majority (436; 46.8%) believed that it improves the quality of health care. The rest of the patients (423; 45.4%) believed that the quality of health care was not affected by the presence of medical students in hospitals.

Discussion and conclusions

Patients' acceptance regarding the involvement of medical students in hospitals was found to vary in different aspects. The majority of our participants would allow medical students to read their medical file, present during ward rounds, and present in the OPD during their consultations. This high allowance might be due to the minimal direct contact between the patient and the student, and minimal involvement of students in providing medical care. This was also shown in previous studies where the majority of patients would accept students to be present during their consultations (4, 5, 8). Moreover, it was demonstrated in previous studies that patients learn more about their condition when the doctor teaches the students (13).

A minority of our participants would refuse students to take their medical history with the presence of a supervising doctor; however, this refusal reported to be very high (i.e., almost half of the participants) when the patients were asked if they would permit medical students to take their history without a doctor. A possible reason for this increase in refusal is that patients might had a low confidence in medical students skills in gathering a complete medical history that could help in reaching the diagnosis. Also, the patients might have thought that it would be a waste of their time to give their history to students when it was already given to doctors. Another possible reason, which was demonstrated in previous studies, is that a large number of patients do not like to discuss sexual issues and personal matters with medical students (12, 14, 15).

While being examined by their treating doctors, a large number of patients in our study would refuse to be observed by medical students. This refusal slightly increased when we asked the patients to allow students to examine them with the presence of a supervising doctor; however, this refusal increased dramatically (i.e., more than half of the participants refused) when patients were asked to allow students to examine them without the presence of a doctor. Our findings were similar to what was found by Monnickendam et al. (5), where only 7.2% of their participants refused to be examined by a students with the presence of a doctor, and 33.6% of their participants refused to be examined by a student alone. This high refusal could be due to the belief that medical students would harm the patients, and would not do a proper examination that detects findings without supervision. In addition, some of those who refused might had sexual problems (e.g., Obstetrics/Gynecological

Table 5. Patients' reactions regarding medical students observing the doctor examining them and examining them with and without the presence of a doctor in teaching hospitals; Kuwait, April 2011 ($n = 932$)^a

Characteristic	Present during examination				Examine with doctor				Examine without doctor			
	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females
Age (years)												
Without pediatrics patients ^b												
< 41	26 (5.9)	69 (15.6)	227 (51.5)	119 (27)	25 (5.7)	66 (15)	209 (47.4)	141 (32)	13 (2.9)	35 (7.9)	96 (21.8)	297 (67.3)
≥ 41	22 (5.7)	54 (14.1)	235 (61.2)	73 (19)	25 (6.5)	47 (12.2)	227 (59.1)	85 (22.1)	13 (3.4)	25 (6.5)	123 (32)	223 (58.1)
Only pediatrics patients ^c												
< 2	1 (1.8)	2 (3.6)	39 (69.6)	14 (25)	0 (0)	2 (3.6)	34 (60.7)	20 (35.7)	0 (0)	0 (0)	20 (35.7)	36 (64.3)
≥ 2	1 (2)	4 (7.8)	34 (66.7)	12 (23.5)	2 (3.9)	4 (7.8)	33 (64.7)	12 (23.5)	1 (2)	2 (3.9)	24 (47.1)	24 (47.1)
Nationality												
Kuwaiti	34 (5.9)	73 (12.8)	318 (55.6)	147 (25.7)	38 (6.6)	63 (11)	299 (52.3)	172 (30.1)	16 (2.8)	39 (6.8)	145 (25.3)	372 (65)
Non Kuwaiti	16 (4.4)	56 (15.6)	217 (60.3)	71 (19.7)	14 (3.9)	56 (15.6)	204 (56.7)	86 (23.9)	11 (3.1)	23 (6.4)	118 (32.8)	208 (57.8)
Gender												
Male	50 (11.5)	4 (0.9)	315 (72.6)	65 (15)	50 (11.5)	5 (1.2)	292 (67.3)	87 (20)	27 (6.2)	4 (0.9)	155 (35.7)	248 (57.1)
Female	0 (0)	125 (25.1)	220 (44.2)	153 (30.7)	2 (0.4)	114 (22.9)	211 (42.4)	171 (34.3)	0 (0)	58 (11.6)	108 (21.7)	332 (66.7)
Marital status ^d												
Married	34 (5.8)	98 (16.7)	313 (53.3)	142 (24.2)	36 (6.1)	90 (15.3)	298 (50.8)	163 (27.8)	17 (2.9)	45 (7.7)	145 (24.7)	380 (64.7)
Not married	14 (5.9)	25 (10.5)	149 (62.6)	50 (21)	14 (5.9)	23 (9.7)	138 (58)	63 (26.5)	9 (3.8)	15 (6.3)	74 (31.1)	140 (58.8)
Religion												
Muslim	50 (5.7)	122 (13.9)	495 (56.5)	209 (23.9)	52 (5.9)	112 (12.8)	464 (53)	248 (28.3)	27 (3.1)	60 (6.8)	246 (28.1)	543 (62)
Not Muslim	0 (0)	7 (12.5)	40 (71.4)	9 (16.1)	0 (0)	7 (12.5)	39 (69.6)	10 (17.9)	0 (0)	2 (3.6)	17 (30.4)	37 (66.1)
Educational level ^d												
≤ Secondary	6 (2.8)	30 (14.2)	135 (64)	40 (19)	7 (3.3)	28 (13.3)	124 (58.8)	52 (24.6)	3 (1.4)	17 (8.1)	74 (35.1)	117 (55.5)
High school	18 (9.3)	25 (12.9)	96 (49.5)	55 (28.4)	16 (8.2)	28 (14.4)	95 (49)	55 (28.4)	7 (3.6)	11 (5.7)	49 (25.3)	127 (65.5)
Diploma	13 (7.3)	26 (14.6)	100 (56.2)	39 (21.9)	14 (7.9)	212 (11.8)	97 (54.5)	46 (25.8)	8 (4.5)	14 (7.9)	42 (23.6)	114 (64)
≥ University	11 (4.5)	42 (17.4)	131 (54.1)	58 (24)	13 (5.4)	36 (14.9)	120 (49.6)	73 (30.2)	8 (3.3)	18 (7.4)	54 (22.3)	162 (66.9)
Occupation ^d												
Not employed	15 (3.7)	85 (20.8)	211 (51.7)	97 (23.8)	20 (4.9)	83 (20.3)	201 (49.3)	104 (25.5)	11 (2.7)	40 (9.8)	100 (24.5)	257 (63)
Employed	33 (7.9)	38 (9.1)	251 (60.2)	95 (22.8)	30 (7.2)	30 (7.2)	235 (56.4)	122 (29.3)	15 (3.6)	20 (4.8)	119 (28.5)	263 (63.1)
Family monthly income												
< 1000 KD	30 (5.2)	84 (14.6)	330 (57.4)	131 (22.8)	30 (5.2)	83 (14.4)	308 (53.6)	154 (26.8)	20 (3.5)	44 (7.7)	159 (27.7)	352 (61.2)

Table 5 (Continued)

Characteristic	Present during examination				Examine with doctor				Examine without doctor							
	Only males		Neither males nor females		Only males		Neither males nor females		Only females		Neither males nor females		Only females		Neither males nor females	
	Only males	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	
≥ 1000 KD	20 (5.6)	205 (57.4)	87 (24.4)	22 (6.2)	36 (10.1)	195 (54.6)	104 (29.1)	7 (2)	18 (5)	104 (29.1)	228 (63.9)					
Specialty/Department																
Medicine	21 (5.5)	242 (63.2)	72 (18.8)	22 (5.7)	43 (11.2)	228 (59.5)	90 (23.5)	14 (3.7)	30 (7.8)	119 (31.1)	220 (57.4)					
Surgery	27 (8.2)	190 (57.6)	71 (21.5)	27 (8.2)	35 (10.6)	181 (54.8)	87 (26.4)	12 (3.6)	19 (5.8)	89 (27)	210 (63.6)					
Pediatrics	2 (1.9)	73 (68.2)	26 (24.3)	2 (1.9)	6 (5.6)	67 (62.6)	32 (29.9)	1 (0.9)	2 (1.9)	44 (41.1)	60 (56.1)					
Obstetrics/ Gynecology	0 (0)	30 (26.8)	49 (43.8)	1 (0.9)	35 (31.3)	27 (24.1)	49 (43.8)	0 (0)	11 (9.8)	11 (9.8)	90 (80.4)					

^aSignificant p-values are discussed in the text.

^bThe total number of patients without Pediatrics patients is 825.

^cThe total number of Pediatrics patients is 107.

^dThe association of these variables was tested without including Pediatrics patients.

complaints or Urological diseases) that required examination of sensitive body areas, such as female breast and genitalia.

More than one-quarter of our participants would refuse medical students to be present in the operation theatre if their condition required a surgical intervention. It seemed that a large number of patients refuse to be exposed in front of students, and they might be afraid that students may participate in their operation leading to worse surgical outcomes.

The refusal regarding allowing medical students to observe diagnostic/other procedures done on the patients was doubled, and reached more than half of the participants, when the patients were asked if they would permit medical students to perform such procedures on them. This high refusal might have resulted because the patients had an idea that the students were not well trained to perform safe procedures, thus they might harm them. Some similar results were also found by Chipp et al. (7) and Passaperuma et al. (10).

In all aspects of patients' reactions toward medical students, female patients showed a lower acceptance of both genders of students and a higher acceptance of only female students compared to male patients, a finding that is corroborated by other studies (4, 7, 14). This is most likely because of the embarrassment to being exposed in front of students, especially male students. Similar association was found also between the occupation of the patients and the reaction toward medical students; patients who were not employed usually showed a lower acceptance of both genders of students and a higher acceptance of only female students. This is due to the fact that the majority of the participants who were not employed were females.

Similar to what was found by others, patients in different specialties showed different acceptance for students in most of our outcome variables (10, 11). Pediatrics patients and their parents reported higher acceptance compared to patients in other specialties. This could be because kids are less likely to get embarrassed when exposed in front of others, and a large number of Pediatrics patients were very young to understand what is going on around them allowing parents to be cooperative with students. On the other hand, Obstetrics/Gynecology patients showed a higher refusal to both genders of students, and a higher acceptance to only female students compared to patients in other specialties, most probably because of the embarrassment of exposing the body system (i.e., Urogenital system) involved in this specialty, and the fact that all patients of this specialty are females.

According to the previously discussed results, a proper intervention aiming to improve bedside teaching, especially in situations that most patients are unwilling to allow medical students to participate, should start in

Table 6. Patients' reactions regarding medical students observing procedures done for them, performing procedures on them and presenting in operation theatres in teaching hospitals; Kuwait, April 2011 ($n = 932$)^a

Characteristic	Observe procedures				Perform procedures				Present in operation theatre			
	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females
Age (years)												
Without pediatrics patients ^b												
< 41	17 (3.9)	62 (14.1)	248 (56.2)	114 (25.9)	12 (2.7)	46 (10.4)	146 (33.1)	237 (53.7)	21 (4.8)	55 (12.5)	227 (51.5)	138 (31.3)
≥ 41	22 (5.7)	40 (10.4)	252 (65.6)	70 (18.2)	17 (4.4)	29 (7.6)	129 (33.6)	209 (54.4)	25 (6.5)	37 (9.6)	247 (64.3)	75 (19.5)
Only pediatrics patients ^c												
< 2	2 (3.6)	4 (7.1)	32 (57.1)	18 (32.1)	0 (0)	2 (3.6)	17 (30.4)	37 (66.1)	0 (0)	4 (7.1)	31 (55.4)	21 (37.5)
≥ 2	2 (3.9)	2 (3.9)	36 (70.6)	11 (21.6)	2 (3.9)	1 (2)	23 (45.1)	25 (49)	1 (2)	2 (3.9)	33 (64.7)	15 (29.4)
Nationality												
Kuwaiti	27 (4.7)	67 (11.7)	341 (59.6)	137 (24)	18 (3.1)	50 (8.7)	184 (32.2)	320 (55.9)	30 (5.2)	57 (10)	331 (57.9)	154 (26.9)
Non Kuwaiti	16 (4.4)	41 (11.4)	227 (63.1)	76 (21.1)	13 (3.6)	28 (7.8)	131 (36.4)	188 (52.2)	17 (4.7)	41 (11.4)	207 (57.5)	95 (26.4)
Gender												
Male	43 (9.9)	4 (0.9)	312 (71.9)	75 (17.3)	31 (7.1)	6 (1.4)	169 (38.9)	228 (52.5)	42 (9.7)	7 (1.6)	290 (66.8)	95 (21.9)
Female	0 (0)	104 (20.9)	256 (51.4)	138 (27.7)	0 (0)	72 (14.5)	146 (29.3)	280 (56.2)	5 (1)	91 (18.3)	248 (49.8)	154 (30.9)
Marital status ^d												
Married	28 (4.8)	78 (13.3)	350 (59.6)	131 (22.3)	21 (3.6)	56 (9.5)	179 (30.5)	331 (56.4)	34 (5.8)	67 (11.4)	336 (57.2)	150 (25.6)
Not married	11 (4.6)	24 (10.1)	150 (63)	53 (22.3)	8 (3.4)	19 (8)	96 (40.3)	115 (48.3)	12 (5)	25 (10.5)	138 (58)	63 (26.5)
Religion												
Muslim	43 (4.9)	103 (11.8)	528 (60.3)	202 (23.1)	31 (3.5)	78 (8.9)	291 (33.2)	476 (54.3)	47 (5.4)	93 (10.6)	497 (56.7)	239 (27.3)
Not Muslim	0 (0)	5 (8.9)	40 (71.4)	11 (19.6)	0 (0)	0 (0)	24 (42.9)	32 (57.1)	0 (0)	5 (8.9)	41 (73.2)	10 (17.9)
Educational level ^d												
≤ Secondary	5 (2.4)	27 (12.8)	139 (65.9)	40 (19)	4 (1.9)	23 (10.9)	79 (37.4)	105 (49.8)	9 (4.3)	21 (10)	131 (62.1)	50 (23.7)
High school	17 (8.8)	22 (11.3)	100 (51.5)	55 (28.4)	10 (5.2)	19 (9.8)	65 (33.5)	100 (51.5)	11 (5.7)	25 (12.9)	99 (51)	59 (30.4)
Diploma	11 (6.2)	21 (11.8)	112 (62.9)	34 (19.1)	8 (4.5)	16 (9)	53 (29.8)	101 (56.7)	14 (7.9)	17 (9.6)	103 (57.9)	44 (24.7)
≥ University	6 (2.5)	32 (13.2)	149 (61.6)	55 (22.7)	7 (2.9)	17 (7)	78 (32.2)	140 (57.9)	12 (5)	29 (12)	141 (58.3)	60 (24.8)
Occupation ^d												
Not employed	17 (4.2)	67 (16.4)	225 (55.1)	99 (24.3)	9 (2.2)	54 (13.2)	130 (31.9)	215 (52.7)	20 (4.9)	59 (14.5)	221 (54.2)	108 (26.5)
Employed	22 (5.3)	35 (8.4)	275 (65.9)	85 (20.4)	20 (4.8)	21 (5)	145 (34.8)	231 (55.4)	26 (6.2)	33 (7.9)	253 (60.7)	105 (25.2)
Family monthly income												
< 1000 KD	30 (5.2)	72 (12.5)	344 (59.8)	129 (22.4)	19 (3.3)	52 (9)	201 (35)	303 (52.7)	26 (4.5)	71 (12.3)	317 (55.1)	161 (28)

Table 6 (Continued)

Characteristic	Observe procedures				Perform procedures				Present in operation theatre							
	Only males		Neither males nor females		Only males		Both males & females		Neither males nor females		Only females		Both males & females		Neither males nor females	
	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females	Only males	Only females	Both males & females	Neither males nor females
≥ 1000 KD	13 (3.6)	36 (10.1)	224 (62.7)	84 (23.5)	12 (3.4)	26 (7.3)	114 (31.9)	205 (57.4)	21 (5.9)	27 (7.6)	221 (61.9)	88 (24.6)				
Specialty/Department																
Medicine	18 (4.7)	42 (11)	245 (64)	78 (20.4)	15 (3.9)	31 (8.1)	143 (37.3)	194 (50.7)	25 (6.5)	37 (9.7)	242 (63.2)	79 (20.6)				
Surgery	21 (6.4)	37 (11.2)	212 (64.2)	60 (18.2)	14 (4.2)	30 (9.1)	108 (32.7)	178 (53.9)	21 (6.4)	33 (10)	193 (58.5)	83 (25.2)				
Pediatrics	4 (3.7)	6 (5.6)	68 (63.6)	29 (27.1)	2 (1.9)	3 (2.8)	40 (37.4)	62 (57.9)	1 (0.9)	6 (5.6)	64 (59.8)	36 (33.6)				
Obstetrics/ Gynecology	0 (0)	23 (20.5)	43 (38.4)	46 (41.1)	0 (0)	14 (12.5)	24 (21.4)	74 (66.1)	0 (0)	22 (19.6)	39 (34.8)	51 (45.5)				

^aSignificant p-values are discussed in the text.

^bThe total number of patients without Pediatrics patients is 825.

^cThe total number of Pediatrics patients is 107.

^dThe association of these variables was tested without including Pediatrics patients.

FOM, KU. Simulation and standardization would be a good option for Kuwait since KU lacks a clinical skills simulation center. Simulation appeared to provide an opportunity to learn new skills and to practice previously acquired ones (16), and to learn from mistakes in a safe, nonthreatening teaching environment (17). Also, it increases the students' self-confidence in performing clinical skills (18, 19). Moreover, the use of standardized patients in teaching clinical skills was shown to be useful in improving the performance of medical students in their clinical examinations (20).

Although Muslim women are sensitive to getting exposed in front of males, our results revealed that there was no association between the religion of the patient and the acceptability of medical students. McLean et al. (21) found that Muslim women's do not prefer to be examined by male students; however, they did not compare their participants with non-Muslim women. Our result indicates that being a female patient, either Muslim or not, by itself is enough to result in higher rejection of male students.

Surprisingly, more than 100 patients of our participants thought that medical students were responsible for treating patients in teaching hospitals. This might result from the extensive interaction between students and patients in teaching hospitals. Although a larger number of the staff of teaching hospitals are Academics (i.e., professors) compared to non-teaching hospitals, one-third of our participants preferred to be treated in non-teaching hospitals. The large involvement of medical students in the health care system of Kuwait could have resulted in this.

Almost half of the participants (436 patients) believed that the presence of medical students in hospitals improve the quality of health care, while a small minority (73 patients) believed that it would worsen the quality, and 423 believed that it would not affect the quality. This variation of beliefs is most likely because some patients thought that when students spend a lot of time to clerk a case in details, they might detect significant findings that were missed by the doctors, and doctors spend more time discussing their condition when students are present. However, other patients might have thought that doctors will spend more time teaching students than caring for their patients. Price et al. (13) found that there was no loss of quality of care, as perceived by patients, when students are present in consultations.

In conclusion, the acceptability of patients to medical students appeared to be affected by the nature of interaction between the patient and the student, the presence of a supervising doctor during this interaction, the students' and patients' gender, and the specialty the patient's in. In general, patients would prefer not to interact with students without the presence of a supervising doctor when compared to interactions with the

doctors' presence. Overall, the highest acceptability appeared to be in Pediatrics, and the lowest acceptability was in Obstetrics/Gynecology. Clinical tutors must take advantage of patients who accept medical students, especially Obstetrics/Gynecology patients who accept male students for bedside teaching, in order to improve students' learning process. Improving the communication skills of medical students and clinical tutors in an attempt to increase the chances of convincing patients in accepting students should be considered by the FOM, KU as this might improve bedside teaching in Kuwait. Also, using simulation and standardization should be considered to address scenarios that most patients are unwilling to allow students to participate.

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