

# Students' perception and experience of intimate area examination and sexual history taking during undergraduate clinical skills training:

## A study from two Saudi medical colleges

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### Abstract

This study explores the experiences of Saudi undergraduate medical students about intimate-area examination (IAE) and sexual history taking (SHT) skills and assesses the barriers and their impacts on students' learning. This survey-based study was performed at 2 Saudi university medical colleges and revealed that most of the students never performed IAE, that is, female breast, male genital, female genital, female pelvic, male rectal, and female rectal. We found that 42.3% students had never taken any sexual history during their course. Both, male and female students reported barriers of patient refusal, mismatched sex, cultural background, ethical factors, lack of supervision, lack of training, and lack of skills. Among the currently used pedagogical techniques, majority of the students were satisfied with real patient-based learning, followed by video and manikin-based learning. The study indicates that Saudi students do not have sufficient experience of IAE and SHT because of above-mentioned barriers along with religious issues. This study suggests that teachers provide positive support to students and that they develop novel, competent teaching-and-learning techniques to meet the skills training of students without compromising on religious, sociocultural, and ethical values of the kingdom.

**Abbreviations:** AAM = Abdulrahman Al-Mohaimeed, EAB = Eman Al- Bedaie, HIV = Human immunodeficiency virus, HMA = Hamza Mohammad Abdulghani, IAE = Intimate-area examination., KSU = King Saud University., LAF = Latifa Al-Fahad, MAE = Manar Al-Eid, MI = Mohammad Irshad, NAZ = Noor Al-Zahrani, PBL = problem-based learning., QU = Qassim University, SH = Shafiul Haque, SHT = sexual history taking, STD = sexually transmitted diseases, URL = uniform resource locator, USA = United States of America.

**Keywords:** clinical skills, Intimate area examination, medical students, Saudi Arabia, sexual history taking

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## 1. Introduction

Earlier studies reported that teaching and learning of physical examination (including intimate area examination) of entire human body were incorporated into the undergraduate medical curriculum to facilitate the students' learning of clinical skills.<sup>[1,2]</sup> Medical students are initially introduced to the general physical examination followed by detailed techniques of examination for all the body systems including their biological, medical, and clinical significance, backgrounds, and affected "diseased" aspects.<sup>[1,2]</sup> The acquisition of the skills to perform any physical examination, irrespective of "body system type," is difficult for the students. There is an increased barrier to the learning, if the students perceive that the physical examination does not benefit the patient directly. Additionally, a number of other factors, including sex, religion, culture, society, and ethical values, have significant impacts on proper acquisition of various clinical skills.<sup>[3,4]</sup> It becomes even more complicated and difficult in the case of intimate-area examination (IAE) and sexual-history taking (SHT), as these are more sensitive issues.<sup>[5]</sup> Previous studies reported that many medical graduates completely failed to perform any IAEs (including genital, rectal, female breast, and pelvic examinations) before graduation; also, they did not obtain sexual histories from their patients unless it was urgently needed.<sup>[1,6,7]</sup>

SHT for instance is described as an important clinical skill that formal medical school curricula have historically

neglected.<sup>[8]</sup> However, such skill deficit might not be overcome even after graduation. The deficiency in learning of IAE and SHT skills might eventually affect students' career choices.<sup>[9]</sup> Moreover, the problem continues and becomes more severe when these unskilled physicians start their actual practice of medicine; reluctance to acquire sexual information was reported in primary care settings.<sup>[8]</sup> According to a number of studies, such conditions are attributed to embarrassment for both, clinicians and patients.<sup>[6,8,10]</sup> Another study reported that general practitioners avoided taking histories because of inadequate training.<sup>[6]</sup> Nevertheless, IAE and SHT skills provide a broader scope of learning and professional development for medical students. For example, rectal examination was proved to be the first step to diagnose rectal cancer.<sup>[11–13]</sup> Likewise, male genital examination is equally important in evaluation of abnormal organ conditions such as testicular cancer or hernia.<sup>[13]</sup> Similarly, female breast examination is mandatory for the examination of any type of breast or nipple abnormalities, and to some extent, can distinguish between malignant and benign lumps.<sup>[13]</sup> Female pelvic and genital examinations are indispensable to detect the pre-term labor condition and for cervical cancer screening using "pap" smear.<sup>[13]</sup> SHT skills are essentially important even in primary healthcare settings especially for proper identification and treatment of sexually transmitted diseases (STDs).<sup>[6]</sup> Sexual history of the patient gives an opportunity to educate and counsel the patient about human immunodeficiency virus (HIV), STDs, and viral hepatitis. These "silent" diseases can go unnoticed for longer periods of time until they lead to more serious illnesses.

Various teaching techniques have been employed across the world to improve the quality of IAE and SHT skills among medical students.<sup>[14–19]</sup> Hunter et al<sup>[20]</sup> reported that manikin-based training is the most used teaching method for IAE skills. A recent meta-analysis reported on the effectiveness of different "skills" teaching methods for breast and pelvic physical examination.<sup>[21]</sup> Likewise, Siebeck et al<sup>[22]</sup> found that lectures in combination with conduct on simulated patients is the most efficient teaching method of IAE skills. Under recent developments in this direction, with the help of computer-assisted technology, a history-taking system was developed in Florida (USA) that has a role of both virtual patient and instructor.<sup>[23]</sup> Lately, the University of Chicago developed a "sexual history-taking" module, which provides the training to the students for obtaining a sexual history from each patient presenting with "sexual disease/reproduction" related symptoms.<sup>[9]</sup>

Minimal information pertaining to the IAE and SHT skills training are available from middle-east Arabian countries especially from Saudi Arabia, where the population is completely distinct from other Western, Asian, or European countries in terms of social, cultural, ethical, and religious values and beliefs that directly affect humans' day-to-day life. None of the studies, from Saudi Arabia, addressed the perception, experiences, limitations, and barriers of teaching-and-learning of skills needed for physical examinations. Given the specific barriers in Saudi Arabia to the teaching-and-learning of IAE and SHT, this study was performed to explore Saudi medical students' experiences of learning of IAE and SHT skills. To the best of our knowledge, this is the first study to investigate the Saudi medical students' perceptions and experiences about IAE and SHT skills' teaching-and-learning methodologies that impede or promote their clinical skills learning.

## 2. Methods

### 2.1. Context

Two university medical colleges in Saudi Arabia conducted this study. King Saud University's (KSU) College of Medicine follows a system-based integrated curriculum for its 6-year graduate medicine degree program. The first 2 years of their medical curriculum includes integrated basic sciences courses and remaining 3-year curriculum is focused on clinical courses, which are provided by various specialized clinical departments of the college. The last year is the internship devoted for clinical practice in the major specialties and students' selected elective rotations. Another participant, that is, Qassim University (QU), College of Medicine, follows problem-based and student-centered medical curriculum featuring hybrid PBL methodology, which is both vertically and horizontally integrated and community-oriented, and utilizes the spiral approach. Its 6-year medical program comprises subjects of basic and clinical sciences. The first 3 years of the curriculum are devoted to an integrated basic medical science subjects and clinical skills training, the following 2 years are focused for clinical rotations, and the final last year is a rigorous on-duty internship.

### 2.2. Participants and study design

A quantitative and observational cross-sectional survey-based study was conducted at the College of Medicine, KSU and the College of Medicine, QU, Saudi Arabia, at the end of the academic year 2014–2015. The participants were final-year undergraduate male and female medical students enrolled at the aforementioned medical colleges.

### 2.3. Data collection

An online self-administered questionnaire (Supplementary Information: APPENDIX I, <http://links.lww.com/MD/B160>) was designed by using URL link <http://www.surveymonkey.com>, and was sent to all the final-year medical students via email. Also, paper-based questionnaires were given to a limited number of students who failed to fill the online survey to avoid data duplication.

The questionnaire was developed based on a scientific literature review. Initially, it was pilot tested on 10 students and changes in the response format were done according to the feedback of the pilot sample. Also, the questionnaire was reviewed and the quality of the included questions was verified by some faculty members. The questionnaire was divided into 4 main sections. The first section of the questionnaire contained a participation agreement and questions related to the demographic information of the participant. The second section was dealing with questions related to students' experience about the clinical skills training, for example, the number of IAEs and SHT performed during the clinical training (i.e., third, fourth, and fifth year of medical degree curriculum). The third section was focused on questions that assessed the barriers that affect the IAE and SHT skills learning and the fourth section addressed students' opinion about current teaching methodologies of IAE and SHT learning and suggestions for improvement or introduction of novel teaching approaches.

### 2.4. Statistical analysis

These data were collected from SurveyMonkey.com and paper-print based questionnaires were tabulated using Microsoft Excel

**Table 1****Percent of the students who performed intimate-area examinations during the clinical training by the medical colleges and by sex (n = 234).**

Clinical examinations	Participants' reply	University medical colleges			Sex		
		KSU, N = 145, n (%)	QU, N = 89, n (%)	P	Male N = 109 n (%)	Female N = 125 n (%)	P
Female breast	No	72 (49.7)	64 (71.9)	0.001	85 (78.0)	51 (40.8)	0.0001
	Yes	73 (50.3)	25 (28.1)		24 (22.0)	74 (59.2)	
Female pelvis	No	106 (73.1)	75 (84.3)	0.048	90 (82.6)	91 (72.8)	0.075
	Yes	39 (26.9)	14 (15.7)		19 (17.4)	34 (27.2)	
Male genitals	No	103 (71.0)	73 (82.0)	0.059	68 (62.4)	108 (86.4)	0.0001
	Yes	42 (29.0)	16 (18.0)		41 (37.6)	17 (13.6)	
Female genitals	No	119 (82.1)	82 (92.1)	0.030	98 (89.9)	103 (82.4)	0.106
	Yes	26 (17.9)	7 (7.9)		11 (10.1)	22 (17.6)	
Male rectum	No	121 (83.4)	78 (87.6)	0.383	87 (79.8)	112 (89.6)	0.036
	Yes	24 (16.6)	11 (12.4)		22 (20.2)	13 (10.4)	
Female rectum	No	121 (83.4)	83 (93.3)	0.028	94 (86.2)	110 (88.0)	0.668
	Yes	24 (16.6)	6 (6.7)		15 (13.8)	15 (12.0)	

KSU = King Saud University, QU = Qassim University.

2010 and analyzed by using SPSS software program (Version 22.0, SPSS Inc, Chicago, IL). Descriptive statistics was employed to measure the frequencies and Pearson ( $\chi^2$  test was used to evaluate the association between different variables under consideration. During the entire analysis, the statistical significance level was considered as  $P \leq 0.05$ .

### 2.5. Ethical approval and followed study ethics

The study was approved by the Ethical Review Committees at both of the participating university medical colleges. The participation in the questionnaire was voluntary. The objectives of the study were clearly mentioned on the first page of the questionnaire and completed the informed consent. During the study, the confidentiality and the anonymity of all the participants were maintained.

## 3. Results

In response to the survey questionnaire, 234 of 463 final-year medical graduate students enrolled in 2 major Saudi universities' (i.e., KSU and QU) medical colleges completed the questionnaire, which reflected that the response rate was 50.5%. Neither university nor the sex was different among the students who did not respond; of the 229 nonresponsive students, 139 were from KSU (51% female) and 90 were from QU (30% female). Of 234 responding Saudi medical students, 109 (46.6%) were males and 125 (53.4%) were females. Of the students, 145 students (62.0%) were from KSU and remaining 89 medical students (38.0%) were from QU. The mean age of all the participating students was 23 years.

### 3.1. Intimate-area examination

Of the total 234 participating students, a high percentage of students stated that they had never done any type of IAE during the course of their clinical skills training. For instance, 58.1% of students replied that they had never performed female breast examination during the course of their clinical training. Likewise, during the course of clinical training, 75.2% of students had never performed an examination of male genital or female genital (85.8%). The majority of the students had never examined female pelvis (75.2%), male rectum (86.6%), and female rectum (93.6%) body parts during their clinical training. The survey

results showed that a higher percentage of female students had examined female breast (59.2% vs. 22.0%;  $P=0.0001$ ), female pelvis (27.2% vs. 17.4%;  $P=0.075$ ), and female genital (17.6% vs. 10.1%;  $P=0.106$ ) in comparison with their male counterparts during their course of clinical training. Similarly, a high percentage of male students had examined male genital (37.6% vs. 13.6%;  $P=0.0001$ ) and male rectum (20.2% vs. 10.4%;  $P=0.036$ ) in comparison with female students during their clinical training. The KSU medical students reported a significantly higher proportion of examinations of the female breast (50.4% vs. 28.1%,  $P=0.001$ ), female pelvis (26.9% vs. 15.7%,  $P=0.048$ ), female genital (17.9% vs. 7.9%;  $P=0.030$ ), and female rectum (16.6% vs. 6.7%,  $P=0.028$ ) in comparison with the QU medical students (Table 1).

### 3.2. Barriers affecting the learning of intimate area examination

The details of most common barriers that affect the IAE have been given in Table 2. More than half of the male (59.8%) and female (52.2%) students reported that patients' refusal was the major barrier in IAE skills teaching/learning. This percent of patients' refusal affecting students IAE teaching/learning was somewhat similar in both of the universities, KSU (55.6%), and QU (56.5%), respectively. Other barriers of IAE skills teaching/learning reported by male and female students, respectively, were the following: lack of supervision (39.8 vs. 39.5,  $P=0.773$ ), lack of proper training (30.6% vs. 43.5%;  $P=0.111$ ), opposite sex of the patient (73.4 vs. 44.4;  $P=0.0001$ ), patients' cultural background (53.2 vs. 38.7;  $P=0.036$ ), and ethical issues (35.2 vs. 16.7;  $P=0.006$ ). There were few significant differences between KSU and QU regarding the following barriers: lack of supervision (52.1 vs. 19.3;  $P=0.0001$ ), lack of proper training (38.6% vs. 35.6%;  $P=0.580$ ), opposite sex of the patient (70.3% vs. 37.5%;  $P=0.0001$ ), and patients' cultural background (48.3 vs. 40.9;  $P=0.491$ ).

### 3.3. Sexual history-taking

Of the total participants, 99 (42.3%) students had never taken any sexual history during their clinical years. Among those 99 medical students, 57 (57.6%) were females and remaining 42 (42.4%) were males. The results showed that the percentage of students who have "never taken a sexual history during the

**Table 2****Medical student ratings of the impact of different barriers to learning of intimate-area examination skills (n=234).**

Intimate area examination barriers	Sex	No impact, n (%)	Little impact, n (%)	Strong impact, n (%)	P	University hospital	No impact, n (%)	Little impact, n (%)	Strong impact, n (%)	P
Lack of supervision	Female	19 (15.3)	56 (45.2)	49 (39.5)	0.773	KSU	18 (12.5)	51 (35.4)	75 (52.1)	0.0001
	Male	20 (18.5)	45 (41.7)	43 (39.8)		QU	21 (23.9)	50 (56.8)	17 (19.3)	
Patient's opposite sex	Female	27 (21.8)	42 (33.9)	55 (44.4)	0.0001	KSU	12 (8.3)	31 (21.4)	102 (70.3)	0.0001
	Male	9 (8.3)	20 (18.3)	80 (73.4)		QU	24 (27.3)	31 (35.2)	33 (37.5)	
Patient's refusal	Female	12 (9.8)	46 (37.7)	64 (52.5)	0.454	KSU	18 (12.5)	46 (31.9)	80 (55.6)	0.241
	Male	11 (10.3)	32 (29.9)	64 (59.8)		QU	5 (5.9)	32 (37.6)	48 (56.5)	
Negative emotions	Female	24 (19.4)	60 (48.4)	40 (32.3)	0.262	KSU	24 (16.6)	67 (46.2)	54 (37.2)	0.563
	Male	13 (11.9)	54 (49.5)	42 (38.5)		QU	13 (14.8)	47 (53.4)	28 (31.8)	
Lack of knowledge	Female	37 (29.8)	65 (52.4)	22 (17.7)	0.155	KSU	57 (39.3)	60 (41.4)	28 (19.3)	0.059
	Male	45 (41.7)	45 (41.7)	18 (16.7)		QU	25 (28.7)	50 (57.5)	12 (13.8)	
Lack of training	Female	18 (14.5)	52 (41.9)	54 (43.5)	0.111	KSU	27 (18.6)	62 (42.8)	56 (38.6)	0.580
	Male	22 (20.4)	53 (49.1)	33 (30.6)		QU	13 (14.9)	43 (49.4)	31 (35.6)	
Patient's cultural background	Female	28 (22.6)	48 (38.7)	48 (38.7)	0.036	KSU	23 (15.9)	52 (35.9)	70 (48.3)	0.491
	Male	13 (11.9)	38 (34.9)	58 (53.2)		QU	18 (20.5)	34 (38.6)	36 (40.9)	
Doctor's obstruction	Female	59 (47.6)	50 (40.3)	15 (12.1)	0.786	KSU	73 (50.3)	60 (41.4)	12 (8.3)	0.121
	Male	49 (45.4)	48 (44.4)	11 (10.2)		QU	35 (40.2)	38 (43.7)	14 (16.1)	
Nurse's obstruction	Female	69 (55.6)	44 (35.5)	11 (8.9)	0.795	KSU	90 (62.1)	41 (28.3)	14 (9.7)	0.042
	Male	61 (56.5)	35 (32.4)	12 (11.1)		QU	40 (46.0)	38 (43.7)	9 (10.3)	
Ethical issues	Female	43 (35.8)	57 (47.5)	20 (16.7)	0.006	KSU	59 (41.8)	51 (36.2)	31 (22.0)	0.0001
	Male	29 (27.6)	39 (37.1)	37 (35.2)		QU	13 (15.5)	45 (53.6)	26 (31.0)	

KSU=King Saud University, QU=Qassim University.

clinical trainings" was higher for the QU undergraduate medical students (73.8%) in comparison with the KSU students (26.2%). Also, only 8.3% QU students and 39% KSU students had taken patients' sexual history  $\geq 3$  times ( $P=0.0001$ ) during their clinical training.

### 3.4. Barriers affecting the learning of sexual history-taking

The most common barriers for having taken a sexual history have been given in Table 3. Nearly half of the participating students (45.7%) responded that the patient's opposite sex had a strong impact on SHT and was the most crucial barrier during their

**Table 3****Medical student ratings of the impact of different barriers to learning of skills for taking sexual history (n=234).**

Sexual history taking barriers	University	No impact, n (%)	Little impact, n (%)	Strong impact, n (%)	P	Sex	No impact, n (%)	Little impact, n (%)	Strong impact, n (%)	P
Negative emotions toward the students	KSU	51 (35.7)	53 (37.1)	39 (27.3)	0.538	Female	32 (26.0)	51 (41.5)	40 (32.5)	0.041
	QU	25 (28.7)	37 (42.5)	25 (28.7)		Male	44 (41.1)	39 (36.4)	24 (22.4)	
Patient's refusal	KSU	48 (33.3)	58 (40.3)	38 (26.4)	0.0001	Female	24 (19.5)	53 (43.1)	46 (37.4)	0.02
	QU	14 (16.1)	28 (32.2)	45 (51.7)		Male	38 (35.2)	33 (30.6)	37 (34.3)	
Patient opposite sex	KSU	39 (27.1)	41 (28.5)	64 (44.4)	0.542	Female	31 (25.2)	36 (29.3)	56 (45.5)	0.965
	QU	18 (20.7)	26 (29.9)	43 (49.4)		Male	26 (24.1)	31 (28.7)	51 (47.2)	
Lack of training	KSU	59 (41.0)	51 (35.4)	34 (23.6)	0.01	Female	35 (28.5)	49 (39.8)	39 (31.7)	0.032
	QU	19 (21.8)	44 (50.6)	24 (27.6)		Male	43 (39.8)	46 (42.6)	19 (17.6)	
Terminology problems	KSU	78 (54.5)	41 (28.7)	24 (16.8)	0.062	Female	53 (43.1)	42 (34.1)	28 (22.8)	0.008
	QU	36 (41.4)	38 (43.7)	13 (14.9)		Male	61 (57.0)	37 (34.6)	9 (8.4)	
Patient is too young	KSU	84 (58.3)	36 (25.0)	24 (16.7)	0.032	Female	65 (52.8)	39 (31.7)	19 (15.4)	0.645
	QU	44 (50.6)	35 (40.2)	8 (9.2)		Male	63 (58.3)	32 (29.6)	13 (12.0)	
Patient is too old	KSU	67 (46.5)	45 (31.3)	32 (22.2)	0.024	Female	47 (38.2)	50 (40.7)	26 (21.1)	0.106
	QU	36 (41.4)	41 (47.1)	10 (11.5)		Male	56 (51.9)	36 (33.3)	16 (14.8)	
Patient's cultural background	KSU	40 (27.8)	60 (41.7)	44 (30.6)	0.223	Female	29 (23.6)	49 (39.8)	45 (36.6)	0.714
	QU	17 (19.5)	35 (40.2)	35 (40.2)		Male	28 (25.7)	46 (42.2)	35 (32.1)	
Lack of the evaluation	KSU	61 (42.4)	44 (30.6)	39 (27.1)	0.038	Female	36 (29.3)	45 (36.6)	42 (34.1)	0.029
	QU	23 (26.4)	38 (43.7)	26 (29.9)		Male	48 (44.4)	37 (34.3)	23 (21.3)	
Fear of being misunderstood as too sexual	KSU	60 (41.7)	48 (33.3)	36 (25.0)	0.018	Female	42 (34.1)	45 (36.6)	36 (29.3)	0.934
	QU	20 (23.3)	37 (43.0)	29 (33.7)		Male	38 (35.5)	40 (37.4)	29 (27.1)	
Fear of being misunderstood as having little experience	KSU	82 (57.3)	41 (28.7)	20 (14.0)	0.0001	Female	56 (45.5)	40 (32.5)	27 (22.0)	0.208
	QU	22 (25.3)	43 (49.4)	22 (25.3)		Male	48 (44.9)	44 (41.1)	15 (14.0)	

KSU=King Saud University, QU=Qassim University.



**Table 4****Medical student ratings of the impact of the current teaching methods on students' intimate-area examination skills (n=234).**

Modules	Variables	No impact, n (%)	Improved, n (%)	Strongly improved, n (%)	P
Manikins	KSU	11 (8.0)	63 (45.7)	64 (46.4)	0.06
	QU	16 (18.4)	35 (40.2)	36 (41.4)	
	Female	14 (11.6)	52 (43.0)	55 (45.5)	
	Male	13 (12.5)	46 (44.2)	45 (43.3)	
Real patients	KSU	12 (10.4)	33 (28.7)	70 (60.9)	0.95
	QU	8 (10.3)	24 (30.8)	46 (59.0)	
	Female	6 (5.8)	33 (32.0)	64 (62.1)	
	Male	14 (15.6)	24 (26.7)	52 (57.8)	
Theoretical	KSU	25 (17.6)	83 (58.5)	34 (23.9)	0.27
	QU	21 (23.9)	42 (47.7)	25 (28.4)	
	Female	30 (24.4)	58 (47.2)	35 (28.5)	
	Male	16 (15.0)	67 (62.6)	24 (22.4)	
Videos	KSU	10 (7.2)	50 (36.2)	78 (56.5)	0.06
	QU	9 (10.3)	43 (49.4)	35 (40.2)	
	Female	14 (11.7)	50 (41.7)	56 (46.7)	
	Male	5 (4.8)	43 (41.0)	57 (54.3)	
DxR software	KSU	116 (82.3)	16 (11.3)	9 (6.4)	0.00
	QU	18 (26.5)	31 (45.6)	19 (27.9)	
	Female	64 (57.7)	29 (26.1)	18 (16.2)	
	Male	70 (71.4)	18 (18.4)	10 (10.2)	

KSU=King Saud University, QU=Qassim University.

clinical training. Patient refusal (35.5%) was the second most common SHT barrier, followed by patient's cultural background (33.8%), lack of evaluation (27.8%), fear of being misunderstood (27.8%), and negative emotions (27.4%). Significant differences in the responses of SHT barriers between the male and the female students were recorded for negative emotions, patients' refusal, lack of training, terminology problem, and lack of evaluation ( $P=0.041$ ). Similarly, KSU and QU medical students also reported significant differences in the responses of SHT barriers, for example, patients' refusal, lack of training, patient is too young/too old, lack of evaluation, and fear of being misunderstood ( $P=0.038$ ).

### 3.5. Current teaching methods of IAE and SHT clinical skills

Various methods of teaching/learning of IAE and SHT clinical skills were reported by the students. IAE and SHT skills have been significantly improved by using manikins (44.4%), real patients (60.1%), and videos (50.2%) (Table 4). Whereas, theoretical lectures and DxR (simulated software to teach clinical skills) method of teaching and learning were reported to be less effective for acquiring the IAE and SHT skills. No significant differences in teaching methods of IAE and SHT skills training were recorded between male and female students, nor between KSU and QU students. The only difference that was seen was that the DxR method of teaching had a significant difference between the responses of KSU and QU students ( $P=0.0001$ ). More than one-third of the participating students (~37%) were unsatisfied with the current IAE teaching methods (24.3% were highly unsatisfied, 8.4% were satisfied, and the remaining students responded neutrally). With respect to the SHT teaching methods, 36.5% were unsatisfied, 20.1% were highly unsatisfied, 9.2% were satisfied, and the remaining were neutral.

### 3.6. Suggestions for novel IAE and SHT teaching methods

Participants reported the perceived applicability and effectiveness of the suggested IAE/SHT clinical skills teaching/learning

methods. Nearly, 81% of the students thought that the SHT module would be an effective method of clinical skills training. In case of IAE teaching/learning methods, peer-assisted learning and simulated patients were most frequently selected (77.6% and 77.2%, respectively) clinical skills teaching method by the students, followed by virtual patient (63.4%)-based teaching method.

## 4. Discussion

The present study explores the Saudi medical students' experiences and views of teaching-and-learning of IAE and SHT skills. Based upon the participants' responses, we found that that majority of the final-year medical students of KSU and QU had never performed IAEs during their course of clinical training. Likewise, more than one-third of the students had never taken sexual histories during their clinical training. The results indicated that the experience of female IAE was higher among the female students, whereas experience of male IAE was higher among the male students. Further, the experience of IAE among the KSU students was higher than of the QU students, possibly because the medical college of KSU is located in the capital region of the kingdom, where the resident society is more multicultural, literate and, open-minded, whereas the QU hospital is in the interior region of the kingdom, where the society is considered more conservative with lower literacy rates. These cultural differences could be potential barriers to performing and acquiring the skills for IAE and SHT. Earlier studies reported a sex bias in obstetric and gynecological examinations; generally, patients refuse the participation of males rather than females.<sup>[24,25]</sup> Similar experiences were reported in this study. In the present study, no major impact of nurses' or doctors' obstruction were reported either by male or female students during IAE in KSU and QU.

The barriers in teaching-and-learning of IAE and SHT skills reported by students were similar to our previous report, wherein we evaluated patients' attitude about the physical examination.<sup>[4]</sup> In that study, we found that half of patients refused the

participation of the medical students in their physical examination, and the refusal rate of female patients was higher in comparison to the male patients.

Patients' refusal rate for IAEs (54.7%) and for SHT (35.5%) was quite high; the male students reported higher patient refusal rate as compared to their female counterparts. These findings were congruent with previous local studies, which reported the same reasons for not performing sensitive area examinations because of patient's refusal opposite sex.<sup>[7,25]</sup> As stated earlier that higher percentage of the female students had done examination of female genitals as compared to the male students and vice versa, that is, higher percentage of the male students had done examination of male genitals in comparison with female students. The sex preferences found in this study were in line with earlier local report, wherein they reported that the high percentage of male students examined the male genitalia, whereas high percentage of female students examined the female genitalia because "patient prefers same sex" for the physical examination.<sup>[4]</sup>

Overall, the patient's opposite sex was found to have a significant impact on medical students' learning of IAE and SHT skills training and affects their experience of sex-specific examinations. It was found that opposite sex remains a social stigma in this particular cultural setting. According to the religious teachings of Islam, the Kingdom's religion, it is prohibited to look at or touch the private parts of another adult without a justified purpose, even if they are of the same sex.<sup>[26]</sup> The same rule is applied for patient's physical examination, as patient's body parts need to be exposed to the doctor. As per the Islamic teachings, when a male patient has to be examined, it is preferred to be by a male doctor unless there is no male doctor available. Similarly, the female patient has to be examined by a female doctor, especially, when it comes to the private parts of the body. These Islamic rules might explain the differences in the numbers and the types of examinations that were done by the male and the female participating medical students.<sup>[27]</sup>

However, the results are not completely influenced by the religious beliefs and more conservative society and culture. The studies from western culture also reported the similar observations, for example, male students are more comfortable to examine the male genital parts than females, whereas, females are more comfortable to examine the female breast or pelvic.<sup>[8,13,28]</sup> It was found that male students gain significantly less experience and exposure than female students in IAE clinical skills; this could result in a disparity among physicians, particularly on their future career choices, as well as disparities in the clinical care of patients.<sup>[8,13]</sup>

Another very important barrier of IAE and SHT was patient-specific barriers that include patient's cultural background and negative emotions toward the students. The students also reported other barriers of IAE and SHT, for example, the supervisor-specific barriers, which include lack of proper training and lack of evaluation, and the student-specific barriers, which include lack of knowledge, terminology problems, and experiencing negative emotions of shame, disgust, and anxiety. Earlier studies reported embarrassment for both the clinicians and the patients during the IAE.<sup>[1,8,10]</sup> Previously, it was reported that it is difficult or even inappropriate to ask questions about the sexual activity if the patient belongs to a more conservative cultural background.<sup>[29]</sup> Overall, based upon the findings of the present study and the conclusions drawn from the previous reports, the experience of IAE is not only dependent on the students and the patients' attitude, but also significantly affected by proper

training and supervision.<sup>[11,22,29,30]</sup> Earlier, Lindau et al<sup>[9]</sup> reported that the supervisors too often assume that the students have been taught even when they have not; this creates a larger gap in the learning process of such skills. Also, during the acquisition of these clinical competences, the students' learning needs to be balanced with religious and socioethical principles governing interactions with patients.<sup>[9]</sup>

Many of the barriers affecting the IAE skill acquisition by the students can be overcome by providing a proper training and evaluating the current teaching methods. In this study, most of the students agreed that videos and real patients were the most effective methods of learning the IAE clinical skills. This was also endorsed with previous finding wherein Choi et al<sup>[31]</sup> reported that the retention of audiovisual information is better than the theoretical information. According to the Saudi students, after videos and real patient-based clinical skills training, the next most effective method of IAE clinical skill was manikins because of consistent availability, potential repetitions, and the resemblance of an actual person.<sup>[20]</sup> It was promising that unanimously most of the medical students indicated that an SHT module might play an important role in enhancing the effectiveness of SHT training and would improve their SHT learning skills.<sup>[9]</sup> Peer-assisted and patient-simulated learning would be effective in IAE skills training was concluded in this study as well as in earlier international studies.<sup>[14,15,18,31-33]</sup>

#### 4.1. Limitations

The present study was based on a self-administered questionnaire with a response rate of only 50.5%, thus was limited in the representativeness of the sample. The number of participants was limited because other universities declined to participate in the study. They preferred that their students not be exposed to this "sensitive issue" at this time. Moreover, students' recall bias may have negatively affected the results. Some other pertinent factors related to "students personality" affecting IAE and SHT clinical skills learning and practice were not included in this study to avoid deviation from the focus of the study. These personality factors may include student's personal eloquence, student's talking habit, student's personal attitude, student's hesitation, and communication level, etc. The present study provides the solid background for future studies considering larger sample sizes, by including more Saudi universities, to explore this important clinical issue, as it directly affects the patients' sexual and reproductive health.

#### 5. Conclusion

We found some differences in the experiences of the participating male and female students. Male students faced greater difficulty to obtain patients' consent for intimate examinations and met with a significantly higher number of refusals than female students. We conclude that patient's opposite sex is the greatest barrier to both IAE and SHT clinical skills training. Additionally, the religious teachings play an important role in this region and context. Most of the medical students were not satisfied with the current teaching methods of IAE and SHT skills. The study suggests that an SHT module, peer-assisted learning, and patient-simulated learning would be a more effective teaching method from students' point of view. Briefly, the present study emphasized the need to create awareness among the teachers to provide the necessary support to the students during their IAE and SHT clinical skills training. The study findings suggest the

need to develop novel and competent techniques for the learning of these skills without compromising the Kingdom's religious, sociocultural, and ethical beliefs. Better techniques might produce clinicians of excellent quality who have the knowledge and training at par with clinicians of other developed western or European countries.

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