Experience and attitude of interns to pelvic and sensitive area examinations during their undergraduate medical course

Sami A. Alnassar, MD, FRCSC, *Reham A. Almuhaya,* Medical Student, *Ghadeer K. Al-Shaikh,* MD, FRCSC, *Muslim M. Alsaadi,* ABP, FCCP, *Samy A. Azer,* MD, PhD, *Arthur C. Isnani,* MD.

ABSTRACT

الأهداف: استكشاف خبرات طلاب وطالبات الامتياز في فحص المناطق الحساسة خلال فترة تعلمهم الطبي قبل التخرج، وتحديد العوامل التي تؤثر على إجراء مثل هذه الفحوصات.

الطريقة: أُجريت هذه الدراسة المقطعية خلال الفترة من مايو إلى يونيو 2010م حيث تمت دعوة طلبة الامتياز بكلية الطب بجامعة الملك سعود، الرياض، المملكة العربية السعودية. شملت الدراسة 315 طالب وطالبة من الذين طُلب منهم إكمال الاستبيان الذي تم إرساله لهم الكترونياً وعن طريق الموقع surveymonkey.com

النتائج: أشارت نتائج الدراسة إلى أن من بين 315 طالب وطالبة من طلبة الامتياز فقد قام 211 طالب وطالبة بإكمال الاستبيان منهم 60% من الطلاب و40% من الطالبات. ولقد كانت النسبة الضئيلة للطلاب والطالبات الذين لم يقوموا بأية فحوصات من هذا النوع قط 28.9% للفحص عبر فتحة الشرج، و17.5% لفحص الثديين، و43.1% لفحص الحوض للنساء، و13.3% لفحص الفتق ألإربي، و34.6% لفحص الأعضاء التناسلية الذكرية. ولقد وجدنا بأن الطلاب قد قاموا بالفحوصات التي تتم عبر الشرج أكثر من الطالبات (87 مقابل 63) ($p<0.005$) والأعضاء التناسلية الذكرية (112 مقابل 26) ($p<0.001$). من جهة أخرى نجد بان الطالبات قد قمن بالفحوصات الخاصة بالحوض للنساء أكثر من الطلاب (68 مقابل 52) ($p=0.03$) وفحوص الثديين (92 مقابل 82) ($p=0.27$). وتكمن الأسباب وراء عدم إتمام الفحوصات في رفض المرضى لهذه الفحوصات (33.1%)، وكذلك الفحص من قبل جنس آخر (27.6%). وكذلك توجد علاقة قوية بين تواتر هذه الفحوصات وثقة الطالب بقدرته على القيام بهذه الفحوصات.

خاتمة: نستخلص من هذه الدراسة أن معظم العوامل التي تؤثر على القيام بفحص المناطق الحساسة للمرضى نابعة من رفض المرضى، وفحص المريض من الجنس الآخر، وكذلك توجد علاقة قوية بين تواتر هذه الفحوصات وثقة الطالب بقدرته على القيام بهذه الفحوصات.

Objectives: To explore the experience of interns in sensitive area examination during their undergraduate medical course and identify factors interfering with such examinations.

Methods: A cross sectional study was carried out from May to June 2010. Interns (n=315) at King Saud University College of Medicine were invited via email to complete a web-based questionnaire developed using surveymonkey.com.

Results: Out of 315 interns, 211 completed the questionnaire; 60% males and 40% females. The mean percentage of interns who never performed any of these examinations was 28.9% for digital rectal examination, 17.5% for breast, 43.1% for female pelvic examination, 13.3% for inguinal (hernia), and 34.6% for male external genitalia. Compared to females, male students conducted more rectal examinations (87 versus 63, $p<0.005$), and male external genitalia examinations (112 versus 26, $p<0.001$). On the other hand, compared to male students, females conducted more pelvic examination (68 versus 52, $p=0.03$) and breast examinations (92 versus 82, $p=0.27$). The most common reasons for not performing sensitive area examinations included patient's refusal (33.1%), and examining patients of opposite gender (27.6%). Confidence in performance of these examinations was correlated to increased frequency of the examination.

Conclusion: This study highlights that most common factors interfering with the students' conducting sensitive area examinations are patient's refusal and examining patients of the opposite sex. There is a strong correlation between increased frequency of conducting an examination and student's confidence in performance.

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From the Division of Thoracic Surgery, Department of Surgery (Alnassar), and the Departments of Medical Education (Alnassar, Almuhaya, Azer, Isnani), Obstetrics and Gynecology (Al-Shaikh), Pediatrics (Alsaadi), College of Medicine, King Saud University, Riyadh, Kingdom of Saudi Arabia.

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Address correspondence and reprint request to: Dr. Sami Alnassar, Division of Thoracic Surgery, Department of Surgery (37), King Saud University, PO Box 7805, Riyadh 11427, Kingdom of Saudi Arabia. Tel. +966 (1) 4671575. Fax. +966 (1) 4679493. E-mail: snassar@ksu.edu.sa / dralnassar@hotmail.com

Sensitive area examination including digital rectal examination (DRE), breast, female pelvic, inguinal (hernia), and male external genitalia examinations are considered integral components of clinical examination. Mastering skills in clinical examination and in these examinations are important for making the correct diagnosis. For example, one-third of rectal cancers are palpable on DRE, while an abnormal prostate on DRE may have a positive predictive value for prostate cancer of up to 30%.[1-3] Also pelvic, breast, and male external genitalia examinations are important for early detection of diseases and excluding any of these examinations could result in poor outcomes, complications, or wrong diagnosis. However, these examinations are especially challenging to teach and learn.[4] First, they require patient's consent and cooperation. Second, the sensitive nature of such examinations requires special interpersonal and technical skills on the part of teachers and how to communicate effectively with the patient so that the patient feels at ease and becomes involved in the examination situation. Third, potential embarrassment of the patients,[5,6] anxiety and discomfort related to sexuality amongst novice practitioners,[7] and fourth, students need to learn how to use hands and instruments (for female pelvic examination) in a correct and safe way.[8,9] Recently concerns have been raised by medical educators and questions were raised on whether undergraduate medical students are acquiring sufficient skills in relation to sensitive area examinations. For example, a study from Australia suggested that the median number of DRE performed by final year medical students was 2, with 17% of students performing none.[10] Other studies from the United Kingdom suggested that the number of DREs performed by medical students during clinical training fell between 1990 and 2000 from a median of 11-30 to three to five.[11,12] The aim of this study was to survey interns self-reported experiences in performing DRE, breast, female pelvic, inguinal (hernia), and male external genitalia examinations during their undergraduate medical course, and identify reasons interfering with the conduction of each of these examinations. It is hoped that knowing those reasons will help in planning better learning strategies to improve medical student's skills in such examinations in the new curriculum.

Disclosure. The authors declare no conflict of interests, and the work was not supported or funded by any drug company.

Methods. This study was conducted in May and June 2010, the survey was completed by Interns just after graduation. These graduates completed a 6-year non-integrated medical program, and they represent graduates from an old curriculum. The College of Medicine established a new integrated hybrid problem-based learning curriculum in 2009/2010, and the first coherent of students enrolled in the new program are currently in their third year. The old curriculum, comprised of 2 preclinical years and 3 clinical years followed by one year of internship. In the preclinical years students studied basic biomedical sciences including: Anatomy, Histology, Physiology, Biochemistry, Microbiology, Pathology, and Immunology. In year 3, students studied Internal Medicine, General Surgery, Pharmacology, Community Medicine and Public Health, Ethics, Radiology, and Forensic Medicine. In year 4, students studied Ophthalmology, Otolaryngology, Orthopedics, Gynecology and Obstetrics. In year 5, they studied Internal Medicine, Surgery, and Pediatrics.

Teaching pelvic and sensitive area examinations. Pelvic and sensitive area examinations were learnt during their rotations in Medicine, Surgery, Obstetrics & Gynecology in years 3, 4, and 5. The teaching and learning modes used are small group discussion, student led seminars, bed-side teaching, and lectures. Part of the aims of this study were to understand challenges faced by students in a non-integrated medical curriculum (old curriculum). By identifying reasons interfering with the conduction of such examinations we could plan different strategies to improve students' clinical skills in such examinations in the new curriculum.

Participants. During May and June 2010, just after graduation, all medical interns (n=315) at King Saud University Hospitals (King Khalid Hospital, and King Abdul Aziz Hospital in Riyadh, Kingdom of Saudi Arabia), were invited via email to complete a well structured web-based questionnaire developed using surveymonkey.com.[13]

Questionnaire. The questionnaire comprised 23 questions, including demographic data (age and gender), number of times conducting DRE, breast, pelvic, inguinal, and male external genitalia examinations, as well as identifying 3 key factors interfering with the performance of each of these examinations. Also, students were asked to estimate the percentage for each of these examinations that was performed under supervision by a clinical teacher. The questionnaire was piloted before its use, and changes were made to the questionnaire on the basis of our pilot trial. Ethical approval was granted by the Institutional Review Board of the College of Medicine, King Saud University, Riyadh, Kingdom of Saudi Arabia.

Statistical analysis. Data were entered into Microsoft Excel spreadsheet and were exported to Predictive Analytic Software (PASW) version 18 (IBM-SPSS Inc, Chicago, IL). A chi-square test was used to calculate *p*-values to compare categorical variables, and independent t test was used to compare between continuous variables. A *p*-value of less than 0.05 was considered statistically significant.

Results. Two-hundred and eleven out of 315 medical interns returned the survey with a response rate of 67%, 126 (60%) were males and 85 (40%) were females. The mean percentage of interns who never performed any of these examinations was 28.9% for DRE, 17.5% for breast, 43.1% for female pelvic examination, 13.3% for inguinal (hernia), and 34.6% for male external genitalia.

Digital rectal examination. **Table 1** shows the number and percentage of males and female students who have conducted DRE. A total of 61 students never conducted such an examination, while 150 students reported conducting between 1-5 times. For the question regarding the percentage of examinations conducted under supervision, 107 (71%) students reported less than 25% were supervised; 23 (15%) students reported 25-50%; 12 (8%) students reported 50-75%, and the remaining 8 (5%) students reported more than 75% were supervised. **Figure 1** shows reasons interfering with students' conduction of DRE. The analysis shows that uneasiness in examining the opposite gender in 32% of students, followed by bothersome (31%), patient refusal (29%), and ethical issues (22%). Religious issues (3%) and nurse obstruction (0.9%) were the least 2 reasons.

Breast examination. **Table 1** shows the number and percentage of males and female students who have conducted breast examination. A total of 37 students never conducted such examination, while 174 students reported conducting it between 1-5 times. For the question regarding the percentage of examinations conducted under supervision, 84 (48%) students reported less than 25%; 34 (19%) students reported 25-50%; 34 (19%) students reported 50-75%, and the remaining 24 (13%) students reported more than 75% were supervised. **Figure 1** shows reasons interfering with students' conduction of breast examination. The analysis show that patients' refusal topped these causes with 80 (37%), followed by uneasiness in examining an opposite gender patient (24%), ethical issues (19%), and bothersome (15%). Doctor and nurse obstruction (0.9%, for each) were the least 2 reasons.

Pelvic examination. **Table 1** shows the number and percentage of males and female students who have conducted female pelvic examination. A total of 91 students never conducted such an examination, while 120 students reported conducting such an examination between 1-5 times. For the question regarding the percentage of examinations conducted under supervision, 94 (78%) students reported less than 25% were supervised; 16 (13%) students reported 25-50%; 14 (11%) students reported 50-75%, and the remaining 36 (17%) students reported more than 75% were supervised. **Figure 1** shows reasons interfering with students' conduction of pelvic examination. The analysis show that patients' refusal topped these causes with 52%, followed by incompetence to perform the examination (30%), bothersome (28%), uneasiness in examining the opposite gender (25%), and ethical issues (24%). Religious issues (8%) and nurse obstruction (5%) were the least 2 identified reasons.

Inguinal (hernia) examination. **Table 1** shows the number and percentage of male and female students who have conducted inguinal (hernia) examination. A total of 28 students never conducted such examination, while 183 students reported conducting such examination between 1-5 times. For the question regarding the percentage of examinations conducted under supervision, 55 (30%) students reported less than 25% were supervised; 57 (31%) students reported 25-50%; 34 (18%) students reported 50-75%, and the remaining 30 (14%) students reported more than 75% were supervised. **Figure 1** shows reasons interfering with students' conduction of inguinal (hernia) examination. The analysis show that uneasiness in examining the opposite gender topped the causes in 25%, followed

Table 1 - Number of pelvic and sensitive area examination performed by medical interns during their undergraduate medical course.

Exam	Number of examinations n (%)				Number conducted by interns (%)		*P*-value
	Never	1-2	3-5	>5	Males	Females	
Digital rectal exam	61 (28.9)	65 (30.8)	39 (18.5)	46 (21.8)	87 (58.0)	63 (42.0)	0.0056
Breast exam	37 (17.5)	48 (22.7)	31 (14.7)	95 (45.0)	82 (47.1)	92 (52.9)	0.2793
Pelvic exam	91 (43.1)	41 (19.4)	14 (6.6)	65 (30.8)	52 (43.3)	68 (56.7)	0.0379
Inguinal exam	28 (13.3)	62 (29.4)	41 (19.4)	80 (37.9)	122 (66.7)	61 (33.3)	<0.001
Male external genitalia	73 (34.6)	53 (25.1)	40 (18.9)	45 (21.3)	112 (82.4)	26 (17.6)	<0.001

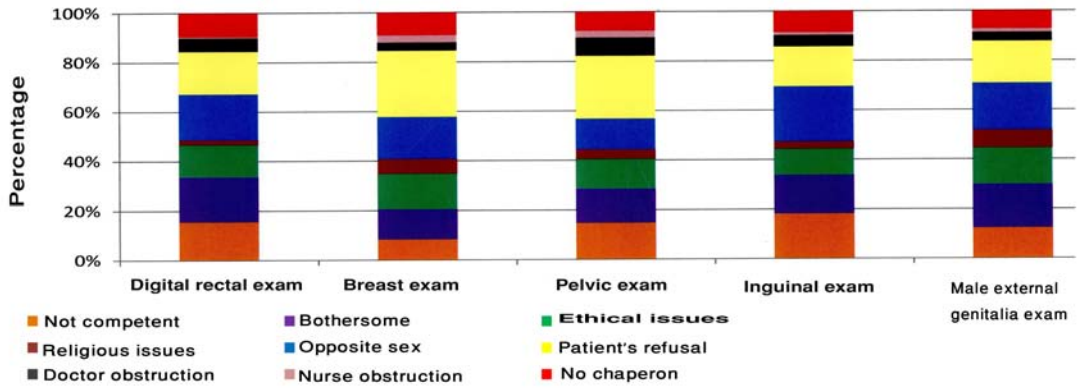

Figure 1 - Percentage of the common interfering factors identified by medical students during conduction of pelvic and sensitive area examination.

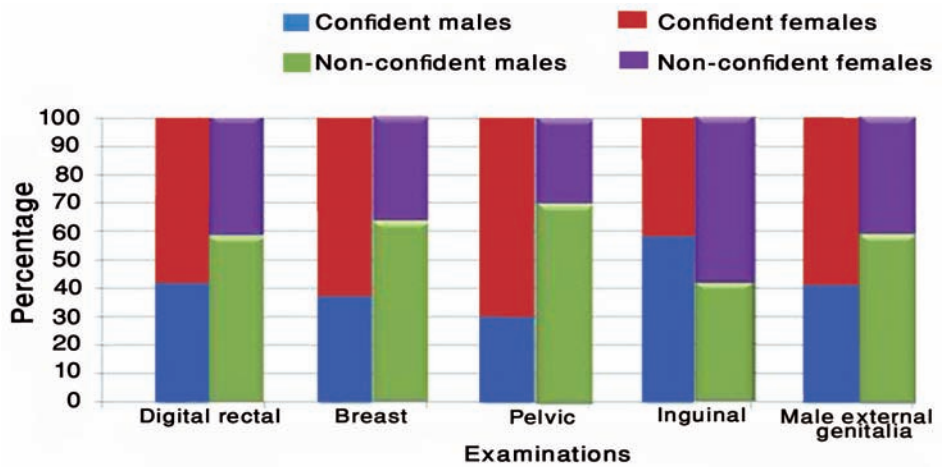

Figure 2 - Reported confidence of students conducting pelvic and sensitive area examinations during their undergraduate medical course.

by incompetence to perform the examination (20%), patient refusal (18%), and bothersome (17%). Religious issues (3%), and nurse obstruction (1%) were the least 2 identified reasons.

External male genitalia examination. Table 1 shows the number and percentage of males and female students who have conducted external male genitalia examination. A total of 73 students never conducted such examination, while 138 students reported conducting such examination between 1-5 times. For the question regarding the percentage of examinations conducted under supervision, 89 (64%) students reported less than 25% were supervised; 34 (24%) students reported 25-50%; 19 (13%) students reported 50-75%, and the remaining 20 (14%) students reported more than 75% were supervised. **Figure 1** shows reasons interfering with students' conduction of inguinal (hernia) examination. The analysis shows that uneasiness in examining the opposite gender topped the causes in 30%, followed by bothersome (28%), patient refusal (27%), and ethical issues (23%). Doctor and nurse obstruction (5%, and 2%) were the least 2 identified reasons.

Student's gender and type of examination conducted. Compared to females, male students conducted more rectal examinations (87 versus 63, $p<0.005$), inguinal (hernia) examinations (122 versus 61, $p<0.001$), and male external genitalia examinations (112 versus 26, $p<0.001$). On the other hand, compared to male students, females conducted more pelvic examinations (68 versus 52, $p=0.03$), and breast examination, (92 versus 82, $p=0.27$).

Student's gender and reported confidence. **Figure 2** shows the number of students reported that they are confident or unconfident on conducting each of these examinations on the basis of student gender. Confidence in performance of sensitive area examination was correlated to increased number of times conducting breast examination (r=0.817, t=26.7, 95% CI=0.74-

0.86, $p<0.001$), pelvic examination (r=0.526, t=10.5, 95% CI=0.31-0.46, $p<0.0001$), inguinal hernia examinations (r=0.474, t=19.5, 9% CI=0.61-0.75, $p<0.0001$), rectal examinations (r=0.386, t=13.7, 95% CI=0.4-0.54, $p<0.0001$), and male external genital examination (r=0.292, t=12.9, 95% CI=0.41-0.56, $p=0.007$).

Discussion. This study demonstrates that there is less exposure to breast and female pelvic examination among male students, and to inguinal and male external genitalia examinations among females. Approximately 42% of students never performed any sensitive area related examinations during their undergraduate course (43.1 for DRE, 32.7% for breast, 28.9% for inguinal (hernia), 48.8% for male external genitalia, and 57% for female pelvic examination). Analyses for the causes interfering with such examinations were; patient refusal (32.8%) and examination of opposite gender (27.3%). Other reasons were feeling not competent enough to conduct the examination, ethical issues, bothersome, and a lack of a companion during the examination.

The patient's refusal for students to conduct such examinations have been reported by other researchers and it may be related to embarrassment of patients,[5,6] anxiety and discomfort related to sexuality amongst novice practitioners,[7] patient is not feeling well, or the inability of the student to communicate effectively with the patient and build a rapport before asking for the conduction of such examinations. With these possibilities in mind medical students and interns should be taught in training workshops how to communicate effectively with patients, obtain an informed consent and explain the steps of clinical examinations and why an examination is needed. They should also be aware how important to have a nurse with them during such discussion and during examination. Other causes reported in this study such as religious issues, nurse obstruction, or doctor obstruction were the least common causes identified by students. This study highlighted the role of the teacher's supervision in enhancing students' performance and the number of examinations conducted by students. It also showed that the confidence of students in conducting a particular sensitive area examination was affected by student's gender. However, the confidence in performance sensitive area examinations were correlated to increased number of times of conducting such examinations. These results are consistent with those reported by other researchers.[8,14] The explanation for such findings could be explained on the basis that students' who have practiced more are more likely to be able to communicate effectively and gain their confidence and examine more patients, the repeated practice of such examinations with patients releases students' anxiety and make them more comfortable with the situation. The differences between the male and female students in regard to conducting less certain sensitive area examinations based on their gender is interesting and should be further evaluated for solutions. This is particularly important as we introduce the new integrated medical curriculum and broaden the teaching and learning modes to be used in the new curriculum. A number of approaches for example has been used to facilitate the teaching of female pelvic examination and overcome these challenges.[5,15] Some studies reported patient involvement in the teaching and assessment of sensitive area examination. However, such a solution has its limitations as the influences of sexuality and anxiety related to such examinations are explored to the same extent, but the psychological impact on learners and patients is not resolved.[16] Also such a solution is not possible in all cultures and it is difficult to adopt in some countries. Based on these study results, in our new curriculum, we have introduced sessions for third year students in the reproduction block using a combination of simulation (e.g., manikins for examination) and clinical skills[17] together with standardised patient (for communication and rapport) to mimic the real practice of such sensitive area examinations. We plan to expand on the use of the clinical skills lab in the obstetrics/gynecology, clinical medicine, and general surgery rotations in the clinical years. Such an approach is an area for our future research.[17] The aim is to evaluate and assess the impact of using manikins and the clinical skills lab on student's learning of pelvic and sensitive area examinations during the clinical years. We are aware of the limitations of this study including small sample size and the fact that the study is limited to one institute only; hence the findings cannot be generalized.

In conclusion, this study highlights that the most common factors interfering with the students' conducting sensitive area examinations are patient's refusal and examining patient of the opposite gender. There is a strong correlation between increased frequency of conducting an examination and student's confidence in performance.

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Illustrations, Figures, Photographs

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