

LEARNING THE PELVIC EXAMINATION BY CLERKSHIP MEDICAL STUDENTS: EVALUATING SKILLS BY STANDARDIZED PATIENT MODEL

Saadia Sultana, Muhammad Nadim Akbar khan, Shumaila Sharif, Noor-Mah Khan*, Shamsun Nisa Sadia

Riphah International University Islamabad Pakistan, *Aga Khan University Karachi Pakistan

ABSTRACT

Objective: To compare the effectiveness of training of pelvic examination (PE) of medical students on standardized patients (SPs) with the training on regular patients (RPs) during clinical rotations.

Study Design: A prospective controlled study.

Place and Duration of Study: Obs/Gynae Unit I and II, Pakistan Railway Teaching Hospital, Islamic International Medical College – Rawalpindi; from April 1st, 2013 to December 31st, 2013.

Patients and Methods: The fifth year MBBS students, doing their clerkship in Obs/Gynae department were included in the study through simple random sampling (probabilistic sampling). Sixty seven medical students participated in the study. Group I comprised of 35 students who were trained on RPs. However 3 students of this group did not appear for assessment by OSCE so finally 32 students were left for OSCE assessment and data collection. Group II comprised of 35 students who were trained on SPs. After the completion of training, PE skills of both the groups were assessed through OSCE. The average assessment scores, technical skill scores, and communication skill scores of both the groups were calculated and standard deviation was obtained. After applying t-test, *p*-value was calculated. *p*-value less than 0.05 was considered to be statistically significant.

Results: The OSCE based average assessment scores of combined modular examination of Group I and Group II was 6.0 and 7.7 respectively. The *p*-value was <0.001, which was statistically significant. Similarly the average assessment score for group I and II for Technical skills in combined modular examination was 6.0 and 7.75 respectively. The average assessment scores of group I and II for communication skills was 6.25 and 8.0 respectively. Statistically significant *p*-value of <0.001 was calculated. It was significantly found that the students trained on SPs were more competent in technical as well as communication skills of pelvic examination as compared with the students trained on RPs.

Conclusion: To conclude, SPs are a much more useful and efficient alternative to RPs for the clinical training of medical students of PE.

Keywords: Objective structured clinical examination, Pelvic examination, Standardized patients.

INTRODUCTION

The practice of teaching pelvic examination (PE) to medical students in a clinical setting is ethically complex and controversial. This lack of practical educational opportunities is due to the patients' strong hesitance to allow medical students to perform PE. In their opinion, these students are not professional enough to examine sensitive regions of their body. Moreover, the patients may believe that their privacy is being strongly compromised. Due to this hindrance the practical education of PE is

usually acquired only through textbook material, audiovisual sources, lectures and mannequins with hardly any experience of handling actual patients. However, these traditional methods of training are not sufficiently effective as they do not provide the vital context-based learning environment. Therefore, practical PE training is important for medical students to obtain not only optimum clinical skills but also the fundamental, decision making power, crisis handling techniques, communication skills and ability to overcome socio-ethical challenges¹.

Keeping in view the discomfort of the patients and the anxiety faced by the novice learners; effective and comfortable alternative for such examinations' trainings is obtained by using standardized patients (SPs). By definition By definition; "SPs are people trained to portray

Correspondence: Dr Muhammad Nadim Akbar Khan, H no 609, Road-D, Phase-5, Bahria Town, Rawalpindi, Pakistan

Email: nadeem.akbar@riphah.edu.pk

Received: 27 Jan 2014; received revised: 22 Jan 2015; accepted: 13 April 2015

a clinical scenario in a standardized way to make the learning challenge identical for every learner. They may be used for instructional or assessment purposes". Medical students can learn/ the clinical skills very effectively by the use of SPs. SPs are healthy people/ routine patients who are trained to realistically act/ behave as a patient. These people/ patients are provided with careful training and are able to reproduce required symptoms, provide relevant history, and show emotional responses in accordance with the structured clinical scenario². Many researchers across the globe have strongly recommended this method of teaching. In 1970s, Kretzschmar et al described the gynecology teaching associate (GTA) program using SPs as a new method of teaching PE skills to undergraduate students¹⁻². Another study published in 2010 in a Scandinavian journal has concluded that SPs are not only a more convenient and ethically uncontroversial but also a much more effective and comprehensive way of teaching PE skills to medical students as compared to the using routine patients (RPs)⁴. A study conducted by Virginia Commonwealth University, USA has also recommended the use of SPs for training PE as a much better alternative to that on RPs⁴. SPs are also capable to provide clinically meaningful evaluation scores as far as sympathy/empathy (communication skills) ratings are concerned. It could be useful for formative as well as summative learning/assessments⁴. The training of SPs should be persistently observed during the assessments to make sure that the students' scores are a true reflection of their ability and without exam errors⁴.

Various studies carried out across the world have recommended practical training over mere theoretical knowledge as a source of effective medical education. A similar study published in 2010 also recommended the use of practical training sessions which allow the students to work more independently and obtain a comprehensive medical training under supervision of the teacher⁴. In a study conducted in New Jersey USA, medical students were randomized to receive PE training either by a gynecological teaching

associate (GTA) alone or a SP accompanied by an obstetrics and gynecology faculty member. They concluded that faculty time and effort need not be utilized for pelvic exam training exercises, since using GTAs for pelvic exam training produces comparable results³.

However, no such research regarding the aforementioned issue has been formally carried out in our region, till now. Hence we initiated our study of comparing the effectiveness of training PE skills to medical students on SPs with that of using RPs in order to deduce how vital and efficient a role will the former practice play if incorporated into our institution's undergraduate curriculum.

PATIENTS AND METHODS

A prospective controlled study was carried out at Gynae Obs Unit I and II, Pakistan Railways Hospital, Islamic International Medical College, Rawalpindi. The study spanned over a period of nine months, commencing on April 1st, 2013 up till December 31, 2013. Sixty seven students of three batches of fifth year MBBS students on clinical rotation in Gynae/Obs Unit I and II at Railway Teaching Hospital were included in the study. Group I comprised of 35 students who were trained on RPs. However 3 students of this group did not appear in assessment by OSCE, so finally 32 students were left in this group for data collection. Group II comprised of 35 students who were trained on SPs. Three clerkship batches were randomized into two groups by computer.

Five patients were recruited as SPs. Regular patients, their relatives and paramedics were motivated and counseled and offered monetary incentive by the doctors to participate and contribute in the noble cause of assisting teaching of medical students. Finally, principal investigator interviewed potential candidates and selected five patients. A consultant carried PE of these five patients to ensure that only women without pelvic pathology were recruited. These laywomen were educated about outline of female anatomy & physiology of female pelvis and communication skills about giving feedback and to guide students about pelvic examination. They were also

briefed about infection control, speculum and bimanual examinations. SPs are human beings and can get fatigued and this can lead to errors in teaching, learning and assessment. Another difficulty we faced was to counter the bias when SP is known to the student. This may lead to error in cooperation and formative feedback by the SP during teaching, learning and assessment of the students.

Group I students practiced PE on RPs and group II students on SPs until they felt confident about their PE skill. The effectiveness of the two training methods of PE was assessed through OSCE. All the obtained results were analyzed statistically so that the two teaching techniques can be compared for their benefits regarding teaching PE skills.

At first, the students were introduced to the concept, procedure and technicalities of performing PE. The instructors demonstrated the examination to the students with the help of a mannequin. After the demonstration, the students were also allowed to practice on the model themselves. Afterwards, further clinical experience was provided to the students by performing PE on the outpatients as well as the inpatients admitted in the hospital. Before the students were trained, a consultant carried PE of the patients for screening purposes so that only patients without pelvic problems were included in the study. During the training process, again the instructor first demonstrated the PE to the students on the patient before letting them perform it themselves. The training included examination with the help of a speculum as well as the examination performed bimanually. Through this practice, the students were trained in the technical as well as the communication aspect of the examination. After the completion of training, OSCE of both the groups on PE was conducted. The results of the OSCE on PE, was noted for data analysis.

On the fourth week, a formative assessment was conducted to determine the PE skills of the students from both groups through an OSCE based PE. Both the groups were assessed again through an OSCE, during the combined modular examinations, at the end of their clerkship rotation (after eight weeks). Both

the assessments comprised of the supervisor assessing the technical and communication skills of the students while they performed a PE on the patient. None of the supervisor assessing the students was aware of whether the student being assessed had received training on a SP or on a RP.

Data was entered and analyzed with SPSS version 17.00. Descriptive statistics were applied on the data. Average assessment scores, technical skill scores, and communication skill scores of both the groups were calculated and standard deviation was obtained. After applying t-test, *p*-value was calculated. *p*-value less than 0.05 was considered to be statistically significant.

RESULTS

Table-1 contains scores of students of both groups for fourth week OSCE on PE as well as their scores of the PE for the eighth week assessment. The students were marked out of 10. For both the assessments, Group II students, trained on SPs had a higher score than Group I, trained on RPs.

Table-2 contains assessments of the students from both groups regarding their technical and communications skills in performing PE. These assessments were also made during the fourth week OSCE and the eighth week combined modular assessment. The students were again marked out of 10. Once again it was proved that the students trained on SPs scored much higher in both the skills as compared to those trained on RPs.

Using the results of table-1, the average score for both the students trained on SPs and those trained on RPs was calculated. This average score was calculated for both the fourth week OSCE as well as the eighth week combined modular assessments. Standard deviation for all the average scores was calculated. For both the fourth and the eighth week assessment, difference in the average score of the SPs' group and the RPs' group was calculated. Applying the t-test, a *p* value < 0.001 was obtained for both the assessments, hence statistically signifying our hypothesis that

training of PE on SPs is more effective than that done of RPs.

DISCUSSION

According to the scores obtained through

Table-1: Showing objective structured clinical examination (OSCE) based assessments of two groups (n=67).

	Group of students	Average assessment score (/10)	S.D	p-value
Fourth week assessment	Group I- Trained on RPs (n= 32)	5.5	0.13	<0.001
	Group II -Trained on SPs (n= 35)	8.1	0.88	
Eighth week assessment	Group I- Trained on RPs (n= 32)	6.0	0.15	<0.001
	Group II -Trained on SPs (n= 35)	7.7	0.12	

Table-2: Showing overall assessment for technical skills and communication skills of two groups (n= 67).

Skills assessed	Group of students	Average score (/10)	S.D	p-value
Technical skills	Fourth week assessment			<0.001
	Group I- Trained on RPs (n= 32)	5.75	1.68	
	Group II- Trained on SPs (n= 35)	8.75	0.89	
	Eighth week assessment			<0.001
	Group I- Trained on RPs (n= 32)	6.0	1.31	
Group II- Trained on SPs (n= 35)	7.75	1.30		
Communication skills	Fourth week assessment			<0.001
	Group I- Trained on RPs (n= 32)	5.50	1.41	
	Group II- Trained on SPs (n= 35)	8.50	0.99	
	Eighth week assessment			<0.001
	Group I- Trained on RPs (n= 32)	6.25	1.77	
Group II- Trained on SPs (n= 35)	8.00	1.21		

Similarly, using the results of table-2, the average score for both the technical and communication skills of the students trained on SPs and those trained on RPs was calculated. This average score was obtained for both the fourth week OSCE as well as the eighth week assessment. Standard deviation for all the average scores was calculated. For both the communication and technical skills, difference in the average scores for both the fourth and the eighth week assessment of the SPs' group and the RPs' group was calculated. Applying the t-test, a p value < 0.001 was obtained for both the skills; hence again statistically signifying that training of PE on SPs is more beneficial than that performed on RPs.

the OSCEs, the students trained on SPs (Group II) appeared to be more skilled in their PE technique than the students who were trained on RPs (Group I). Research is being conducted on training programs of PE using 'patient instructors'. Some studies have also shown the methodology of implementation of this program^{3,4}. Some of the studies have compared this method of training students on SPs that of practicing the performance of PE on plastic dummies. According to them, the use of professional patients helped to improve not only the students' technical and clinical skills of PEs, but also enhanced their decision making power, self assessment and confidence in application of knowledge⁵⁻⁹. Some studies discussed the fact that both the teachers and the

students enjoy to adopt this teaching and learning strategy^{6,7}. Others revealed the importance of the use of SPs for clinical education in terms of students' interest and acceptance^{8, 9}. The inclination of the patients towards participating as SPs may be due to various reasons, including the desire to contribute to medical education, their wish to learn more about how students and/or doctors perform examinations. Their enthusiasm may also be due to themselves acquire communication and technical skills needed for performing effective examinations or teaching.

The positive feedback of the students towards training of PE on SPs may be due to the more comfortable and relaxed setting that is provided to both the student and the patient being examined. Moreover, due to the absence of a SP's discomfort and reluctance to be examined in a sensitive region of the body, the student may be much less nervous hence be able to learn much more during training. Lastly, since the patients included in the study were screened before hand, the students may feel more confident about the training, as they will not have any fear of aggravating the patient's problem during examination. Because of the positive feedback from the students as well as the patients regarding the use of SPs for training medical students for PE, it can be recommended that this technique of training is a vital part of the students clinical education, hence should be a prime component of not only our but also the undergraduate curriculum across the country.

CONCLUSION

SPs are extremely useful and efficient alternative to RPs for the clinical training of medical students. Therefore, it is suggested to include SPs in MBBS curriculum to teach clinical skills.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

REFERENCES

1. Jha V, Setna Z, Al-Hity A, Quinton ND, Roberts TE. Patient involvement in teaching and assessing intimate examination skills: a systematic review. *Med Educ* 2010; 44(4):347-57.
2. Black B, Marcoux BC. Feasibility of using standardized patients in a physical therapist educational program: a pilot study. *J Phys Ther Educ* 2002; 16(2):49-56.
3. Kretzschmar RUM. Evolution of the gynecology teaching associate: an education specialist. *Am J Obstet Gynecol* 1978; 131:367-73.
4. Johnson GH, Brown TC, Stenchever MA. Teaching pelvic examination to second-year medical students using programmed patients. *Am J Obstet Gynecol* 1975; 121:714-7.
5. Livingstone RA, Ostrow DN. Professional patient-instructor in the teaching of the pelvic examination. *Am J Obstet Gynecol* 1978; 132: 64-7.
6. Wanggren K, Fianu JA, Andersson S, Pettersson G, Gemzell-Danielsson K. Teaching pelvic examination technique using professional patients: a controlled study evaluating students' skills. *Acta Obstet Gynecol Scand* 2010; 89 (10):1298-303.
7. Seago BL, Ketchum JM, Willett RM. Pelvic examination skills training with genital teaching associates and a pelvic simulator: does sequence matter? *Simul Health C*. 2012; 7(2): 95-101.
8. Wright B, McKendree J, Morgan L, Allgar VL, Brown A. Examiner and simulated patient ratings of empathy in medical student final year clinical examination: are they useful? *BMC Med Educ* 2014; 14: 199-207.
9. Baig LA, Beran TN, Vallevand A, Baig ZA, Monroy-Cuadros M. Accuracy of portrayal by standardized patients: results from four OSCE stations conducted for high stakes examinations. *BMC Med Educ* 2014; 14: 97-105.
10. Wanggren K, Pettersson G, Gemzell-Danielsson K. Medical students learning the pelvic examination: evaluation of a clinical patient model. *Acta Obstet Gynecol Scand* 2010; 89(10):1304-9.
11. Pradhan A, Ebert G, Brug P, Swee D, Ananth CV. Evaluating pelvic examination training: does faculty involvement make a difference? A randomized controlled trial. *Teach Learn Med* 2010; 22(4):293-7.
12. Abraham S. Gynecological examination: a teaching package integrating assessment with learning. *J Med Educ* 1998; 32: 76-81.
13. Carr SE, Carmody D. Outcomes of teaching medical students core skills for women's health: the pelvic examination educational program. *Am J Obstet Gynecol* 2004; 190:1382-7.
14. Shain RN, Crouch SH, Weinberg PC. Evaluation of the gynecology teaching associate versus pelvic model approach to teaching pelvic examination. *J Med Educ* 1982; 57: 646-8.
15. Pickard S, Baraitser P, Rymer J, Piper J. Can gynecology teaching associates provide high quality effective training for medical students in the United Kingdom? Comparative study. *BMJ* 2003; 327:1389-92.
16. Livingstone RA, Ostrow DN. Professional patient-instructors in the teaching of the pelvic examination. *Am J Obstet Gynecol* 1978; 132: 64-7.
17. Wanggren K, Pettersson G, Csemiczsky G, Gemzell-Danielsson K. Teaching medical students gynecological examination using professional patients—Evaluation of students' skills and feelings. *Med Teach* 2005; 27:130-5.
18. Johnson GH, Brown TC, Stenchever MA, Gabert HA, Poulson AM, Warenski JC. Teaching pelvic examination to second-year medical students using programmed patients. *Am J Obstet Gynecol* 1975; 121:714-7.
19. Plauche WC, Baugniet-Nebrija W. Students' and physicians' evaluations of gynecologic teaching associate programs. *J Med Educ* 1985; 60: 870-5.
20. Beckmann CRB, Sharf BF, Barzansky BM, Spellacy WN. Student response to gynecologic teaching associates. *Am J Obstet Gynecol* 1986; 155: 301-6.