IJBPAS, April, 2018, 7(4): 421-427

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

STUDENTS' PERCEPTIONFOR OBJECTIVE STRUCTURED PRACTICAL EXAMINATION VERSUS TRADITIONAL EXAMINATION IN CLINICAL PHARMACOLOGY DEPARTMENT, MANSOURA FACULTY OF MEDICINE, EGYPT

Hussein M. El-Beltagi[1], Abdel-Motaal Fouda[1],Sameh A. Abdel-Ghany[1],Nehal M. Ramadan[1], Mohamed-Hesham Daba[1], Mohamed A. Abd-Elaziz[1]✉

[1]Department of Clinical Pharmacology, Mansoura University Faculty of Medicine, Egypt

✉**Corresponding author:**e-mail: drabd_aziz729@yahoo.com; Tel: 00201021199001

Received 3rdOct. 2017; Revised7th Nov. 2017; Accepted 19th December 2017; Available online 1st April 2018

ABSTRACT

Background: Practical examination is an integral part and important component of evaluation in medical education. Objectively structured practical examination (OSPE) was introduced as a component of clinical pharmacology examination; checklist have been designed with marks for each point and all teaching-learning objectives can be tested and assessed with direct observation of the students' performance during planned practical test stations. **Aims:** The purpose of this study was to assess perceptions of the third year medical students in clinical pharmacology course; towards OSPE in comparison to their visibility of the traditional practical examination (TPE). **Methods:** Data were collected from 831 third year medical students of Mansoura University Faculty of Medicine in two successive years. At the end of OSPE, we requested the students to fill a 6-items questionnaire which evaluated the difficulty level, content, time, and fairness of the OSPE compared to the TPE. **Results:** Out of 831 students, 84.1% of them were satisfied with the OSPE maximum coverage of the relevant topics while 78.2% of the students felt that OSPE was fair and unbiased compared to TPE. More than half of the students (59.1%) thought that OSPE is easier than TPE. Further, 54.3% of the students believed that OSPE should completely replace TPE. Although 61.6% of students could answer comfortably within allotted time, 34.1% students found that OSPE needed more time compared to TPE. **Conclusion:** Use of OSPE is a feasible tool for

assessment in the undergraduate clinical pharmacology curriculum. This study showed that OSPE is fairly acceptable by undergraduate students. It is a step in the direction of modifying the traditional patterns of practical examination to a more objective, impartial and authentic way of evaluation in clinical pharmacology.

Keywords: OSPE, TPE, clinical pharmacology, Mansoura Faculty of Medicine

INTRODUCTION

Evaluation is a systematic process that consists of finding out the extent to which educational objectives have been achieved by students [1]. Practical examination is an integral component of the evaluation process in medical education [2]. The objectively structured practical examination (OSPE), in contrast to conventional practical examination in pharmacology, evaluates medical students for what they can do rather than what they know. OSPE appears to be a reliable method which has a good capacity to differentiate between different categories of students [3]. Moreover, because OSPE questions are structured with marks to each point, all the objectives of teaching-learning can be tested and each aspect can be assigned the desired weight [4]. It also helps to minimize or prevent the examiners' variability and bias thus improving the validity of the examination [5]. In our Clinical Pharmacology Department at Mansoura University Faculty of Medicine (MUFM), we have been using the OSPE method for evaluating the third year students in the practical component during the last three years, but unfortunately, we have no clear idea on how the students perceive this kind of examinations; so, the effectiveness of OSPE method along with students' attitude towards the pattern and organization of examination has to be properly assessed. The present study was planned to assess the attitude of the third year medical students studying clinical pharmacology course at MUFM towards OSPE in comparison to their visibility of the traditional practical examination (TPE).

METHODS

This feedback evaluation study was conducted in the Clinical Pharmacology Department at MUFM, Egypt, where pharmacology course is taught during the third year of MBBCh curriculum. The survey was held for two years, 2015-2016 and 2016-2017. We studied the attitudes of undergraduate medical students to evaluate OSPE as an evaluation tool in pharmacology. An informed verbal consent was taken from students and the study was approved by the Institutional Review Board of MUFM. With the aim of developing the education and evaluation practices, we used a different methodological approach for

conducting the practical pharmacology examination. We have tried to modify the traditional examination pattern with the help of audiovisual aids. The students participating in the study were introduced to the OSPE system by short orientation lectures and a role play organized by the faculty members. The blueprint of the curriculum along with structured checklist for different stations and students' instruction manual were all validated by seniorfaculty members.

Students participating in the study underwent midyear examination through traditional pattern of examination. We introduced OSPE as an examination tool in final examination. Responses were received from 831 students of whom 326 were female (39.2%), 188 were male (22.6%), and 317 were not reported (38.1%). During the OSPE, all students were divided into 42 groups; each group consisted of 7 circles. We introduced a set of 6 stations for each circle according to the following designation: station one' questions were on drug dosage forms, station two' questions were on pharmaceutical drug preparations, station three' questions were on adverse drug reactions, station four' questions were on drug prescription, while questions of the two residual stations were on computer simulation programs for experimental pharmacology. During the examination, each student had to spend 5 minutes in each station as per guidelines of MUFM. An attempt was made to make the OSPE atmosphere as congenial as possible with the aim to familiarize the students with this new system of examination. All the students had to attempt the same questions, and they were not allowed to communicate with each other during the exam. Questions were designed to test the cognitive aspect of learning about the drugs, kinetics and dynamics. Checklists were provided to all theobservers with marks for each point to be fulfilled, and the final score was calculated. At the end of OSPE, we requested the students to fill a 6-items questionnaire. The 6 items of the questionnaire evaluated the difficulty level, content, time, and fairness of the OSPE compared to the TPE which they have experienced.

Statistical analysis

Data was analyzed using Statistical Package for Social Science software computer program version 23 (SPSS, Inc., Chicago, IL, USA). Data were expressed as frequency (Number-percent). The chi-square "$\chi 2$" test was used to compare the qualitative data. Spearman's correlation was used to correlate between different parameters. A P-value of less than 0.05 was considered statistically significant.

RESULTS

More than half of the students i.e. 59.1% (n=491) thought that OSPE is easier than the TPE Moreover, 54.3% of the students (n=451) believed that OSPE should completely replace the TPE (Table 1). Although 61.6% (n=512) of students could answer comfortably within the allotted time, 34.1% (n=283) of students found that OSPE needed more time compared to TPE. Out of the 831 students who answered the OSPE, 699 of them (84.1%) were satisfied with the OSPE maximum coverage of relevant topics while 650 students (78.2%) felt that OSPE was fair and unbiased compared to TPE (Table 1). A significant association was found between OSPE difficulty level and the exam time (Table 2). Similar association was also observed between OSPE coverage of syllabus contents and the unbias (Figure 1).

Table 1: Frequency of OSPE questionnaire

		No(%)
Gender	Male	188(36.6%)
	Female	326(63.4%)
	Not reported	317(38.1)
OSPE difficulty level	Non-responder	32(3.9%)
	Easier	491(59.1%)
	Same	248(29.8%)
	More difficult than the conventional	60(7.2%)
OSPE time	Non-responder	36(4.3%)
	Less	142(17.1%)
	Same	370(44.5%)
	More than the conventional	283(34.1%)
OSPE coverage	Non-responder	65(7.8%)
	Less	67(8.1%)
	Same	383(46.1%)
	More than the conventional	316(38.0%)
OSPE unbiased	Non-responder	86(10.3%)
	No	95(11.4%)
	Yes	650(78.2%)
OSPE practical	Non-responder	98(11.8%)
	Not to be included in practical	46(5.5%)
	Partially replace the conventional	236(28.4%)
	Completely replace the conventional	451(54.3%)
Total		831(100%)

Data expressed as frequency (No - %); OSPE = Objective structured practical examination.

Table 2: Association between OSPE difficulty level and OSPE time

			OSPE time				Total	P
			Non-responder	Less	Same	More than the conventional		
OSPE difficulty level	Non-responder	No	20	1	3	8	32	<0.001*
		%	55.6%	0.7%	0.8%	2.8%	3.9%	
	Easier	No	6	88	221	176	491	
		%	16.7%	62.0%	59.7%	62.2%	59.1%	
	Same	No	9	39	121	79	248	
		%	25.0%	27.5%	32.7%	27.9%	29.8%	
	More difficult than the conventional	No	1	14	25	20	60	
		%	2.8%	9.9%	6.8%	7.1%	7.2%	
Total		No	36	142	370	283	831	
		%	100.0%	100.0%	100.0%	100.0%	100.0%	

OSPE = Objective structured practical examination; *P value is significant at P<0.001

DISCUSSION

Assessing intended learning outcomes in any subject requires the evaluation of theoretical knowledge, practical skills, and clinical competence. In general, theoretical knowledge is tested by a written examination system constituted by Short Answer Questions and Multiple Choice Questions [6]. To improve the practical evaluation in the subject of pharmacology, OSPE is adopted as an assessment tool in the Department of Clinical Pharmacology at MUFM. According to Malhotra et al. [7], OSPE remains the most efficient means to assess the practical skills in a system where basic knowledge is integrated with clinical skills. This study aimed at assessing the convenience of the OSPE among medical students as a relatively new assessment tool in clinical pharmacology. More than half of Students participating in this questionnaire perceived that OSPE has a better coverage of pharmacological curriculum and construct validity, compared with the conventional practical examination, suggesting that OSPE is a more reliable method for practical evaluation and a learning motivation. These results are highly meaningful and comparable to the findings obtained by Verhoeven and co-workers who showed that OSPE, if properly structured, along with a short written component can replace the conventional practical examination conducted in the preclinical years and it can also improvereliability [8].Data presented herein clearly demonstrate that students felt OSPE questions covered more efficiently the blueprinting of curriculum as compared to the conventional practical examination.

Since all the students were exposed to similar types of questions with the same difficulty level, they felt that the checklist system is a fair and unbiased method with fewer element of luck in all parts of the assessment. Similar views were also put forward by Duffield [9]. However, Imami and co-workers had a contrasting view regarding the fairness and unbiased nature of OSPE which could be attributed to insufficient awareness about the new system [10]. Regarding the administration of OSPE in the subject of pharmacology, although our participating students have their first experience with OSPE, but many of them felt that both the time and psychological atmosphere were considerably adequate and acceptable. Overall, students felt that OSPE was a more satisfying experience and suggested that OSPE should replace the conventional practical examination in the upcoming years. Similar conclusions were also reached by Wani and Dalvi [11].

The present study includes crucial strength points such as the relatively large number of students and the longitudinal scope of the study which expended over

two academic years. Another point of magnitude represents the significant association between OSPE difficulty level and time of the exam, from one side, and the significant association between OSPE coverage of curriculum and fairness on the other side. Taken together, data presented herein confirm the validity and reliability of OSPE method of evaluation and send clear message among students that achieving the better applied competencies and not mere memorizing and recall is a must for better grades.

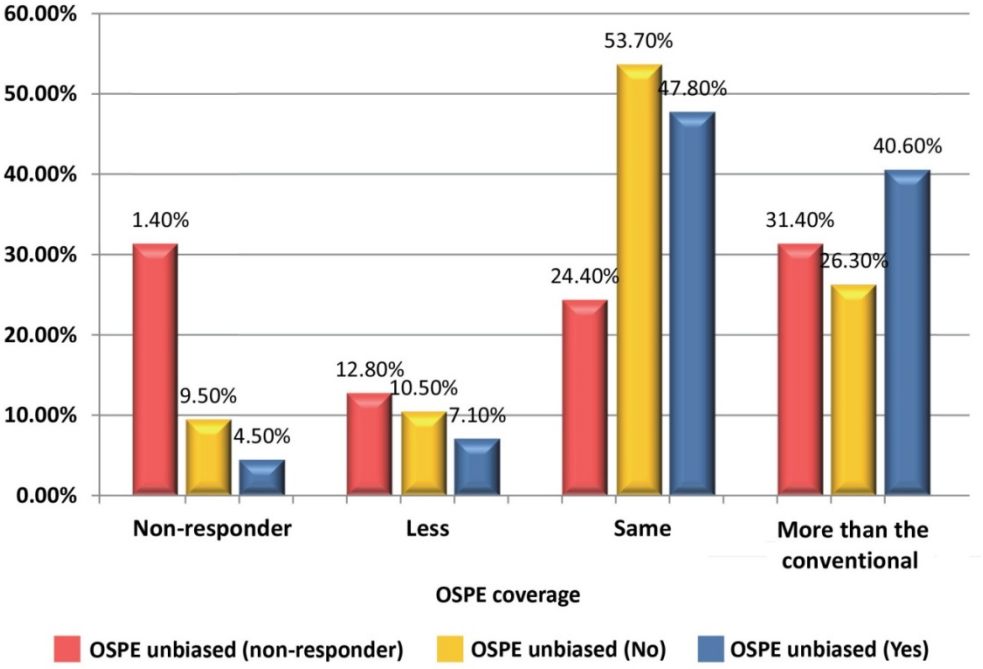

Figure 1: Association between OSPE coverage of syllabus and OSPE unbiased

In conclusion, the use of OSPE is feasible as a powerful assessment tool in the undergraduate clinical pharmacology curriculum being appropriately acceptable among students. This study represents a step on the right path of modifying the traditional patterns of practical examination to a more objective, impartial and authentic way of evaluation in clinical pharmacology. OSPE will assist in adjusting the teaching-learning strategies so as the teachers, as well as the students, can gain the maximum benefit.

Conflict of interest

The authors declare they have no conflict of interest.

REFERENCES

[1] Batmanabane G, Raveendran R, Shashindran C. Objective structured practical examination in pharmacology for medical laboratory technicians. *Indian J Physiol Pharmacol.* 1999; 43 (2):242-6.

[2] Roy V, Tekur U, Prabhu S. Acomparative study of two evaluation techniques in pharmacology practicals: conventional practical examination versus objective structured practical examination. *Indian J Pharmacol.*2004; 36(6): 385-9.

[3] Shankar RP, Dubey AK,Mishra P, Deshpande VY, Chandrasekhar TS, Shivanda PG. Student attitudes towards communication skills training in amedical college in Western Nepal. *Educ Health Change Learn Pract.*2006; 19(1): 71-84.

[4] Nayar U, Malik SL, Bijlani RL. Objective structured practical examination: a new concept inassessment of laboratory exercises inpreclinical sciences. *Med Educ.* 1986; 20(3): 204-9.

[5] Taskiran HC. A newcompetency level system for practicaland procedural skills in an undergraduate curriculum. Foundation for Advancement of International Medical Education and Research (FAIMER) Institute, 2003. Available at: http://www.faimer.org/education/fellows/abstracts/03taskiran.pdf. Accessed 30 June 2009.

[6] Chandelkar UK, Rataboli PV, Samuel LJ, Kamat AS, Bandodkar LV. Objective Structured Practical Examination: our experience in Pharmacology at Goa Medical College, Bambolim-Goa, India. *Int J Sci Rep.* 2015;1(2): 113-117.

[7] Malhotra SD, Shah KN, Patel VJ. Objective structured practical examination as a tool for the formative assessment of practical skills of undergraduate students in pharmacology. *J Educ Health Promot.* 2013; 2:53.

[8] Verhoeven BH, Hamers JGHC, Scherpbier AJJA, Hoogenboom RJI, Van der Vleuten CPM. The effect on reliability of adding a separate written assessment component to an objective structured clinical examination. *Med. Educ.* 2000; 34: 525-9.

[9] Duffield KE, Spencer JA. A survey of medical students' views about the purposes and fairness of assessment. *Med Educ.* 2002; 36(9): 879-86.

[10] Imani M. Is OSPE successful in pediatrics? *J Med Edu.* 2005; 6(2): 153-58.

[11] Wani PD, Dalvi VS. Objective structured practical examination vs. traditional clinical examination in Human Physiology: Student's perception. *Int J Med Sci Public Health*. 2013; 2: 543S.