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Pharmacy Student Perceptions and Feedback on the Modified Objective Structured Clinical Examination

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Abstract

Aim: To assess pharmacy students' perceptions and acceptance of Objective Structured Clinical Examination (OSCE) at the School of Pharmaceutical Sciences, Universiti Sains Malaysia.

Method: A cross-sectional survey using a 32-item questionnaire was distributed to four groups of third-year pharmacy students. Two of the groups (group A) received and completed the questionnaire immediately after the exam, while the remaining two groups (group B) received and completed the questionnaire one week after the exam. This questionnaire allowed students to evaluate the structure and organisation of the OSCE, state their perceptions of the validity and reliability of the OSCE, and rate the OSCE in relation to other evaluation tools. Open-ended questions were also administered to the students to elicit written feedback about the positive and negative aspects of the examination as well as suggestions for its improvement.

Results: A significant difference was observed between students in groups A and B (74.3% versus 32.4%) with regard to views of the OSCE as comprehensive and covering a wide range of knowledge (Pearson Chi-square P=0.001). Sixty-five percent of students in group A felt that the exam encompassed a broad range of clinical skills. A substantial percentage of both groups A and B (57.1% and 40.5%, respectively) believed that the OSCE was an intimidating method of assessment. A considerable proportion of students in groups A (60%) and B (48.6%) agreed that the time allotment of 5 minutes per work station was insufficient to complete the task in question. Three-quarters to two-thirds of students (A, 77.1%; B, 64.9%) found the OSCE to be a useful method for learning real-life scenarios in clinical pharmacy.

Conclusion: In general, OSCE was accepted by a majority of the students. Students' perceptions and feedback have necessitated the modification of the current OSCE to improve the effectiveness of this assessment method.

Keywords: *Objective Structured Clinical Examination, CCTV, Pharmacy Curriculum, Clinical Competence, Perception.*

Introduction

An Objective Structured Clinical Examination (OSCE) is an objective method of assessing students' clinical, practical and technical skills (Newble, 2004). The validity of this OSCE among medical students has been established in various medical papers (Hodgesand Mcilroy, 2003; Martinand Jolly, 2002). The OSCE consists of a chain of work stations through which students rotate according to a fixed schedule. OSCE designs vary according to the number of work stations and the amount of time allotted at each station (Newble, 2004; Hardenand Gleeson, 1979). The time spent at each station—typically from 5 to 10 minutes—is usually sufficient for an average student to complete the task at hand. Pre-organised, well-defined cases or tasks should be given to students at each station. These tasks require students to perform specific pharmacist activities involving simulated patients or doctors. Some tasks may require a written response, such as a drug dosage calculation (Newble, 2004). The use of a checklist as an objective criterion to evaluate student performance at each station was found to achieve a higher level of agreement among observers than the use of rating scales. In addition, the checklist was found to improve the objectivity and reliability of the assessment (Newble *et al.*, 1994). Furthermore, the checklist can be completed by trained examiners or simulated patients (ie, actors). OSCE assessment using checklists can be achieved through the use of a percentage score, Likert scale or pass/fail mark. The use of the pass/fail option is more suitable and more commonly used (Hardenand Gleeson, 1979).

The School of Pharmaceutical Sciences at the Universiti Sains Malaysia (USM) was established in 1972 and was the first pharmacy school in Malaysia. The current curriculum is designed to produce pharmacists who can work in various pharmaceutical sectors such as industry pharmacy,

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community pharmacy and hospital pharmacy. In addition to basic pharmaceutical science courses, the curriculum also provides a strong basis in clinical pharmacy. To ensure the academic excellence of the curriculum, it is reviewed every five years.

The USM School of Pharmaceutical Sciences adopts an integrated teaching approach, except in the area of pharmaceutical technology. The basic physiology, histology and anatomy courses are taken during the first two semesters. The syllabi of the remaining subjects are designed based on an organ system. Each subject covers the physiology, pathophysiology, pharmacology, pharmaceutical chemistry and clinical pharmacy of an organ system. Lecturers from various pharmacy disciplines are involved in teaching each of the subjects. In addition, students are exposed to a variety of pharmacy practices throughout the four years of their B. Pharm study. Students are assigned to various pharmaceutical sectors during long vacations in-between academic year. In the final year, students are placed in hospital clerkships to acquire the necessary skills in hospital and clinical pharmacy. Students are also exposed to community and public health issues through their attachment in community pharmacies, health centres and nursing homes.

To evaluate students' skills in the performance of pharmacy practice and clinical pharmacy, the Clinical Pharmacy Discipline introduced the OSCE into its curriculum during the 2009–2010 academic year. One study reports that the OSCE may play a diagnostic role in identifying weaknesses in students' clinical skills and therefore represents an excellent opportunity for optimising these skills in a clinical practice environment (Corbo *et al.*, 2006). Although several studies have shown an excellent level of students' acceptance to the OSCE (Newble, 1988; Duerson *et al.*, 2000; Kowlowitz *et al.*, 1991; Woodburnand Sutcliffe, 1996), the academic staff at the USM School of Pharmaceutical Sciences designed the present study to evaluate the validity, reliability and authenticity of the OSCE as well as its approval rating by students. In addition, this study sought to obtain written feedback from the students that highlighted the strengths as well as weaknesses of the first application of the OSCE and provided suggestions for its improvement. Another study suggests that the timing of the inquiry may affect students' response toward the OSCE, particularly if the questionnaire is distributed immediately after the exam when students' stress and fatigue levels are high. There is no evidence, however, to support this assertion (Pierre *et al.*, 2004). Nevertheless, another objective was included in the list—that of assessing the differences in students' perception and acceptance to the new assessment method based on the time of administration of the questionnaire.

Methods

The OSCE was conducted at five stations, each of which was equipped with a closed-circuit television (CCTV) for use in recording activities during the examination. Intercoms were connected between the five OSCE rooms and an instructor room for purposes of communication. All instructions were given via the intercom by the examiner from the instructor room, which was adjacent to the OSCE rooms. Throughout the OSCE process, the examiners (ie, the lecturers) had no direct interaction with the students, simulated patients or simulated doctors. The examiners were not present in the OSCE rooms at any time during the OSCE sessions. The examiners evaluated student performance at the end of the OSCE based on the activities recorded on the CCTV videotapes. The simulated patients and doctors also graded student performance based on the standard evaluation form. The competencies tested in the OSCE included the following: interview technique (medication history taking); evaluation of patient signs and symptoms; prescription screening; patient counselling on the use of medical devices; and use of monitoring devices. To test students' skills in these areas, there was a simulated patient or doctor in each room to perform with the task. The case scenarios for testing student competencies were developed and vetted by the clinical lecturers, the chairman of the clinical pharmacy program and the dean of the school. Training was provided to all participants (ie, the simulated patients and doctors) to ensure the consistency of their responses. Feasibility tests were performed to ensure consistency of response and average time taken to complete each task. Students attended an orientation session prior to the OSCE. Students were given 5 minutes at each station to complete the task in question.

The present investigation performed a cross-sectional survey by using a previously validated 32-item questionnaire (Pierre *et al.*, 2004). A group of five postgraduate pharmacy students reviewed the components and the compatibility of this instrument and they recommended some minor modification to ensure its cultural understandability. Although no translation or major amendments were done to this questionnaire, three pharmacy lecturers (clinical pharmacy) who have a good experience in the theme of clinical and pharmacy practice were involved in the content and face validation. Those experts ascertained at face value the suitability of the tool in assessing what was being studied to determine if the questionnaire extracts the anticipated responses on the student perceptions and feedback. Afterward, experts verified the extent to which the instrument was a reflection of the contents, practices and other aspects identified by the theoretical concept being measured.

Students were divided into six groups; however, only four groups participated in the study. The first two groups did not function as respondents in the study, but served instead to familiarise the simulated patients and the evaluator with the OSCE. Only the last two groups received and completed the questionnaire immediately after the OSCE (group A), while the remaining two groups received and completed the questionnaire one week after the OSCE (group B). To minimize the social interaction threats between the two groups (A & B) the OSCE was held on the day just before the mid-term break. The students went for one week holiday. Moreover, none of the groups were informed about the questionnaire before the exam, and nothing was mentioned to group A students whether their colleagues (group B) will receive the questionnaire or not. The questionnaire allowed students to do the following with respect to the OSCE: evaluate its structure, content, nature and organisation; assess its objectivity and quality; state perception of its validity and reliability; and express their views about its utility as an evaluation tool in comparison to other structures they had experienced.

In addition, students were also given open-ended follow-up

questions to elicit written feedback about the positive and negative aspects of the OSCE and suggestions for its improvement. Student participation in the study was on a voluntary basis. All students were assured that those who did not participate in the survey would not be reprimanded.

The collected data were analysed using the Statistical Package for the Social Sciences (SPSS) version 15. Descriptive statistics were calculated to determine frequencies, mean and standard deviations. Qualitative analysis of student responses was manually performed through content analysis to identify common themes. Consensus was established among the investigators with respect to the final categorisation of these responses.

Results

Seventy-two students out of ninety completed the questionnaire for an overall response rate of 80%. Thirty-five of the forty students in group A returned the questionnaire, which represents a response rate of 87.5%. By contrast, only thirty-seven of the fifty group B students (74%) responded to the questionnaire.

All but one of the respondents were single and had a mean age of 21.2 years. Fifty-three of the seventy-two respondents, or 73.6%, were female. The ethnic origin of respondents was as follows: Malay, 37.5%; Chinese, 56.9%; Indian, 4.2%; and Other, 1.4%. A majority of the students in both groups (A, 85.7%; B, 75.7%) agreed that the OSCE was useful in identifying areas of weakness and gaps in their clinical competencies (see Table I).

There was a significant difference between students in groups A and B (74.3% versus 32.4%) with regard to views of the OSCE as comprehensive and covering a wide range of knowledge (Pearson Chi-square P=0.001). In tandem with the above, 65% of students in group A felt that the exam encompassed a broad range of clinical skills. This finding was significantly different (Pearson Chi-square P=0.039) from the finding with respect to group B students, only 40.5% of whom believed that the exam encompassed a broad range of clinical skills.

Sixty-eight percent of students in group A agreed that the exam was very stressful, as compared to 48.6% of group B students. Both groups A and B (57.1% and 40.5%) believed that the OSCE was an intimidating method of assessment. Students in groups A (60%) and B (48.6%) agreed that the time allotment of 5 minutes per station was insufficient to complete the task at hand.

Student responses were somewhat similar in the two groups (A, 48.6%; B, 29.7%) in terms of the view that the exam was well-administered. There was a shared belief between the groups (A, 48.6%; B, 43.2%) that the exam was well-structured and well-sequenced. Forty-five percent of the respondents in group A were fully aware of the level of information needed at each station. Although this percentage was almost double that of group B (24.3%), there was no statistically significant difference between the groups. In the same sequence, a relatively small percentage of students (A, 28.6%; B, 10.8%) agreed that the exam would minimise their chances of failing. Moreover, students (A, 37.1%; B, 21.6%) were hopeful that their performance on the OSCE would

Table I: OSCE Evaluation

	Group A			Group B		
Survey Item	**Agree %**	**Neutral %**	**Disagree %**	**Agree %**	**Neutral %**	**Disagree %**
The exam was fair*	37.1	48.6	14.3	10.8	45.9	43.2
Wide knowledge area covered*	74.3	22.9	2.9	32.4	43.2	24.3
Wide range of clinical skills covered*	65.7	28.6	5.7	40.5	35.1	24.3
Time allocated at stations was inadequate	60.0	25.7	14.3	48.6	37.8	13.5
Exams well administered	48.6	40.0	11.4	29.7	54.1	16.2
Exams very stressful†	68.6	22.9	8.6	48.6	51.4	0.0
Exams well structured & sequenced	48.6	42.9	8.6	43.2	29.7	27.0
Exam minimized chance of failing	28.6	51.4	20.0	10.8	51.4	37.8
OSCE less stressful than other exams	17.1	40.0	42.9	18.9	48.6	32.4
OSCE allowed compensation for additional marks	37.1	37.1	25.7	21.6	48.6	29.7
OSCE highlighted areas of weaknesses in skills and knowledge	85.7	11.4	2.9	75.7	21.6	2.7
Exam intimidating	57.1	37.1	5.7	40.5	40.5	18.9
Student aware of level of information needed	45.7	40.0	14.3	24.3	40.5	35.1

*Significant difference between the groups ($P < 0.05$, Pearson Chi-square)
†Significant difference between the groups ($P < 0.05$, Fisher Exact test)

result in additional marks to their final grade for the course. Forty-three percent of group B students disagreed with the notion that the OSCE was fair, a finding that represents a significant difference with respect to group A students, only 14.3 % of whom disagreed (Pearson Chi-square P=0.005).

Performance Testing

Only a small number of students in the two groups felt that they were fully oriented about the nature of the exam. In a similar vein, the number of group B respondents who found that the required tasks in the exam corresponded with the skills and knowledge gained from the didactic course was rather small. Meanwhile, a high percentage of group A students believed that the given tasks reflected those which were taught in the actual curriculum. Three-quarters to two-thirds of students (A, 77.1%; B, 64.9%) found the OSCE to be a useful method for learning real-life scenarios in clinical pharmacy.

A significant difference between the groups was observed in regard to the sequence of the stations (Pearson Chi-square P=0.004). Almost half of the students in group A were satisfied with the sequence of the stations, which they viewed as logical and appropriate. In contrast, the results demonstrated group B students' dissatisfaction with the sequence of the stations. Nearly half of the respondents in the study were disgruntled by the amount of time allotted for each station. In addition, one-quarter of all students who completed the questionnaire perceived the instructions provided during

Table II: Quality of Performance Testing

	Group A			Group B		
Survey Item	Not at all %	Neutral %	To great extent %	Not at all %	Neutral %	To great extent %
Fully aware of nature of exam	17.1	62.9	0.0	18.9	73.0	8.1
Tasks reflected skills learnt*	17.1	22.9	0.0	16.2	51.4	32.4
Time at each station was adequate	45.7	28.6	5.7	40.5	48.6	10.8
Setting and context at each station felt authentic	8.6	68.6	2.9	10.8	78.4	10.8
Instructions were clear and unambiguous	25.7	57.1	7.1	32.4	43.2	24.3
Tasks asked to perform were fair $$	17.1	57.1	5.7	37.8	45.9	16.2
Sequence of stations logical and appropriate*	5.7	48.6	5.7	29.7	54.1	16.2
OSCE provided opportunity to learn real life scenarios	2.9	20.0	7.1	8.1	27.0	64.9

*Significant difference between the groups (P < 0.05, Pearson Chi-square)

Table III: Student Perception of Validity and Reliability

	Group A			Group B		
Survey Item	Not at all %	Neutral %	To great extent %	Not at all %	Neutral %	To great extent %
OSCE exam scores provide true measure of essential clinical skills*	8.6	25.7	65.7	35.1	27.0	37.8
OSCE scores are standardized	14.3	68.6	17.1	27.0	62.2	10.8
OSCE practical and useful experience	0.0	5.7	94.3	5.4	13.5	81.1
Personality, ethnicity and gender will not affect OSCE scores	8.6	51.4	40.0	21.6	45.9	32.4
Inter-patient variability (same disease) will affect scores	11.4	54.3	34.3	10.8	29.7	59.5
Inter-evaluator variability (same task) will affect score	11.4	48.6	40.0	5.4	29.7	64.9

*Significant difference between the groups (P < 0.05, Pearson Chi-square)

the OSCE to be unclear and ambiguous. Other relevant details with respect to the quality of the testing are presented in Table II.

Perception of Validity & Reliability

An overwhelming proportion of the respondents viewed the OSCE assessment method as a practical and useful experience (see Table III). Sixty-five percent of students in group A believed that the scores derived from the OSCE examination were a true measure of their essential clinical skills. This perception was significantly different (Pearson Chi-square P=0.015) from that of group B students, only 37.8% of whom agreed that the OSCE was an accurate reflection of their clinical skills.

Comparing Assessment Formats

Pharmacy students at USM are typically exposed to a variety of assessment instruments including multiple choice questions (MCQ), essay questions and clerkships. For this reason, students were asked to rate the above-mentioned instruments in addition to the OSCE in terms of difficulty, fairness and amount of learning. Students were also asked to state their preferences with respect to the use of the various instruments. The results are illustrated in Table IV.

Students (group A, 68.6%; group B, 45.9%) found that the essay question was difficult, while more than half of students rated the MCQ as the easiest form of assessment. A majority of the students, however, showed unbiased feelings toward the ease or difficulty of other assessment methods. About fifty percent of students believed that the MCQ and essay question were the most fair assessment formats. On the other hand, students exhibited an ambivalent view with respect to the fairness of the OSCE. A significant difference (Pearson Chi-square P=0.02) was observed between the two groups, with 40.5% of group B and 11.4% of group A reporting that the OSCE was unfair. Students' impressions were neutral with respect to the fairness of the clerkship. Additionally, a majority of the students considered the OSCE and the clerkship to be the most useful educational experiences. Likewise, these methods were deemed to be the most

Table IV: Student Rating of Assessment Formats

Which of the following formats is easiest?

	Group A (%)			Group B (%)		
	Difficult	**Undecided**	**Easy**	**Difficult**	**Undecided**	**Easy**
MCQs	17.1	25.7	57.1	10.8	29.7	59.5
Essay questions	68.6	22.9	8.6	45.9	35.1	18.9
OSCE*	34.3	40.0	25.7	24.3	67.6	8.1
Clerkship ratings†	31.4	54.3	14.3	5.4	86.5	8.1

Which of the following formats is fairest?

	Group A (%)			Group B (%)		
	Unfair	**Undecided**	**Fair**	**Unfair**	**Undecided**	**Fair**
MCQs	8.6	31.4	60.0	21.6	32.4	45.9
Essay questions	22.9	31.4	45.7	18.9	24.3	56.8
OSCE*	11.4	57.1	31.4	40.5	37.8	21.6
Clerkship ratings	20.0	51.4	28.6	5.4	67.6	27.0

From which of the following formats do you learn most?

	Group A (%)			Group B (%)		
	Very little	**Undecided**	**A lot**	**Very little**	**Undecided**	**A lot**
MCQs	34.3	25.7	40.0	40.5	21.6	37.8
Essay questions	11.4	40.0	48.6	10.8	24.3	64.9
OSCE	2.9	22.9	74.3	8.1	35.1	56.8
Clerkship ratings	0.0	25.7	74.3	0.0	40.5	59.5

Which of the following formats should be used more often in the clinical years of the programme?

	Group A (%)			Group B (%)		
	much less	**Undecided**	**much more**	**much less**	**Undecided**	**much more**
MCQs	45.7	25.7	28.6	40.5	37.8	21.6
Essay questions	22.9	42.9	34.3	18.9	54.1	27.0
OSCE†	8.6	11.4	80.0	10.8	35.1	54.1
Clerkship ratings	8.6	17.1	74.3	2.7	29.7	67.6

*Significant difference between the groups ($P < 0.05$, Pearson Chi-square)
†Significant difference between the groups ($P < 0.05$, Fisher Exact test)

common of the clinical evaluations. The timing of the questionnaire administration had an influential effect on students' perceptions towards the OSCE with respect to frequency of use. The OSCE was overwhelmingly considered by group A students (80%) to be used much more frequently, while this percentage was significantly lower (Fisher Exact test P=0.041) in group B students (54.1%).

Qualitative Data

Open-ended questions were included in the last portion of the questionnaire. Students provided responses to these follow-up questions about the positive and negative aspects of the OSCE and made recommendations for its improvement. These responses were sorted and categorised according to several themes.

In terms of the positive aspects of the OSCE, forty-four students mentioned that it provided them with good opportunities for being in contact and learning about real-life scenarios. Seventeen students commented that the OSCE enhanced or improved their communication skills. Eight students reaffirmed that the exam was an authentic application of what was taught in the curriculum, and seven students added that it provided them with more scientific knowledge. Other positive statements made by students about the OSCE included the following: it enhanced the student's spontaneous response during counselling (4 comments); identified areas of weakness in their skills and knowledge (4 comments); motivated them to study (4 comments); and provided more opportunities to learn about the use of medical devices (3 comments).

Twenty-two students felt that the five-minute time frame in which to perform the required task at each station was insufficient. Students indicated that they did not receive any practice or practical training prior to the OSCE (23 comments). Furthermore, students pointed out that the instructions provided were too general and unclear (4 comments), and only two students found the OSCE to be a confusing and stressful method of assessment. Students also claimed that there was inadequate exposure to medical devices prior to the OSCE (5 comments).

Proposals for the improvement of the OSCE included providing students with practice or training prior to the exam (28 comments), increasing the time allotment at the stations (18 comments), providing more counselling on the use of medical devices (i.e., asthma and insulin devices) in the theoretical course (12 comments), performing more OSCEs throughout the semester (7 comments) and introducing clinical evaluation at an earlier stage (5 comments). Three students suggested that future OSCEs have real patients and doctors rather than actors. Another suggestion for improvement was to hold a discussion after the OSCE so that students could learn from their mistakes and improve their counselling skills and knowledge (3 comments). Other suggestions included increasing the number of the stations (2 comments), providing more clear instructions (2 comments) and allowing students to watch on a video of an authentic OSCE before the exam (1 comment).

Discussion

Academic examinations are often considered by a lot of social psychology studies as a model for short-term stress (Sarid *et al*., 2004; Stowell, 2003; Zeidner, 1995). These tests are ordinary and expected events in a learner's life, and last for reasonably short time throughout an academic year (Biondi and Pancheri, 1995). Even though examinations deemed as transitory and moderately benign stressors, they might induce substantial individual variations in students' responses. Some students may develop a phenomenology of psychological and physiological symptoms; they find the examinations as threatening conditions. Conversely, some other students deal with the examinations as challenging issues (Sarid *et al*., 2004). The greater part, however, reacts to examinations with moderate tension responses. It was found that only the OSCE students feel more depression-dejection and fatigue than before the examination comparing to others who undergo a pencil and paper examination or an oral presentation (Sarid *et al*., 2005). The differences in depression-dejection and fatigue come across the OSCE students may be associated to three attributable factors of this examination type. First, OSCE necessitates the incorporation of clinical, theoretical knowledge and skills (Zartman *et al*., 2002). Second, students go around the OSCE work stations at a fixed schedule, while in other forms of assessment examinees have more elasticity in allotting their time between the different tasks. Lastly, the steady attendance of the examiners, carefully assessing and recording the students' performance may put extra to the students nervous tension and augment fatigue and depression (Sarid *et al*., 2005). Although the clinical pharmacy department at the USM School of Pharmaceutical Sciences implemented the idea of CCTV evaluation to reduce the students' stress mediated by the attendance of the examiners. Sixty-eight percent of group A and 48.6% of group B students agreed that the OSCE was very stressful (Fisher Exact test P= 0.012). Again, less than one fifth of the students in the both groups agreed that the OSCE was less stressful than other exams. Nevertheless, the overwhelming proportion of respondents found this assessment method to be a practical and useful experience. Consistently, Allen *et al.,* (1998) found that the students' anxiety level did not vary significantly as they steps forwarded through the OSCE examination. More than half of the examinees signified that the OSCE left them tenser than other examinations. However, the students felt that the OSCE would be a very good way of learning if they could calm down during the examination. In this study, the students' responses were clearly affected by the time of inquiry (immediately or one week after the examination); hence, the respondents' fatigue and stress should be taken into consideration. Group B students' perceptions toward the OSCE tended to be negative comparing to group A. This was really manifested through the differences in the views of OSCE as comprehensive and covering a wide range of knowledge, and through the discrepancies in the students' feeling that the OSCE encompassed a broad range of clinical skills. Furthermore, sixty-five percent of students in group A believed that the scores derived from the OSCE were a true measure of their essential clinical skills. This finding was significantly different with respect to group B students, only 37.8% of whom agreed that the OSCE was an accurate reflection of their clinical skills.

Students' perceptions in terms of the effects of the personality, ethnicity and gender of the evaluator on their scores were unclear. This finding contrasts with that of other

studies (Monaghan *et al.*, 1995; Austin *et al.*, 2006) that have raised concerns about the effect of these variables on student scores and inter-patient and inter-rater variability. Meanwhile, around 60% of group B students felt that performing the same tasks with different actors or evaluators would influence their scores. In Austin's study (2006), students expressed considerable concern that the variability between cases and patient-actors would adversely affect their academic standing and found this variability to be problematic from an evaluation perspective. In contrast with other studies, about fifty percent of students in both groups believed that the MCQ and essay question were the most fair assessment formats, although some students exhibited an ambivalent view with respect to the fairness of the OSCEs (Duffieldand Spencer, 2002; Awaisu *et al.*, 2007). In both groups more than half of students rated the MCQ as the easiest form of assessment. Despite diverging beliefs with respect to the ease or difficulty of the essay question, approximately half of students in each group (group A, 68.6%; group B, 45.9%) found that it was a difficult assessment tool. Only a small number of students in both groups felt that they were fully oriented about the OSCE. This finding indicates that students were unfamiliar with this assessment method despite attending a brief orientation session prior to the OSCE. Although a high percentage of group A students believed that the given tasks reflected what was taught in the actual curriculum, their responses to the open-ended questions indicated that the OSCE could be improved by providing more counselling on the use of medical devices (i.e., asthma and insulin devices) in the theoretical course (12 comments), performing more OSCEs throughout the semester (7 comments) and introducing clinical evaluation at an earlier stage (5 comments). Despite their general agreement that the exam was well administered, a proportion of the students believed that the time allotment of 5 minutes per station was insufficient to complete the task in question. Since USM students had no prior exposure to the OSCE, they reported a number of negative perceptions towards this examination; namely, that it was vague and ambiguous. These assertions were emphasised when students pointed out that the exam instructions were too general and unclear (4 comments), and when two students found the OSCE to be a confusing and stressful method of assessment. Consequently, students were obliged to make a number of suggestions with respect to the improvement of this new assessment tool including the need for practice or training prior to the exam (28 comments) and for an increased time allotment at the stations (18 comments).

Based on the above-mentioned findings, the use of the OSCE at the USM School of Pharmaceutical Sciences has generally been a positive experience for students, but there is room for its improvement. Additionally, validation of the grading method of the OSCE is urgently needed.

Conclusion

The Objective Structured Clinical Examination (OSCE) is an important method for evaluating pharmacy students' skills and exposing them to an authentic or simulated clinical environment. This study highlights various critical issues that students faced during the performance of this type of assessment. Key implications of the study include the need for pre-examination exposure to the OSCE, greater time allotments at the work stations and consistency of content at each station for evaluation purposes.

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Conflict of interest

None of the authors received any financial support or grant that may lead to the conflict of interest.

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