Abstract

Introduction: Objective structure Clinical Examination (OSCE) is more sophisticated examination methods to assess competencies such as problem-solving abilities, critical thinking and communication skills, and has gained acceptance as a benchmark for clinical skills assessment.

Aim: The main aim of this study was to implement an objective structure clinical examination (OSCE) of undergraduate nursing students enrolled in nursing administration course and examining student's perspectives for OSCE.

Methods: The study was used experimental design, and conducted at the Nursing Administration Department, Faculty of Nursing, Mansoura University. The total number of the nursing students enrolled in the third academic year of 2011/2012 was (385) at the Nursing Administration Department, (179 students were experimental group who examined by OSCE as a new method for clinical exam and 209 students were control group, who examined by traditional method (checklist exam). A self-administered questionnaire was developed by Pierre et al., (2004) was adapted in this study. The questionnaire assesses OSCE evaluation, quality of performance testing, and student’s perception of validity and reliability.

Result: The results of this study indicate that students examined by using OSCE had variation in their grades than students examined by traditional methods. OSCE has been accepted by the majority of nursing students as an evaluation tool for their clinical skills. Most students viewed OSCE as a fair assessment tool which covered a wide range of knowledge, minimized the chance of failing and highlighted areas of weaknesses. One third of students felt that OSCE was stressful and intimidating. Most students agreed that OSCE is objective tool in terms of a true measure of clinical skills and no statistical relationship were found regarding the students degrees of OSCE and their feedback.

Recommendation: The study recommends that OSCE as an effective and valid assessment method must be used to assess students’ clinical competencies in nursing administration course.

Key Words: OSCE – Clinical skills – Checklist exam – Students’ feedback.

Introduction

DETERMINING the quality of student learning is an ongoing challenge to all educators. However, for educators and students in the health professions, evaluation of learning takes on a different dimension in terms of ensuring that graduates are competent, and thus safe practitioners [1]. So that evaluation plays a major role in the process of nursing education, in the lives of nursing students and in society by certifying competent practitioner who can take care of the people. As nurses, evaluation of the interventions used to determine if they are helping achieve patient outcomes. And in nursing education, assessment student progress to determine if they are achieving the objectives for an assignment or course [2].

Traditional methods that are used to assess clinical skills in nursing science fields have been deemed insufficient [3], which can be related to that these ways of testing include only a fraction of what we want to produce can be done. As a result, there is a high possibility that a large number of students will be left behind and not given proper attention to achieve the aims of social studies objectives [4]. Traditional tests also play a judgmental role and not a developmental one. They are used to make judgments about success or failure, to select or exclude students which will lead to further education gaps. Besides, traditional test are summative and usually designed and administered by people outside the learning process which hardly know anything about what assessment should be achieved [5].

Traditional assessment take up a lot of teaching time and are very often not followed up as a basis for future teaching. Tests are more concerned with the provision of discriminative numerical marks, useless descriptions rather than the provision of
formative feedback and tend to treat learners as powerless victims rather than active participants in the learning process. Teachers are in charge of test and give limited time frames as it is seen as a “one shot” event that gives the learner only one chance to show competence. It is either students make it or break it. Since tests are administered to large groups of students, they are not individualized and cannot be tailored to the needs of individual learners. As a result, tests are not always fair as they do not account for individual differences multiple intelligences/different learning styles [6].

Traditional assessment forces educators to spend time teaching students how to manage tests, including strategies for selecting correct answers from a listed group. Alternative assessment allows educators to focus on critical reasoning skills, which students will be able to apply naturally to long-form test questions. However, in situations where alternative assessment replaces traditional assessment, this means teachers need to learn new methods of test preparation and schools need to develop alternative forms of performance assessment for their students and teachers. These changes to accommodate a new form of assessment mean added cost for schools and a disruptive change in teaching methods for current students [7].

In addition to, Schools are under significant pressure to increase student achievement, employ higher-order thinking skills and measure multiple abilities by using Fair Test through strengthening classroom assessments. One method of improving student evaluations is by using alternative or authentic assessments that allow students to showcase their knowledge using real-world tasks. One of these assessment skills is an OSCE. It is a clinical examination, utilizing a standardized patient (SP) setting in order to test the student’s understanding and performance knowledge, skills and attitudes [8].

OSCE is an acronym for Objective Structured Clinical Exam. An OSCE is: Objective, because examiners use a checklist for evaluating the trainees; structured, because every trainee sees the same problem and performs the same tasks in the same time frame; clinical, because the tasks are representative of those faced in real clinical situations; and examination, which may be a powerful tool in the evaluation of clinical competence in nursing and that it may also be an effective facilitator for learning to perform clinical skills in nursing. This in turn leads to an increase in student performance [9].

The OSCE exam was initially proposed by Harden et al., in 1979, and since then it has been considered to be an efficient way to evaluate the clinical competence of various healthcare professionals, including dentists, physicians and nurses. Clinical competence includes the ability to solve problems, to think critically in order to apply clinical reasoning, to work as a team and to communicate effectively in both verbal and written forms. All of these skills are also necessary for a nursing field. OSCE is considered one of the most reliable methods for assessing these skills; OSCEs are intended to assess whether students are competent as practicing professionals by using multiple OSCE stations. Each station details a different scenario designed to test a range of clinical competencies, which take between 5 and 15 minutes to complete [10].

OSCE used for exploration of the relationship between competence and knowledge as an assessment method through meeting specific objectives of the teaching process and integrating technical and theory “stations” to advanced clinical practice. However, OSCE can also be used in a formative way, as problem-based exercises to enhance skill acquisition and integrate other key skills (e.g. critical thinking, communication, and reflective practice) [4].

Furthermore, as a method of clinical skills assessment, the OSCE possesses a number of intrinsic advantages. Firstly, it can include both summative and formative components, in which a judgment or evaluation of an individual’s performance is made (summative) followed by the provision of feedback, from which the student can learn (formative) [11]. Secondly, because each student is required to demonstrate specific behaviors in a simulated work environment, strict control over the clinical context is possible, while at the same time, reflecting real-life professional tasks. This control eliminates the 'luck of the draw' problem that arises when students are assessed within the 'real-world' clinical environment with actual patients as well as the risk of harm occurring to a patient. The underlying premise is that such standardized procedures ensure objectivity and maximize reliability in assessment [12].

Other studies have identified (OSCE) as a practical test to assess specific clinical skills’ [13]. In 1975, Ronald Harden at the University of Dundee first introduced the OSCE into medical education [10]. The OSCE represents an approach to clinical skills assessment, the practice of which can enable the student to develop these skills further. It is a
well established method of assessing clinical competence among practitioners in the clinical field, with an enormous advantage for testing a number of skills in a limited time. Proficiencies assessed through the OSCE are presumed to be relevant to the safe practice of medicine [14].

The foregoing findings reflect a high concern about OSCE concluded that OSCE format consisted of a multi station arrangement in which students performed an assigned skill at each station using a standardized patient, while a faculty member / instructor watched and evaluated the student’s performance [16]. In such examinations, the tasks were divided into various components such as history taking, nursing diagnoses, performance of a procedure, and the interpretation of clinical data with each component being assessed at a different station. Students rotated through a number of stations, spending a pre-specified equal amount of time at each station [15].

The stations could be limited to as few as two or five stations or as many as 20 stations or more. Describing the nature of the OSCE examination, Ahuja (2009) [16] stated that at the ring of a bell the students entered a station and performed the predefined timed task. At the end of the specified time, students left the station and moved to the next one. Hence, each student performed the same set of tasks and the examiner marked each student according to the same criteria, thereby making the examination structured and objective.

According to Franklin (2005) [17], the OSCE requires the student to actively demonstrate how he/she would apply acquired knowledge to a simulated ‘real world’ situation. An assessor in each station provided real-time, direct observation and assessment of each candidate’s performance [18]. The assessor rated each student’s performance using the checklist or rating scale [19]. The task at each station tested specific competencies that were marked using the mark sheet. The sheet could be checklist-based or a combination of a checklist and a global score. The examiner gave an overall score based on the overall performance of the student.

In similar vein, the OSCE mode is very useful to monitor the abilities nursing students, and stations can be designed to address different skills and knowledge. The greatest advantage of using OSCE is that it can be set up to integrate theory and practice in forms of small scenarios, and the students can improve their own learning and reflection in a safe environment. In the OSCE evaluation of clinical skills is essential feedback and it plays an important motivating role between students and teachers to ensure the quality and appropriateness of a learning process [20].

In conclusion, the OSCE mode is very useful to monitor the abilities students, and stations can be designed to address different skills and knowledge. OSCEs are valuable way of assessing proficiency in range of clinically-focused skills and knowledge, so they are widely used as fundamental assessment strategy in across the world. The greatest advantage of using OSCE is that it can be set up to integrate theory and practice in forms of small scenarios, and the students can improve their own learning and reflection in a safe environment. In the OSCE evaluation of clinical skills is essential feedback and it plays an important motivating role between students and teachers to ensure the quality and appropriateness of a learning process [21]. So that this study was designed to implement an objective structure clinical examination (OSCE) of undergraduate nursing students enrolled in nursing administration course and examining students perspectives for OSCE.

Research hypotheses:
- Students examined by using OSCE have variation in their grades than students examined by traditional methods.
- The students will have positive feedback regarding apply OSCE in evaluate nursing administration course.

Aim of the study:
The main aim of this study was to implement an objective structure clinical examination (OSCE) of undergraduate nursing students enrolled in nursing administration course and examining student's perspectives for OSCE.

Material and Methods

Design:
The study was used experimental design.

Setting:
The study conducted at the Nursing Administration Department, Faculty of Nursing, Mansoura University.

Subjects:
Convenient sample (all the students have been included in this study). The total number of the nursing students enrolled in the third academic year of the undergraduate baccalaureate program
Does Implementing for an Objective Structure Clinical of 2011/2012 at Faculty of Nursing, Mansoura University. (n= 385 nursing students) at the Nursing Administration Department. These nursing students divided into 13 groups assigned to different clinical settings as Main Mansoura University Hospital, Mansoura Emergency Hospital, Mansoura Child Hospital, Oncology center, Specialized Medical Hospital. Two groups included in this study:

Group I: Experimental group who examined by OSCE as a new method for clinical exam. It consists of 179 nursing students which divided to (10) groups assigned to five skill labs, each group had (18) nursing students except the last group had (17) nursing students.

Group II: Control group, it consists of (209) nursing students who examined by traditional method (checklist exam).

Tools of data collection:
A self-administered questionnaire was developed by Pierre et al. (2004) [22] completed by successive groups of students immediately after the end of OSCE exam. The questionnaire consisted of (32) items categorized under four main dimensions. But in this study (25) items with three dimensions were used. The first dimension was OSCE evaluation included (12) items. The second dimension was quality of performance testing included (8) items. The third dimension was student’s perception of validity and reliability included (5) items. While the fourth dimension not applicable in this study.

Students responses were measured on a 4- point rating scale ranged from (no comment, disagree, neutral, agree) for the dimension of OSCE evaluation. While Students responses were measured on a 3- point rating scale ranged from (not at all, neutral, to great extent) for the dimensions of quality of performance testing and, students perception of validity and reliability.

Methods:
- Official permission to conduct the study was obtained from the Dean, vice dean of students and the head of Nursing Administration Department, Faculty of Nursing, Mansoura University.
- Students’ self-administered questionnaire was tested for its content validity through six experts from three different universities. So, accordingly necessary modifications were done.
- Internal consistency reliability of the items of questionnaire was assessed using coefficient alpha. It was 0.94.
- A pilot study was conducted on 10% of students to evaluate the clarity and applicability of the tool and modifications were done based on their responses.
- A workshop was conducted in one day for the staff members at nursing administration department about the nature of the OSCE and the process of application.
- Training was conducted in the skill labs for one week for nursing students.
- Preparation of the OSCE stations with the researchers consisted of 10 stations which involved completion of a number of tasks such as kardex, shift report, medication prescription, and types of records, time management, and time schedule.
- The OSCE answer book for (students) was prepared including cover sheet, instruction sheet and a separate sheet for each station.
- A standardized technique of marking was used and student performance was assessed by criterion reference for each station, as 0 (omitted, incorrect or inadequate), or 1-2 (correct or adequate).
- All students completed the circuit over a 2-hour period.
- At the end of OSCE, all students were asked to evaluate the content, structure, and organization of the OSCE, rate the quality of performance and objectivity of the OSCE process, and to give their opinion about the usefulness of the OSCE.

Statistical analysis:
The collected data were organized, tabulated and statistically analyzed using SPSS software statistical computer package version 13. For quantitative data, the number, and percentages were calculated. For qualitative data, comparison between two groups and more was done using Chi-square test ($X^2$). Significance was adopted at $p<0.05$ for interpretation of results of tests of signific.

Results
Fig. (1) displays degrees of the studied nursing students of traditional examination and objective structure clinical exam. It indicates that all students (100%) had a high degree from 11-15 for traditional examination. Meanwhile, there was a variation in OSCE examination, more than half of students (59%) had (7-11) degree, about one fourth of them (26%) had (11-15) degree and 15% of them had (3-7) degree.
Fig. (2) illustrates self-evaluation of objective structure clinical exam. This revealed that the majority of the students (44.7%) had positive feedback about OSCE exam. While (3.4%) only of students had no comment.

Fig. (3) shows the feedback of the studied nursing students about the quality of performance testing of OSCE exam which represents that most students (41.4) were to great extent about quality of performance testing of OSCE exam and about one fourth of their opinion were not at all about items of quality performance.

Concerning perception of validity and reliability of OSCE examination by the studied nursing students, the Figure represents approximately half of students (48.6%) believed that OSCE was valid and reliable. On the other hand, a considerable percentage of them were "neutral" about the validity and reliability of OSCE (34.6%) and the low percentage (16.8%) were (not at all) (Fig. 4).

Table (1) shows the relationship between degrees of OSCE examination of the studied nursing students and their self-evaluation. There were no statistical significant relationship between the degrees of OSCE examination and their feed-back.
Table (1): Relationship between degrees of OSCE examination of the studied nursing students and their self-evaluation.

<table>
<thead>
<tr>
<th>Nursing students' self-evaluation</th>
<th>Exam. degrees of the studied nursing students</th>
<th>3-&lt;7 (n=26)</th>
<th>7-&lt;11 (n=106)</th>
<th>11-&lt;15 (n=47)</th>
<th>X²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>• Self-evaluation of OSCE exam:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>16</td>
<td>61.5</td>
<td>46</td>
<td>43.4</td>
<td>20</td>
<td>42.6</td>
</tr>
<tr>
<td>Neutral</td>
<td>6</td>
<td>23.1</td>
<td>33</td>
<td>31.1</td>
<td>15</td>
<td>31.9</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>7.7</td>
<td>25</td>
<td>23.6</td>
<td>10</td>
<td>21.3</td>
</tr>
<tr>
<td>No comment</td>
<td>2</td>
<td>7.7</td>
<td>2</td>
<td>1.9</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>• Self-evaluation of quality of performance testing of OSCE exam:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To great extent</td>
<td>9</td>
<td>34.6</td>
<td>45</td>
<td>42.5</td>
<td>20</td>
<td>42.6</td>
</tr>
<tr>
<td>Neutral</td>
<td>13</td>
<td>50.0</td>
<td>31</td>
<td>29.2</td>
<td>16</td>
<td>34.0</td>
</tr>
<tr>
<td>Not at all</td>
<td>4</td>
<td>15.4</td>
<td>30</td>
<td>28.3</td>
<td>11</td>
<td>23.4</td>
</tr>
<tr>
<td>• Student perception of validity and reliability of OSCE exam:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To great extent</td>
<td>9</td>
<td>34.6</td>
<td>53</td>
<td>50.0</td>
<td>25</td>
<td>53.2</td>
</tr>
<tr>
<td>Neutral</td>
<td>15</td>
<td>57.7</td>
<td>31</td>
<td>29.2</td>
<td>16</td>
<td>34.0</td>
</tr>
<tr>
<td>Not at all</td>
<td>2</td>
<td>7.7</td>
<td>22</td>
<td>20.8</td>
<td>6</td>
<td>12.8</td>
</tr>
</tbody>
</table>

* Significant (p<0.05).

Discussion

The assessment of student’s clinical competence is of paramount importance, and there are several means of evaluating student performance in nursing examinations [23]. The objective structured clinical examination (OSCE) is an approach to student assessment in which aspects of clinical competence are evaluated in a comprehensive, consistent and structured manner, with close attention to the objectivity of the process which reduced risk of examiner bias and provide discrimination between students level of performance [24]. OSCE is more sophisticated examination methods to assess competencies such as problem-solving abilities, critical thinking and communication skills [25], and has gained acceptance as a benchmark for clinical skills assessment [26].

Result of the present study indicated that OSCE exam differentiated between students level of performance which above half of students had 7-11 degree of exam, above quarter had 11-15 degrees of exam and 15% of students had 3-<7 degrees of exam, while all students in traditional method had 11-15 degrees of exam. This result may be due to the OSCE exam have ability to evaluate a wide range of knowledge and skills and was developed to address the attitudinal and psychomotor skills that are required to perform management procedures which used in clinical area. Whereas traditional methods of exam assess and evaluate one area of knowledge only and focuses on cognitive and psychomotor skills.

This result consistent with Harden (1988) [27] who emphasized that the real power of OSCE lies in its ability to evaluate a wide range of knowledge and skills which improves the reliability of the examination, and provides an innovative learning experience for students. It offers a valid means to evaluate student’s clinical performance in a holistic manner [27].

A good evaluation system must possess various qualities; it must meet several basic requirements to be effective. First, objective-based; evaluation should be designed to make judgment about performance on the basis of pre determined objectives. Comprehensiveness; which evaluation should cover all points expected to be learned. Discriminating power; a good evaluation tool should be able to discriminate the students on the basis of the performance measured. In addition to reliability, validity, objectivity and practicability are the most important qualities needed for effective evaluation [12].

In this respect, Silva et al. [28], Ilic [29] & Martenson et al. [30] mentioned that the evaluation of students based on cognitive skills tends to promote a learning strategy of memorize information, whereas evaluations based on the ability to integrate their knowledge tend to develop a more efficient learning strategy.

Regarding students’ perspectives to word OSCE, the majority of students feedback was positive, these is supported by other research findings, El-Nemer & Kandeel [31], Eldarir et al. [7], Turner &
Most students viewed OSCE as a fair tool of evaluation which covered a broad area of knowledge, well administered, well structured and sequenced, minimized chance of failing and allowed students to compensate in some areas.

These findings are in agreement with a studies conducted by El-Nemer & Kandeel [31] and Eldarir et al. [7], who reported that most students viewed OSCE as a fair assessment tool which covered a broad area of knowledge, allowed them to compensate in some areas and minimized their chances of failing. In addition, as indicated by Pierre et al. [22] and Duffield & Spencer [35] reported favorable student’s responses concerning transparency and fairness of the examination process, and the authenticity of the required tasks per station. Also the studies conducted by Smith et al. [33] and Turner & Dankoski (2008) [32] to assess the validity, reliability and feasibility of OSCE team, the majority of students felt that they had been marked fairly.

One third of student felt that the OSCE was stressful and intimidating. This result may be due to the fact that any examination produce stress and anxiety for students and the level of stress changes little as student’s progress through the examination. On the same line, Al-Omari & Shawagfa [36] indicated that studies surveying students attitudes during the OSCE have documented that it can be a strong anxiety producing experiences and that the level of anxiety changes little as student’s progress through the examination. This can direct the attention toward the importance of preparing students to OSCE.

As well nursing student stressful experience with OSCE was also reported in another studies done by El-Nemer & Kandeel [31], Pierre et al. [22], Smith et al. [33] and Eldarir et al. [7] who related students’ stress and anxiety to the new experience with OSCE.

In relation to quality of OSCE most students provided positive feedback in terms of clarity of instruction opportunities to learn, sequence of stations logical and appropriate and tasks reflection taught. We find that congruent with Pierre et al. [22], Eldarir et al. [7] and Alinier [4] studies in which nursing students perceived OSCE as a favorable experience that should be repeated regularly.

As well more half of students reported their need for more time to complete the stations. These findings are consistent with El-Nemer & Kandeel [31], Pierre et al. [22] and Eldarir et al. [7] studies results.

Most students agreed that OSCE is objective tool in terms of a true measure of clinical skills, standardized, practical and useful experience and not affected by student’s personality and gender. The objectivity of OSCE was highlighted by many authors [7,22,30-35].

The current study clarifies that no statistical significant relationship regarding the student’s degrees of OSCE exam and their feed-back. Although above half of students had 7-11 degree of exam and considerable percent of them had 3-<7 degrees of exam, most students had positive feedback regarding OSCE. This result referred to objectivity of students’ opinions and high awareness of them toward importance of applying the OSCE. So, implementing the OSCE in nursing administration course is inevitable, however student participation in the evaluation and their overall acceptance of the instrument have been encouraging, additional to discrimination between students level of performance that provided by OSCE exam.

Conclusion and recommendations:

This study concluded that Students examined by using OSCE had variation in their grades than students examined by traditional methods. OSCE has been accepted by the majority of nursing students as an evaluation tool for their clinical skills. Most students viewed OSCE as a fair assessment tool which covered a wide range of knowledge, minimized the chance of failing and highlighted areas of weaknesses. One third of students felt that OSCE was stressful and intimidating. The majority of students agreed that OSCE is objective tool in terms of a true measure of clinical skills and no statistical relationship were found regarding the students degrees of OSCE and their feedback.

In the light of the findings, the following recommendations are suggested:

- OSCE as an effective and valid assessment method must be used to assess students’ clinical competencies in nursing administration course.
- When preparing for OSCE, attention must be given to the time of the stations.
- Effective preparing for students with OSCE to reduce their stress, anxiety and improving their experience.

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