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RESEARCH ARTICLE

Student's Perception on Objective Structured Practical Examination in College of Applied Medical Sciences

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Abstract

The current study was undertaken to evaluate Applied Sciences student's feedback for OSPE in the basic medical sciences. Usually OSCE/OSPE is used to assess para-clinical and clinical subjects. We tried to assess preclinical subject with these methods and recorded the feedback by the students about the method of assessment. A total of 100 students were selected randomly from different courses of public health, nursing and dental technology for academic year 2013-2014 from College of Applied Medical Sciences Khamis Mushyat. A questionnaire was prepared which was given to students after completion of assessment by OSPE. Results were compared and analyzed statistically.

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Introduction

The Objective structured practical examination (OSPE) is the modified version of the OSCE used for the summative assessment of practical knowledge and skills in Medical Education. Although College of Applied Medical Science's is following traditional curriculum but it implements OSPE as one of the assessment tool in curricula. In this study, the student's feedback and perception will provide the baseline for any required modification in future and eventually leads to more effective implementation of the OSPE.

The routine clinical and practical examination is assailed with a few issues. Albeit stamping ought to depend just on student variability, patient (or on account of practicals - test) variability and inspector variability altogether influence scoring. Truth be told, the subjectivity included may lessen the connection coefficient between imprints honored by distinctive inspectors for the same competitors execution to as low as 0.25. The imprints honored additionally reflect just the worldwide execution of the competitor and are not taking into account exhibit of individual capabilities. Issues in correspondence fundamentally influence the result. State of mind is typically not tried at all by the customary examination. Indeed, even in clinical aptitudes, frequently the student is addressed just in regards to his last decision. The capacity to look at a patient and landing at that conclusion is not saw by the analysts. The last score demonstrating his general execution gives no huge criticism to the hopeful.

These deformities of clinical and practical examinations have been acknowledged for long and have offered ascent to endeavors at enhancing the current situation. Every one of these endeavors are generally new are still during the time spent being gone for.

A prior advancement in such manner is the target objective structured clinical examination (OSCE) later reached out to the objective structured practical examination (OSPE) portrayed in 1975 and in more prominent detail in 1979 by Harden and his gathering from Dundee. This strategy with a few alterations has stood the test of time and has to a great extent conquer the issues of the routine clinical examinations specified prior. As of late, the technique

was the subject of a worldwide meeting at Ottawa in 1985 when the overall encounters with OSCE and OSPE were traded.

Objectives

The objective of this study is to evaluate student's response for OSPE in College of Applied Medical Sciences Khamis Mushaiyat and to correlate responses of the students from three different levels.

Literature Review

Initially called the 'structured clinical examination' (Harden et al., 1975), the subsequently named Objective Structured Clinical Examination (OSCE) (Harden & Gleeson, 1979) was designed to be a controlled assessment of clinical competence by removing the variability introduced by the patient and the examiner (Harden & Gleeson, 1979; Harden et al., 1975). The OSCE was established as a tool for medical student assessment by Harden and colleagues in the mid 1970's (Harden et al., 1975). It was designed to be a practical, valid, and reliable evaluation strategy to control for examiner biases found in other student evaluation methods, for example, the traditional clinical examination (Carraccio & Englander, 2000; Harden & Gleeson, 1979).

In these traditional clinical examinations, a student's competence was assessed using a limited number of patients found in the hospital ward (Harden et al., 1975). Problems included the presentation of the patient; often the cases were not commonly encountered in clinical practice, typically the cases were chronic versus acute, and certain specialties (e.g., otolaryngology) were not or under represented (Harden & Gleeson, 1979). Furthermore, the scores awarded often varied considerably between examiners (Harden & Gleeson, 1979; Harden et al., 1975).

Advantages and Disadvantages of OSCE

Harden et al. (1975) and Harden and Gleeson (1979) identified several advantages of the OSCE. These included the ability to control the complexity of the case for varying skill levels of students, clearly defining the knowledge, skills, and attitudes to be assessed, and creating an examination that could sample a wider range of knowledge and skills including those not often seen in the traditional clinical examination (e.g., management of an emergency situation). In addition to measuring clinical competence while controlling for observer biases, an OSCE can be specifically designed for the formative assessment of students (Hilliard & Tallett, 1998), which can subsequently be used to identify students who are performing at less than acceptable levels (Hilliard & Tallett, 1998; Martin & Jolly, 2002). Harden et al. (1975) and Harden and Gleeson (1979) also noted that the use of an objectively evaluated examination allowed for the comparison of standards across cohorts of students (e.g., second year medical students over a multi-year period) and provided an opportunity for structured feedback of both students and faculty.

Disadvantages include the extensive faculty time commitment required (Carraccio & Englander, 2000) and the expense in terms of resources needed (e.g., testing rooms) and personnel required (e.g., standardized patients) (Carraccio & Englander, 2000; Mavis & Henry, 2002; Wass et al., 2001). There have also been concerns expressed that students might compartmentalize knowledge instead of looking at the patient as a whole (Harden & Gleeson, 1979; Harden et al., 1975).

The Psychometrics of Performance-Based Assessment

The purpose of any assessment protocol is to provide inferences about the ability or competency of the candidates - inferences that extend beyond the sample of cases or cases included in the examination (Swanson, 1987; van der Vleuten & Swanson, 1990). Regardless of whether the assessment is used for formative feedback to medical students and residents (Carraccio & Englander, 2000; Crossley, Humphris, & Jolly, 2002; Harden et al., 1975; Miller, 1990), designed for summative evaluation at the end of a course or program (van der Vleuten, 2000), or utilized to ensure a minimum level of competence (Crossley, Humphris et al., 2002) the assessment process must be consistent, accurate and defensible (Boulet et al., 2003).

Reliability refers to the consistency or reproducibility of test scores (Downing, 2004; Shea & Fortna, 2002; Streiner & Norman, 1989; van der Vleuten, 2000; Wass et al., 2001) or to the precision of the measurement (van der Vleuten, 2000). Reliability is a major source of validity evidence for all assessments (Downing, 2004). Unless the evidence collected is reliable it becomes almost impossible to interpret whether the assessment is valid (Downing, 2003b).

Shea and Fortna (2002) identified two types of reliability: internal consistency (e.g., Cronbach's alpha) and reproducibility (e.g., inter-rater reliability). A third type of reliability is temporal stability which is typically assessed as test-retest reliability (Violato, Marini, & McDougall, 1998). Internal consistency measures whether items on an examination measure the same construct (e.g., history taking) and it provides a summary as to how well a set of items measure the same general construct. (Cronbach et al., 1972; Shea & Fortna, 2002; Streiner & Norman, 1989). Reproducibility (or repeatability) refers to whether scores collected on one occasion are the same as scores collected on another. An example is inter-rater reliability, which refers to the agreement between two or more raters on an assessment (Shea & Fortna, 2002). The preferred statistical procedure for calculating reproducibility is an intra-class

correlation (ICC) coefficient (Shea & Fortna, 2002), which is based on the analysis of variance (Cronbach et al., 1972; Shea & Fortna, 2002; Streiner & Norman, 1989).

A reliability coefficient of at least 0.90 is recommended for very high stakes assessment (certification or licensure) (Downing, 2004; Shea & Fortna, 2002). For moderate stakes assessments (end of course or end of year summative assessment) the reliability should range between 0.80 to 0.89. The reliability for classroom summative and formative assessments should range between 0.70 to0.79 (Downing, 2004), while reliability for educational research can range from 0.60 to 0.80 (Shea and Fortna, 2002).

van der Vleuten (1996) cautioned against the use of assessment protocols that avoided professional judgment (e.g., a physician rater), van der Vleuten and Swanson (1990) stated that physician examiners are more familiar with the logical sequencing of the history taking and physical assessment constructs of the examination, in addition to being able to better evaluate the technical proficiency of any applied physical assessment procedure(s). Reznick et al. (1998) echoed this caution stating that an expert examiner is relegated to the role of observer when assessment checklists are used for evaluation.

One consideration in the use of non-physician raters surrounds the type of assessment format to be used (Humphrey-Murto et al., 2005; Norman et al., 1991; van der Vleuten, Norman, & De Graaff, 1991). From a reliability standpoint, the research has demonstrated that well-trained SPs (non-physician raters) were able to accurately portray, recall and record the items addressed (e.g., history and physical assessment) during the examinee's clinical performance. Furthermore, SPs are able to evaluate the examinee's clinical performance as accurately as a physician rater (Colliver, Robbs, & Vu, 1991). The research has also indicated that that when SPs make errors in assessment, they typically err on the side of giving the examinee credit for an action that was not addressed (Vu, Barrows, Marcy, Verhulst, Colliver, & Travis, 1992). Williams recommended when SPs are used to record examinee actions, especially in high-stakes examinations, a separate observer record the actions in real time to optimize accuracy.

Materials and Methods

It is institutional based cross sectional study. The responses were collected by using self-administered questionnaire based on Likert scale. Student's feedback for OSPE was assessed from 79 students of 3 different levels (level 3, 6 & 7). The questionnaire was divided into three parts; structure/format of examination, conduct of examination and evaluation of the examination. The perception of students were statistically analyzed and then compared among different levels.

Results

OSPE stations were properly organized 58 (74.4%), OSPE eliminates factor of luck 40 (52.1%), time allocation was appropriate 39 (49.4%) and assessment was fair 54 (48.6%). Students from all three level agrees and showed significant association ($p<0.001$) that OSPE eliminates factor of luck among them. There was also a significant association ($p<0.001$) between students of different level for the presence of examiner on each station facilitated their exam.

Table 1: Comparison of Mean Score – students' responses in 3 batches:

	Public Health Mean ± S.D n=45	Nursing Mean ± S.D n=13	Dental Mean ± S.D n=21	p-value
Structure	3.71 ± 0.36	3.67 ± 0.30	3.70 ± 0.24	0.931
Evaluation	3.17 ± 0.45**	3.44 ± 0.20	2.80 ± 0.38**	<0.001*
Conduct	2.38 ± 0.33	2.46 ± 0.45	2.47 ± 0.30	0.722

*statistically significant at 5% level of significance
**Tukey's test significant multiple comparisons

A total of 133 students completed the questionnaires, comprising Public health students (n=45, 57.0%), Nursing (n=13, 16.5%) and Dental students (n=21, 26.6%). No significant difference was observed between mean structure and conduct scores when compared with 3 batches p=0.931 and p=0.722 respectively. However, significant difference was observed in the mean evaluation score when compared with 3 batches p<0.001, after applying multiple comparison tests, significant difference was observed between the mean evaluation scores of public health and dental students, showing that the former were more satisfied with the evaluation as compared to later (table 1)

Fig 1: Mean plot showing structure of OSPE examination in 3 batches

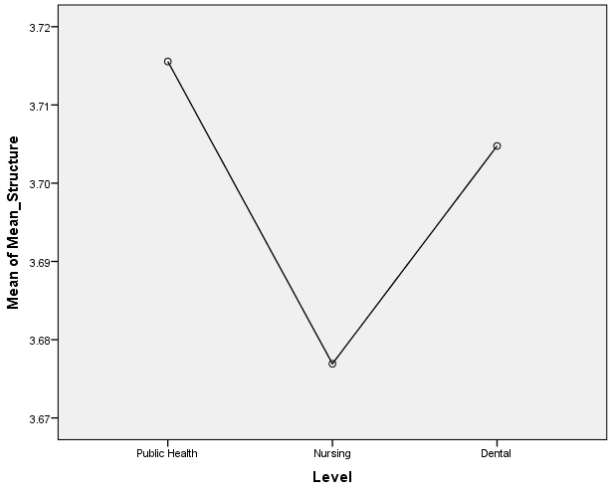


Fig 2: Mean plot showing conduct of OSPE examination in 3 batches

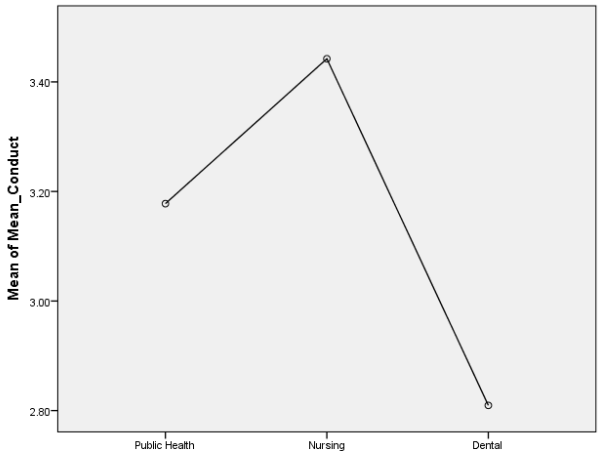
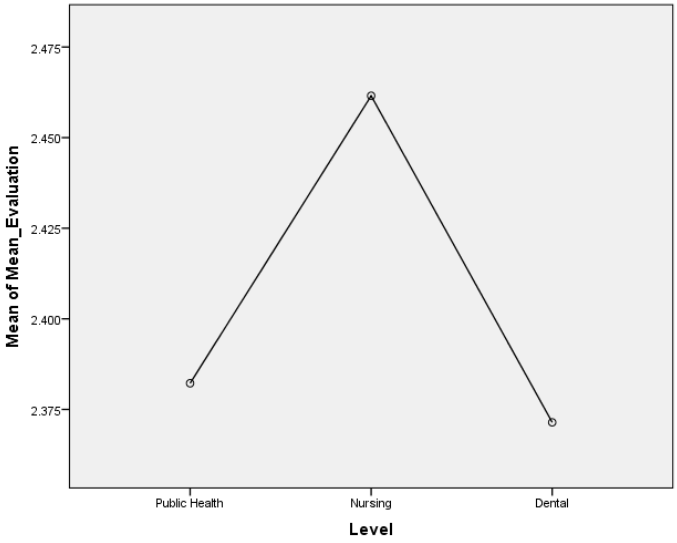


Fig 3: Mean plot showin



Discussion

Assessment is an integral component of educational process and it should reflect both formative and summative components (Elizondo-Montemayor, 2004). The assessment in medical education should be holistic including knowledge, skills and attitude. The assessment of the practical knowledge and skills can be done both by using formative and summative assessment. The objective structured clinical examination (OSCE) gold standard for assessing clinical skills (Norman, 2002). The Objective structured practical examination (OSPE) is the modified version of the OSCE used for the summative assessment of practical knowledge and skills in basic sciences (Al-Mously, et al., 2012). Studies showed that improper assessment procedures promote superficial learning (Marton, et al., 1997).

Students have negative perceptions about traditional assessment such as viva in practical exams and it directs the students to explore the knowledge according to the requirement of the involved teacher (Nolen & Haladyna, 1990; Drew, 2001). To consider an assessment tool as effective, it should be valid and reliable and studies had proven the reliability of OSPE tool (Tooth, et al., 1989; Nayar, et al., 1986; Sandilla, et al., 2001). Although College of Applied Medical Science's is following traditional curriculum but it implements OSPE as one of the assessment tool in basic medical sciences. The students have to answer the objectively structured questions based on the models, specimens, radiographs or to record the findings in a given specific time on each station. These types of stations are termed as response stations (Al-Mously, et al., 2012).

The student's feedback towards the assessment is one of the important components in medical education (Rentschler, et al., 2007). This is essential as medical students are assessed for their knowledge, comprehension, psychomotor skills and ability to communicate (Feroze & Jacob, 2002; Natu & Tejinder, 1994). In this study, the student's feedback and perception will provide the baseline for any required modification in future and eventually leads to more effective implementation of the OSPE. Such feedback is considered valuable for further development and enhancement of OSPE (Manjula, et al., 2013).OSPE stations were properly organized 58 (74.4%), OSPE eliminates factor of luck 40 (52.1%), time allocation was appropriate 39 (49.4%) and assessment was fair 54 (48.6%). Students from all three level agrees and showed significant association ($p<0.001$) that OSPE eliminates factor of luck among them. There was also a significant association ($p<0.001$) between students of different level for the presence of examiner on each station facilitated their exam.

Conclusion

It can be concluded from the study that OSPE is an effective/unbiased and authentic mode of assessment and can be extended to other level of students.

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