VALIDITY OF AN OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE) BASED ON THE NURSING PRACTICE FRAMEWORK

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Abstract

Background: Interest is increasing in using the OSCE as means of gauging clinical competency. Yet there are issues with the objective structured clinical examination (OSCE's) validity. **The aim:** the aim of this study was to assess the construct of validity of the objective structured clinical examination (OSCE) for evaluating the nursing skills. **Methods:** A descriptive cross-sectional study was conducted from January 2021 to March 2023 across four governmental nursing faculties in Khartoum. The study involved OSCE examiners and final medical-surgical nursing OSCE stations. Data were collected using two tools: an observational checklist, and a clinical standardized checklist. Face and content validity were ensured through expert reviews, and reliability was assessed using Cronbach's alpha. **Results:** The study found that the OSCE stations demonstrated high face and content validity as assessed by experts. The internal consistency of the study tools was satisfactory, with Cronbach's alpha values of 0.81 for the observational checklist and 0.90 for the clinical standardized checklist, the analysis showed that a substantial majority (93.8%) of the OSCE checklists were poorly constructed in terms of performance level criteria. **Conclusion:** The study confirms the validity of OSCE as an assessment tool in nursing education at governmental faculties in Khartoum. Overall, the evidence supports the validity and reliability of OSCE in nursing education at Khartoum governmental faculties, making it a strong tool for clinical competence assessment.

Keywords: Validity, Objective Structured Clinical Examination, Nursing Practice.

INTRODUCTION

The Objective Structured Clinical Examination (OSCE) is a widely recognized method for assessing clinical competencies in nursing education, known for its objectivity and reliability. At Khartoum governmental nursing faculties, the implementation of OSCE has shown promising results in terms of validity and reliability. Research indicates that OSCE provides a structured, harmonized, and egalitarian assessment method, beneficial for nursing students' clinical evaluations [1]. A study comparing OSCE with traditional observational checklists found that students scored higher and preferred OSCE, highlighting its objectivity and effectiveness in clinical evaluations [2]. The use of high-fidelity simulations and standardized patients in OSCE enhances the fidelity of nurse-patient interactions, ensuring comprehensive assessment of clinical competencies, including cognitive and critical thinking skills [3].

Additionally, the development of specific OSCE tools, such as the intravenous injection care scale, further supports its application in nursing education [4]. Despite challenges in objectivity and reliability in clinical competence assessment, OSCE has been shown to overcome these issues effectively, with nursing faculty demonstrating positive attitudes towards its implementation [5]. The identification and analysis of clinical errors and near-miss errors among nursing students underscore the need for reliable assessment methods like OSCE to improve clinical practice and error management [6]. Validity and reliability testing of OSCE checklists for medical-surgical nursing competencies revealed that most checklists are valid and reliable, although some require further refinement [7]. The high internal consistency reliability of OSCE, as demonstrated in a study on basic thoracic ultrasound competencies, further supports its use in clinical skills assessment [5]. Finally, students' perspectives on OSCE indicate its acceptance as a fair and comprehensive assessment tool, despite some finding it stressful, thus validating its effectiveness in clinical skills evaluation [8].

RESEARCH METHODOLOGY

This is a descriptive –cross sectional institutional-based design .The study was carried out in governmental nursing faculties located in Khartoum State, Sudan , namely Alneelain University, Omdurman Islamic University, Bahri University, and Alzaim Alzhari University. The participants of the study were (54) OSCE examiners who participated in the final medical-surgical nursing OSCE at the above mentioned faculties A purposive sampling technique was used to select the study sample. Two tools were used to collect required data from the sample

Study tool (1) Observational Checklist: The data collector observes and evaluates the elements and content according to the checklist in such a way that it is free from disruption and disrupts the ongoing exam.

Study tool (2) Clinical Standardized Checklist: a copy of the stations' checklist taken from the station's examiner, which matches the exact checklist frame, and then compared with the prepared checklist.

A pilot study was conducted with a similar study population to test the effectiveness of the tool in measuring the intended constructs. The tool was pretested on 10% of the study population. Feedback from participants was collected and used to refine the tools. The study found that the OSCE stations demonstrated high face and content validity as assessed by experts. The internal consistency of the study tools was assessed using Cronbach's alpha. The internal consistency of the study tools was satisfactory, with Cronbach's alpha values of 0.81 for the observational checklist, and 0.90 for the clinical standardized checklist Data were analyzed using bivariate analysis and presented in simple frequency tables and figures using the SPSS (Statistical Package for Social Sciences) program version 25. The significance test was done using the chi-square test and accepted when the P value was 0.05. Prior to the start of the study, ethical approval was obtained from the Ethical Committee of the Higher Education and Scientific Research Board of the universities. Verbal consents were obtained from the participants. All participants were ensured anonymity, confidentiality, and their privacy and dignity were protected. Participants had the right to refuse to answer any question.

RESULTS

### Table 1: Demographic Characteristics of the study Participants

Examiner's Years of Experience in conducting OSCE		
Parameters	**Frequency**	**Percent**
0 - 5 years	13	24.1
5.1 - 7 years	21	38.9
7.1 - 10 years	14	25.9
More than 10 years	6	11.1
Total	**54**	**100.0**
Mean 2.2407 Std. Deviation 0.950380		
Examiner's University		
Omdurman Islamic University	17	31.5
Alneelain University	21	38.9
Bahri University	8	14.8
AlzaimAlzhari University	8	14.8
Total	**54**	**100.0**
Examiner's Qualification		
BSc	6	11.1
M.Sc.	30	55.6
PhD	18	33.3
Total	**54**	**100.0**
Examiner's department		
Medical	10	18.5
Surgical	15	27.8
Pediatric	4	7.4
Obstetric	11	20.4
Community	7	13.0
Fundamental	5	9.3
General	2	3.7
Total	**54**	**100.0**

Table 2: Demographic Characteristics of OSCE stations (n=32)

Characteristic	Frequency	Percentage
Omdurman Islamic University	8	25.0%
Alneelain University	8	25.0%
Bahri University	8	25.0%
AlzaimAlzhari University	8	25.0%
Total	**32**	**100.0%**
Number of Stations Per Department		
Medical Nursing	16	50.0%
Surgical Nursing	16	50.0%
Total	**32**	**100.0%**
Type of Stations		
Health Education	8	25.0%
Physical Examination	8	25.0%
History Taken	8	25.0%
Procedure	8	25.0%
Total	**32**	**100.0%**
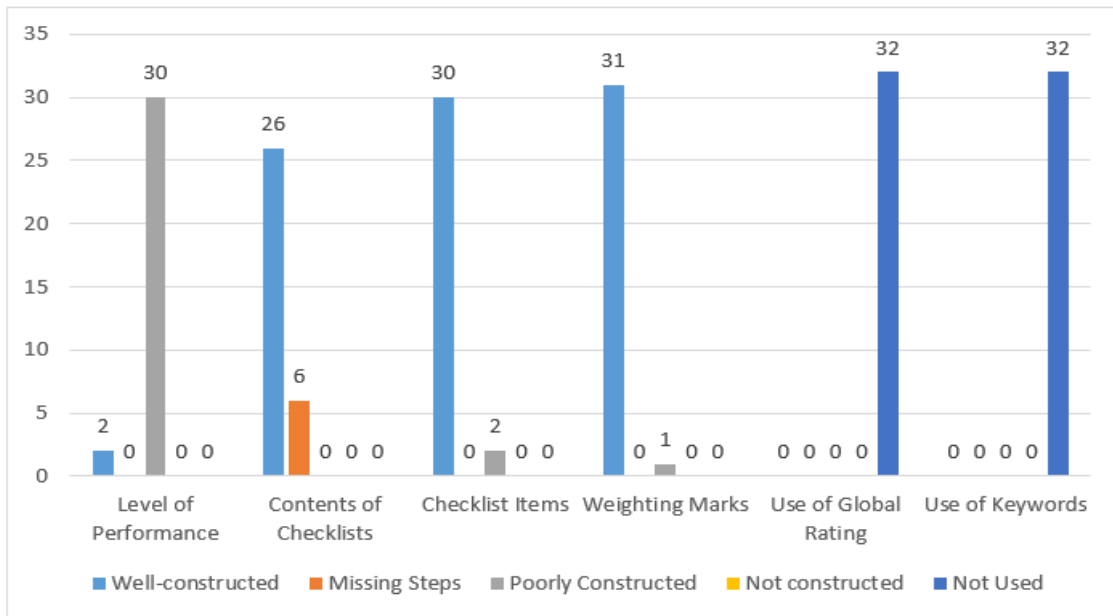
Fig I: Analysis of key variables in OSCE checklists (Distribution of Well-Constructed vs. Poorly Constructed OSCE Checklist Variables (n=32)
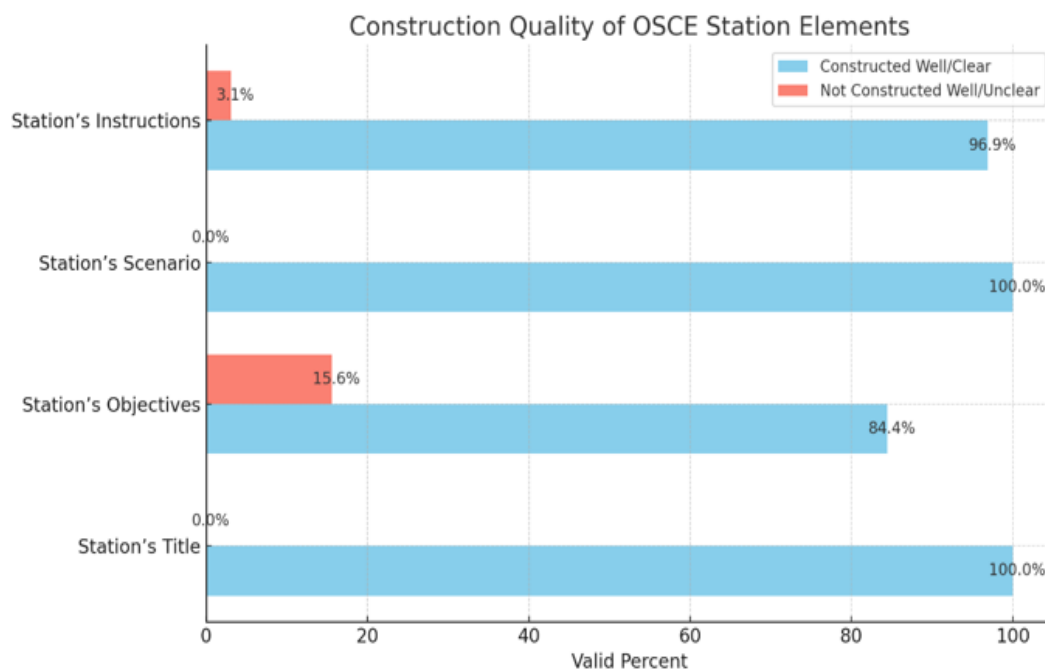
Fig II: Construction Quality of OSCE Station Elements (n=32)

DISCUSSION

The analysis showed that a substantial majority (93.8%) of the OSCE checklists were poorly constructed in terms of performance level criteria. This finding is consistent with recent studies indicating that poorly defined performance criteria can undermine the reliability and validity of OSCEs [9,10]. Enhancing the construction of these checklists is essential for providing accurate and reliable assessments of students' clinical skills.

Although the contents of 81.3% of the checklists were well-constructed, 18.8% had missing steps, suggesting gaps in comprehensiveness. Recent research emphasizes the importance of thorough and detailed checklists to ensure all critical components of clinical competence are evaluated [11]. Addressing these gaps by standardizing checklist content could improve the overall effectiveness of OSCEs. The presence of missing steps indicates a potential risk for incomplete assessment of clinical skills, which could lead to gaps in medical education and training. This underscores the necessity for a standardized approach to developing checklists to ensure consistency and comprehensiveness. Implementing a standardized format would not only reduce variability but also enhance the reliability of the assessment process. Furthermore, incorporating feedback from both educators and students in the development of these checklists can help identify and rectify omissions, making the evaluation process more robust. In addition, continuous review and updating of the checklists based on the latest clinical guidelines and educational research can ensure they remain relevant and effective in assessing current clinical competencies.

Although the study found that 96.9% of the checklists had well-constructed weighting marks, indicating generally appropriate allocation of marks. However, occasional inconsistencies (3.1% poorly constructed) suggest the need for standardized marking criteria. Furthermore, while 93.8% of the checklist items were well-constructed, improving the clarity and relevance of all checklist items is necessary for consistent and fair assessment [12].

The absence of global ratings and keywords in the checklists was notable. Incorporating these elements can provide a more holistic assessment and offer detailed feedback on overall competence [13]. The use of global ratings and keywords can also help capture critical aspects of performance that specific checklist items might miss.

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