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A BEST PRACTICE GUIDELINE FOR THE MANAGEMENT OF THE QUALITY OF OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS AT A MULTI-CAMPUS PUBLIC COLLEGE OF NURSING

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In accordance with Rule G5.11.4, I hereby declare that the above-mentioned thesis is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

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Dear Mr Nyangeni

This is to confirm that I edited your doctoral dissertation entitled:

A BEST PRACTICE GUIDELINE FOR THE MANAGEMENT OF THE QUALITY OF OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS AT A MULTI-CAMPUS PUBLIC COLLEGE OF NURSING.

I edited Chapters 1, 2 and 3 in September 2020 and Chapters 4, 5 and 6, together with the Reference List and the Abstract, in January and February 2021.

The editing was done in my private capacity, and as an editor on the Nelson Mandela University list of approved editors.

I edited and proofread the document for spelling, grammar, vocabulary, punctuation and sentence construction. I completed the edit in track changes and using text boxes. Recommendations for changes were given, where considered appropriate.

Yours sincerely

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DEDICATION

I dedicate this work to:

My wife Pinky, who has been my source of encouragement throughout this journey. I treasure the courage you had during my seventeen-day struggle with the Corona virus illness and for instilling a positive attitude which ensured that I did not only survive COVID-19 but also regain my strength to complete this study.

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ABSTRACT

An Objective Structured Clinical Examination (OSCE) is a robust method of clinical assessment which, when properly planned and executed, results in a high quality and credible student assessment. However, concerns regarding its uniformity, fairness, objectivity and accuracy have been raised.

Concerns regarding the management of the quality of OSCEs at a public College of Nursing in the Eastern Cape were raised by the College's stakeholders. No best practice guideline had been developed regarding the management of the quality of OSCEs for this College.

The aim of this study was therefore to develop a best practice guideline for the management of the quality of OSCEs at a public College of Nursing. The Transformative Pedagogy Theory proposed by Khedkar and Nair was used as a philosophical underpinning for this study. The Joanna Briggs Institute (JBI) model for evidence-based healthcare was used as a theoretical basis for this study.

In Phase One, a qualitative, explorative, descriptive and contextual design was used to explore and describe the experiences of nurse educators regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. Semi-structured individual interviews were used to collect data from fourteen (n=14) nurse educators. Thereafter, a qualitative document analysis of fifteen (n=15) external moderators' reports was conducted to explore the information external moderators shared regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. A document analysis checklist designed by the researcher was used to extract the data from external moderators' reports. Tesch's method of data analysis was utilised to analyse the data from the interviews while the data analysis process proposed by Dalglish, Khalid and McMahon was used to analyse the data from the external moderator's reports. In Phase Two, an integrative literature review was conducted to search, select, extract, appraise and synthesise best practices regarding the management of the quality of OSCEs in health sciences education. The adapted integrative literature review steps, as proposed by de Souza, da Silva and de Carvalho, were utilised to guide this phase. Data of a total of thirteen (n=13) articles were extracted and synthesised. In Phase Three, the findings of Phase One and Phase Two were synthesised, as a basis for informing the development of a best practice guideline for the management of the quality of OSCEs. The National Institute for Health and Care (NICE) and the Appraisal of Guidelines for Research and Evaluation II (AGREE II) frameworks were used as a basis for developing the best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing. The draft best practice guideline was reviewed by eight (n=8) expert reviewers who were experienced in conducting OSCE's and best practice guideline development.

Lincoln and Guba's principles—namely credibility, transferability, dependability and confirmability were applied to ensure the trustworthiness of the interview data. Wesley's criteria- namely triangulation, thick description and audit trail were used to ensure the trustworthiness of the document analysis. The principles as stipulated in the Belmont Report were applied in order to ensure the ethical soundness of this study.

Findings of the interviews and the document analysis in Phase One revealed that, while there are measures currently in place to facilitate quality in the management of OSCEs in this College of Nursing, there are gaps such as uncertainty in the assessment practices being used and resource constraints that hinder the overall quality of OSCEs. The participants indicated the need for the development of a best practice guideline for the management of the quality of OSCEs at this College.

Findings from the integrative literature review in Phase Two revealed three themes, namely: apply quality measures in the preparation and planning phase of OSCEs; apply quality measures in the implementation phase of OSCEs; and apply quality measures in the evaluation phase of OSCEs.

For Phase Three, the developed best practice guideline included three recommendations regarding the quality measures that should be applied in each of the three phases of OSCEs. It is recommended for the developed best practice guideline to be further refined, piloted and implemented to be used by nurse educators and other relevant stakeholders Once implemented, the guideline is expected to enhance the management of the quality of OSCEs at the multi-campus College of Nursing and, ultimately, nursing and patient outcomes through quality nursing education and assessment.

Keywords: Clinical Assessment, Nurse Educators, Nursing Students, Competence, Skills, College of Nursing.

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LIST OF ACCRONYMS

- AGREE Appraisal of Guidelines for Research and Evaluation
- CNS Community Nursing Science
- GNS General Nursing Science
- HEIs Higher Education Institutions
- JBI Joanna Briggs Institute
- MNS Midwifery Nursing Science
- NEIs Nursing Education Institutions
- NICE National Institute for Health and Care and Excellence
- OSCE Objective Structured Clinical Examination
- OSCEs Objective Structured Clinical Examinations
- PICO Population, Intervention, Comparison, Outcome
- PNS Psychiatric Nursing Science
- RNAO Registered Nurses' Association of Ontario
- SANC South African Nursing Council
- TPT Transformative Pedagogy Theory
- UK United Kingdom
- USA United States of America

CHAPTER ONE

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

In this Chapter, the background of the study, including an in-depth discussion of the literature related to OSCEs, is presented. The research problem, research questions, significance of the study, and the aim, phases and the objectives of the study are discussed. The concepts related to the study are clarified, and the philosophy underpinning the study, research paradigm, research design and methods, trustworthiness, ethical considerations and chapter division are discussed.

1.2 BACKGROUND OF THE STUDY

Clinical assessment is an important aspect of health science students' learning that enables educators to evaluate the mastery of clinical competence. Clinically competent individuals possess a combination of knowledge, skills, judgement, attitudes, values and abilities that underpin effective clinical performance (South African Nursing Council, 2014:2). Thus, assessment is central to confirming the development of clinical knowledge, skills and attitudes for professional practice has occurred.

The goal of clinical assessment is to evaluate students' ability to safely integrate theory and practice. Thus, health science students, including nursing students, are expected to be competent in all clinical aspects outlined in their curriculum (Baharin, 2012:260; Levett-Jones, Gersbach, Arthur et al., 2011:64). Educators rely on clinical assessment to measure the ability of a student to demonstrate the mastery of core competencies like history taking, physical examination, professionalism, clinical judgement, counselling, organisation, efficiency, technical ability, aseptic technique, communication and skill performance speed, among others (Medical Council of Canada, 2013:8; Schub & Heering, 2016:1).

Various methods are used to assess the clinical competence of students. These include the Objective Structured Clinical Examinations (OSCEs), long case, the short case, the objective structured long case, the mini clinical evaluation and the case-based discussion among others (Shahzad, Bin Saeed & Paiker, 2017:1). The choice

of a clinical assessment method depends on the purpose of assessment, the unique circumstances of the training institution, costs, suitability, safety, consistency, fairness and objectivity (Bruce, Klopper & Mellish, 2011:308; Asani, 2012:56). This research study focused on the OSCE as it was the preferred method for summative clinical assessment of nursing students used in the researcher's context, a multi-campus public College of Nursing.

An Objective Structured Clinical Examination (OSCE) is a universally accepted and one of the most common methods of clinical assessment (Hatamleh & Abu Sabeeb, 2014:21). Introduced in 1975 in Dundee by Harden, an OSCE is regarded as an objective, fair and reliable clinical assessment method (Elfaki & Al-Humayed, 2016:158; Zayyan, 2011:219), allowing the assessment the assessment of knowledge, skills and behaviours.

Khan, Ramachandran and Gaunt et al. (2013:e1447) divide OSCEs into three sections namely, preparation and planning, implementation and evaluation process. These sections are further elaborated below.

Preparation and planning.

- A coordinating team is decided on. An examination schedule, rules and regulations are developed.
- The examination blueprint, which includes the content or skills to be assessed, the number of stations, the length of each station and the format of an OSCE, is determined. The assessment scenarios and questions, assessment criteria and the scoring rubrics are developed, using the institutional format. The necessary standards are developed and adopted.
- A peer review process is undertaken to determine the validity, reliability and the curriculum alignment of the blueprint (Khan et al., 2013:e1449). 'Reliability' refers to the reproducibility of assessment data or scores, over time or occasions (Trejo-Mejìo, Sánchez-Mendiola, Mèndez-Ramìrez et al., 2016:1). 'Validity', on the other hand, refers to the ability of an instrument to measure what it is supposed to measure (Gormley, 2011:128). Therefore, a valid and reliable OSCE should accurately measure what it is supposed to measure and

the resultant assessment data should be reproducible over time (Gormley 2011:130).

 After the implementation of the recommendations of the peer review team, the final assessment tools are developed. A mock OSCE is conducted as a means of identifying and addressing weaknesses in the assessment tools as well as the examination process (Reid, Smallwood, Collins et al., 2016:4). Examiners and standardised patients, where necessary, are recruited and trained in order to familiarise them with their responsibilities and the OSCE process (Zayyan, 2011:221).

Implementation.

- A venue for housing the stations, equipment, briefing meetings, administration duties, waiting rooms and catering is prepared.
- For the smooth running of an OSCE, it is important for institutions to have manuals which detail the procedures to be followed during the OSCE. A procedure manual provides guidance regarding examiners and their level of training and experience needed to run the OSCEs, the equipment and related stock, provision of catering and of standardised patients.
- The OSCE circuit is set up to aid a seamless flow of students through the stations. Relevant and working equipment is provided and students are advised on whether they will use their own equipment.
- On the day the OSCE is conducted, examiners and standardised patients are briefed regarding all OSCE aspects and relevant rules are reinforced. Written instructions are provided to examiners and standardised patients for on-going reference.
- Orientation of students is done before the OSCE commences. Students are guided through the stations to ensure that they move in the correct direction.
- Any problems that are identified during the course of an OSCE are discussed and resolved by the relevant organising committee.

• An external moderator (an expert in the field) randomly selects students that she/he will examine and moves from one station to the next.

Evaluation.

- Mark sheets are collected and marks are verified. The examiners are contacted if corrections need their verification before the marks sheets are sent to the relevant examination board for ratification and publication of results.
- Written comments from the examiners and students regarding an OSCE are invited. These comments are used to further strengthen the fairness, organisation and implementation of future OSCEs. External moderators provide a written account of the OSCE process, including the maintenance of academic standards, the rigor and fairness with which the OSCE was conducted, and adherence to policies and curriculum requirements.
- If the OSCE was conducted for formative examination, a suitable time for providing feedback to students is selected.
- After the publication of results, students and examiners are allowed the opportunity to submit appeals regarding the OSCE and the results. Education institutions should have policies in place for addressing complaints or appeals related to clinical examinations. Any valid complaints should be used to inform changes in future OSCEs.

Considerable knowledge, experience, planning and resource investment are critical to successful organisation and running of an OSCE (Khan et al., 2013:e1447). To achieve valid and reliable results, it is essential that strong quality assurance is applied from planning to implementation of all OSCEs (Khan et al., 2013:e1447). Elrod and Bullock (2018:14) state that evidence of strong rigour demonstrates validity and reliability of an OSCE.

Quality management is essential in strengthening the accuracy of an OSCE. The Business Dictionary defines 'quality' as a measure of excellence or a state of being free from defects, deficiencies and significant variations brought about by strict and consistent commitment to standards that achieve uniformity of a product in order to satisfy specific customer or user requirements. (Khan et al. (2013:e1458) mention blueprinting and mapping, station number, developing a bank of OSCE stations, training of examiners and standardised patients, peer reviewing, standardisation and conduct of a feedback process as attributes that enhance the quality of an OSCE. These attributes are briefly elaborated on below.

- Blueprinting is a process of formally determining the content of an examination. It involves the choice of skills and frequency with which each skill appears in an examination (Khan et al., 2013:e1448). Blueprinting and mapping ensure that an appropriate sample of skills is selected, based on the content outlined in the curriculum (Khan et al., 2013:e1448).
- 'Station number' refers to the time-limited tasks given to students, lasting between five and ten minutes (Khan et al., 2013:e1449). An appropriate and realistic time for tasks at individual stations increases validity, while an adequate number of examination stations and skills to be tested improve reliability (Khan et al., 2013:e1449). The application of these measures increases the quality of an OSCE.
- The development of a secure and quality assured OSCE bank contributes significantly to the validity and reliability and therefore the quality of OSCEs. The clinical skills to be stored in the OSCE bank should be decided on. The assessment competencies should be identified and properly aligned to the teaching and learning that has taken place and to the specification in the curriculum in order to ensure the credibility of the OSCE process (Khan et al., 2013:1449). It is critical that the clinical skills that are expected to be performed by the students can be realistically assessed using the OSCE format.
- Training of examiners and standardised patients is indispensable in ensuring the quality of an OSCE. De Villiers and Archer (2012:50) cite examiner training as an important factor for credible and high quality OSCEs. The use of trained examiners enhances the quality of OSCE by preventing bias and improving consistency (Gormley, 2011:129).

- Peer review is vital to ensuring a high quality OSCE. The peer review process ensures that the clinical tasks planned for each station are accurate and appropriately aligned with the curriculum, educational standards and legal framework (Khan et al., 2013:e1458). External examiners are often invited to conduct a peer review to ensure maintenance of educational standards, and to provide assessment of quality, objectivity and fairness (Khan et al., 2013:e1458).
- Standardisation has been proven to contribute to the quality of OSCEs. Reid, Smallwood and Collins (2016:1) state that standardisation of areas such as student instructions, assessment questions, patient instructions and resources reduces variation, thereby enhancing the quality of OSCEs.
- Feedback from students, educators, external moderators and standardised patients is known to strengthen the quality of OSCEs. In order to improve the quality of OSCEs, continuous monitoring and evaluation is necessary so as to identify and address any shortcomings (Khan, Ayub & Shar, 2016:1). The perceptions and experiences of the stakeholders involved in the OSCE are vital in evaluating the strengths and weaknesses of the OSCE process (Khan, Ayub & Shar, 2016:1).

In addition to the above attributes, a well-constructed OSCE should demonstrate the following characteristics which will enhance its quality:

- Objective: the content and scoring procedures are standardised, students are exposed to different examiners, robust evaluation criteria are utilised, and reproducible scoring rubrics are incorporated (Hastie, Spellman, Pagano et al., 2014:197).
- Structure: each student experiences the same problem, and is asked to perform the same tasks, within the same timeframe. The tasks performed by students are at the same level of difficulty (no matter where the examination is taken) and the same marking scheme is used.

- Clinical relevance: the tasks in each OSCE station represent real-life clinical situations which assess students' ability to interpret data and to apply clinical knowledge and skills (Hastie et al., 2014:197).
- Examination: the tasks that students are expected to perform are suitable for the OSCE format and reliably assess students' competence (Hastie et al., 2014:198). Further, an OSCE should assess the cognitive, psychomotor and affective domain, in line with recognised educational taxonomies such as Bloom's (Hastie et al., 2014:198).

OSCEs were adopted in the United States of America (USA), Canada, United Kingdom (UK) and Australia, where they gained popularity as versatile, multi-purpose assessment methods (Yang, Lee, Hsu et al., 2011:198; Zayyan, 2011:219). In countries such as Japan, Korea and Taiwan, OSCEs have emerged as primary clinical assessment methods (Yang et al., 2011:199). In the USA and Canada, 20% of pharmacy and medical students' training and exit level clinical assessment are conducted through OSCEs (Urteaga, Attridge, Tovar et al., 2015:2; Shirwaikar, 2015:1). In the UK, OSCEs are the preferred method for assessing clinical communication skills of medical students (Laidlaw, Salisbury, Doherty et al., 2014:3). OSCEs have recently been adopted as clinical assessment methods of choice in Qatar and Saudi Arabia (Wilbi & Diab, 2016:5).

Eldarir and Hamid (2013:64) mention OSCEs as being popular for formative and summative assessment of nursing students. For formative clinical assessment, OSCEs are a helpful determinant of students' strengths and weaknesses, enabling examiners to holistically assess clinical skills, using standardised scoring rubrics while familiarising students with the OSCE process (Eldarir & Hamid, 2013:64; Chisnall, Vince, Hall &Tribe, 2015:77).

In summative assessment, OSCEs are used to evaluate clinical competence and knowledge and to enable judgements to be made regarding the achievement of the outcomes of the programme (Chisnall et al., 2015:77). Summative OSCEs thus validate the awarding of a qualification (Chisnall et al., 2015:77). Although OSCEs are expensive, due to the resources and time required, they provide an authentic way of

assessing students while allowing for assessment of large numbers of students within a short period of time (Chan, 2009:2).

Although OSCEs are deemed objective and bias-free, incidents of human error, inconsistency, non-uniformity in grading and inter-rater variability have been reported (Reid et al., 2016:1). These incidents are associated with unfairness in the overall clinical assessment of students (Scheicher, Lietner, Juenger et al., 2017:4).

Examiner fatigue, inexperience and lack of confidence contribute to a decline in accuracy of judgement which ultimately results in unfair grading during OSCEs (Puryer 2016:2; Chong, Taylor, Haywood et al., 2017:3). Lack of concentration and noise negatively affect the objectivity of the whole OSCE process (Hatamleh & Abu Sabeeb, 2014:22).

Lack of training and clinical experience are associated with examiner variation in clinical assessment and may affect scoring during OSCEs. Reid et al. (2016:1) conclude that untrained and inexperienced examiners may be less consistent and overly lenient as compared to their trained and experienced counterparts. Failure to orientate or brief examiners has been found to be a factor in incorrect interpretation of assessment criteria in OSCEs (Besar, Siraj, Manap et al., 2012:444; Raheel & Naeem, 2013:1283).

The way in which nurse educators teach and demonstrate clinical skills will influence students' knowledge, and their internalisation of content. Lack of uniformity in teaching and demonstration of clinical skills adversely affects student performance during subsequent assessment (Daniels, 2016:65). Failure to expose students to formative OSCEs deprives them of the opportunity to reflect on their strengths and weaknesses, thereby limiting their chances of enhancing their learning and of provision of additional support in preparation for the summative OSCEs (Chisnall et al., 2015:77).

Failure to conduct standard-setting could negatively affect the credibility of OSCEs (Bedir, Choudhury & Chowdhury, 2017:1). According to Tekian and Norcini (2015:2), standard-setting promotes validity and reliability of any assessment and help clarify the point at which a student is deemed to have passed or failed. According to Kamal, Sallam, Gouda and Fouad (2020:1), there are two popular standard setting methods namely norm referenced (pass/fail scores are determined by the relative scores of

students) and criterion referenced methods (pass/fail is based on the judgement of expects). The credibility of the passing score obtained from any assessment method will be high if a standard-setting method selected is consistent with the purpose of the test and based on the judgment of experts (Kamal et al., 2020:1).

Accurate and precise scoring rubrics are believed to allow consistent marking, regardless of the person conducting the assessment and the context in which the assessment takes place (Daniels, 2016:63; Saeed, Jaffery & Quandri, 2012:801). Checklists and global rating scales can be used for grading student performance during OSCEs. However, checklists are not recommended for summative OSCEs because they only show whether a student has done a particular task, and do not allow for the assessment of the degree to which the task is being done or the quality of the performance of the task being assessed and therefore are unsuitable tools to determine the competence of the student (Read, Bell, Rhind et al., 2015:8). Global rating scales, on the other hand, are preferred scoring rubrics to allow for assessment of the level of a student's performance (Read et al., 2015:8). Global rating scales allow for greater opportunities to measure other assessment dimensions—such as efficiency, accuracy, and safety—thus making them more reliable while also enhancing transparency of assessment grading (Read et al., 2015:8).

Gormley (2011:128) states that OSCEs are resource intensive and require thorough planning and control. Although OSCEs are designed to assess multiple competencies, it may be difficult to assess students on the entire skill due to time constraints. This often leads students to learn only what they predict will be asked in the examination, thereby reducing the educational impact of OSCEs (Gormley, 2011:128).

In South Africa, OSCEs are widely accepted as useful for assessing the clinical skills of health science students, including nursing students (Niehaus, Jordaan, Koen et al., 2012:119). The faculties of health sciences in South Africa prefer OSCEs for fair and objective assessment of clinical competency (Niehaus et al., 2012:119).

There is a strong realisation amongst South African academics that, while OSCEs are clinical assessment methods of choice, human factors and lack of uniformity may affect their credibility, fairness, objectivity and the overall quality of OSCEs (Joseph, Hendricks & Frantz, 2011:9). In a study conducted in South Africa, it was found that examiner conduct, assessment tools, scoring format and examination content

influence the validity and reliability and thus the quality of OSCEs (De Villiers & Archer, 2012:52). The use of experienced and expert examiners, video recording and briefing of students further contribute to the rigour of OSCEs (De Villiers & Archer, 2012:53).

The College of Nursing where the study took place is based on a multi-campus model, with five main campuses scattered across the Eastern Cape province and headquarters in East London. The five main campuses provide training for basic and post basic nursing diploma qualifications. Each campus has a number of satellite campuses which provide mainly mid-level nursing programmes. The multi-campus system has the potential to raise concerns regarding the uniformity, fairness, objectivity, standardisation, validity, reliability and accuracy of OSCEs, which may affect their overall quality.

There was no evidence in the post OSCE reports that all of the College's 1500 students in the four-year basic nursing diploma programme are subjected to the same processes of clinical assessment. Equally, it could not be established whether the central quality attributes of an OSCE were applied equally across all campuses during summative OSCEs. The College therefore needed to put measures in place to ensure that its complicated multi-campus system did not adversely affect the quality of its clinical assessment, especially with regards to the use of OSCEs.

At the time of this research study, the College was in the process of a paradigm shift from legacy qualifications to new qualifications aligned to the higher education sector, which required that the use of OSCEs in the College was of the quality expected by the South African Nursing Council (SANC) and by the Department of Higher Education and Training. Further, the SANC had been calling for sound and quality-assured methods of assessing nursing students, as these were viewed as vital for the maintenance of accreditation of nursing education institutions (SANC, 2014:40). Nurse educators thus had a direct responsibility to ensure the high quality of clinical teaching and assessment of students (Nursing Education Stakeholders' Group, 2012:3).

In the light of the above, it was evident that it was essential for a context specific guideline to be developed in order to address any possible problems related to managing quality when conducting OSCEs in the College. Best practice guidelines were deemed to be required as they have been developed and implemented successfully in various organisations in order to deliver best practices supported by

current evidence, to achieve excellence and to introduce innovation (Registered Nurses' Association of Ontario (RNAO), 2012:7). However, there was paucity of research as no best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing had been developed.

The discussion above demonstrates that a number of factors needed to be considered and certain steps had to be followed in order to achieve a successful OSCE. The discussion above further shows that uniformity, fairness, objectivity, standardisation, validity, reliability and accuracy were fundamental in achieving a high quality OSCE.

1.3 PROBLEM STATEMENT

As an experienced nurse educator, the researcher became aware of challenges related to lack of uniformity, fairness, objectivity, standardisation, validity, reliability and accuracy in the management of the quality of OSCEs at a multi-campus public College of Nursing. The multi-campus system of the College raised concerns regarding the uniformity and fairness of clinical assessment of nursing students because summative clinical OSCEs were done simultaneously at five different campuses across the Eastern Cape.

Post-examination discussions revealed that, even though the same assessment instruments were used for OSCEs, student performance was interpreted differently by different nurse educators. This difference in interpretation and judgement of a student's performance may stem from diverse understandings of assessment criteria by nurse educators, or from clinical procedures being taught, demonstrated and evaluated differently by different nurse educators on different campuses.

The multi-campus public College of Nursing is in partnership with a consortium of three independent universities who are responsible for the provision of quality assurance of all summative OSCEs. The universities are aligned to campuses according to their geographical proximity. These universities allocate nurse educators who have expertise in different nursing specialities to act as external moderators for the College examinations. The external moderators are responsible for validating the quality of all summative examinations for the College of Nursing.

During post-OSCE review sessions, external moderators criticised the College for the lack of uniformity and objectivity in evaluation, marking and grading of clinical performance of students. Moreover, it appeared as if the three universities had different expectations regarding how OSCEs should be conducted and the clinical skills that should be included. The different expectations were evident when one university challenged the other regarding the skills and the approach to OSCEs that were recommended by a different university within the consortium.

Furthermore, nurse educators who were employed by the College mentioned in academic meetings that during OSCEs, some campuses identified problems with the clinical examination scoring rubrics and made the necessary amendments without timeously informing the rest of the campuses conducting the same examination. These changes may have affected uniformity, fairness and standardisation of the entire OSCE process.

Nursing students studying at this College used post-examination surveys, end of block evaluations and College meetings to express dissatisfaction and mistrust at the way in which scoring was conducted during OSCEs. Nursing students also alleged that they did not know the standards against which their clinical performance was judged during an OSCE and therefore felt that the clinical assessment process was flawed. There was also a perception among nursing students at the College that clinical skills were taught and demonstrated for formative assessment but the standards for summative assessment differed from those of the formative assessment.

Anecdotal evidence suggested that, while all the campuses in the College had simulation laboratories, they did not have the similar resources such as fully-equipped simulation laboratories with relevant equipment and mannequins required for ensuring uniformity when conducting OSCEs. Disparities in resource allocation caused frustration and low morale amongst nurse educators and nursing students. This could potentially lead to non-uniformity when OSCEs were conducted, as some campuses resorted to improvisation. Thus, the students' clinical competence during an OSCE from one campus to the next might be judged differently.

Further, the assessment policy of the College did not stipulate how OSCEs should be conducted and did not clarify the control measures that should be used to manage the multi-campus examination system. Resource allocation and the role of stakeholders involved in OSCEs were not explicitly explained in the College assessment policy.

The discussion above indicates the existence of challenges with regards to the management of the quality of OSCEs at this particular public College of Nursing. While the College had some mechanisms to guide assessment, these did not seem to adequately address challenges related to the management of the quality of OSCEs. The situation thus required further investigation and development of a mechanism that would substantially address the challenges related to the management of the quality of OSCEs. Failure to address these problems might compromise the reputation and the credibility of this multi-campus public College of Nursing and might lead to the public losing confidence in the entire education and assessment processes of this College.

1.4 RESEARCH QUESTIONS

This research study sought to answer the following questions:

- What are the experiences of nurse educators regarding the management of the quality of OSCEs at a multi-campus public College of Nursing?
- What information do external moderators' reports reveal regarding the management of the quality of OSCEs at a multi-campus public College of Nursing?
- What are the best practices available for the management of the quality of OSCEs in health science education?
- What should be included in the best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing?

1.5 AIM OF THE STUDY

The aim of this study was:

 To develop a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing based on the experiences of nurse educators and external moderators' reports as well as the integrative literature review.

1.6 PHASES AND OBJECTIVES OF THE STUDY

This research study is divided into three phases, each of which has its own corresponding objective. The phases of the study and the corresponding objective for each phase are presented below:

- Phase One: To explore and describe the experiences of nurse educators and to conduct a document analysis of the external moderators' reports regarding the management of the quality of OSCEs at a multi-campus public College of Nursing;
- Phase Two: To search, select, appraise, extract and synthesise best research practices regarding the management of the quality of OSCEs in health science education; and
- Phase Three: To develop a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing.

1.7 SIGNIFICANCE OF THE STUDY

The research study is significant because the multi-campus public College of Nursing referred to in the study is a major contributor in the training of professional nurses in the Eastern Cape province of South Africa. Conducting the study thus led to strengthening the quality of summative clinical assessment at the College.

The information obtained from the study was used to develop a context-specific best practice guideline for managing the quality of OSCEs at this College of Nursing. Further, the best practice guideline provided a strong framework for nurse educators

to enhance the management of the quality of OSCEs across all the campuses of this College.

1.8 CONCEPT CLARIFICATION

Due to the multiplicity of interpretations of concepts in the health sciences, it is imperative that the use of such concepts be clarified in order to aid understanding and interpretation within the context of the study (Botma, Greeff, Mulaudzi et al., 2010:272). As such, the following concepts were clarified and operationalised for this study.

Objective Structured Clinical Examination (OSCE): Sibiya and Lekhuleni (2016:2) define an OSCE as a multi-station clinical examination in which all learners perform a number of pre-determined clinical tasks within a specified time-frame. In the context of this study, an OSCE is a method of clinical assessment used at a multi-campus public College of Nursing for summative clinical assessment of nursing students in the four-year diploma programme.

Clinical assessment: 'Clinical assessment' is defined as a measurement of students' clinical efficiency and achievement of performance criteria which enable him/her to practice safely and effectively, fulfilling the expected competencies laid out in the curriculum (Scanlon, 2017:1). In this study, 'clinical assessment' means the accurate evaluation of students' clinical competence across the five College campuses of the multi-campus public College of Nursing by means of a high quality OSCE.

Quality: The Business Dictionary (n.d) defines 'quality' as a measure of excellence or a state of being free from defects, deficiencies and significant variations brought about by consistent adherence to defined standards that achieve uniformity. In the context of this study, quality means putting measures in place to ensure excellence in terms of uniformity, fairness, objectivity, standardisation, validity, reliability and accuracy, affecting the overall quality of OSCEs at a multi-campus public College of Nursing.

External moderator: An external moderator is a competent and independent expert with relevant qualifications which enable him/her to perform an oversight role in an examination in order to ensure a uniform, fair, objective, standard and accurate assessment (South African Qualifications Authority, 2001:56; Department of Higher Education and Training, 2017:1). In the context of this study, an external moderator is an experienced specialist nurse educator deployed by a university of affiliation to oversee the OSCEs and ensure the maintenance of quality assessment standards at a multi-campus public College of Nursing.

Nurse educator: A nurse educator is a "Professional Nurse who has an additional qualification in nursing education and who is registered with the South African Nursing Council" (Mulaudzi, Daniels, Direko et al., 2012:3). In the context of this study, a nurse educator is a person responsible for conducting OSCEs for summative clinical assessment of nursing students at a multi-campus public College of Nursing.

Best practice guideline: A best practice guideline is a systematically developed statement that represents the most efficient or prudent course of action (RNAO, 2012:7). In the context of this study, a best practice guideline is a formal document which serves to guide nurse educators in the management of the quality of OSCEs at a multi-campus public College of Nursing.

1.9 PHILOSOPHICAL UNDERPINNING FOR THE STUDY

The researcher was guided by the Transformative Pedagogy Theory (TPT) as a philosophical lens for conducting the study. The TPT recognises that learning is a progressive and an inclusive process in which both the student and the educator play significant roles in achieving educational outcomes (Khedkar & Nair, 2016:334). The TPT views traditional pedagogical practices—wherein an educator is regarded as a fountain of knowledge while students are viewed as passive consumers of knowledge—as outdated. Hence reforms and innovations relevant to the 21st century are urgently needed (Khedkar & Nair, 2016:334). In terms of TPT, educators are empowered to reflect on current educational problems, and to seek sustainable solutions for those problems from multiple sources in order to bring about the necessary reforms and innovations (Khedar & Nair, 2016:334).

Given the challenges regarding the management of the quality of OSCEs at the multicampus public College of Nursing that was the focus of this study, a paradigm shift to bring about sustainable change was needed. The TPT approach encourages critical questioning and deep self-reflection that promote problem solving. Nurse educators are therefore expected by the community to play a meaningful role to challenge the existing policies and practices in order to improve the management of the quality of OSCEs at this College. The researcher believes that putting nursing students at the forefront of these policy and practice changes would enrich the process of quality improvement while affording students a sense of self-worth, motivation and self-confidence. Putting students in the of policy and practice changes could be achieved by inviting their comments about the current practices and policies and requesting their suggestions for improved future practices. The best practice guideline which was developed for the College of Nursing provides recommendations which, if adopted could influence the paradigm shift to adopting evidence-based practices for OSCEs. Nurse educators and nursing students could use the guideline recommendations to influence policy change and innovation regarding clinical assessment within the College of Nursing.

1.10 RESEARCH PARADIGM

The Joanna Briggs Institute (JBI) model for evidence-based healthcare was used as a theoretical basis for this study. The JBI model demands for practices that are feasible, appropriate, meaningful and effective and that are informed by the best available evidence (Pearson, Jordan & Munn, 2012:2). The JBI model is composed of four components, namely evidence generation, evidence synthesis, evidence transfer and knowledge utilisation (Pearson, Jordan & Munn, 2012:2). For the purposes of this study, the researcher utilised the first two components of the model namely evidence generation and evidence synthesis as the focus of the study was the development of a best practice guideline. The last two components of the JBI model (evidence transfer and knowledge utilisation) may be used for guideline implementation in a post-doctoral study. The two components: evidence generation and evidence synthesis are now outlined:

1.10.1 Evidence generation

The JBI model recognises that a rigorous literature search across different research methodologies is essential to provide the most meaningful and useful information to inform practice (Pearson et al., 2012:3). Results from Chapters Three and Four were used to build evidence as a basis for developing a best practice guideline for the management of the quality of OSCEs at a public College of Nursing.
1.10.2 Evidence synthesis

Evidence synthesis is the evaluation or analysis of research evidence and opinions on a specific topic to aid in decision making (Pearson et al., 2012:2). Research evidence related to the management of the quality of OSCEs in health science education was analysed and evaluated. The researcher thereafter synthesised the information gathered from Chapters Three and Four of this study into a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing.

1.11 RESEARCH DESIGN AND METHODS

Botma, Greef, Mulaudzi et al. (2010:108) define 'research design' as a plan for the conduct of the study that is followed by the researcher, providing determination of the methods which will be utilised for data collection. A qualitative, explorative, descriptive and contextual design was utilised to explore and describe the experiences of nurse educators regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. Thereafter, a document analysis was conducted of external moderators' reports regarding OSCEs in the College.

Research methods are technical steps and procedures used to systematically select, gather and process data (Botma et al., 2010:273). Semi-structured individual interviews were conducted with nurse educators in order to obtain rich data regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. An in-depth discussion of the research design and methods and a discussion of the qualitative research findings and literature control follows in Chapters Two and Three respectively.

1.12 TRUSTWORTHINESS AND ETHICAL CONSIDERATIONS

'Trustworthiness' is defined as the application of procedures to ensure the accuracy of the research findings so as to enable qualitative researchers to have confidence in the data generated (Brink, van de Walt & van Rensburg, 2010:157). The four principles suggested by Lincoln and Guba (1985) as cited in Nowell, Norris, White et al. (2017:3) namely credibility, transferability, dependability and confirmability were applied to the study. Trustworthiness is discussed further in Chapter Two.

Research studies involving human subjects must be guided by sound moral principles which guide the researcher in the protection of the rights of research participants (Brink et al., 2018:28). The principles prescribed in the Belmont Report (1979) cited in Miracle (2016:225) namely respect for persons, beneficence and justice were utilised as a guide to maintain the ethical integrity of this study. A comprehensive discussion of the ethical considerations of this study is provided in Chapter Two.

1.13 CHAPTER DIVISION

This research study was divided into the following chapters:

Chapter One:	Overview of the study
Chapter Two:	Research design and methods
Chapter Three:	Qualitative research findings and literature control
Chapter Four:	Integrative literature review research findings
Chapter Five:	A best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing
Chapter Six:	Conclusion, limitations and recommendations

1.14 CHAPTER SUMMARY

In this Chapter, the researcher presented the background of the study, including an in-depth discussion of the literature related to OSCEs. The research problem, questions, significance, aim and objectives were stated. The concepts related to the study were clarified, and the philosophy underpinning the study and the research paradigm used were discussed. A summary of the research design and methods, trustworthiness and ethical considerations was presented. In Chapter Two, a comprehensive discussion of the research design and methods, trustworthiness of the study are presented.

CHAPTER TWO

RESEARCH DESIGN AND METHODS

2.1 INTRODUCTION

In Chapter One, the introduction and background, including an in-depth discussion of the literature related to OSCEs, was presented. The research problem, questions, significance, aim and objectives of the study were discussed. The concepts related to the study were clarified, the philosophy underpinning the study and the research paradigm were discussed. A summary of the research design and methods, trustworthiness and ethical considerations were presented. In this Chapter, a comprehensive discussion of the research design and methods, trustworthiness and ethical considerations of the study is presented.

2.2 RESEARCH DESIGN

A research design is a plan for the conduct of the study that is followed by the researcher, providing determination of the methods which will be utilised for data collection (Botma et al., 2010:108). A qualitative, explorative, descriptive and contextual research design was used for this study, as explained below.

2.2.1 Qualitative research

Qualitative research generates data in the form of words, including accounts of feelings, behaviours, thoughts, insights and actions, with the researcher being the main instrument throughout the process (Botma et al., 2010:182). In line with the qualitative research design described by Strydom and Bezuidenhout (2013:53), the researcher obtained detailed accounts of participants' subjective experiences regarding the management of the quality of OSCEs at the college. As described in Creswell (2013:53), rigorous data collection procedures were used to collect multiple forms of data, analyse them appropriately, and spend sufficient time in the field.

A qualitative research approach was used to explore and describe the experiences of nurse educators regarding the management of the quality of OSCEs at a public College of Nursing. In addition, reports from external moderators were analysed in order to generate thick data regarding the management of the quality of OSCEs from external moderators' perspectives. Conducting the interviews and document analysis were especially important because no previous study has been conducted regarding this phenomenon at this institution. The multi-campus system of the College and the external moderation provided by three universities of affiliation, each with different learning and teaching cultures and backgrounds, presented a unique and complex situation which required the researcher to gather the experiences of the participants using a qualitative research design. The researcher needed to develop a deeper understanding of the experiences of nurse educators within this complex situation.

2.2.2 Explorative research

The aim of explorative research is to examine a relatively new subject, allowing the researcher to become conversant with basic facts and, thereafter, create a general picture of the phenomenon (Babbie, 2013:90). Using the explorative research design thus permitted the researcher to dig deeper more information into the experiences of nurse educators regarding the management of the quality of OSCEs in order to obtain a clearer picture of the phenomenon being studied (Polit & Beck, 2012:13). Explorative research provides insights and answer to phenomena being studied, allowing the researcher to create a general picture of relatively unknown phenomena (Davis, 2014:77).

The experiences of nurse educators regarding the management of the quality of OSCEs at a multi-campus public College of Nursing were the subject of explorative research in this study. Similarly, analysis of external moderators' reports provided insights into the management of the quality of OSCEs in a manner reflective of explorative research. The document analysis presented a clear picture regarding how external moderators experienced OSCEs as they assisted in the process of management of the quality of OSCEs and what input they provided to this process.

2.2.3 Descriptive research

The description of events and situations pertaining to a specific population are a crucial aspect of qualitative research (Babbie, 2013:91). Descriptive research provides for the accurate description and documentation of the characteristics of a specific phenomenon (Davis, 2014:75).

The information that nurse educators shared during the interviews facilitated the description of their experiences regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. Reports from external moderators were analysed intensely and accurately described to project the voice of external moderators regarding the management of the quality of OSCEs at the College of Nursing. The experiences of nurse educators and the external moderator reports facilitated the formulation of themes and sub-themes thus deepening the researcher's understanding regarding the management of the quality of OSCEs in this College. The researcher was able to obtain the accurate portrayal of the characteristics of the participants for the purpose of discovering new meaning and of identifying problems in the current practice, through describing what existed and categorising information (Grove, Burns & Gray, 2013:692).

2.2.4 Contextual research

Contextual research provides knowledge about the setting in which the phenomenon being studied is taking place (Creswell, 2013:48). This research study took place at the main campuses of a multi-campus public College of Nursing in the Eastern Cape. The College has approximately 1500 students enrolled in the basic four-year nursing diploma programme across five main campuses situated in the Eastern Cape Province. During the time of the study, there were143 nurse educators employed at the College. Although some of these were teaching mid-level nursing qualifications at satellite campuses, they were also involved in the summative OSCEs of the four-year diploma programme at the main campuses. The number of nurse educators teaching in the four-year diploma programme was 128 at the time of conducting this study. Three independent universities in the province provided support and external moderation of the College's summative clinical examinations. At the time of this research study, there were 20 external moderators assisting the College with external moderation of clinical assessment. Nurse educators in all five campuses were presented the opportunity to participate in this research study and the interviews were conducted in a context to which nurse educators were familiar. The best practice guideline recommendations were designed to be contextually relevant to facilitate implementation in this College of Nursing.

2.3 RESEARCH METHODS

Botma et al. (2010:273) define research methods as technical steps and an outline of the procedures used to systematically select, gather and process research data. The selection of sites, population, sampling, data collection, recruitment of participants, data analysis and the pilot study for the qualitative interviews and the methods for the document analysis in Phase One are described in the section below.

2.3.1 Phase One of the study: Qualitative interviews and document analysis

The objective for this phase was: To explore and describe the experiences of nurse educators and to conduct a document analysis regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. Accordingly, this section describes the interviews conducted with nurse educators as well as the document analysis of external moderators' reports, followed by ensuring trustworthiness in Phase One.

2.3.1.1 Interviews with nurse educators

This section covers the selection of campuses (sites), the population for the study, sampling, sample size, recruitment of participants, data collection, data analysis and the pilot study.

Selection of sites: The study was conducted at the five main campuses of the College because the four-year diploma nursing programme is offered at all the main campuses. Nurse educators from four main campuses were selected for the study. The fifth campus was used as a pilot site for the study.

Population: A population is an entire group of persons or objects that meet the criteria that the researcher is interested in (Brink et al., 2018:116). The population for this study was nurse educators as they were deemed an appropriate population because they were directly involved in conducting OSCEs at this College and could thus provide relevant information on the topic under study. Nurse educators from four main campuses were selected for the study. The fifth campus was used as a pilot site for the study. The number of nurse educators differs from campuses to campus, as shown in Table 2.1.

Table 2.1: Nurse educators per c	campus
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Campus	Number of nurse educators
Campus One	36
Campus Two	14
Campus Three	28
Campus Four	26
Campus Five	24
Total	128

Sampling: Sampling is the process of selecting a portion of a population in order to obtain information regarding a phenomenon in a way that represents the study population (Brink et al., 2018:115). There are two types of sampling procedures— probability sampling, which is based on randomisation, and non-probability sampling, which is conducted without randomisation (Maree & Pieterson, 2014:191). In this study, purposive sampling (which is a non-probability sampling method) was used because the researcher wished to select participants that could provide valuable and appropriate information regarding the management of the quality of OSCEs at a public College of Nursing. For purposive sampling, the researcher uses his judgement to select certain subjects or elements which have the characteristics of the population being studied (Maree & Pietersen, 2014:198). Thus, nurse educators who met the following criteria were selected for this study:

- A minimum of two years' experience as a nurse educator
- Teaching in the four-year diploma programme
- Involved in conducting formative and summative clinical assessments of nursing students
- A minimum of two years' experience in conducting OSCEs.

Sample size: A sample size is the number of participants recruited and consenting to take part in the study (Grove et al., 2013:708). There are no rules regarding the sample size in qualitative research, but data saturation (a point at which no new themes are

emerging) is a credible indicator to discontinue data collection (Nieuwenhuis, 2016:84). Data saturation was achieved after interviewing fourteen (n=14) participants.

Recruitment of participants: After obtaining permission from the relevant stakeholders, the researcher approached potential participants at their respective institutions. During the initial meeting, the researcher explained the importance of the study, clarified what would be expected of the participants and how much of the participants' time would be utilised for data collection. The researcher requested for permission to brief potential participants on the research goals, objectives, and inclusion criteria, and to ask them to indicate if they wished to participate in the research study. Letters explaining the aim and objectives of the study and providing the researcher if they had concerns. The researcher emphasised that participation in the study was voluntary. Contact numbers were obtained from participants who agreed to participate in the study in order to determine the dates and times for individual interviews.

Data collection: Data collection is the precise, systematic gathering of information relevant to the research purpose and the objectives of the study (Grove et al., 2013:45). Semi-structured individual interviews were conducted by the researcher from September to December 2019 and were recorded electronically. Semi-structured interviews obtain data from participants in face-to-face encounters, allowing the researcher to ask a specified number of questions while probing, clarifying, paraphrasing and asking additional questions in order to obtain thick and rich data (Brink et al., 2018:144; Nieuwenhuis, 2016:93). The interviews were conducted at a place and time which was determined by each participant. Privacy and confidentiality during data collection were maintained (see discussion of ethical considerations). The researcher was guided in the semi-structured interviews by the following main questions:

- What are your views regarding the management of OSCEs in general?
- What are your experiences and views regarding the management of the quality of OSCEs at this College?

- What guides your actions as an examiner when you are conducting OSCEs?
- What should be included in a best practice guideline to assist nurse educators to manage the quality of OSCEs at this College?

Data analysis: Data analysis is a process of exploring, organising and interpreting raw data in order to get meaning (Brink et al., 2018:165). Data analysis took place simultaneously with data collection (Niewenhuis, 2016:109). The recorded data was transcribed verbatim by the researcher and Tesch's method of data analysis, as described by Creswell (2009:186), was used to analyse the data. The steps taken by the researcher for conducting data analysis as suggested by Creswell (2009:186) are outlined below.

- Get a sense of the whole: The researcher read all the interview transcriptions carefully, made summaries and wrote his thoughts in the margin.
- Picked one document at a time and went through it in search of the underlying meaning.
- After reading several interview transcripts, made a list of all the topics and clustered similar topics together, forming these topics into columns that might be arranged as major topics, unique topics and left-overs.
- Took the list of topics back to the data, abbreviated the topics as codes and wrote the codes next to the appropriate segments of the text. A preliminary organising scheme was made to see if new categories would emerge.
- The most descriptive wording for the topics was made and turned into categories. Reduced the total list of categories by grouping topics that related to each other, and drew lines between the categories to show interrelationships.
- Made a final decision on the abbreviation for each category and used alphabets for the codes.
- Assembled the data material for each category in one place and perform a preliminary analysis.

• Re-coded the existing data if necessary.

Coding was conducted independently by the researcher as well as by an independent coder who was experienced in coding. The independent coder assisted in the process of categorising the data into themes and sub-themes. The researcher and the independent coder thereafter met to discuss the results of the coding and reached a consensus on the final themes and sub-themes.

Pilot study: Before conducting the main research study, it is important that a smallscale trial be done in order to identify and address weaknesses in the data collection tools and data collection procedures (Babbie & Mouton, 2010:200). A pilot study enables the researcher to make modifications to the practical steps of the study, if found to be necessary. Three (n=3) nurse educators from a campus in Port Elizabeth were selected for the pilot study. Because the researcher was working in this campus, an experienced researcher from a nearby university was requested to conduct the pilot study and was trained prior to the interviews. The data obtained from the pilot study was included in the main study as it optimally addressed Phase One's objective and no changes to the interview guide were deemed necessary.

2.3.1.2 Document analysis

After conducting interviews with nurse educators from the multi-campus public College of Nursing, the researcher conducted a document analysis of the reports from external moderators regarding the College of Nursing OSCEs. Bowen (2009:29) defines 'document analysis' as a systematic procedure for reviewing and evaluating documents related to the topic being studied in order to provide background information, historical insight and additions to a knowledge base. A document analysis provides textual data which can be read and reviewed multiple times without the researcher's influence (Silverman, 2014:276).

Through their reports, external moderators provide a detailed written account of the College of Nursing's OSCE process, from planning to implementation. Therefore, external moderators' reports could contribute to the knowledge base regarding the management of the quality of OSCEs in the College of Nursing. In line with the suggestion by (Bowen, 2009:31), analysing the external moderators' reports enabled the researcher to track change in the management of the quality of OSCEs in the

College over time and to verify the evidence obtained from the interviews that were conducted with the nurse educators.

While document analysis is a technique for collecting and analysing textual data, it is also a research method in its own right (de Andrade, Schmitt, Storck, et al., 2018:e53598). The analysis of external moderators' reports provided an insight into the context of external moderators and the input they gave into the management of the quality of OSCEs in the College of Nursing, thereby deepening the researcher's understanding of the phenomenon while enabling easier interpretation of facts and summarising of information (de Andrade et al., 2018:e53597).

The population, sampling, data extraction, data analysis process and pilot study will now be explained.

Population: The population considered for this study was external moderators' reports from 2010 to 2019. It was anticipated that the external moderators' reports would demonstrate how the College of Nursing conducted its OSCEs and the changes implemented over time. The timespan was chosen to give the researcher accurate data covering a wide period of time in order to get a deeper understanding of the information shared by external moderators. Three universities of affiliation conduct external moderation of the public College's OSCE for each of the four levels of the four-year diploma programme. The allocation of campuses per university of affiliation is shown in Table 2.2.

University	Campus(s) allocated
University A	Campus One and Two
University B	Campuses Three
University C	Campuses Four and Five

 Table 2.2: Allocation of campuses per university of affiliation

Sampling: Purposive sampling was utilised to select detailed external moderators' reports produced between 2010 and 2019 for the basic four-year diploma programme OSCEs. Selecting reports covering a long period of time provided a sufficient pool of external moderators' reports to allow for data saturation. The external moderators' reports were the property of the College and were accessible by permission from the

College management only. As such, the researcher was not ethically or legally obliged to seek permission of the authors to access the moderators' reports. In order to make judgements about the usefulness of the selected documents, the researcher was be guided by the following questions:

- What information are external moderators sharing regarding the management of the quality of OSCEs in a multi-campus public College of Nursing?
- What are the recommendations of external moderators regarding the quality of the management of the College's OSCEs?

Data extraction: A data extraction tool designed by the researcher was used to extract the data from each external moderators' report (See appendix A). The data extraction tool was used to seek information on what the external moderators reported on the OCSE's; with the main focus being on uniformity, fairness, objectivity, standardisation and accuracy. Dalglish, Khalid and McMahon (2020:6) the documents selected for analysis should be assessed for completeness, formality and similarity. The use of the data extraction tool facilitated the process of selecting complete, formal and similar external moderators' reports and provided an overview of similar data obtained.

Data analysis process: In line with the suggestions of Dalglish et al. (2020:6), a thematic analysis was undertaken to analyse the external moderators' reports using the steps below.

- Each external moderators' report was read thoroughly to obtain the meaning they contained
- Items that emerged were sorted into categories
- Similar topics contained in each category were grouped together into themes and sub-themes.

The themes and sub-themes were presented as quotations (representing the extracted comments from the external moderators' reports) and were included in the discussion of the findings in order to provide substantive detail. The researcher discontinued the document analysis when no new themes emerged from the external

moderators' reports. Thirty (n=30) external moderators' reports (three per year) were selected and analysed. However, data saturation was reached after analysing fifteen (n=15) external moderators' reports. The researcher analysed the external moderators' reports regarding the OSCE tools, the OSCEs themselves and the recommendations thereon in order to obtain a comprehensive picture of the entire external moderation process. The themes and subthemes of the document analysis were integrated with the themes of the qualitative interviews (see Chapter Three).

Pilot study: A pilot study was conducted in order to identify and addresses the weaknesses in the data extraction tool and the analysis procedures. Two external moderators' reports of different campuses for 2010 were selected for the purpose of conducting the pilot study. The data extraction tool and analysis procedures were found to be appropriate for use in the main document analysis. Therefore, data obtained from the pilot study was incorporated into the overall document analysis results as it optimally addressed the objectives of the study.

2.3.2 Ensuring trustworthiness

Trustworthiness is the implementation of procedures to ensure accuracy of the research findings (Brink et al., 2018:157). The methodical soundness of this study was strengthened by applying Lincoln and Guba's four criteria—namely credibility, transferability, dependability, and confirmability. For document analysis, the three criteria for trustworthiness suggested by Wesley (2010:6) were employed. Lincoln and Gubas' criteria and Wesley's criteria, as applied in this study, are elaborated in Table 2.3.

Table 2.3: Ensuring trustworthiness

Trustworthiness strategies for interview data		
Criterion	Application	
Credibility	'Credibility' refers to the accuracy with which data is interpreted (Koonin, 2014:258). To ensure credibility, the researcher:	
	 Used well-established and well-defined research methods; conducted member checks, triangulation and bracketing; and provided thick description (Nieuwenhuis, 2016:122). 	
	 Transcribed interviews verbatim and used quotations to substantiate the discussion of the results. 	
	• Kept interview transcripts for five years from the period of data collection in order to facilitate access to the data when required by relevant authorities.	
	 Conducted a pilot study to test the relevance of the research design and methods. 	
	 Spent adequate time in the field in order to collect rich and in-depth data until data saturation was achieved. 	
	 Bracketed himself in order to keep personal assumptions to himself, act like a stranger and understand the phenomenon from the participants' viewpoint. 	
Transferability	'Transferability' refers to the ability of the findings to be applied to similar situations providing similar results (Koonin, 2014:258). To ensure transferability, the researcher:	
	• Provided detailed information regarding the context in which the study took place.	
	• Presented a detailed and thick description of the data provided by the participants.	
	Described the research design and methods in detail.	
	Clearly described the population and the inclusion criteria.	
Dependability	'Dependability' is the degree of accuracy and consistency of translation of information from various data sources, and the provision of a means for reconstruction of events that lead to the conclusions in a research undertaking (Wagner Kaluwich & Garner, 2012:243). To ensure dependability, the researcher:	
	 Accurately executed the research design and method. 	
	Accurately described the data collection and analysis methods.	
	Transcribed the interviews verbatim.	
	 Accurately described the research findings by using quotations from the interviews. 	
	Made use of an independent coder.	

Trustworthiness strategies for interview data		
Criterion	Application	
Confirmability	'Confirmability' refers to the extent to which the data collected support the findings and the interpretations of the researcher (Koonin, 2014:259). To ensure confirmability, the researcher:	
	 Provided a detailed description of the data collection and analysis methods. 	
	 Recorded the interviews and transcribed them verbatim. 	
	 Asked the promoter and the co-promoter to verify that the quotations used to support the findings were taken from the interview transcripts. 	
	Kept the audio transcripts for future reference.	
	 Used bracketing to reduce the effect of researcher bias. 	
	 Conducted a literature control in order to ground the findings within the realm of existing literature. 	
	 Described the limitations of this research study. 	
Triangulation	A rigorous literature control was conducted by the researcher in order to base the results on the existing body of knowledge. Corroborated evidence in the form of direct quotations as well as the findings from the interviews was provided for each theme in order to ensure that the results were not biased.	
Thick description	The researcher intensely engaged with the external moderators' reports and gave a thick description of the findings. A meticulous description of the findings and the evidence upon which interpretations were based was provided.	
Audit trail	A detailed account of the findings and how conclusions were reached was provided. The researcher kept a detailed record of the progress through the data gathering, analysis and reporting stages as this allowed accurate report of the outcome and rationale for the decisions taken.	

2.3.3 Phase Two of the study: Integrative literature review

In this phase, the researcher searched, selected, appraised, extracted and synthesised the best available research evidence regarding the management of the quality of OSCEs in health science education. The findings of the integrative literature review, together with those of Phase One of the study were synthesised into a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing. Following in the section below is the discussion of the purpose, design, method and measures to achieve rigour of the integrative literature review:

Torraco, 2016:411) states that it is a researcher's responsibility to indicate the purpose for conducting an integrative literature review. There are various reasons for conducting integrative literature reviews namely:

- To review, update, and critique the literature,
- To conduct meta-analysis of the literature,
- To review, critique and synthesise the literature,
- To reconceptualise the topic reviewed in the literature,
- To answer specific research questions about the topic reviewed in the literature.

An integrative literature review was conducted as a basis for achieving the objective of this phase. An integrative literature review is a distinctive form of research that reviews, critiques and synthesises literature on a topic in a cohesive way so that new frameworks and perspectives on the topic are generated (Torraco, 2016:404). Conducting an integrative literature review allows for appraisal of the quality of scientific research, discovery of gaps in what is already known, inference of generalisations on a phenomenon, identification of central themes, and making of connections between related areas of specialisation (Christmals & Gross, 2017:7). The researcher searched, selected, appraised, extracted and synthesised the research of diverse types of evidence related to the topic, thus contributing to the development of a best practice guideline for the management of the quality of OSCEs at a public College of Nursing.

While there is no standardised format for conducting an integrative literature review, authors should organise their work in such a way that it promotes readability and logical flow of information (Torraco, 2016:415). The adapted steps of the integrative literature review as proposed by de Souza, da Silva and de Carvalho (2010:104) were used to guide the method for this phase as discussed below. The application of these steps is discussed in Chapter Four.

2.3.3.1 Step One: Preparing the guiding question/Problem identification

Defining the guiding question is an important step of the review because it determines which studies will be included, the means adopted for identification of the studies to be included and information gathered in each selected study (de Souza et al., 2010:104). To aid with problem identification, which is the corner stone of this step, the researcher formulated a searchable and answerable question that guided the integrative literature review. To obtain an answerable question, the researcher must use the PICO (Population, Intervention, Context and Outcomes) framework. The use of the PICO framework during the problem identification step enhances the identification of the subsequent search words (ten Ham-Baloyi & Jordan, 2016:123).

2.3.3.2 Step Two: Literature search

This step focused on a comprehensive search aimed at identifying relevant literature for reviewing. Torraco (2016:418) emphasises the importance of conducting a careful and comprehensive literature search as vital to the quality of the review, thereby ensuring reliability and veracity of results. While the search in electronic databases is effective and efficient, it is recommended to include ancestry channel searching and hand searching in order to minimise the risk of retrieving a large number of irrelevant literature (Whittemore & Knafl, 2005:548).

Developing a comprehensive search strategy covering a wide range of sources is key to obtaining sufficient and relevant literature (Cooper, Booth, Varley-Campbell et al., 20185). Therefore, literature should be searched from a variety of sources such as electronic databases, hand-searching searching the reference lists of retrieved articles and manually searching grey literature using Google Scholar (Cooper et al., 2018:5). Grey literature includes items such as reports, theses, conference proceedings, newspapers, fact sheets and policy documents which are not formally published in academic sources (Godin, Stapleton, Kirkpatric et al., 2015:2).

The researcher further needs to utilise the reference management tools onto which search results should be directly downloaded. Reference management tools enhance the search process by efficiently screening the legibility of downloaded literature (Frampton, Livoreil & Petrokofsky, 2017:2). The researcher thereafter has to read the literature titles and abstracts to identify the presence of the concepts that matched the

key search words and, if they were relevant, the studies were retrieved (Pompeo, Rossi & Galvão, 2009:436). The entire search strategy must be carefully documented using a data collection tool developed by the researcher to capture the details of the literature that was retrieved (Pompeo et al., 2009:436).

When screening the literature for inclusion, it is vital to correspondingly establish its strength, quality, and consistency to determine its applicability and usability in practice (Paré & Kitsiou, 2017:160). The levels of evidence also rank the evidence according to its strength; with the highest level (Level 1) being evidence from systematic reviews or meta-analysis of all relevant randomised controlled trials and the lowest level (Level 7) being evidence from from the opinion of authorities and/or reports of expert committees (Burns et al., 2011:2).

2.3.3.3 Step Three: Critical analysis/appraisal of the studies included

The third step is similar to data analysis and involves an organised approach to weigh the rigour and characteristics of each study (de Souza et al., 2010:104). Critical analysis focuses on weighting the quality and relevance of the literature retrieved (Russel, 2005:5). The inclusion and synthesis of both research and non-research evidence as well as literature with diverse designs during an integrative literature review required that the researcher assesses the rigour of individual empirical and non-empirical literature according to a hierarchical level of evidence (Fineout-Overholt, Melnyk, Stillwell et al., 2010:49). Assessing the rigour of scientific evidence guides the evaluation of research studies for their eligibility for inclusion in the final selection revealing the quality, the quantity and the consistency of such evidence. The purpose of the appraisal is to select studies that had sufficient rigour, while flagging those which showed flaws in methodologies, unreliable/biased data, presence of major variations between the studies and those with data recording errors (De Leeuw, Westerman, Nelson et al., 2016:3).

While there is no gold standard for appraising quality in integrative literature reviews, it is critical for the reviewer to use an organised approach to weigh rigour and the characteristics of each study (de Souza, da Silva & de Carvalo, 2010:104). Following collection and selection of data, it is necessary to assess the rigour of individual empirical and non-empirical literature according to a hierarchical level of evidence. Ingham-Broomfield (2011:39) states that assessment according to hierarchical levels

of evidence provides a visual and systematic depiction of forms of research from the least reliable (base) to the most reliable (apex). The literature extracted must be read thoroughly in preparation for critical appraisal, after which it can be categorised according to the hierarchical levels of evidence. After categorisation, the literature is critically appraised. The purpose of critical appraisal is to assess the validity of the selected studies, thus enabling the reviewer to include in the integrative review relevant studies and exclude those studies that are of poor quality.

The levels of evidence assisted the reviewer in assessing the strengths and weaknesses of the literature and the nature of the evidence provided in the findings, and conclusions thereof. Data was evaluated for unreliable values, presence of major variations between the studies and whether data recording errors existed (Russel, 2005:5). The researcher examined background, aim and research questions, sample, data collection, data analysis, results, ethical issues, reliability, and usefulness of the results (Tella, Liukka, Jamookeeah et al., 2013:3).

2.3.3.4 Step Four: Data extraction and synthesis

After critical appraisal, data of the rigorous articles is extracted so that it can be synthesised. Data extraction and synthesis involves a process of reducing the separate data elements collected by a researcher into a unified statement about the research problem (Russel, 2005:5). Therefore, data must be ordered, coded, categorised, summarised into unified and integrated conclusion about the research problem (Cooper (1998), as cited in Whittemore & Knafl, 2005:550). The goal of synthesis is to conduct and a thorough and unbiased interpretation of literature obtained and to provide an innovative blending of evidence. After data extraction is finalised, thematic analysis is conducted, where data is, coded, categorised, summarised into unified and integrated themes (Cooper (1998), as cited in Whittemore & Knafl, 2005:550).

2.3.3.5 Step Five: Data presentation

Completing all the steps of an integrative literature review has the potential to strengthen the process and the outcomes of integrative reviews (Whittemore and Knafl, 2005:552). Explicit details from primary sources and evidence to support conclusions need to be provided to demonstrate a logical chain of evidence and to

ascertain that the conclusions were drawn from available evidence. A clear and complete review must be presented to enable the reader to critically assess the results (De Souza et al., 2010:105). Tables and a PRISMA flowchart are used for the presentation of the search and selection process as well as the findings of the critical appraisal and data extraction. A narrative is used to present the thematic analysis of the findings aiming to draw conclusions about a body of evidence.

2.3.3.6 Ensuring rigour of the integrative literature review

The credibility of an integrative literature review process requires conceptual and methodological rigour to be upheld (Rocco & Plakhotnik, 2009:8). This means that a detailed account of the procedures used to search, select, appraise, extract and synthesise the data needs to be given. The review question and the inclusion and exclusion criteria must be clearly stated. To further aid in focusing the search strategy, relevant search words should be used. A relevant critical appraisal instrument is recommended to conduct an in-depth analysis of literature and the literature was ranked according to its strength to determine the best evidence (Burns, Rohrich & Chong, 2012:3). An independent reviewer must be utilised in order to minimise bias and interpretation errors during the critical appraisal. A librarian is utilised to help with comprehensive search from a wide range of databases (de Souza et al., 2010:104). The application of the measures used to ensure rigour in the integrative literature review is described in Chapter Four.

2.3.4 Phase Three of the study: Development of a best practice guideline

Based on the findings of Phases One and Two of this research study, a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing was developed. The application of the steps is reflected in Chapters Four and Five. The methodology for this phase is discussed below:

2.3.4.1 Methodology

The National Institute for Health and Care Excellence (NICE) (2014:13) and the Appraisal of Guidelines for Research and Evaluation II (AGREE II) were used as a basis for developing the best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing. The NICE (2014:13) prescribes

seven stages of guideline development namely scoping, guideline development, consultation on draft guideline, guideline revision, guideline signoff, guideline publication and updating. The AGREE II, on the other hand, covers six domains namely cope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability and editorial independence which can be used for developing or evaluating the quality of guideline (Brouwers, Kho, Browman et al., 2010:e841). However, the NICE guideline development stages and the AGREE II domains were adapted for the purposes of informing the methodology of this phase of the study.

The steps used for developing the best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing are scoping, developing the review question, planning the evidence review, reviewing the evidence used to inform the guideline, and wording of the recommendations. Additionally, the rigour of guideline development, applicability of the guideline and editorial independence are discussed. The applicability of the above mentioned will be outlined in Chapter Five.

2.3.4.2 Scoping

Rosenfeld and Shiffman (2009:18) state that a well-crafted guideline is underlined by a clearly defined scope. The determination of the scope helps clarify the overall purpose of the guideline, developing the review question, the target procedure and the target population for whom the guideline is intended, the context to which the guideline will apply, intended outcomes, planning the evidence review and reviewing the evidence used to inform recommendations.

Purpose of the best practice guideline

A guideline translates best evidence into best practice by reducing variations and improving accuracy and quality (Rosenfeld & Shiffman, 2009:4). Guidelines make evidence-based recommendations on a wide range of topics including planning, implementation and evaluation of new innovative practices as well as policy formulation (NICE, 2014:1). By developing a best practice guideline, the researcher intended to improve quality and reduce variations in the management of the quality of OSCEs at this particular public College of Nursing.

Developing a review question

Developing a review question is central to selecting the relevant literature regarding the topic of the guideline. In Phase Two of this study, an integrative literature review was carried out based on a review question (see Section 4.3.1 in Chapter Four).

Target procedure

According to Rosenfeld and Shiffmann (2010:18), the target procedure for which the guideline is intended should be explicitly defined. The target procedure is discussed in (Section 5.4.1.3 in Chapter Five).

Target population

Identifying the population for whom the guideline is developed is critical because it determines the breadth and depth of the work and ensures that the best practice guideline focuses on areas in which providers most need advice (NICE, 2014:22). The population for whom this best practice guideline was developed is discussed in Section 5.4.1.4 in Chapter Five.

Context of guideline application

According to NICE (2014:22), a best practice guideline is required in contexts where there is unacceptable variation in practice or uncertainty about best practice, areas of unsafe practice, uncertainty around the optimal service configuration and staffing levels, or where new evidence suggests current practice may not be optimal. The context of the guideline application is discussed in Section 5.4.1.5 in Chapter Five.

Outcomes

According to Rosenfeld and Shiffmann (2010:20), an outcome is an end-product expected which the guideline is expected to achieve including production of an intervention or implementation of a quality improvement programme. A discussion of the outcomes expected out of this best practice guideline are discussed in Section 5.4.1.6 in Chapter Five.

Planning the evidence review

It is essential that an evidence review is planned carefully enough to allow for replication by other researchers (NICE, 2014:72). This could include the provision of clear procedures used for searching the evidence and how the evidence was selected (NICE, 2014:72). The steps taken to review the evidence are discussed in Section 4.3 (Chapter Four of this study).

Stakeholder involvement

The best practice guideline development requires input from experts who are familiar with the guideline subject/topic (NICE, 2014:19). Individuals from all relevant professional groups should be involved during the process of guideline development (Brouwers et al., 2010:e841). The target users who will utilise the guideline should be clearly described and their views should be sought (Brouwers et al., 2010:e841). Stakeholder involvement for the best practice guideline is discussed in Section 5.4.1.9 in Chapter Five.

2.3.4.3 Wording the recommendations

Writing the recommendations is an important step in the guideline development process. Recommendation should be worded in a concise, unambiguous and in a manner that is easy to translate into practice (NICE, 2014: 172). In line with the suggestions of the NICE (2014:172), simple, consistent language to easy understanding. The recommendations stated what readers needed to know, focused on the action that needs to be taken, and identified the persons who need to take this action (NICE, 2014:172). Wording the recommendations is outlined in Section 5.4.1.10 in Chapter Five.

2.3.4.4 Applicability of the guideline

The guideline recommendations must be based on statements and advice which is easy to understand. Applicability of the guideline includes key review criteria for monitoring and/or audit purposes and editorial independence, which is outlined as follows.

Key review criteria for monitoring and/ or audit purposes

Best practice guidelines are developed to build the knowledge base of the target users and for transferring such knowledge into practice (Registered Nurses' Association of Ontario, 2012:83). It is important to develop means of monitoring and auditing the implementation of this knowledge (Registered Nurses' Association of Ontario, 2012:83). Measures which could be used to monitor the implementation of this guideline include observation of users during the OSCEs, interviewing users and conducting auditing. The use of these monitoring and/ or auditing criteria do not only assess the implementation of the best practice guideline but also assess its acceptability and usefulness (Nothacker, Stokes, Shaw et al., 2016:6). Applicability of the developed guideline is outlined in detail in Section 5.4.3 in Chapter Five.

2.3.4.5 Editorial independence

Editorial independence is delineation of measures for addressing potential conflict which might influence the guideline development (Wu, Wu, Young et al., 2015:3). It is crucial for guideline developers to demonstrate that the findings underpinning their guideline development were free from the influence of funding bodies. Editorial independence of the developed guideline is outlined in Section 5.4.4 in Chapter Five.

2.3.4.6 Ensuring rigour of guideline development

To ensure the quality of the guideline development, it is recommended that researchers develop the guideline based on credible guideline development methods as well as using scientific evidence to inform the guideline recommendations (NICE, 2014:165). A detailed description of the methods used in developing the guideline must be provided in order to validate the quality of the guideline. The guideline recommendations must be clearly stated to elicit the intended action which it seeks to achieve. Rigour of guideline development is outlined in Section 5.4.2 in Chapter Five.

2.4 ETHICAL CONSIDERATIONS

The Belmont principles as cited in Miracle (2016:225) were applied to ensure the ethical integrity of this study (See Table 2.4).

Principle	Application
Respect for persons	Respect for persons implies that individuals are autonomous and should thus be allowed to make decisions for themselves (Coggon & Miola, 2011:1). The following steps were taken to ensure respect for persons:
	 Participants were given full details of the research project in order for them to make an informed decision about whether they want to participate.
	 No participant was coerced to participate in the study.
	 Participants were afforded the right to withdraw at any time from the study, without victimisation or incurring penalties.
	 The information given by participants was treated in the strictest confidence and their names were not revealed in any medium.
	 Participants were not harmed or deceived in any way in this study.
	 The researcher did not collect data at his own campus but requested an experienced researcher from a nearby university to collect data on his behalf.
	 The data was not distorted, misused or falsified in any way.
	 Data was collected at a time and place which was determined by participants.
	 Approval was obtained from the relevant college management to access external moderators' reports regarding the OSCEs.
	 Codes used in order to maintain anonymity of participants, campuses and the universities of affiliation.
Beneficence	'Beneficence' refers to promotion of good and maximisation of benefits (Macklin, 2003:276). To promote beneficence in this study, the researcher ensured that:
	 Although no material benefits were provided to participants, the results of this research study were made available to organisations where data collection was conducted.
	 The best practice guideline for the management of the quality of OSCEs was developed to guide nurse educators when conducting OSCEs at the college of nursing.
	 Participants were not exposed to any risk during the study.
Justice	'Justice' means fairness and equal distribution of benefits (Burns et al., 2013:698). To promote justice in this study, the researcher:
	 Included all participants who met the inclusion criteria in the study if they agreed to participate.
	 Ensured that participants who met the inclusion criteria were not discriminated against.
	 Used fair and impartial recruitment procedures.
	 Selected and analysed all available external moderators' reports.

Table 2.4: Ethical considerations applied to the study

2.4.1 Gaining ethical approval to conduct the study

Before beginning the field work, the researcher submitted a formal research proposal to the Faculty Post Graduate Study Committee (FPGSC) at the Nelson Mandela University. After obtaining ethical clearance from the FPGSC (Appendix B), the researcher approached the following stakeholders to seek further approval before approaching the research participants:

- The Superintendent General of the Eastern Cape Department of Health (Appendix C)
- The principal of the public College of Nursing (Appendix D)

2.5 CHAPTER SUMMARY

In this Chapter, the researcher provided a comprehensive description of the research design and methods according to the three phases of the study. An outline of the strategies for ensuring trustworthiness, the ethical integrity of the study as well as how the researcher gained ethical approval to conduct the study were provided. In Chapter Three, the qualitative research findings and the literature control for Phase One of the study will be discussed.

CHAPTER THREE

QUALITATIVE RESEARCH FINDINGS AND LITERATURE CONTROL

3.1 INTRODUCTION

In Chapter Two the researcher provided a comprehensive description of the research design and methods and their application to the study. An outline was provided of the strategies for ensuring trustworthiness and the ethical integrity of the study, as well as the application of the ethical principles adhered to by the researcher, including gaining ethical approval to conduct the study. In this Chapter, the qualitative research findings and the literature control for Phase One of the study are discussed. A literature control is conducted for the purpose of contextualising the findings of a research study within the realm of existing literature (Vaismoradi, Jones, Turunen et al., 2016:107).

The findings of this research study were synthesised within the body of existing literature. A brief outline of the research participants and the results of data collection and analysis will be discussed, followed by a presentation and discussion of the themes and sub-themes.

3.2 RESEARCH PARTICIPANTS

The participants in this research study were nurse educators teaching in the four-year diploma programme at a multi-campus public College of Nursing in the Eastern Cape in South Africa. These nurse educators were working at the five main campuses which are located at various urban and rural areas throughout the Eastern Cape province.

Fourteen eligible participants who agreed to participate in this study were interviewed to explore and describe their experiences regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. Thirteen of the nurse educators who were interviewed were females and one was male. Their ages ranged from 33 to 60 years, while their work experience varied from 3 to 30 years. The breakdown of participants who were interviewed per campus is presented in Table 3.1.

Table 3.1: Participants	interviewed po	er campus ((n=14)
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Campus	Number of nurse educators interviewed
Campus One	Three
Campus Two	Two
Campus Three	Three
Campus Four	Three
Campus Five	Three

As part of Phase One research, document analysis was conducted to obtain the information and the recommendations external moderators shared regarding the management of the quality of OSCEs in the multi-campus public College of Nursing.

Thirty comprehensively written external moderators' reports that were available for the selected timeframe (2010-2019) were included for analysis in order to obtain information regarding the OSCE tools, the OSCE process and the recommendations from external moderators. However, data saturation was achieved after analysing fifteen external moderators' reports. The breakdown of external moderators' reports that were selected is presented in Table 3.2 below:

 Table 3.2: External moderators' reports selected

Year	Number of reports
2010	2
2011	21
2013	5
2014	1
2016	1

3.3 DATA COLLECTION AND ANALYSIS

In Chapter Two, data collection and analysis techniques were discussed.

After conducting the interviews with nurse educators, the researcher transcribed the data verbatim. Guba and Lincoln's method of data analysis was applied and data was organised into themes and sub-themes. Roulston and Myungweon (2018:240) define 'thematic analysis' as a method of analysing qualitative data in which the researcher closely examines data to identify common themes which describe the phenomenon from each participant's perspective. 'Themes', on the other hand, refer to the major findings which link a group of categories that have identifiable interrelationships into conjectures (Polit & Beck, 2012:185).

The themes that emerged from data selected for this study were supported by quotations from the interview transcripts to illustrate the source of the researchers' interpretations (Sutton & Austin, 2015:229). For ease of reference, each quotation is coded in order to identify the participant number and the campus in which that participant was working, and the page and line number of the interview transcript (e.g., P2, Campus One, 1:12). This strategy is designed to protect the anonymity of both the participant and the campus they are working at.

As data from the external moderators' reports proved similar to the data obtained from the interviews with the nurse educators, the data that emerged from the document analysis process was incorporated into the discussion of the themes and sub-themes that emerged from the interviews with nurse educators. Relevant quotations from the external moderators' reports were supplied to illustrate the source of the researcher's interpretations without revealing the affiliated university or name of the moderator (e.g., Report 1, Report 2). Any additions, similarities or differences identified from the external moderators' reports are highlighted as part of the discussion of the themes and sub-themes.

The four main themes and respective sub-themes that emerged from the data used in this study are presented in Table 3.3.

Table 3.3: Themes and sub-themes

MAIN THEME	SUB-THEME
 Measures are currently in place to facilitate quality in the management of OSCEs at the College of Nursing. 	1.1 A peer review system for OSCEs is in place.
	1.2 Control measures are applied by nurse educators to facilitate confidentiality of the OSCEs.
	1.3 Pre-OSCE briefing, orientation and validation of assessment tools take place on the day on which OSCEs are conducted.
2. There is a feeling of uncertainty and discomfort among nurse educators regarding the assessment practices being used in OSCEs at the College of Nursing.	2.1 The quality of the OSCE tools raises concerns regarding the accuracy of clinical assessment of nursing students.
	2.2 There is inadequate alignment between summative OSCEs and formative clinical assessment of nursing students.
	2.3 The approach used for re-OSCEs raises doubts regarding the optimal assessment of nursing students' clinical competencies.
 Resource constraints impair quality management of OSCEs in the College of Nursing. 	3.1 The inadequate and uneven distribution of appropriate resources amongst campuses poses a threat of inconsistent clinical assessment of nursing students during OSCEs.
	3.2 Nurse educators' initiative to borrow equipment from the nearby clinical facilities could compromise confidential OSCE information.
	3.3 Inappropriately skilled examiners are being utilised for OSCEs due to staff shortages.
4. Participants made recommendations for best	4.1 A policy framework, standard operating procedures and training regarding OSCEs are needed.
quality management of OSCEs at the College of	4.2 An explicit code of conduct for all stakeholders involved in OSCEs is needed.
nursing.	4.3 The College of Nursing needs to provide adequate and suitable resources for OSCEs.
	4.4 External moderators should play a more meaningful role to help the College of Nursing improve quality management of OSCEs.

3.4 DISCUSSION OF THEMES AND SUB-THEMES

In this section, the researcher describes the experiences of nurse educators regarding the management of the quality of OSCEs in the multi-campus public College of Nursing. The input of external moderators regarding the management of the quality of OSCEs at this College of Nursing was obtained through the external moderators' reports.

A detailed discussion of the four main themes and the relevant sub-themes obtained from the interviews with nurse educators and document analysis of external moderators' reports will now be provided. Quotations are included for each theme and sub-theme for the purpose of contextualising the findings within the body of existing literature.

3.4.1 Theme One: Measures are currently in place to facilitate quality in the management of OSCEs at the College of Nursing

Nurse educators shared that there are measures in place to facilitate quality in the management of OSCEs at the College of Nursing. According to Ahmed, Mahmood, Ghuman et al. (2013:447), the credibility of an education institution is judged by the quality of its examination system. One of the determining factors for choosing an educational institution is the trust and confidence the community has in the school and the values and professional culture such an institution stands for. Ahmed et al. (2013:448) concede that educational institutions are amongst the assets of a nation because they help build a better future for that nation.

Khan et al. (2013:e1458) emphasise that the continuous application of quality assurance measures is indispensable in ensuring the credibility of OSCEs. Important elements that must be considered to ensure quality assurance of OSCEs include external moderation, psychometrics, evaluation, examiner training, peer review of items (stations) and standardisation (Khan et al., 2013:e1458). The strength of an OSCE as a fair, objective and robust method of clinical assessment can only be realised when factors that may compromise its quality are minimised or eliminated (Chong et al., 2017:9). Document analysis data revealed that nurse educators received praise from external moderators for implementing measures to facilitate OSCEs in the public College of Nursing.

Recognition and appreciation are fundamental for motivating staff and for promoting job satisfaction in the workplace (Coy, 2011:74). Affirmation and encouragement are essential factors for promoting a sense of value amongst educators and motivates them to perform at an optimal level within the workplace (Coy, 2011:74).

3.4.1.1 Sub-theme One: A peer review system for OSCEs is in place

'Peer review' is defined as a rigorous process of evaluation of scientific, academic or professional work by others working in the same field (Kelly, Sadeghieh & Adeli, 2016:228). The implementation of a peer review system throughout the assessment process is known to enhance the credibility of clinical examinations. Abdi, Meštrović, Gelisen et al. (2017:685) state that peer review and involvement of a team, rather than an individual, in the entire OSCE process are essential for strengthening the quality of OSCEs. It is the responsibility of Higher Education Institutions (HEIs) to have in place systems that subject their examination instruments to rigorous scrutiny by suitably qualified and experienced professionals, in line with the recognised educational standards (University of Buckingham Medical School, 2016:16).

Before OSCEs are conducted, a number of steps pertaining to preparation for summative clinical examinations are followed in the College of Nursing. The first step is setting and preparation of OSCE tools. In this study, OSCE tools include OSCE questions, scenarios, instructions (to students, examiners and standardised patients) and the marking guide. In this step, a Programme Manager in charge of a specific nursing discipline such as General Nursing Science, Psychiatric Nursing Science, Community Nursing Science and Midwifery Nursing Science based in the Nursing College's Head Office reminds nurse educators from each of the five campuses to commence with setting and preparation of OSCE tools. The dates for submission of examination material including OSCE tools is reflected in the year plan of the College of Nursing.

"We have, we have a college calendar, where it will be stipulated that on this day all the exam papers must be in". [P 2 Campus One, 1:14]

The University of Edinburgh (2016:12) states that a series of clearly defined steps characterise the design and running of OSCEs. These steps include OSCE setting

and critiquing, pilot testing, standard setting and quality assurance (University of Edinburgh, 2016:12).

For each campus, there is a Head of Department (HOD) in charge of a specific discipline. The HOD coordinates setting and preparation of OSCE tools within his/her discipline. Nurse educators embark on the process of setting and preparation of OSCE tools for each year level and submit these to their respective HOD.

So, we will meet as a, a team Community Nursing Science, I'm talking about it but everybody is doing the same thing. We will meet as a team, we will set, I will only be specific with skills, practical part. We will set all the papers anyway, theoretical and the skills. [P 2 Campus One, 1:16]

Teamwork and collaboration have been found to promote the quality of OSCEs, while allowing benchmarking and improvement of assessment practices (Malau-Aduli, Teague, Turner et al., 2015:1). A characteristic of OSCEs is the involvement of a number of individuals who collaboratively carry out specific tasks throughout all the steps of OSCEs. When small teams are involved in OSCEs, each of the teams should have a leader to coordinate the assigned tasks and to provide direction where necessary (Khan et al., 2013:e1448).

Step Two of the process involves the submission of the OSCE tools to the Deputy Campus Head in each campus, who is in charge of academic operations in each campus. On a predetermined date, the Deputy Campus Head from each campus submits all the OSCE tools to the Academic Registrar, based in the examination section in the Nursing Colleges' Head Office.

"After we have set moss [perhaps] the summative part...summative assessment question papers, we normally set them, we normally send them to the Deputy Campus Head and then she's going to be the one that send...take them to the examination office until the time of the summative assessment that's it". [P 1 Campus Two, 9:230]

In Step Three, the Academic Registrar distributes the OSCE tools to the relevant Programme Managers. After receiving the OSCE tools from each campus, the Programme Managers decide on the final tools for the summative OSCEs for each year level. "So, we send those skills to the programme manager and the programme manager will choose whichever skill". [P 2 Campus One, 2:34]

Scheduling examinations is part of Higher Education Institutions' (HEIs) planning. Because of the number of academic activities at HEIs, it necessary to develop an annual schedule which helps clarify timelines for each academic activity, in accordance with the unique circumstances, the curriculum and policies of each institution (Khan et al., 2013:e1448).

In Step Four, each Programme Manager submits the summative OSCE tools to the relevant external moderators. The external moderators are based at the three universities of affiliation and are allocated to moderate specific disciplines according to contractual agreements within the consortium of universities.

"...the papers are...they are taken from the programme managers to the external moderators after the programme manager has chosen the paper. So, she will take the paper to the external moderator..." [P 1 Campus Five, 3:68]

A moderator is person, apart from the examiner, who is appointed for ensuring that the examination process is credible, fair, valid, reliable and practicable (South African Qualifications Authority, 2005:7). Moderation is conducted internally and externally. Internal moderation is a process undertaken by a suitably qualified and experienced person within an institution of learning who is appointed to ensure that assessment is fair and aligned to institutional quality standards (University of Stellenbosch, 2006:2). External moderation, on the other hand, is a process undertaken by an appropriately qualified and competent person to conduct examination quality assurance of another institution (University of Stellenbosch, 2006:2). It is during the moderation process that the reliability, correctness and validity of the examination, the marking process and the results of a module are checked and verified (University of Stellenbosch, 2006:2).

Step Five, the last step, involves the submission of externally moderated OSCE tools back to the relevant Programme Managers. After receiving the externally moderated OSCE tools, the Programme Managers submit these to the Academic Registrar for safe keeping until they are delivered to campuses three days before OSCEs are to be conducted.

"...the programme manager is the last person to finalise the exams". [P2 Campus Two, 2:41]

Nurse educators shared that the peer review process starts at campuses when OSCE tools are submitted to the HODs. After receiving the OSCE tools from nurse educators in their respective disciplines, HODs conduct the internal moderation of the tools and the necessary corrections or inputs are made before submitting to the Deputy Campus Head.

When the Programme Managers receive the OSCE tools, they conduct their own review of the tools and decide on what they believe are the best tools for summative OSCEs. Programme Managers thereafter submit the OSCE tools to external moderators who then conduct the final quality assurance before the tools are locked in safe storage until the time of the summative OSCEs.

"...the practical exams are being moderated by our Head of Departments and then also by our Central Office managers and the external moderators". [P 2 Campus Four, 1:21]

External moderators play a vital role in ensuring that the assessment process measures student achievement rigorously and fairly and is conducted in line with policies and regulations of the institution (Khan et al., 2014:e1458). External examiners may be invited from different institutions to inform and comment on whether academic standards are being maintained (Khan et al., 2013:e1458).

Nurse educators shared that, apart from the peer review that is conducted during the setting and preparation of OSCE tools, a further peer review takes place on the day the OSCEs are conducted, when each station is manned by two examiners. The allocation of two examiners per station is a quality control measure to promote fairness in marking. One of the nurse educators mentioned that as human errors occur during assessment, a second examiner is indispensable for running cross-checks, while also ensuring fairness in student assessment.

"The purpose of having two assessors of course is to ensure the quality and secondly is to...remember if you are a human being you can miss something from the students. So, the student is doing and I'm writing at the same time and, you see. I can miss something else and then the second assessor is there to see that thing that I've missed". [P 1 Campus Three, 5:120]

"We usually pair as two evaluators evaluating each student to, to ensure fairness". [P 2 Campus Five, 10:263]

The presence of two examiners using a standardised assessment tool promotes objectivity and consistency in student assessment (Hastie et al., 2014:197). Accurate judgement of students' performance is key for achieving an objective, fair accurate, valid and reliable OSCEs (Tavakol & Pinner, 2018:132). Student performance judgements may be susceptible to errors which can contribute to less reliable OSCE performance ratings (Tavakol & Pinner, 2018:132). One way of minimising errors in student assessment is the use of two examiners in each OSCE station (Tavakol & Pinner, 2018:132). While the use of two examiners per OSCE station is encouraged, reliability improves when they each examine students independently (Taala, Wagas & Teresa, 2019:3).

Apart from receiving support from universities of affiliation, campuses also receive support from satellite campuses (also called sub-campuses) and the nearby health facilities. Although Registered Nurses from the surrounding clinical facilities and nurse educators from satellite campuses assist during OSCEs, they are not teaching in the four-year Nursing Diploma programme.

"...we ask people from clinical areas from the hospital to assist on that day". [P 3 Campus Three, 14:30]

"...we work together with the sub-campuses and together with other lecturers". [P 1 Campus Five, 1:16]

Morrison and Stewart (2005:193) argue that clinical facilities offer health science students the opportunity to learn from a variety of health professionals, and that the same opportunities could be exploited to use an interprofessional approach to student assessment. A research study conducted by Morrison and Stewart (2005:199) concluded that clinical skills should be taught and assessed in an integrated manner that accurately reflects interprofessional collaboration and teamwork.
The external moderators' reports indicate that the OSCEs in this public College of Nursing are conducted by a team of suitably and experienced qualified people. According to the external moderators' reports, this team is made of nurse educators with diverse qualifications.

"There is a strong team with the necessary qualifications". [Report One, 3:]

"Educators were of a good skill mix as well as of varied levels of experience". [Report Seven, 1:19]

To conduct successful OSCEs, it is imperative to organise a diverse and competent team of examiners and support personnel who will perform tasks that ensure a smooth running OSCE (Ware, El Mardi, Abdulghani et al., 2014:26). One of the distinguishing characteristics of an OSCE is the participation of a number of examiners and staff from different specialities and health institutions (Harden, Lilley, & Patricio, 2016:106). During the OSCE planning, attention needs to be paid to the logistics, such as assigning roles and responsibilities to specific individuals. Ware et al. (2014:25) suggest the following be put in place for the smooth running of OSCEs:

- An experienced OSCE coordinator, who is responsible for overseeing the development, organisation, administration, and scoring of the examination
- An OSCE committee responsible for overseeing the whole examination process from planning to the final publication of the score report. The committee should consist of the coordinator, senior specialists familiar with the curriculum and desired standards, a simulated patient coordinator, a supervisor for the support staff and an educationist familiar with performance-based testing
- Station developers whose task is to prepare OSCE stations in accordance with the needs of the clinical skills that students are required to perform. The appointed station developers must have good clinical experience, should be familiar with the curriculum or training programme and published standards, and be good team members who do not take offence when the committee offers suggestions for station revisions
- Support staff whose tasks may include providing supplies and equipment, time keeping, attending the needs of examinees, examiners and simulated patients and catering

Data from the document analysis revealed that campuses also receive support from senior management. One of the external moderators' reports stated that senior managers from the College Head Office and from the District Office where the campus is located are deployed to provide support to nurse educators during OSCEs.

"Clear indication of the support of the management personnel". [Report One, 3:1]

"District supervision from management". [Report One, 3:1]

After the OSCE, examiners meet in order to evaluate the process and to give a general overview of student performance. This evaluation process provides an opportunity for examiners to share their views on the strengths and the weakness of the OSCEs while offering insight for future improvement.

"...when we finish the OSCE we go for evaluation". [P 1 Campus Two, 7:161]

"...the head of, of that OSCE would go around from station to station and then would ask station one can you generalise your performance...what did you feel was the performance in your station and then you would give a highlight or lowlight of what you find was a problem. Did the student perform well or erm give an example of what you feel the student didn't do well that we can maybe work on in future. So basically, it's just the feedback session from station to station to say how you felt or your opinion of the performance per station". [P 3 Campus One, 3:55]

Feedback is an integral aspect of OSCEs, allowing both examiners and students to provide their subjective views regarding OSCEs (Moineau, Power, Pion et al., 2011:190). A study conducted by Moineau et al. (2011:190) found that the feedback provided by standardised patients is as useful as that which is provided by students and examiners. Therefore, feedback should be sought not just from examiners but also from standardised patients and students, as their input may improve the quality of the stations and organisation of the future examinations (Khan et al., 2013:e1458).

OSCEs provide opportunities for both student clinical assessment and feedback to occur simultaneously. For feedback to be effective, it should include direct observation, assessment of performance, reflection, decision making, and the opportunity to improve performance. After formative OSCEs, feedback helps students

reflect on their performance, reinforce the required learning and correct deficiencies (Perron, Louis-Simonet, Cerutti et al., 2016:8).

3.4.1.2 Sub-theme Two: Control measures are applied by nurse educators to facilitate confidentiality of the OSCEs

Nurse educators mentioned several activities that they undertake to facilitate the maintenance of confidentiality of the OSCEs in the College of Nursing. One such activity is the handwriting used during the setting and preparation of OSCE tools. The use of computers for setting and preparation of OSCE tools is prohibited in the College of Nursing. Nurse educators stated that hand writing OSCE tools is a measure to prevent examination security breaches.

We don't type believing that if you are typing, that information...someone...we don't have an extra computer where we can say this is for exams. [P2 Campus One, 6:163]

The Royal Veterinary College (2019:1) recommends the development and implementation of policies within the HEIs which enhance security of assessment and examination material. Every staff member involved in the handling of examinations and assessment material is expected to do so in a manner that ensures the integrity of the assessment process and, in turn, the integrity of the academic standards (Royal Veterinary College, 2019:1). In the age of advanced technology and proliferation of cyber spying, the need for implementation of robust security measures for handling assessment and assessment materials has never been more important (International Test Commission, 2014:6). The increase in and severity of security threats have rendered all assessment programmes vulnerable to potential damage, thus calling into question the validity of assessments conducted worldwide (International Test Commission, 2014:5). While reasonable steps are needed to counter the threat of examination security breaches, the researcher did not find literature supporting handwriting of examination material as a measure to protect examinations. In contrast, literature supports the adoption of digital security technologies as means to counter examination threats (Royal Veterinary College, 2019:2; International Test Commission, 2014:21).

All the College of Nursing staff who are involved in the OSCEs sign an oath of secrecy as an affirmation that information about the OSCEs will be kept confidential. The College of Registered Nurses of British Columbia (2017:15) defines an 'oath of secrecy' as a written commitment taken in order to keep privileged information confidential. The oath of secrecy also presents the opportunity to declare conflict of interests.

"....the lecturers that are concerned are also signing oath on that day and then are not permitted to go out". [P 1 Campus Two, 3:79]

Apart from signing the oath of secrecy, the use of phones during the OSCE is prohibited until the OSCE is over, to avoid students communicating information about the OSCE to each other. The process is outlined by the following participants:

"...there are no phones on the students and also the models we do brief them as to what is expected on them [the students] and confidentiality because they will be among us". [P 3 Campus Three, 3:44].

"...we normally say that no one should come in with the phone". [P 1 Campus Two, 4:84].

It is recommended that academic institutions develop policies which explicitly outline the items that are not allowed in the OSCE area (Canadian Memorial Chiropractic College, 2018:2). These items may include phones, smart watches and other devices that can be used to gain unauthorised access to information or to disseminate confidential OSCE information (University of Bolton, 2015:4). A designated and secure area should be made available for storing personal items which are not permitted in the OSCE area (Burt, Abel, Barclay et al., 2016:2). For added security, a staff member should be assigned to monitor the area where personal items are kept. Khan et al. (2013:e1457) confirm that mobile phones and other devices with the means for remote communication should not be permitted in the examination centres. Prohibiting the use of phones ensures the integrity and the credibility of OSCEs are maintained. The International Test Commission (2014:12) recommends that a comprehensive security effort should use multiple layers of security procedures, given the well-established assumption that several methods are more successful than a single method. During the OSCEs, movement of students is limited as students are kept in a separate venue and those who have already been examined are not permitted to interact or mix with those who have already been examined. Preventing interaction between students who have completed their OSCEs from those who have not is done in order to further enhance confidentiality of OSCEs. A nurse educator is assigned to keep an eye on students in order to ensure that they are confined in one venue and do not interact with those who have completed their OSCE.

"...there is somebody who is looking after all the students and then when the group that is due to do the skill is taken from the hall to one room and then there's a person who is looking after those students and then from there the bell ringer will make them aware that the next group must come. So, we control the group like that and from there when they are done, they go, they use another wing now not through the hall". [P 2 Campus One, 4:109]

Khan et al. (2013:e1457) define the process of separating candidates who have completed the examination from those who have yet to take it on the same day as 'quarantining'. To prevent unfair advantage, candidates scheduled for the early circuits should be quarantined' in a separate room until every candidate has completed their OSCE (Khan et al., 2013:e1457). The College of Registered Nurses of British Columbia (2015:17) recommends implementation of strict security measures to protect all examination materials during all phases of development and administration of examinations. This includes the development and review of materials, reproduction, transportation, presentation and disposal of examination materials in order to eliminate unfair advantage among candidates and to avoid the high cost, both human and financial, of replacing examination material should examination security be breached.

The external moderators' reports confirm that students are kept in a venue which is separate from the venue where OSCEs are conducted. However, after completing their OSCEs, they are released home. The external moderators' reports recorded that late coming of students to the examination was noted as a concern. Physical contact between students who had already completed the OSCE and those who arrived late for the examination could not be ruled out.

"The students were kept in a separate venue at the training centre prior to the OSCE's and they are free to go home once they have completed their exams". [Report Nine, 2:54]

"There was late coming of students from home to the examination and physical contact with those students who had already completed the OSCE was a possibility...". [Report Eleven, 1:16]

According to Gormley (2011:131) because OSCEs span the course of the day or more, the potential for the OSCE content leaking amongst different cohorts of candidates sitting the same examination exists. Therefore, all reasonable measures must be taken to prevent unauthorised access to and dissemination of OSCE related information. These measures include routine quarantine of earlier students from later ones until the entire OSCE is complete (Burt et al., 2016:2).

While nurse educators are aware of the skill that students will be examined on during the OSCE, they do not know the specific questions related to the skill because the OSCE tools are kept sealed and under lock and key in a restricted area in each campus, as outlined in Sub-theme 3.1 above. Nurse educators reflected on this aspect of security in the following quotations:

"We don't know what is in the pack, we only know that the skill, this skill is going to be out. How it will be, how it is asked, we don't know all those things. So, er the equipment, I mean the pack for the OSCE is locked in the strong room". [P 2 Campus One, 2:48]

"I believe in that because we set a pool of questions as...of question papers as well as the paper for the OSCE. I assume that the programme manager is the last person to finalise the exams". [P 2 Campus Two, 2:41]

The Michigan Department of Education (2019:20) states that access to the examination storage facility should be strictly controlled at all times in order to ensure that examination materials are secure at all times. All examination materials must be locked away in a secure area which is only accessible to credible authorised officials (Michigan Department of Education, 2019:21).

3.4.1.3 Sub-theme Three: Pre-OSCE briefing, orientation and validation of assessment tools take place on the day on which OSCEs are conducted

Nurse educators shared that, on the day on which OSCEs are conducted, all the examiners, external moderators, a Programme Manager from the College Head Office and the Academic Head of the relevant campus converge in one venue for the purpose of briefing, orientation and validation of tools. Orientation takes place in the morning to familiarise examiners with their roles and the OSCE tools. It is during this time that each staff member is briefed on their role in the OSCE.

"Then during the exam day now, we come erm to the boardroom in the morning. We open the, the packs from exam office. Then, we discuss the tools...we read the scenarios, we read what is expected from the model, we read what is expected from the learner who is going to be assessed and what is expected from me as the examiner. Then we discuss. We calculate the marks from the tool if they are right and are corresponding to is said on the outer page". [P 3 Campus Three, 2:31]

Because of the number of activities that take place on the day of the OSCEs, it is vital for all the stake holders to arrive at least on time before the start of the OSCEs (Ware, El-Mardi, Abdulghani et al., 2014:28). As part of their orientation, examiners should conduct an inspection of the stations; and read the scenarios, tools and instructions to examiners, students and standardised patients (Piryani, Shankar, Piryani et al., 2013:168). Specific instructions and guidance should be provided to students and standardised patients prior to the commencement of the OSCEs (Ware et al., 2014:28).

Data from the document analysis confirms that briefing and orientation of role players take place before OSCEs commence at this College of Nursing. Comprehensive information regarding the purpose of the examination, the instructions and the resolving concerns that may arise is shared on the day the OSCEs are conducted.

"A meeting took place before the examination commenced to explain the instructions and expected focus of the examination". [Report One, 1:3]

"Preparation for the clinical examination was underway at 08:00 in order to orientate examiners to the evaluation instruments and to clarify key concerns". [Report Nine, 2:44]

Daniels and Pugh (2018:1210) emphasise that orientation of examiners should include sharing of information regarding the purpose of the OSCE, the level of the learners, and how examiners should interact with learners. Examiners need to know whether they can prompt or provide feedback to students regarding their performance (Daniels & Pugh, 2018:1210). It is important for the examiners to be afforded the opportunity to familiarise themselves with the OSCE tools (Daniels and Pugh, 2018:1210).

Examiners play a vital role in ensuring a fair and robust OSCE. It is thus imperative that institutions ensure that competent examiners are available to conduct fair and consistent assessment of students (Gormley, 2011:129). Although experienced examiners maintain and further develop their skills by regularly assessing, the need for refresher training can be driven by a change in the format of examination or scoring and also by changes in the requirements of the institutions or regulatory bodies (Khan et al., 2013:e1454). Professionalism and a sense of responsibility in this regard is essential.

The external moderators' reports added that staff displayed professionalism and a sense of responsibility. One of the reports commended nurse educators for their planning and execution of the OSCE as well as their flexibility. Despite the challenges in this College of Nursing (which is further addressed in Themes 2 and 3), external moderators' reports show that nurse educators played a meaningful role in facilitating successful OSCEs.

"I would like to take the opportunity to commend the programme leaders and organisers of the OSCE as it is well planned and executed". [Report Seven, 2:58]

"...the preparation, considering the fact that the venue was unsuitable for an OSCE, was done as well by the staff as they could under the circumstances...". [Report Ten, 1:28]

A study conducted by Baumgartner, Ståhl, Manninen et al. (2017:117) found that a validated assessment tool is a boon for accurate assessment of students. 'Validation' is any assessment-related activity or practice which relates to the credibility of the

assessment by confirming that the assessment is assessing what it is meant to assess (South African Qualifications Authority, 2005:8). The validity of an OSCE relies on the precision of the tools used for scoring student performance. Accurately designed and correctly weighted OSCE tools are invaluable to the authentic assessment of students, allowing an OSCE to measure what it is intended to measure (Daniels & Pugh, 2018:1210). The accurate recording of data in the tools is also important during the OSCEs.

Khan et al. (2013:e1450) term the process of identifying issues with the practicality and allocation of time for the OSCE tasks as pilot testing. Research evidence suggests that pilot testing is conducted during the preparation and planning of OSCEs (Khan et al., 2013:e1450; Ware et al., 2014:15). During the pilot testing, the designer presents the details of the OSCE components, as well as the psychometrics thereof, to the OSCE committee (Khan et al., 2013:1452; Ware et al., 2014:15). After the presentation, the committee decides to accept, reject or make modifications to the OSCE (Ware et al., 2014:15). Pilot testing also presents examiners with the opportunity to examine the psychometric analysis for reliability and station quality (Khan et al., 2013:1452).

While the nurse educators mentioned that the validation of tools takes place on the day on which OSCEs are conducted, the researcher did not find a study supporting the practice. At the College under study, testing of assessment tools is done as follows: after the orientation session, the first round of the OSCE. Thereafter, all examiners gather again to discuss any hitches regarding the OSCE tools that were identified and implement solutions thereto. It is after this initial OSCE round that adjustments are made, where needed. Nurse educators also mentioned that the discussion after the first round affords them the opportunity to assess the adequacy of the time allocated for students to execute the OSCE tasks.

"Then normally after our first round, we come together as all the examiners and university whoever else is there and then we discuss how we felt the first round was and then after the first round erm we talk about any challenges or any problems and then going further, we come up with a solution if there's a problem or if there's no problem we just continue with the OSCE for the rest of the day". [P 3 Campus One, 2:36] Daniel and Pugh (2018:1210) state that during an OSCE, examiners should periodically verify that rating of student performance is appropriately conducted and time should be set aside for addressing any questions that might arise. The periodical discussions and verification of ratings are known to minimise inter-rater variability while strengthening objectivity during OSCEs (Hastie et al., 2014:199).

3.4.1.4 Summary of Theme One

The discussion of Theme One suggests that the College of Nursing implements measures to ensure quality in the management of its OSCEs. The five steps followed during the planning phase of the OSCEs indicates a number of individuals involved in the setting and preparation of OSCEs. While the process of setting and preparation of OSCEs seems complicated, there are a number of measures that are implemented to ensure quality in the management of OSCEs. The measures, as described by the nurse educators who were interviewed, are a peer review system, ensuring confidentiality and pre-OSCE briefing, orientation and validation of assessment tools. The external moderators' reports added that the OSCEs in this College are conducted by diverse, appropriately qualified and experienced examiners. Professionalism and a commitment to facilitate successful OSCEs was demonstrated by nurse educators. However, the external moderators' reports identified weaknesses regarding the control of students during OSCEs in this College of Nursing.

3.4.2 Theme Two: There is a feeling of uncertainty and discomfort amongst nurse educators regarding the assessment practices being used in OSCEs at the College of Nursing

While nurse educators stated that measures are currently in place to facilitate quality in the management of OSCEs in the College of Nursing (Theme One), they expressed feelings of uncertainty and discomfort regarding the assessment practices being used in the OSCEs. They expressed doubt regarding the fairness and accuracy of the assessment practices used during OSCEs at the College of Nursing.

'Assessment' refers to systematic collection and analysis of information in order to make judgements regarding student achievement (Rawlusyk, 2018:2). 'Clinical assessment' on the other hand, is defined as a systematic process that a competent person uses to make a valid appraisal of students' knowledge, skills, values and

attitudes (Bruce, Klopper & Mellish, 2011:273). Clinical assessment presents the opportunity for students to develop into safe and competent clinical practitioners.

As a precise and fair method of student assessment, OSCEs are expected to provide an accurate reflection of student's performance as observed by assessors (Wong, Roberts & Thistlethwaite, 2019:2). 'Fairness' is defined as the ability to make judgements that are free from bias and discrimination, and which conform to rules and standards for all students (Spanke, Raus, Haas et al., 2019:1). A fair OSCE should thus be free from bias and ambiguity and demonstrate that successful candidates meet the minimum standards for safe practice. The Merriam-Webster dictionary (n.d.) defines 'accuracy' as conformity to fact, standard or truth. An accurate OSCE thus yields a precise and truthful measurement of students' performance which is free from external influence.

Although OSCEs have been found to show clear advantages compared to traditional methods of clinical assessment, concerns regarding their validity and reliability have been raised (Omu, Al-Zemi, Omu et al., 2016:895). Only when an OSCE is well-designed and implemented can it provide outcomes acceptable to both students and examiners (Smrekar, Fičko, Hošnjak et al., 2017:101).

3.4.2.1 Sub-theme One: The quality of the OSCE tools raises concerns regarding the accuracy of clinical assessment of nursing students

According to the nurse educators, it is not uncommon for the quality of the OSCE tools to present examiners with problems. These problems are only identified on the days the OSCEs are conducted. Nurse educators mentioned that they go through the tools on the morning of the day OSCEs are conducted. This is done to familiarise examiners with the tools as well as to identify and correct any errors. One of the nurse educators stated that the tools have the same mistakes every year and she attributed this to the failure to learn from previous years and lack of adequate planning.

"...and you see the same mistakes happening over and over which makes me wonder like, where were you the last five years where the same mistake is being made every year? Can you not prevent these mistakes from happening again? Erm so I was...I would say in planning, there's an issue because it's almost like the same mistakes are happening all the time. Erm so I don't know but I feel if we can improve more on our planning that you know the rest of it could flow easier but now when we're getting into, into the stage of when we have to implement this OSCE now you know, how, how do we move back to those planning stages if we have to now make do with what we have at this moment...". [P 3 Campus One, 5:112]

To conduct successful OSCEs, it is crucial to undertake intensive planning and preparation well in advance (Munkhondya, Msiska, Chilemba et al., 2014:707). Starting the planning early allows for adequate time for implementation of the OSCE. Planning an OSCE involves a series of tasks including the formulation of an organisational structure (with sub-committees where necessary), setting the examination questions, developing the schedule, the formulation of rules and regulations, and developing and testing the tools (Hastie et al., 2014:198). Special circumstances may demand that existing rules be amended—to align new OSCEs, for an example (Hastie et al., 2014:198). The organisational structure is responsible for coordinating the tasks and logistics for the OSCEs.

The OSCE planning process involves presenting clinical learning, demonstrating clinical skills to nursing students, allowing students to practice and, thereafter, conducting formative assessment of clinical skills (Munkhondya et al., 2014:707). During the planning process, students should receive a detailed explanation regarding how their assessment will be conducted during OSCEs (Munkhondya et al., 2014:707). The planning phase of OSCEs is crucial for preparing and testing the necessary OSCE tools.

If standardised patients are being utilised for OSCEs, it is important to recruit them timeously and provide thorough instructions for them to effectively carry out their role (Munkhondya et al., 2014:708). Standardised patients are individuals who are carefully recruited and trained to portray specific patient scenarios in order to allow students the opportunity to learn and to be evaluated on specific clinical skills (Kwan, Daniels, Bergkvist et al., 2019:1). The OSCE tools provide guidance to standardised patients regarding the actions they need to carry out and the behaviours they need to display in order to provide meaningful experiences to students performing OSCEs. Precise and appropriate OSCE tools promote an ideal environment for standardised patients to perform their role more objectively.

The recruitment and training of examiners also forms part of the OSCE planning process. Examiners may be recruited from within the institution where OSCES will be conducted and from other recognised institutions in the area (Munkhondya et al., 2014:709). To maintain the integrity and the credibility of the OSCEs, the training that examiners receive before the OSCEs is only generic and does not reveal the content on which students will be examined on the day the OSCEs will be conducted (Munkhondya et al., 2014:709). The assessment tool is therefore not shared with examiners till the day of the OSCE. On the day on which OSCEs are conducted, the examiners are encouraged to arrive early enough to allow familiarisation with the OSCE process, scoring tools and sharing of the relevant information pertaining to the OSCE (Harden, Lilley & Patricio, 2016:106). This time is also utilised to allow for relevant conversations to take place between examiners and simulated patients or volunteers, at their respective stations.

Vetting is another aspect of the planning process in which the OSCEs are carefully structured to include a wide range of clinical skills across all the sections of the curriculum. Educators involved in teaching a particular clinical module develop a blueprint for the OSCEs and the blue print is then used as a basis for developing OSCE questions/tasks (Munkhondya et al., 2014:709; Ware et al., 2014:9). The development of appropriate OSCE tools forms part of the vetting process.

During vetting, the time for each station is determined and a mock OSCE may also be conducted to establish whether the tasks are achievable within the specified timeline. According to Shirwaikar (2015:3), vetting is done for the following reasons:

- To ensure that students' instructions exactly include the elements of the task they should perform in a station,
- To ensure that examiner's instructions assist the examiners at each station to understand their role and conduct the station properly,
- To ensure that the scoring tools include all the relevant aspects of the skill being tested, and
- To verify the availability of all the relevant equipment to be used.

The planning process also includes the preparation of the OSCE tools, which include scoring tool, scenarios, questions and instructions to the stakeholders (examiners, students and standardised patients). Students are scored using a predetermined scoring tool which is developed well in advance. Checklists and global rating scales are common scoring tools used for marking OSCEs (Harden et al., 2016:106).

Any weaknesses in the planning process may compromise the fairness, objectivity, accuracy, validity and reliability of OSCEs. A study conducted by Haufiku, Daniels and Karera (2019:15) found that poorly planned and administered OSCEs may fail to attain the assessment objectives and compromise students' learning. Inadequate training and orientation of OSCE designers are some of the factors contributing to poorly designed OSCEs (Haufiku et al., 2019:15). Poor planning and administration of OSCEs in general may lead to problems such as inadequate time allocation and selecting an inappropriate venue for conducting OSCEs (Haufiku et al., 2019:15).

A research study conducted by Baumgartner et al. (2017:3) found that OSCEs are not only complex and resource intensive, but also demand greater and integrated involvement of the staff members among the different disciplines. The complexity of OSCEs requires meticulous planning and a team of experienced staff members to ensure efficient and seamless outcome (Chan, Humphrey-Murto, Pugh et al., 2014:442).

The external moderators' reports concur with nurse educators regarding the repetition of mistakes which were identified in the previous OSCEs. There is an indication in the reports that external moderators had made recommendations regarding the OSCE tools in the previous years. However, there seems to be limited implementation of such recommendations by the public College of Nursing. In some cases, the Programme Managers showed unwillingness to implement the requested recommendations during the course of an OSCE.

"One last concern, that I raised last time this skill was in the OSCE, is that the students read that the skill is pre-test counselling and immediately pull right up against their 'patient' and start touching the patient, rubbing the patient leg, and this continues during the entire session". [Report Thirteen, 3:56]

"All these concerns were discussed with the programme manager in-charge and recommendations made, who in turn discussed these recommendations with the programme manager of the discipline and she said she did not agree with these recommendations". [Report Fifteen, 2:53].

The University of Edinburgh (2017:4) stipulates the procedures that can be applied in cases of disagreement between examiners and moderators. However, these procedures relate to marking of assessments and not non-implementation of recommendations. The researcher could not access literature related to the non-implementation of recommendations made by external moderators regarding OSCEs.

One nurse educator stated that some of the mistakes in the tool end up distorting the overall weighting of the marks which form the basis for calculating the student's performance in an OSCE. There was a general concern amongst nurse educators that having to use an improperly designed OSCE tool makes it impossible to objectively and accurately measure students' performance.

"Maybe some tools will say one mark, maybe some will say three marks where you feel because of the, the technique not that they contaminated but because of the struggling and the time they're taking, you'd want to give one out of the three but you are only left with the option of zero of three and a zero would be a fail but because they are not contaminating you're not giving them a zero you're giving them a three but you or me in my heart you feel like you didn't really deserve that full three marks but you are not left with something in-between". [P 3 Campus One, 7:163]

"In other words, the quality of the, the tool could have been better because you could have prevented some small mistakes. If I can make...minor things like just the shading of the tool, the adding up of the, the score you know. We have to, we always have to recheck that and sometimes it's not telling, maybe it comes to forty where it should have actually came to forty five, you know like smaller things I felt, I feel could have been picked up earlier or, or so sometimes I feel these sessions in the morning before an OSCE are so long where they could have been so, so much shorter if planning had just been done correctly". [P 3 Campus One, 5:124]

Examiners rely on the right OSCE tools to give accurate ratings of the students' performance and to maximise inter-rater reliability (National Board of Medical Examiners, 2019:3). The OSCE tools should address the unique aspects of each of the clinical competencies to be assessed. Therefore, examiners should accurately

design the OSCE tools around the clinical competencies to be tested (National Board of Medical Examiners, 2019:3).

Poorly designed OSCE tools have been found to be a source of dissatisfaction amongst students and educators (Brotchie, 2015:5). According to Hurly, Giffin, Stewart et al. (2015:1), poorly designed OSCE tools increase the likelihood of dysfunctional or inaccurate assessment and are a major concern regarding the validity and reliability of OSCEs. Lengthy and complex OSCE tools often lead to higher examiner demand, with the consequent decrease in validity and reliability of student assessment (Hurly et al., 2015:4). According to Brotchie (2015:5), criticism regarding OSCE tools include insufficient detail and poorly worded statements and instructions, which may lead to diverse interpretations by both students and examiners. Insufficient knowledge, skills and experience amongst OSCE tool designers may lead to an incorrect understanding of the quality assessment principles and standards associated with OSCEs (Brotchie, 2015:6).

External moderators' reports highlighted concerns regarding the invalid and unreliable assessment tools. Concerns that the tools were not fit for purpose and thus did not measure the performance that they were meant to measure were shared in the reports. In some cases, students passed the OSCE even though they missed the critical elements of the skill.

"The comprehensivity of the skill was not evaluated, the students were able to pass even if crucial aspects were missed [Report Seven, 1:10]

It was difficult to award marks for the chest examination because the tool was incorrect and students verbalised and performed actions that were not included in the tool". [Report Twelve, 3:84]

"All these shortcomings make the reliability, validity and effectiveness null and void". [Report Eight, 1:17]

Well-designed OSCE tools on the other hand, promote the adherence to assessment psychometric principles which are a measure of the quality of an assessment (Brotchie, 2015:29). According to Peck (2017:150), the following psychometric principles are important for any type of assessment, including OSCEs:

- Purpose of assessment: before designing and deciding on an appropriate OSCE tool, it is important to first state the purpose of an assessment. Assessment is conducted for formative or summative evaluation. Formative assessment is conducted for the purpose of diagnosing strengths and weaknesses in student performance while providing opportunities for performance improvement. Through formative assessment, educators get a clear indication of the aspects of the content which need more attention in terms of the teaching and learning activities. Summative assessment, on the other hand, is conducted for evaluation and measurement of student's final performance at the end of the year.
- Validity: a well-designed OSCE tool should accurately measure what it is purported to measure. A valid OSCE tool should therefore accurately and objectively measure student performance. To further enhance validity, it is important that the content on which student will be assessed is representative of the course outcomes, as reflected in the curriculum. Ensuring that the OSCE tool proportionately covers the relevant curriculum content and is appropriately aligned to set standards and relevant predetermined criteria strengthens validity.
- Reliability: indicates the ability of an assessment result to be replicated, given the same or similar conditions. A reliable OSCE tool should be both accurate and precise. Reliability demonstrates reproducibility of scores across examiners, questions, cases, occasions and is capable of differentiating consistently between high and low ability students.
- Educational impact: students desire academic success, and academic success is defined by examinations. Therefore, students will do everything to maximise their chances of success. The way the examination is conducted also affects the way students learn. An OSCE tool that drives students to greater in-depth learning is defined to have high educational impact.
- Acceptability: an OSCE tool is deemed acceptable if it lends itself to be properly used as intended. An acceptable OSCE tool should, in addition to being suitable

for use by examiners and students, be educationally sound and properly aligned to course outcomes.

- Fairness: a fair OSCE tool is free from pre-determined judgments, prejudices and biases and ensures that all students have the necessary freedom in which to demonstrate the degree to which they were able to meet the learning objectives. Fair OSCE tools allow for objective student assessment, based on the programme outcomes and accurate alignment with recognised educational taxonomies (such as Bloom's Taxonomy).
- Feasibility: is the ease with which a tool makes the assessment process possible. Factors such as cost effectiveness, availability of appropriate resources (human and material) and infrastructure determine the feasibility of assessment.

The application of robust quality assurance measures during the OSCE planning and tool design process has been found to eliminate or reduce the risk of errors and design flaws (Hastie et al., 2014:199). Such robust quality assurance measures include moderation, station refinement, evidence-based practice and calibration and testing of OSCE tools (Khan et al., 2013:e1450). All OSCE stations should be scheduled for testing and calibration, so that examiners may make sure that the tasks are objective and doable and that the time allocated is appropriate (Ware et al., 2014:15).

Baumgartner et al. (2017:112) state that measurable assessment tools and sound assessment processes are required to ensure that the quality of nursing competences is judged accurately and holistically. Not only is there a need for an assessment tool to help facilitate sound judgement, it must also assess effectively and objectively, since the assessment process often lacks consistency due to the involvement of several participants (Baumgartner et al., 2017:112).

Because the selection or design of an OSCE tool is complex and needs input from different stakeholders, it is vital that the process is done well in advance (Bayaga & Wadesango, 2013:3). Stakeholders involved in assessment planning and design of OSCE tools include educators and moderators, both internal and external (Bayaga & Wadesango, 2013:7). Moderation ensures that assessment is sound, accurate and aligned to acceptable educational standards (Bayaga & Wadesango, 2013:7).

Conducting a careful and accurate needs analysis is recommended before deciding on an appropriate OSCE tool (Peck, 2017:155).

The choice of a scoring tool to be used during OSCEs—checklists versus global rating scales—has an influence on the accuracy with which student performance is measured. Although checklists promote the objectivity and reliability of marking by different examiners, limitations in their use have been identified (Sim, Aziz, Vijayananthan et al., 2015:e40). Checklists have been found less effective and not thorough enough to accurately capture the extent of students' clinical performance (Sim et al., 2015:e40). A research study conducted by Read, Bell, Rhind et al., (2015:8) found that checklists fail to sufficiently discriminate superior performance amongst students. When using a checklist, a student may quickly and efficiently perform the tasks expected of him/her ending up with a similar score as that of a student who slowly and repeatedly performs the tasks until they eventually obtain a mark for each one (Read et al., 2015:8). As a result of the limitations associated with checklists, the use of global rating scales is widely encouraged (Sim et al., 2015:e40).

Global rating scales on the other hand, provide the opportunity to score additional dimensions that separate a superior performance from an average or poor one, and provide the opportunity for more qualitative feedback (Read et al., 2015:8). The use of global rating scales is thus recommended chiefly because they promote reliability in awarding marks (Read et al., 2015:8). While the global rating scales provide increased reliability, incidents of examiner bias especially amongst untrained and inexperienced examiners have been reported (Read, et al., 2015:8; Sim et al., 2015:42). Intense training has been found to improve the precision and objectivity of examiner's judgments while using the global rating scales (National Board of Examiners, 2019:6).

3.4.2.2 Sub-theme Two: There is inadequate alignment between summative OSCEs and formative clinical assessment of nursing students

Nurse educators raised a concern regarding differences between formative and summative clinical assessment of nursing students, noting that summative OSCE tools deviate from the tools used for formative clinical assessment. Nurse educators thus expect a positive correlation between formative and summative assessment of nursing students. One of the nurse educators stated that this incongruence between formative

clinical assessment and summative OSCEs is not only unfair to students but also reflects inaccurate and incongruent assessment.

"The problem we normally have that may...that lead us to delay it's the issue of the tool which has got surprises if I may call it like that. For instance, erm a point which will be a critical point at a summative evaluation which was not a critical point during a formative evaluation. [P 2 Campus Two, 1:23]

The external moderators' reports confirm that nurse educators raised a concern regarding some aspects of the OSCE tool which were different when compared with how students were taught the clinical skills. Some aspects of the tool were not correctly aligned to the relevant sections of the skill. This resulted in confusion amongst examiners. However, the external moderators' reports recorded that decisions were taken to alter the tool in an attempt to align the relevant sections. As a result of the disjuncture between formative and summative OSCEs, student performance during summative OSCEs does not correlate with formative assessment results.

"According to the examiners, the tool did not measure the aspects which were taught to the students. It was decided to award marks or correct, relevant aspects under each of the sections: "inspection, palpation, percussion and auscultation" without exceeding the maximum amount awarded to each section. This caused much confusion amongst the examiners". [Report Twelve, 1:14]

"The students were not particularly comfortable with this skill and most of the students performed quite poorly, and out of the 9 students 3 failed this section. I do think that what the students are being taught is not translated to the examination instrument and this needs to be revised". [Report Thirteen, 2:52]

"The performance of the students on the day of the examination does not correlate with the picture painted from the formative assessment results". [Report Fourteen, 2:69]

According to Sabzevari, Abbaszade and Borhani (2013:163), assessment is an important component of the learning process of nursing students and indicates the depth of understanding of the content prescribed in the curriculum. While students may find it difficult to anticipate what will be assessed, such assessment should be based on the current curriculum used at their institution (Zaric & Belfield, 2015:588). It

is common for students to criticise the incongruence between formative and summative assessments. A study conducted by Buchholtz, Krosanke, Orschulik et al. (2018:721) found that students saw little or no correlation between their classroom experience and the end-of-the-semester examinations. Tavakol and Pinner (2015:132) found that, for assessment to be meaningful, it must be aligned to the curriculum. Therefore, when constructing an OSCE, care must be taken to set scenarios which accurately test the outcomes reflected in the curriculum to allow students to demonstrate evidence of the clinical competencies they have acquired (Tavakol & Pinner, 2018:132).

Participants in this study expressed that some of the documents used in OSCEs, such as patients' records/files, are significantly different from what nursing students use during demonstration of clinical skills and formative clinical assessment in the clinical facilities. The patient records/files used in the College of Nursing's OSCEs depend on the campus where the nurse educator whose OSCE tools were selected by the Programme Manager is working. If the Programme Manager selected OSCE tools which were set by a nurse educator working in Campus One, the patient record/files used may have been obtained from a clinical facility nearest to Campus One. Nurse educators are thus concerned that students from other campuses may not be familiar with the patient records/files from that health facility and may therefore be disadvantaged during the OSCEs, as indicated by one nurse educator.

"So, in this one instance as much as I don't remember which module it was it so happened that the records that came with the package are actually different from the ones that these students, these particular students are used to in the clinical area and for that reason, they could not move and half of them had to fail the OSCE because now they did not record properly" [P 2 Campus 5, 6:152]

To promote uniformity, objectivity and fairness, every OSCE station must be supplied with similar tools and records (Shahzad, Bin Saeed & Saiker, 2017:2). The use of standardised tools promotes uniformity while eliminating bias in an OSCE (Stockmann, Diaz, Murphy et al., 2019:452). Agreeing on the content, standards, benchmarks and relevant station resources for OSCEs is important in promoting uniformity in student assessment (Schleicher, Leitner, Juenger et al., 2017:1).

Also, on the provision of recording instruments, external moderators' reports revealed that relevant documents needed by students for the purposes of recording were not provided. In some cases, some students were supplied with relevant documents, while others received improvised and inappropriate documents.

"There were no proper documentations and treatment charts. The charts for the students to document their actions were not in place". [Report Eight, 2:30]

"Some stations had backup charting forms per student whilst others used the used the road to health chart...". [Report Ten, 3:84]

Some OSCE stations may require students to document information related to patient assessment or nursing intervention (Adult Nursing, 2018:6). It is therefore vital that all the appropriate documents required by students should be available in sufficient quantities to enable the necessary documentation (Ware et al., 2014:10).

Nurse educators also expressed concern regarding the valuable time which is lost in discussions aimed at resolving the discrepancies between formative clinical assessment and summative OSCEs. In some cases, the discrepancies lead to disagreements between the external moderators and Programme Managers regarding the correct course of action to be taken. While a consensus is often reached, it has been reported that external moderators once threatened to cancel one of the OSCEs at one of the campuses.

"...one of the external moderators she voiced out that she has...she's wishing to nullify the OSCE". Meanwhile, her name is there, was there. So, I didn't understand how can she actually implement that?" [P 2 Campus Two, 4:98]

Performing an external moderation is a quality assurance measure designed to independently verify the accurate alignment of examinations against relevant educational standards (Kayihura & Mtshali, 2010:105). While it is not uncommon for examiners and external moderators to disagree on aspects of an examination, consensus between examiners is often reached (Crisp, 2018:16). According to Kayihura and Mtshali (2010:105), it is an external moderators' prerogative to intervene and implement remedial action when a threat to quality control standards is identified during an OSCE. Because external moderators are regarded as field experts, they can

challenge and review decisions taken by examiners (Ali, Pawluk, Rainkie et al., 2019:143).

Summative OSCEs in the College of Nursing where this study took place are conducted simultaneously across all the five campuses. Therefore, the same OSCE standards should apply uniformly, fairly and consistently in all the campuses. However, the external moderator who threatened to nullify the OSCEs did not demonstrate intention to nullify the OSCE throughout all the five campuses. There also seems to be misunderstanding between the external moderators and the Programme Managers because, in this particular instance, the OSCE was externally moderated by the same person who threatened to nullify the OSCE. To substantiate this, the nurse educator reported:

"I'm not sure how she was going to do that. She didn't mention other campuses. She only mentioned {Campus 2} since she was here and she said she has discussed some of the items with the programme manager of that particular module which was having OSCE at that moment, but the programme manager when she was consulted, she said she has effected the corrections..." [P 2 Campus 2, 5:105]

One of the advantages associated with OSCEs is that students are assessed in the same way and under the same circumstances (Harden, Lilley & Patricio, 2016:4). A research study conducted by Blazevic (2019:108) found that transparency, uniformity, fairness and consistency promote acceptability of assessment. Reid et al. (2016:1) state that human errors regarding OSCEs may threaten uniformity, fairness and consistency.

Even in a multi-campus system, measures must be implemented to ensure uniformity, fairness and consistency during OSCEs (Majumder, Kumar, Krishnamurthy et al., 2019:388). The application of these measures has been found to increase acceptability and stakeholder confidence in the OSCEs (Majumder et al., 2019:394). Therefore, the finding of this research study does not align with available research evidence. Harden et al. (2016:4) states that specifications regarding the logistics, the tools that will be used, the clinical skills to be assessed and the examination standards should be decided and agreed upon well ahead of the day on which OSCEs will be

conducted. Therefore, measures should be in place to ensure that the decisions made regarding the OSCEs are applied throughout the College of Nursing.

The concern regarding delay in the commencement of OSCEs was raised in the external moderators' reports. However, the external moderators' reports associate this delay with OSCE logistical preparations and role clarification, which are done before the examinations.

"The OSCE only commenced at 09H10, however, due to the requirement reading of the instruments/instructions prior to staring". [Report Ten, 1:26]

"The examination was scheduled to start at 09:00, but started at 10H50, and there were long breaks between each student due to the time it took the midwifery stations to clean up and get ready for the next student". [Report One, 2:27]

Objective Structured Clinical Examinations are complex, labour intensive and difficult to implement. Adequate time should be allocated for finalising all the necessary logistics associated with OSCEs (Bayoumy & Yousri, 2012:529). Delays in commencing OSCEs may negatively affect students and should thus be avoided or kept to the minimum (Jan, 2013:350).

One of the nurse educators stated that the difference between formative and summative assessment is of particular concern for first year students. She stated that first year students experience OSCEs for the first time during summative clinical examinations at the end of the year, which may exacerbate the anxiety associated with clinical examinations.

"One other thing that I can say regarding OSCE...for first years, if they can have a mini OSCE...just practice. They must know what we are talking about because you know the anxiety that they have when they are about to do the OSCE..." [P 2 Campus One, 11:298]

Zaric and Belfild (2015:587) recommend early introduction of OSCEs into health science students' training as one of the mainstream assessment methods in order to build their knowledge and familiarity of OSCEs. Although OSCEs are mainly used for summative assessment, they can also be used for formative assessment as a means to determine progress while improving student performance and confidence (Chisnall,

Vince & Tribe, 2015:81). Additionally, formative OSCEs have been found to play a significant role in familiarising students with the OSCE process.

Because formative OSCEs are designed to enhance learning of clinical skills, they often take a different format (such as testing the entire clinical skill) to that of summative OSCEs (Chisnall & Tribe, 2015:77). A formative OSCE may be helpful to identify struggling students who require additional support prior to any summative OSCE (Chisnall & Tribe, 2015:77). A study conducted by Alkhateeb, Dabbagh, Ibrahim et al. (2019:747) found that feedback and remedial clinical instruction during formative OSCEs play a substantial role in improving clinical performance during summative assessment.

3.4.2.3 Sub-theme Three: The approach used for re-OSCEs raises doubts regarding the optimal assessment of nursing students' clinical competencies

Nurse educators stated that some students successfully perform the OSCEs and pass. However, some students miss critical points and are therefore deemed to have failed that particular skill assessed through the OSCE. A decisive point is that, there is poor demonstration of an aspect of a clinical skill which is so critical that, when not performed or when performed incorrectly, may endanger the patient. The Medical Council of Canada (2013:13) defines a' critical point' as a construct/item of interest or a 'killer item' which students must perform in order to promote patient well-being and prevent a fatal medical error.

There are no clearly defined criteria to discriminate a student who has failed from those who have to repeat the OSCE due to obtaining a sub-minimum mark. A student who has missed a critical point is automatically awarded a 40 percent mark and is invited to repeat the OSCE two days later.

"...they fail now that they don't do critical points. What I've noticed they go...they get this forty percent because they don't do critical points". [P 1 Campus Five, 14:362]

External moderators' reports confirm that students who miss a critical point are awarded a mark of 40 percent and are invited to retake the OSCE.

"If a student omitted any one of the critical points on the tool, 40% was awarded to the student he/she had to re-do the skill". [Report Nine, 1:22]

"If a student did not obtain informed consent, which was a critical point on the tool, the student failed and obtained 40%". [Report Twelve, 2:29]

There are four common categories under which student performance may be graded during OSCEs—namely: Fail, Borderline pass, Clear pass, and Exceeded expectations/Distinction (Shulruf, Damodaran, Jones et al., 2018:2). However, results of the current study do not provide clarity regarding the categories used at the multi-campus public College of Nursing to grade student performance.

A study conducted by Ali et al. (2019:145) found that it is common for examiners to come to different conclusions regarding students whose performance is borderline. Quantitative measures of performance, such as counting checkmarks and the number of stations the student completed accurately, were found to be popular means used by examiners to reach decisions regarding borderline students (Ali, et al., 2019:145).

While different criteria for making pass/fail decisions are available, no method can be regarded as a gold standard (Alkhateeb et al., 2020:11). Despite the implementation of many standard-setting methods in clinical examinations, concerns remain regarding the reliability of pass/fail decisions in high-stakes (summative) assessments, especially in the context of clinical assessment (Alkhateeb et al., 2020:13). However, the competency-based method is recommended as it enables examiners to establish the cut-off score for each competency according to student ability level (Alkhateeb et al., 2020:12). Thus, the competency method is more dependable as it is derived from mathematical principles, whereas other methods are based on an overall impression of the examination difficulty and provide a less defensible cut off score (Alkhateeb, et al., 2020:12).

Pass/fail criteria need to be determined and clearly defined during the planning of OSCEs and need to be set in accordance with institutional and statutory regulations (Troncon, 2004:13). Because of the critical nature of the pass/fail decisions, determining what examiners focus on and how they synthesise assessment data to formulate pass/fail decisions is important (Ali et al., 2019:142). Summative OSCEs are used to evaluate competence and thus determine which students are ready to enter

practice (Ali et al.,2019:142). As such, a passing score for an OSCE gives assurance to regulatory bodies and the general public that robust methods are implemented to adequately and accurately assess student's clinical knowledge and skills.

After each main OSCE, students who have missed one or more critical points (and therefore deemed to have failed one or more OSCE stations) are informed of their performance and shown the critical points they have missed. These students will have a remedial session the day after the OSCE, and are invited to undertake a repeat OSCE the following day for those skills in which they missed critical points. Although details regarding the procedures followed for re-OSCEs were not recorded in the external moderator reports, nursed educators explained as follows:

"They are usually called in the office, given individual feedback on which skills they have not performed well and when will they be expected to, to come and, and re-OSCE..." [P 2 Campus Five, 12:333]

"On the remedial day, that is the follow...the day after the OSCE, we are now showing them how to do skill again. We are showing them that er you have to do this step followed by this step, followed by this step and then now they practice after and then the following day they do the same skill but there must be two er people on the station. Er it's run the same as the main OSCE, there's no difference.". [P 2 Campus One, 5:132]

There is no universal practice regarding re-examination of students who fail in their first attempt at examinations. Some HEIs allow students the opportunity to take re-examinations at the end of the same year, while others only allow re-examinations the following year (Burr, Morrison & Salihl, 2018:3). Students who take a re-examination are perceived to have an unfair advantage over other students because they have an additional opportunity to improve (Burr et al., 2018:3). Some students, on the other hand, have developed a 're-examination culture' where they deliberately give little effort in their preparation for examinations knowing that they have another opportunity to retake the examinations (Burr et al., 2018:3).

To mitigate the unfair advantage of re-examination, some HEIs, including the College under study, cap the re-examination pass mark at a minimum pass mark irrespective of whether a student has obtained a higher mark (Burr et al., 2018:3). Nurse educators stated that the tools and questions which are used in the re-OSCE are the same as

those which were used in the main OSCE. Because the tools are a duplicate of the previous main OSCE, students simply memorise the critical points in order to pass. Nurse educators shared that they feel obliged to award a pass mark to students who have failed the re-OSCE because passing an OSCE is a prerequisite for entering theory examinations. However, in some cases, some students still do not perform according to the expectations during re-OSCE, despite having been afforded the remedial instruction on the failed clinical skills. Nonetheless, nurse educators feel obliged to pass them.

"...it is the same as the original envelop according to tools, questions and everything. The, we photocopy again if, if they are few for the number of students that have failed". [P 1 Campus Five, 12:304]

"...when they come for re-OSCE, they come memorise...memorizing critical points because they know critical points are the, are the, are the cause of their failures". [P 1 Campus Five, 14:364]

"...what I've observed is that even if the student now comes for the re-OSCE and still is not up to standard but you'll find that student being given the, the minimum requirement to enter the exam because there's nothing in the policy that talks to what happens to this student now that has failed the main OSCE; comes for the re-OSCE still does not perform well on the re-OSCE. Nothing talks to that. So, if you look at that inevitably, it forces the evaluator to see the student through..." [P 2 Campus Five, 14:367]

A study conducted by Majumder, Kumar, Krishnamurthy et al. (2019:396) confirms the nurse educator's concerns that OSCEs sometimes fail to meaningfully assess performance. Clinical assessment does not only focus on acquisition of cognitive skills but also on the psychomotor and affective domains which are all necessary for clinical competence (Ribeiro et al., 2019:3). Competence allows an individual to mobilise all three domains in order to face different real-life health scenarios and act promptly. However, students have been found to prepare strategically to pass the OSCE and adopt a robotic 'tick box' approach, while struggling to translate this into skills which are critical for patient care (Khan, 2017:2). One of the criticisms levelled at OSCEs is their inability to holistically assess clinical competence. Due to time constraints, only specific components of clinical skills can be assessed using OSCEs, which leads to

compartmentalisation of students' skills and knowledge. As a result, students tend to guess the skills that will be assessed and only learn what they perceive as important (Shirwaikar, 2015:2).

Jesudoss, Snegalatha, Ipe et al. (2018:44) argue that an OSCE is a competencybased assessment method which must allow assessment of students' demonstrable clinical abilities rather than merely the theoretical knowledge. Simply passing an OSCE as a result of memorising undermines the authenticity and educational impact of OSCEs. On the other hand, clinical assessment is an important indicator of students' mastery of clinical knowledge, which determines their readiness to practice as safe and independent professionals (Brotchie, 2015:2). Therefore, clinical assessment is not merely a measure for ensuring progress through the phases of students' training but an accurate means to measure the acquisition of clinical competence (Ribeiro, Ferla & de Amorim, 2019:3).

The fundamental role of HEIs is to ensure that health professionals possess and retain the relevant knowledge, skills and attitudes to earn public trust (Zarin & Belfield, 2015:590). Furthermore, OSCEs promote identification of students' strengths and weaknesses, academic development and effective learning (Zarin & Belfield, 2015:590). Although some HEIs have adopted the practice of facilitating an additional opportunity to their students by including a re-examination, others are opposed to this practice and are instead encouraging students to repeat a year (Blurr et al., 2018:6).

There is literature suggesting that a student can be allowed to attempt re-examination on the same standard as the failed examination, but the level of difficulty must be increased (Blurr et al., 2018:6). A longer, more detailed examination may be used to re-examine poorly performing and borderline students (Harden et al., 2016:68). These poorly performing or borderline students may be re-examined on a full range of skills or on the same skills where performance deficiencies were identified (Harden et al., 2016:68). Because of the financial and psychological effects of failing, educators face increased pressure to improve monitoring, counselling, and remediation strategies (Chou, Kalet, Costa et al., 2009:323).

Remediation provides the opportunity to students to work on their weaknesses after having failed an assessment or examination (White, Ross & Gruppen, 2009:651). Remediation programs have formative characteristics in that they are aimed at helping students improve their performance when they repeat the OSCE station(s) they have failed (White, Ross & Gruppen, 2009:651).

3.4.2.4 Summary of Theme Two

Factors contributing to the concerns and the discomfort regarding the assessment practices being used in OSCEs at the College of Nursing were raised by nurse educators. The accuracy of clinical assessment of nursing students, improper alignment between summative OSCEs and formative clinical assessment of nursing students, and the approach used for re-OSCEs were pointed out as factors which negatively affect the quality of OSCEs in the public College of Nursing. The external moderators' reports confirmed that mistakes in the OSCE tools and limited implementation of the recommendations were a concern. The quality of OSCE tools and discrepancies between formative and summative clinical assessment were also questioned in the external moderators' reports.

3.4.3 Theme Three: Resource constraints impair quality management of OSCEs in the College of Nursing

Nurse educators expressed serious concerns regarding inadequate resources for conducting OSCEs at the multi-campus public College of Nursing. They reported that material and human resources in the College of Nursing are not adequate to promote problem-free implementation of OSCEs. The nurse educators regard this lack of resources in the College of Nursing as an impairment of quality in the management of OSCEs. This concern was also raised in the external moderators' reports, in which it was indicated that resource constraints hinder objective assessment of students.

3.4.3.1 Sub-theme One: The inadequate and uneven distribution of appropriate resources amongst campuses poses a threat of inconsistent clinical assessment of nursing students during OSCEs

The shortage of essential resources was raised as a concern which could potentially threaten the quality of OSCEs at the multi-campus public College of Nursing. The nurse educator's concerns centred around inadequate physical infrastructure (such clinical skills laboratories), human resources, medical equipment and consumable stock and the uneven distribution of the available resources. At this College of Nursing, OSCEs are conducted in clinical skills laboratories. However, the floor space in these laboratories is limited and cannot comfortably accommodate all the students on the day OSCEs are conducted. Some of the clinical skills laboratories are not purpose-built and present an unsuitable setting for OSCE circuits. As a result, improvised partitioning is used to demarcate one OSCE station from the next. Nurse educators pointed out that such an arrangement could compromise the credibility of the OSCEs because of the high noise levels and lack of auditory privacy. As a result of the high level of noise, examiners may be distracted while assessing nursing students. On the other hand, the lack of auditory privacy results in students overhearing each other's conversation with examiners and standardised patients.

"...it's an improvisation starting from the labs. So, there's no space in between the students and the mannikins and the stations as such. So, you find that a student...yours was not saying what, what you expect her to say. Then, she will listen to another station. Then, when that one is saying, then also, this one is saying that. Then you, you'll see that the infrastructure is compromising us and at the same time..." [P 1 Campus Five, 16:422]

"Sim labs for example here we've got park homes where we divided our Sim lab by the boards neh [Do you understand?]. So that tells me that some student can hear what is happening to another in the next cubicle. If she forgets to greet the, the, the, to greet the patient and then, he will hear somebody else greeting and then he will think oh I forgot to greet and then I greet. [P 1 Campus Three, 13:344]

A suitable venue is one of the resource requirements for conducting OSCEs successfully. A study conducted by Gamal, Gamal, Eltomy et al. (2019:15) found that a disproportion between floor space and the number of students may lead to increased noise level, thereby impacting on the quality of OSCEs. Further, the venue used for conducting OSCEs should be planned in such a way that it allows for smooth movement of students from station to station (Abdelaziz, Hany, Atwa et al., 2015:4). Additionally, the venue must promote privacy and examination security. Using an inadequate or inappropriate venue for conducting OSCEs is known to compromise their feasibility and acceptability (Abdelaziz et al., 2015:4). Therefore, it may be necessary to prepare more than one venue in order to cater for the various tasks

associated with OSCEs, such as briefing, administration, quarantine and refreshments (Khan et al., 2013:e1455).

When larger halls are divided up for setting OSCE stations, soundproofed partitions should be used in order to minimise disturbance from neighbouring OSCE stations (Boursicot & Roberts, 2005:17). Venues utilised for conducting OSCEs should have adequate floor space in order to promote comfort for all stakeholders while accommodating the relevant equipment for conducting OSCEs (Arja, Arja, Ramey et al., 2018:13).

A similar concern regarding inadequate and inappropriate venues for conducting OSCEs was highlighted in the external moderators' reports. They point out that the venues are not only small for the number of students and the stations, but may negatively affect the objectivity of OSCEs. The improvised partitioning is not sound proof, thus potentially allowing students to hear each other's conversations.

"The stations were divided using tables and sheets as drapes. The space within the stations was limited because of the tables and chairs that were included for the examiners. It was very noisy within the stations and it was possible for the students to hear the students at the next station conducting their health talks. This was not the ideal situation for the OSCEs". [Report Twelve, 2:51]

"The venue was crowded and 'open plan' with each station right next to each other, separated by curtains. This of course meant that if the student were to speak too loudly, he/she could be heard by the others and would possibly assist weaker students to do better. The lighting was inadequate in some stations due to where they were situated, and there was no doubt that the students in the adjoining stations were listening to one another and repeating what they had heard, which assisted them greatly to add to their marks". [Report Two, 1:10]

Conducting problem-free OSCEs needs considerable resource investment, which may be challenging for resource-constrained education facilities. However, with careful planning, some of the challenges associated with resource constraints can be overcome (Arja et al., 2018:11). Further, effective implementation of OSCEs needs a team of highly skilled and experienced academic staff members who are capable of effectively using available resources well enough to allow OSCEs to run smoothly. The shortage of relevant medical equipment and consumables which are necessary for conducting OSCEs was highlighted by participants in this study as negatively affecting the quality of OSCEs at this multi-campus public College of Nursing. The available resources are not proportional to the number of students. As a result of the shortage of the relevant medical equipment and consumables, it is not possible to assess all the required and essential clinical skills. One of the nurse educators stated that failure to assess essential clinical skills may detrimentally affect the nursing students' ability to optimally function as independent professionals once they complete their training.

"....the actual drawing of blood for me personally is a core business in the skill but she took out that and her rationale when I asked is exactly what you are asking me ukuba [that] where will we get arms that will accommodate all the stations so that we can have an OSCE that is smooth running". [P 2 Campus Five, 19:527]

"For fourth year they are doing midwifery and, and psychiatry. So, we're worried that they will go to service without really working on a mannequin that can breathe...that can have different sounds of, of chest sounds" [P 2 Campus One, 11:308]

Gamal et al. (2019:15) found that inadequate and unsuitable material resources have a negative impact on smooth implementation of OSCEs. All the resources required for conducting OSCEs, such as furniture, medical equipment and consumables, need to be organised and made available for all stations well in advance (Ware et al., 2014:14). Students must also be informed of the equipment or resources they need to bring to the OSCE venue themselves in order to minimise disruption (Ware et al., 2014:15).

One of the advantages of OSCEs is that a section of a clinical skill can be examined. Selecting a section of a clinical skill saves time, compared to the examination of the entire clinical skill. However, students must be competent on all clinical skills expected of them in real life situations (Abdelaziz et al., 2015:5). Failure to comprehensively assess students' competence on a wide range of clinical skills may bring the validity and reliability of OSCEs into question (Abdelaziz et al., 2015:6).

Through the use of OSCEs, student performance is assessed in order to explore their transition from theoretical knowledge into practical application of such knowledge. The flexibility associated with OSCEs allows organisers to tailor each OSCE according to

the local needs and circumstances (Harden et al., 2016:65). Such flexibility has received criticism as it may promote compartmentalised and fragmented learning (Harden et al., 2016:94).

In some cases, even the limited medical equipment available at the College of Nursing is outdated and irrelevant for the type of clinical skills that students need to be examined on. One of the nurse educators stated that equipment used for clinical assessment of student nurses is not relevant for the 21st century. Nurse educators stated that sometimes the mannequins are not of the fidelity required for nursing students to perform the clinical skills demanded by the OSCE scenarios.

"Er improved equipment, not to stay with the same equipment from 1905, no, because we move with times so to improve even the...that will also improve the quality of our equipment if we have more advanced equipment". [P 1 Campus One, 15:421]

"I once took part in an OSCE where they were evaluating fourth year students in Midwifery and they were doing resuscitation of the newborn. If you look at that skill of resuscitation of the newborn er you conduct the skill and down there there's a part where now this baby is not responding to all your interventions; that would be your mask and what now; now you need to intubate this baby and there's equipment prepare for the student in the OSCE for intubation... everything that is required for intubation but the mannikin the, the student is expected to make use of in intubating this baby is having the mouth closed". [P 2 Campus Five, 17:461]

Modern technology transforms assessment, allowing the simulation of authentic reallife scenarios while enabling measurement of complex competencies (Office of Educational Technology, 2017:59). Higher Education Institutions have a responsibility to embrace and introduce modern technologies in order to be relevant and to cater for the needs of the 21st century generation of staff and students (Bozalek & Ng'ambi, 2015:4). The shift to modern technologies requires substantial financial investment to enable the purchasing, installing and maintenance costs associated with such a move (Office of Educational Technology, 2017:5). Adopting new technologies does not only assist with digital teaching, learning and assessment but also addresses the digital use divide that exists between students who are using technology in active, creative ways to support their learning and those who predominantly use technology for passive content consumption (Office of Educational Technology, 2017:7).

Assessments delivered using technology can also provide a more complete picture of student needs, interests, and abilities, allowing educators to personalise learning. Continued advances in technology will expand the use of ongoing, formative, and embedded assessments that are less disruptive and more useful for improving learning. These advances also ensure that all students have the best opportunity to demonstrate their knowledge and skills on assessments that increasingly focus on real-world skills and complex demonstrations of understanding (Office of Educational Technology, 2017:55).

The external moderators' reports highlighted similar concerns regarding the lack of resources and equipment such as mannequins, medical equipment and hand washing facilities required for optimal facilitation of OSCEs. According to the external moderators' reports, the mannequins were irrelevant for the intended purpose and did not give students the relevant and useful clinical experiences. Further, there were no taps for hand washing, which led to improvised containers being provided for students to wash hands.

"Large water tanks were used to supply water for hand washing which was innovative but not ideal for aseptic technique". [Report Ten, 1:14]

"However, many of the auroscopes were not working, a factor that I pointed out in my pre-examination assessment of the instruments…" [Report Two, 2:36]

The fact that a torso (model) was used meant that the students had to role play a physical examination rather than actually being able to perform it, which I think is more difficult for the student, they are pretending to interact with a plastic model and trying to examine the chest at the same time...". [Report Thirteen, 1:34]

"The mannikin used was not suitable for the purpose as it was an ordinary breast (very small and non-lactating). It did not belong to any woman/mannikin and therefore could not be identified as a result some of the students started examining their own breasts...". [Report Fourteen, 2:38]

Simulation emerged in medical education as a method to integrate knowledge and practice. The use of simulation has been found to reinforce clinical skills, thereby

enhancing clinical reasoning and decision making. Therefore, the failure to utilise simulation may deny students the opportunity to fully harness the learning experiences simulations environments have to offer. High fidelity mannequin simulation is now widely employed by medical schools (Petrizzo, Barilla-LaBarca, Lim et al., 2019:2).

Although the shortage of resources was raised as a general challenge in the multicampus public College of Nursing, nurse educators also shared that each campus may encounter slightly different challenges. According to nurse educators, some campuses are better resourced than others, which may lead to lack of uniformity during OSCEs because the affected campuses resort to improvisation.

"In terms of resources so ja that was the difference but, I don't ke [so]with other campuses that are in most rural areas like Campus Three. I don't know if we are...on the same level. I think ours is the best, ours is the best according to the resources..." [P 2 Campus One, 13:365]

"...the clinical laboratory in Campus Three is not the same as the clinical area in Campus One or in Campus Two, the...in terms of the equipment that is there even though we are the same institution". [P 2 Campus Four, 9:229]

The external moderators' reports confirm that there was no equitable provision of resources at this public College of Nursing. However, inconsistency in the distribution of resources is apparent within the same campus. As a result, some students did not have access to suitable mannequins.

"Provision for skill 2 was insufficient some of the mannikins did not have suitable breast and abdominal models to perform the skill. This caused some students to guess the height of the fundus, for example, and other findings of the abdomen and breast". [Report Eleven, 1:24]

Equitable resource allocation promotes uniformity and standardisation during OSCEs (Reid et al., 2016:1). Allocating resources equitably in all OSCE stations ensures that students are assessed under the same conditions and against the same standard. Variation in resource allocation needs to be avoided in order to standardise OSCE stations and to promote the rigour of the entire OSCE process.

The College of Nursing does not have adequate human resources to efficiently implement OSCEs. As a result of the shortage of staff, the available nurse educators
are overstretched and overworked during OSCEs. Because the OSCEs at this College of Nursing are conducted on successive days and re-OSCEs are conducted simultaneously with the main OSCEs, nurse educators feel overwhelmed by the amount of work they have to carry out.

"The whole month of September, you do OSCE to these hundred students, you are also preparing for your OSCE that is coming the following day and then you prepare for those students. You are tired with this OSCE. The whole month is OSCE. We need...staffing. If we talk about...staffing...that means now because of shortage of staff, we have to reduce the number of stations to accommodate the number of lecturers that are available". [P2 Campus One, 18:483]

Gamal et al. (2019:15) found that OSCEs are physically demanding and need a long period of time to complete, especially when few examiners are available to assess students. The use of exhausted examiners for student assessment may compromise the quality of OSCEs (Gamal et al., 2019:15). As a result of the shortage of staff, OSCEs in certain campuses take longer compared to other campuses. This nurse educator stated that the shortage of staff also forces the affected campus to reduce the number of stations to below what is desired.

"...we are few...short staffed and then we find out instead of having ten stations, we've got five stations. I'm just making an example. Some campuses finish very early and we gonna finish around four or five [o'clock]". [P 1 Campus Three, 7:184]

A study conducted by Abdelaziz et al. (2015:7) found that examiners perceive OSCEs as not only time consuming, but also a burden to implement. Examiners were found to be dissatisfied with the OSCEs due to the frequent meetings they have to attend, sophisticated preparation required and the lengthy time OSCE implementation consumes (Abdelaziz et al., 2015:7). At institutions where there are limited human resources, it is inevitable that OSCEs will take a longer period of time to be completed (Chiou-Rong & Ue-Lin, 2015:2).

Conducting the main OSCE and the re-OSCE simultaneously was questioned in the external moderators' reports. The external moderators' reports further recorded that OSCEs from different clinical disciplines are also conducted concurrently. Conducting more than one OSCE on the same day was raised as being unfair on both the staff and student.

"The GNS, MNS and CNS OSCEs should not be conducted simultaneously on the same day because of the large number of students that need to be examined. It is not fair on the students and the examiners to spend such a long day at the exams". [Report Twelve, 3:96]

According to De Oliveira, Porto, Ribeiro et al. (2019:2), the flexibility of OSCEs allows for simultaneous assessment of multiple clinical skills within the same station. The testing of multiple clinical skills thus enables measurement of multiple competencies within a short period of time. However, there is a paucity of research regarding conducting OSCEs from different disciplines on the same day.

3.4.3.2 Sub-theme Two: Nurse educators' initiative to borrow equipment from the nearby clinical facilities could compromise confidential OSCE information

Despite the College of Nursing not having sufficient resources, OSCEs are conducted. It is the duty of nurse educators to work around the inadequate resources in order to successfully implement the OSCEs. To minimise the impact of inadequate resources, nurse educators borrow the equipment needed for conducting OSCEs from surrounding clinical facilities.

"Sometimes we don't have all the equipment. We have to go to the clinic and maybe ask for er, er and maybe if the, if the examination set...we will ask for those things and then we will prepare all the stations". [P 2 Campus One, 2:49]

Shortages of resources is not uncommon in health science education. However, the shortage of resources may affect the quality of students' assessment (Okongo, Ngao, Rop et al., 2015:134).

Nurse educators expressed concern that the practice of borrowing equipment from nearby clinical facilities could compromise confidential OSCE information. When equipment is borrowed from clinical facilities, the information could lead to students guessing the clinical skills which will be examined during OSCEs, thereby breaching the examination security.

"Sometimes we don't have all the equipment. We have to go to the clinic and maybe ask for er, er and maybe if the, if the examination set...we will ask for those things and then we will prepare all the stations". [P 2 Campus One, 2:49] In cases where equipment shortages are experienced, it is acceptable that extra equipment is sourced elsewhere in order to facilitate successful assessment of students (Forrest, McKim & Edgar, 2013:186). To prevent possible examination security risks associated with borrowing equipment, it is essential to secure equipment necessary for running OSCEs. If extra equipment necessary for running OSCEs cannot be secured, the OSCE must be planned around available resources.

3.4.3.3 Sub-theme Three: Inappropriately skilled examiners are being utilised for OSCEs due to staff shortages

To address the shortage of staff, nurse educators request staff from satellite campuses and surrounding health facilities to act as examiners in the OSCEs. However, nurse educators expressed reservations regarding the expertise of staff from the nearby clinical facilities to accurately examine students during OSCEs. According to nurse educators, staff from the nearby clinical facilities lack both the relevant skills for student examination and the confidence.

"...mostly those who are from the services...they are usually anxious stating [No]...we don't know OSCE...we don't know how to assess. We know to how to do OSCE because we were students before but how to assess now is...that is the reason why undergo the briefing session, to give them that confidence of knowing what is expected before they are faced with the real assessment of the student..." [P 2 Campus One, 16:428]

"I think for instance if we are doing OSCEs of Psychiatry Nursing so but someone who's coming to assess is not a Psychiatric Nurse...knows nothing about Psychiatry so she might not be aware of what to, to expect from the student and the er the things that are important or pertaining to Psychiatry things but the person now because it's assessing er what she doesn't even know. She is not even a speciality on that subject. She was never er even exposed to Psychiatric Nursing. So, that can have impact on the marking, on the marking. Can just credit whatever she thinks it is according to her or his perception". [P 3 Campus Three, 3:77]

OSCEs involve examiners observing and scoring the performance of students, using a standardised scoring tool as students perform different clinical procedures across a series of stations (Snodgrass, Ashbey & Rivett, 2014:152). Examiner experience plays an important role in ensuring the objectivity and credibility of OSCEs. For this, examiners must not only be knowledgeable and experienced regarding the clinical skills being performed by students, but they must also be competent in conducting OSCEs (Onwudiegwu, 2018:10). A study conducted by Chong, Taylor, Haywood et al. (2018:3) found that examiner experience has a significant impact on the accuracy of student assessment during OSCEs. It is recognised that untrained and inexperienced examiners are less accurate in student assessment compared to their trained and experienced counterparts (Chong et al., 2018:3).

Although clinical staff, such as nurses, are utilised for marking OSCEs alongside their academic counterparts, subject specialists who work in academia are considered more objective and accurate in marking OSCEs (Chong et al., 2018:3). However, according to Chong et al. (2018:3), the more experienced examiners are with students' assessment, the harsher they become in awarding marks. Furthermore, the complexity of the clinical tasks that students are expected to perform during OSCEs may be difficult to understand for novice examiners, thereby resulting in subjective and inaccurate marking (Chong et al., 2018:4).

Examiners who lack experience and expertise in conducting OSCEs may feel anxious and uncomfortable regarding their ability to assess students accurately. After receiving orientation and adequate training on OSCEs, examiners are expected to be at ease and thus conduct student assessment more accurately. However, a study conducted by Byrne, Soskova, Dawkins et al. (2016:4) found that even trained examiners are likely to assess students inaccurately due to the intensity of their OSCE workload.

More experienced examiners often feel morally obliged to appear as being strict in the eyes of the medical and patient community and thus maintain stringent assessment behaviour (Chong et al., 2018:6). It is known that as examiners assess more students, they mentally amalgamate previous performances to produce a standard against which to judge future candidates (Chong et al., 2018:6). As such, the process of OSCE marking should be regarded as a skill, which requires 'sustained, deliberate practice for the examiners to develop appropriate levels of expertise (Byrne et al., 2016:4).

Nurse educators in the College of Nursing attempt to provide orientation and support to familiarise the examiners from the nearby clinical facilities with the examination process. However, there was a feeling amongst nurse educators that examining students with staff from clinical facilities is no different from being alone in an OSCE station. Nurse educators shared concerns that examining students with incompetent examiners may jeopardise fairness, accuracy and uniformity of OSCE, which may lead to wide variances in mark allocation.

"So now I can just tell you that for example...it may happen that...in my thinking, the first students I can say that I was alone, I assist that student alone because the person next to me is not already right to assess the student because he doesn't know the tool even with the skills he is not familiar...". [P 1 Campus Three, 4:105]

"The, the, the students will not be treated fairly..." [P 3 Campus Three, 7:194]

"...when you mark with someone from somewhere else you do get larger variances". [P 3 Campus Three, 8:220]

Examiner inexperience has been found to be a problem in cases of borderline student performance which require accurate fail/pass decisions to be made (Byrne et al., 2016:4). It has been found that the early training of examiners on the exact tasks that they are expected to carry out during OSCEs is more beneficial than training them on general OSCE scenarios (Byrne et al., 2016:4). Furthermore, including marking accuracy into the training process could both alert examiners to their own error and assist with identifying, prior to their participation in summative OSCEs, examiners whose performance might not be acceptable (Byrne et al., 2016:5).

Further, according to Byrne et al. (2016:2), the cognitive requirements of marking OSCEs sometimes exceed the capacity of examiners. Because of the complexity associated with marking OSCEs, accurately observing the actions of a student, evaluating their performance against fixed criteria and then accurately recording the result in the time provided may exceed the capacity of a human mind (Byrne et al., 2016:2). As a result, examiners tend to resort to making more subjective assessment and thus compromise the fairness of OSCEs (Byrne et al., 2016:2).

Fairness in assessments is a vital part of the educational contract that students have with their institutions and standardisation helps to reassure the public that all graduates have met predefined assessment criteria (Yeates, Cope, Hawarden et al., 2018:251). To maintain the students' and public's trust in the assessment system, strict measures need to be taken to ensure fairness. Ensuring the fairness with which students are marked improves the quality of OSCEs (Yeates et al., 2018:251). It is

critical to the fairness of OSCEs that each examiner judges' students' performance to the same standard to ensure that students are not systematically either advantaged or disadvantaged (Yeates et al., 2018:151).

To improve the rigour of OSCE marking, it is essential that measures are implemented to reduce examiner bias and inaccuracy (Reid et al., 2016:1). Examiner variability is one of the known factors that influence the quality of OSCEs. While examiner training and orientation are thought to improve the marking accuracy during OSCEs, these may not completely eradicate examiner variability (Byrne et al., 2016:5). A study conducted by Byrne et al. (2016:6) found that inexperienced examiners tend to mark more generously while their experienced counterparts are more stringent in mark allocation. In contrast, Reid et al. (2016:4) found that pre-OSCE training reduces examiner variability, irrespective of the level of experience. However, Reid et al. (2016:4) note that a combination of in-depth examiner training and mock OSCE are much more beneficial in reducing examiner variability than a brief training provided shortly before OSCEs are conducted.

Using inexperienced examiners in the College under study is not the only problem nurse educators were faced with regarding student assessment during OSCEs. Sometimes, staff from the surrounding clinical facilities who have been requested to assist with OSCEs in the College of Nursing arrived late. This caused an inconvenience as nurse educators are compelled to repeat the orientation programme to those clinical staff who missed it due to late coming.

"...sometimes the people from clinical areas do not arrive in time. Then, they might sometimes find us in the Sim lab, so when we are in the Sim lab, we still have to reorientate them on the tool...". [P 3 Campus Three, 3:36]

The conduct of some examiners was questioned in the external moderators' reports. The lack of objectivity and a lack of close observation of student performance was highlighted. It was also reported that some examiners continued to mark the previous clinical skill while students were performing the next clinical skill.

"Some of the examiners were more lenient than the others and they tend to probe the students more". [Report Six, 1:11] "Examiners fairness and quality of evaluation questioned as some assessors were finishing marking of partogram while student was busy with counselling patient". [Report Five, 2:43]

"Examiners fairness and quality of evaluation was questioned as some assessors sat on the chairs while student was performing the skill. Marks were given for incomplete procedures...Some were on their cellphones while the student is performing the skill". [Report Eleven, 2:44]

A study conducted by Wong (2018:107) found that educators play a gatekeeper role regarding summative OSCEs and are thus responsible for ensuring the integrity of the examinations. While examiners understand the importance of ensuring objectivity in student assessment, they sometimes tend to be overly lenient and end up providing clues or prompts when students are fumbling (Wong, 2018:107). In these situations, students are not always treated equally as these prompts unfairly benefit some students (Wong, 2018:108).

As a method of clinical assessment, OSCEs aim to assess students' performance, knowledge, skills, attitude and applications of knowledge without any bias of examiners (Elbilgahy, Eltaib & Mohamed, 2020:220). However, the researcher was unable to find supporting literature regarding intentional neglect of examiner duties, allocation of marks for tasks that are incomplete or which have not been performed by students and use of phones by examiners during the course of student assessment.

Concerns regarding the incorrect level at which the OSCEs were pitched were also reported in the external moderators' reports. The reports indicated that some OSCEs were pitched at lower level than what was expected.

"I feel that the skill for the third year was too elementary for this level...The administering of the injection is a second year skill". [Report Three, 2:41]

"The examination process was not fully pitched at a 3rd year level...". [Report Eleven, 2:37]

A study conducted by Zahran and Taha (2009:380) found that OSCEs enable experiential learning to occur by allowing the transfer and application of knowledge into the real clinical setting. It is therefore crucial that assessment is blueprinted to the curriculum and outcomes (University of Aberdeen, 2020:1). A study conducted by

Majumder et al. (2019:394) found that OSCEs cover a wide range of clinical skills expected of the level of students. However, there are instances where examiners feel that OSCEs fail to create a positive impact on student learning and thus do not truly reflect competence in clinical skills (Majumder et al., 2019:394).

According to the external moderators' reports, the instructions to students were unclear, ambiguous and confusing, and were apparently a source of frustration for examiners as well.

"Instructions set out for the learner did not appear to be very clear and caused confusion for the learner...". [Report One, 1:18]

"...it states that "the relevant information should be provided". This statement is very vague and doesn't state the specific aspects that the student should address...". [Report Nine, 1:19]

The University of Aberdeen (2018:2) states that instructions to students should be short, clear, unambiguous and easy to understand. Clear and unambiguous student instructions are an indication of a well organised OSCE. The provision of adequate information creates the necessary awareness regarding the nature of the examination and tasks to be performed by students in an OSCE (Divya, Valsaraj, Qutishat et al., 2019:189).

3.4.3.4 Summary of Theme Three

In this theme, nurse educators pointed to the negative impact of resource constraints on the quality of OSCEs in the College of Nursing. Nurse educators mentioned that the resources are not only inadequate, but are unevenly distributed amongst the campuses which results in lack of uniformity in students training and assessment. While the efforts nurse educators made to borrow equipment from the nearby clinical facilities were plausible in minimising the effects of resource constraints, they could have compromised confidential OSCE information.

The use of inappropriately skilled examiners due to staff shortages was also raised as a concern which could affect the credibility of OSCEs in this College of Nursing. The external moderators' reports concur that a lack of appropriate resources affected the quality of OSCEs in this public College of Nursing. Concerns such as conducting two different OSCEs concurrently on the same day, lack of equitable distribution of resources, unclear student instructions and questionable examiner conduct were also raised by external moderators.

3.4.4 Theme Four: Participants made recommendations for best practices that will facilitate quality management of OSCEs at the College of Nursing

Although nurse educators shared their concerns regarding the management of the quality of OSCEs in the multi-campus public College of Nursing, they also made recommendations for best practices that will facilitate quality management of OSCEs.

The multi-campus public College of Nursing OSCEs are conducted simultaneously in all five campuses across the Eastern Cape province, South Africa. The complicated multi-campus model used at the public College of Nursing may present a challenge regarding achievement of uniformity, fairness, objectivity, standardisation and accuracy of OSCEs. The following recommendations were offered by participants to assist in enhancing the quality of OSCEs in the College of Nursing.

3.4.4.1 Sub-theme One: A policy framework, standard operating procedures and training regarding OSCEs are needed

Although an assessment policy is available in the multi-campus public College of Nursing, nurse educators stated that a policy framework and standard operating procedures specifically talking to OSCE process are needed. Nurse educators further shared that an OSCE specific policy and standard operating procedures will help them clarify the grey areas, while enabling them to conduct OSCEs better.

"...most of the time the exam policy that we have focuses on theory part of the, of the exam...". [P 2 Campus Four, 9:222]

"...the guideline should reflect also erm, the, the process and dwell more on the procedures during the OSCE, yes; like what is supposed to be done er the rules before and after, like during the course of the assessment, what is expected of the assessors, the dos and don'ts and all that...". [P 2 Campus Four, 10:261]

Several stakeholders participate in OSCEs including examiners, timekeepers, standardised patients, moderators, station replenishers and students. Each of these stakeholders needs to fully understand policies and procedures governing their roles in the OSCEs. Because of the complexity of the tasks associated with OSCEs, examiners need to be provided with detailed and clear guidance regarding the performance of their roles in the OSCEs (Heal, D'Souza, Banks et al., 2018:5). Examiners should be provided with detailed information with regard to the assessment process, the tools that will be used at particular stations, the duration at each station and the information that the assessor should look out for in the stations (Sibiya & Lekhuleni, 2016:5). To ensure fairness and rigour, the assessment policy of an institution should be properly aligned with the OSCEs (Sibiya & Lekhuleni, 2016:9).

Nurse educators stated that the lack of a policy framework makes it difficult for them to properly plan and execute OSCEs. As a result, they resort to trial and error in an effort to get the OSCEs successfully implemented.

"There's no policy that talks to this... what is supposed to happen. It's more like culture, it's more like routine- this is what you do, like verbally". [P 2 Campus Five, 20:554]

"...the way that the college would want certain things to be done or how OSCEs should be...or what is expected of you as a lecturer when you go into an OSCE because sometimes it's a little bit of erm trial and error, you know you just go in...you're not, you're not really sure what's the expectation but you, you learn as you, you, you go on what is expected of you. You know? So, so maybe if you had a guide from the get go then you would also be doing the, the expected thing from the, from the beginning. [P 3 Campus Five, 20:548]

Adequate knowledge and understanding of the procedures and regulations are vital to the implementation of high quality OSCEs. Examiners need to know the regulatory processes governing the OSCE student assessment (Sibiya & Lekhuleni, 2016:8).

The setting of OSCE papers and the preparation of OSCE tools was highlighted as an area of concern by nurse educators, who stated that there is no clarity regarding the criteria used by the Programme Managers to select the final OSCE tools. According to nurse educators, the OSCE tools they set are sometimes rejected by the Programme Managers but no reasons are provided regarding such rejection. There is

a general feeling amongst nurse educators that knowing the reasons regarding the rejection of their tools will help them improve in the future.

"When we ask, when we ask her she only tells us that she took the paper with a quality. Otherwise there are no, there's no narrating story what makes your paper not to be chosen so that we improve next time or else...maybe you look for things that will make your paper to be standard...to be er in good quality. There's nothing that they will tell you but she will tell you that she chooses the paper that is of good quality". [P 1 Campus Five, 3:79]

"...I asked what is it that you are looking for in your papers as a GNS er, er programme manager and then she said she's looking for creativity. Er, I'm not gonna lie I didn't further ask what she meant by creativity because in my opinion, we can define creativity differently or we can perceive creativity differently..." [P 2 Campus Five, 4:84]

Higher Education Institutions need to have policies and procedures in place that clarify moderation processes applied to student assessment (Ombasa, 2017:193). Moderation is a peer review mechanism aimed at ensuring that the criteria for measuring good assessment are applied to OSCEs (Sibiya & Lekhuleni, 2016:8). Thus, internal and external moderation ensure that the OSCE tools meet the minimum prescribed assessment criteria. The criteria used for measuring good assessment are reliability, validity, feasibility, cost effectiveness, acceptance, and educational impact (Kibble, 2017:110). In addition, Kibble (2017:110) states that assessment should be closely linked to the learning outcomes, the performance descriptors and the taxonomies of learning, such as Bloom's. To promote transparency, assessment moderators have a responsibility to communicate these criteria to examiners (School of Nursing and Midwifery, 2011:1).

Apart from the procedures for setting OSCE papers, nurse educators stated that, because of the shortage of staff, they request professional nurses from the nearby clinical facilities to assist with OSCEs. There are no written criteria for selecting these professional nurses, with the result that the attributes that nurse educators need to consider when requesting these professional nurses to assist with OSCEs are not known. Therefore, nurse educators accept any professional nurses available to assist during OSCEs in the College of Nursing. For this reason, nurse educators need

standard operating procedures regarding the selection of professional nurses to assist with OSCEs.

"To be honest the, there are no attributes because...we just get anybody, we just say professional nurses but sometimes they do send us Comm Serves and they do send us professional nurse who are there...". [P 1 Campus Three, 4:44]

"...are we allowed to, to, to, to ask assistance neh [Do you understand?]...request assistance from the clinical area and then what kind of assistance, what qualities that person must have neh [Do you understand?] from the clinical area". [P 1 Campus Three, 12:332]

Examiners play a vital role in conducting successful OSCEs. According to the University of Oxford (2018:19), extra examiners may be appointed to complement the existing examiners. The appointment of examiners should be based on criteria a such as qualifications relevant to the subject for which they are being appointed and experience (University of Oxford, 2018:19). Therefore, the selection of examiners should be based on established minimum norms and standards. The South African Nursing Council (2005:22) recommends that job description of staff stipulate the knowledge, skills and qualities required to perform the required educational tasks. Further, nurse educators should be hired on the basis of relevant expertise and experience and the selection of guest educators should be done in accordance with approved institutional policies and procedures (South African Nursing Council, 2005:93). To ensure the examination's credibility, examiners need to have acceptable levels of factual knowledge, clinical experience, and awareness of current issues and developments in the specialty (Australian Dental Council, 2009:4).

The roles of each stakeholder participating in OSCEs are not clearly defined. As such, nurse educators recommended that the roles of every person participating in OSCEs be explicitly defined in the standard operating procedures.

"It must clearly indicate the roles of each: the examiner, the simulators as well as the student must know exactly what is expected of her during OSCE...". [P 2 Campus Two, 10:238] Conducting an OSCE is a complex and dynamic process that requires more than just academic input due to the difficult logistical and technical requirements needed to ensure rigor of the assessment process (Taylor, 2018:3). Although individual members of the OSCE team are allocated specific roles, their unique, complimentary skills and expertise are vital to the success of OSCEs (Taylor, 2018:9). In addition, Taylor (2018:12) highlights leadership, cooperation, coordination and effective communication as central elements associated with successful role clarification.

According to Majumder et al. (2019:388), examiners contribute to the design of the OSCE stations, identify the competences to be tested, and provide individual or group feedback to the students after examination. Adequate knowledge of the roles examiners play during OSCEs contributes to the implementation of reliable and fair OSCEs (Khan et al., 2013:e1453).

Because of the challenges associated with the use of real patients in OSCEs, standardised patients are increasingly being preferred (Gormley, Sterling, Menary et al., 2012:383). The role of a standardised patient is to make the clinical experiences for students performing OSCEs as close to the real-life situations as possible (Gormley et al., 2012:383). To make the clinical experiences of students performing OSCEs meaningful, it is essential that standardised patients have a clear understanding of the clinical scenario they need to portray and the responses they need to demonstrate (Gormley et al., 2012:384). A study conducted by Baig, Beran, Vallevand et al. (2014:7) found that the participation of standardised patients who adequate knowledge of their role adequate knowledge of standardised patient's role significantly contributes to the accuracy and the objectivity of OSCEs.

A potential lack of uniformity was raised as a concern by nurse educators in relation to amendments or corrections made when mistakes in OSCE tools are discovered. However, there is no clearly defined mechanism for ensuring that such changes are conveyed to the rest of the College. Nurse educators also expressed doubt that the OSCEs commence at the same time across all the campuses in the public College of Nursing. Although the OSCEs ought to commence at 09:00 in every campus, nurse educators are not sure whether this is the case. There is a concern that the failure to commence the OSCEs simultaneously across the College might compromise the uniformity and the integrity of the whole OSCEs. This needs to be clarified in the standard operating procedures.

"Currently there are no mechanisms to ensure that all the campuses are aware of the mistakes...". [P 2 Campus Two, 8:187]

"I don't think we start at the same time and that we don't start at the same time may lead to leakage of the exams. I think so". [P 2 Campus Two, 10:246]

A study conducted by Taylor (2018:12) found that last minute changes may be detrimental to the smooth running of the OSCE and can lead to lack of morale amongst staff during OSCEs. If changes to the OSCE process are unavoidable, it is imperative that such changes be communicated in a timely manner to every member of the OSCE team in order to ensure seamless implementation.

Although uniformity is an important attribute of high quality OSCEs, incidents of lack of uniformity have been reported (Ribeiro, Ferla & de Amorim, 2019:9). A system for ensuring uniformity of OSCEs is required for multi-site institutions (Majumder et al., 2019:388). There is paucity of research regarding this finding. However, examiner subjectivity is a known factor associated with a lack of uniformity in OSCEs (Chong, Taylor et al., 2017:9). A study conducted by Majumder et al. (2019:394) found that examiners perceive OSCEs as acceptable when uniformity is guaranteed. Therefore, measures should be implemented to prevent any threat to the uniformity of OSCEs.

The management of the variance between examiners' mark allocation during OSCEs needs to be addressed at this multi-campus public College of Nursing. Nurse educators stated that a satisfactory variance in mark allocation between examiners is not documented. Equally, management of a large variance in the allocation of marks between the examiners is not known at this College of Nursing. Therefore, standard operating procedures addressing variances between examiners' mark allocation need to be developed.

"...I have mentioned that the variance is sometimes...maybe sometimes it's huge...". [P 3 Campus Three, 12:319]

"The variance: Moss, the principle is that the variance is not supposed to be too much. I'm not sure about the exact percentage...". [P 2 Campus Five, 23:641] The OSCE examiners play a key role as gatekeepers to ensure that only those students who have demonstrated adequate clinical competence are awarded the opportunity to progress to the next level of their training (Wong et al., 2020:10). While OSCEs are regarded as accurate methods of clinical assessment, variance between examiners' mark allocation is not uncommon (Yeates et al.,2018:251). According to Trejo-Mejía, Sánchez-Mendiola, Méndez-Ramírez et al. (2016:4) variances in OSCE can be attributed to the stations, standardised patients, examiners, scenarios (if the OSCE is conducted at multiple sites), and occasion effects (if the OSCE is conducted at different times).

A study conducted by Trejo-Mejía et al. (2016:10) found that a smaller variance between examiners is an indication of reliable OSCEs. The monitoring of the sources of variation serves as a quality control mechanism which ensures an accurate interpretation of student performance during OSCEs (Trejo-Mejía et al., 2016:4). Sources of variance need to be investigated and addressed as they may negatively impact the reliability of OSCEs. Doing so is a quality control measure aimed at achieving validity and reliability (Trejo-Mejía et al., 2016:4).

Examiner's subjective judgement plays a substantial role regarding variations in awarding marks during OSCEs (Wong et al., 2020:3). Although examiners use the same OSCE scoring rubrics, sometimes they arrive at significantly different conclusions regarding student assessment. The significantly diverse way of awarding of marks is sometimes associated with OSCE stations being manned by examiners who are excessively strict and examiners who are excessively lenient (Farmer, 2017:7).

A narrower variance between examiners is an indication of a fair, accurate and valid assessment of students during OSCEs (Yeates et al., 2018:259). Although a variance between examiner marks is common in OSCEs, it does not always present a serious problem because examiners often discuss and agree on the final mark to be awarded to the students (Shulruf et al., 2018:2). Averaging the marks is one of the ways which can be employed to address variance between examiners (Trejo-Mejía et al., 2016:4).

In cases of inconsistent marking which result in a large variance, an adjustment of marks can be done, but only in according with established and clear procedures (University of Surrey, 2018:11). However, despite thorough safeguards there are

instances where they may be inadequate. In cases where a large variance cannot be resolved by the examiners, the intervention of an external moderator can be enlisted (University of Surrey, 2018:11).

The procedures for differentiating between students who are eligible for repeating an OSCE and those who have failed an OSCE need to be clearly defined. According to nurse educators, the College assessment policy classifies students who are eligible for repeating an OSCE under the same category as those who have failed the OSCE. Nurse educators stated that when a student misses a critical point in an OSCE he/she is awarded forty percent and repeats the OSCE. However, the College assessment policy does not have an explicit "fail" category with regard to OSCEs. Standard operating procedures are therefore needed to clarify this.

"In our policy nothing talks to that specifically. They are grouped under one umbrella if I may put it like that to say if you obtain less than forty percent it's a fail. A fail by the way that goes to a to a re-OSCE regardless and then the same policy talks to a student who has omitted a critical point regardless of the number critical points. Even if it's one it's, it's regarded as forty percent which also goes to re-OSCE. It doesn't classify a student to say a student that has conducted the skill correctly but just forgot a critical point, this is what happens. As student that simply plain out does not know the skill, this is what happens to the student- it doesn't really classify them according to that. It groups them as the same". [P 2 Campus Five, 17:442]

"In that guideline erm for one, I would want that person to clearly indicate what should happen to students who do not pass the OSCE, of course there will be the re-OSCE...I don't want us to do away with that but to students who still do not perform well, the, the, the, the guidelines should give a clear indication of what should happen so that we can avoid a situation where we let students through when they are not eligible actually to be, to, to be through...". [P 2 Campus Five, 21:585]

A study conducted by Ali et al. (2019:145) found that an outcome assigned to student performance in OSCEs is justifiable if it is based on robust procedures and may not be open to diverse interpretation. Determining what examiners focus on and how they synthesise data regarding student achievement in OSCEs is thus important (Ali et al., 2019:142).

Kibble (2020:117) states that cut-off scores regarding student performance in OSCEs should be determined in advance. Determining the cut-off scores assists examiners to award a grade, such as a pass or a fail, in accordance with the overall marks obtained by students (Cardiff University, 2017:2). The choice of cut-off score also deserves careful attention in order to support the validity of score interpretations (Daniels & Pugh, 2018:1211). Although there is no gold standard when setting a cut-score, a detailed rationale for the method chosen should be provided (Daniels & Pugh, 2018:1211). Pass and fail decisions may not always be based on the overall OSCE score alone—students may also be required to pass a minimum number of stations (Daniels & Pugh, 2018:1211; Kibble, 2020:117). The requirement for students to pass a minimum number of stations is often favoured as it ensures that students demonstrate a breadth of knowledge in so far as a failing performance on several stations cannot be compensated for by very strong performance on others (Daniels & Pugh, 2018:1211).

The correlation between formative and summative OSCEs was described as being important by nurse educators. Nurse educators stated that to promote fairness, formative and summative OSCEs should be similar and the tools used for both should be the same. Standard operating procedures need to be developed to ensure the correlation between formative and summative OSCEs at this multi-campus public College of Nursing.

"So, those are the aspects that you cannot take out from the, from the tool but basically in setting er it starts with developing a tool, an OSCE tool that in my opinion should talk to the formative tool that the students were using". [P 2 Campus Five, 2:49]

A study conducted by Cleland, Mackenzie, Sinclair et al. (2010:e188) found that because of the remediation associated with formative assessment, students who have been through formative OSCE perform significantly better during summative OSCE. The exposure of students to an OSCE atmosphere (formative OSCE) has been found to be helpful as it familiarises them with the OSCEs format and thus reduces the anxiety during summative OSCEs (Hashim, Miller & Fahim, 2012:582). Because some students perform poorly in achievement of the prescribed clinical requirements, remediation becomes necessary to correct these deficiencies (Cleland et al.,

2010:e185). The value of formative OSCE should not be underestimated as it provides students the opportunity to correct knowledge deficiencies while enhancing knowledge (Kibble, 2020:110). Therefore, formative assessment must be closely aligned with summative assessment (Kibble, 2020:110).

The external moderators' reports, on the other hand, highlighted the non-involvement of nurse educators in selecting the final OSCE questions and tools as a reason of the disjuncture between the formative and the summative OSCEs. A recommendation was made in an external moderators' report to resolve this disjuncture by involving nurse educators in the development of the final summative OSCE tools. According to external moderators' reports, the OSCE questions should be based on what students were taught.

"My recommendation is that all subject heads come together 1 month before the time to discuss the examination and the skills that will be given in the OSCE...to set up an examination like this the programme leaders need to know how students were taught...". [Report Three, 2:46]

"As in previous years I suggested that those setting the examination confer with the various campuses to ensure that what is in the mark schedule is what is being taught to the students, including the emphasis required". [Report Thirteen, 2:57]

Full participation in student assessment is beneficial for educators because it allows them to gain insight into gaps in learners' skills and knowledge, develop a better understanding of testing standards, and inform their own teaching (Chan et al., 2014:442). Research evidence suggests that the quality of examinations could decline if educators are not involved in the examination setting process (Ofqual, 2018:10). Intimate knowledge of the curriculum and the relevant assessment expertise are important attributes necessary for setting any examinations. These attributes should allow educators to set examinations in line with acceptable educational standards (Ofqual, 2018:11).

According to the nurse educators, the public College of Nursing does not have a system for student reflection after OSCEs. Nurse educators also mentioned that the College does not have a student complaint and redress mechanism for OSCEs. Therefore, students are not afforded the opportunity to contribute in OSCE evaluation or to complain about the OSCEs. One of the nurse educators stated that a student

who was not satisfied with the outcome of an OSCE was not afforded a proper platform to present his\her complaint and thus was forced to accept the original OSCE outcome. For this reason, standard operating procedures need to be developed to accommodate student reflection in OSCEs.

"...they are not getting chance to come back and reflect to OSCE, how was it, what could...we could have done and all that and all that. I think yes it, it has a, a bad impact because I believe if maybe students were getting chance to reflect at the same time...so our students were not going to be so anxious for OSCE because they could know that they are...they will have other chances where they will speak about the OSCE besides repeating the OSCE...". [P 1 Campus Three, 11:285]

After an OSCE, it is crucial to invite students to provide their views regarding OSCEs. These views are collected by means of questionnaires seeking students' comments on items of the OSCE—such as logistics, examiner and standardised patient performance, relevance and appropriateness of instructions and scenarios (Hammad, Oweis, Taha et al., 2013:101). The results of an evaluation are used as a basis to improve the quality of future OSCEs (Khan et al., 2013:e14:58). In a study conducted by Puryer (2016:4) found that students provide useful information regarding the validity, reliability and the educational impact of OSCEs.

While measures are put in place to safeguard the integrity of assessment, human errors sometimes occur, which may lead to complaints by students. These need to be investigated thoroughly and given prompt and fair attention (Khan et al., 2013:e1458). It is thus important for education institutions to have in place a redress mechanism aimed at addressing such shortcomings (Kibble, 2020:114). A redress mechanism is a quality assurance measures aimed at safeguarding the validity of assessment (Kibble, 2020:114; Khan et al., 2013:e1458).

Examiners involved in clinical assessment of nursing students in this College of Nursing are not necessarily familiar with OSCEs. While OSCEs are conducted according to clinical disciplines such as General Nursing Science, Psychiatry Nursing Science, Community Nursing and Midwifery Nursing, nurse educators assist one another across these disciplines during OSCEs due to shortage of staff. Inexperienced nurse educators as well as professional nurses from clinical facilities also assist as examiners during OSCEs. Although orientation and briefing are conducted on the

morning of the OSCEs, nurse educators recommended that training and mentoring be conducted for all OSCE examiners. Nurse educators believe that this will ensure uniformity.

"First of all I think the examiners should be trained...". [P 3 Campus Five, 11:282]

"...it's a Midwifery OSCE and I' in GNS. Yes, I'm Midwifery trained but if you are not at that particular module really honestly speaking, you may not be er as objective as the person that is teaching that module...". [P 2 Campus Five, 9:239]

"So, I'm not sure maybe in-service training amongst ourselves; not to meet maybe on OSCE only as much as we have a lot of work to do during the year but zero training takes place amongst us even at component level, let alone at inter module level. So, people operate in silos. We are operating in islands. We don't know what is happening in Psyche, we don't know what is happening in Midwifery. We are just GNS orientated until the day of the OSCE and to me, that is a negative factor...". [P 2 Campus Five,

The external moderators' reports added that examiners and timekeepers are inconsistent in performing their tasks during OSCEs, in view of which stakeholder training was recorded as a recommendation. The quotation below illustrates the information shared in external moderators' reports.

"Train people on the importance of consistency in marking and time keeping". [Report One, 2:67]

Examiner training is crucial for ensuring a high degree of standardisation and for minimising examiner errors (Schuttpelz-Brauns, Nűhse, Strohmer et al., 2019:1153). While training is time consuming and resource intensive for academic staff, various options are available to fit training into their busy schedules. Schuttpelz-Brauns et al. (2019:53) propose a three-step strategy for training OSCE examiners as follows:

The first step is a short time-flexible online course in which knowledge, attitudes and skills regarding OSCES are interactively conveyed. The course content should include OSCE as an examination form in general, the OSCE process on the examination day, role of examiners, and sources of observation bias. Test questions are included to ensure proper understanding of the information. Also, examiners are required to pass a checklist-based test mirroring the grading of a student during an OSCE station. A

certificate of competence allowing the examiners to take part in OSCEs can be issued as part of this step.

The second step takes place directly prior to the OSCE. Station-specific videos and checklists prepare the examiners for their imminent assignment and sample solutions are provided. If more than one examiner is assigned to a station, all examiners compare and discuss their checklist results to reduce inter-observer variability.

The third step takes place as workplace-based assessment. A member of the trainer team observes the examiners during the OSCE with a standardised observation sheet and gives structured performance feedback to the examiners. If needed, this feedback process can be repeated.

For each OSCE following the basic training, examiners are required to take part in the second step again, creating the opportunity for both experienced and inexperienced examiners to discuss the videos and checklist solutions together. The third step is only repeated if there are doubts about an examiner's performance (Schuttpelz-Brauns et al., 2019:53).

3.4.4.2 Sub-theme Two: An explicit code of conduct for all stakeholders involved in OSCEs is needed

Nurse educators gave accounts regarding their colleagues and students who failed to display exemplary conduct during OSCEs. According to nurse educators, incidents of poor discipline during OSCEs are not uncommon in the multi-campus public College of Nursing. Nurse educators expressed their concern that poor conduct may put the credibility of OSCEs into question.

Examples provided of poor conduct were the use of phones by some nurse educators, standardised patients and professional nurses assisting in OSCEs despite the use of phones being prohibited in venues where OSCEs are conducted. The standardised patients sometimes attempt to assist students performing OSCEs by nudging them to the correct course of action when they see them fumbling. Nurse educators were also concerned that the use of phones by the standardised patients during OSCEs may further jeopardise the integrity of the OSCEs.

"...there is a tendency that the simulators they, that they...a little informing there...those who are being assessed and also the, the, the, the authenticity of the, of the examination". [P 2 Campus Two, 9:235]

"So, uhm whatever that will happen they need to keep it confidential but you know students, they will remain students because they will say oh okay and I think the other thing we need to ensure that they don't bring their phones because sometimes you find out they are having their phones and you don't know whether they are recording or they are not...what they are doing". [P 3 Campus Three, 4:107]

"And we normally say that no one should come in with the phone but there are few individuals that normally comes with their phones while the students are performing their physical...their, the, the skills...". [P 1 Campus Two, 4:84]

A study conducted by Fouad, Gouda, Nasser et al. (2019:38) found that while standardised patients play a vital role in strengthening the validity and reliability of OSCEs, they sometimes have the propensity to provide clues to students. The same study also found that standardised patients tend to be easily annoyed and uncooperative because performing the role of standardised patient is not part of their job description (Fouad et al., 2019:38).

Rules, norms and standards regarding the use of electronic communication devices in an examination venue need to be communicated and applied to students. The consequences for contravening these rules, norms and standards must also be communicated to students.

Further, while the public College of Nursing has measures in place to ensure the appropriate conduct of students, nurse educators, professional nurses and standardised patients assisting in the OSCEs, some nurse educators contravene such measures. Nurse educators therefore proposed that a code of conduct is needed to deal with incidents of poor discipline.

"Yes, it affects it greatly because you find that each and every person is doing something that she likes, the way she saw it's correct according to her because you find that even the way people they talk, others...they are just general uhm as if there's...there's no assessment that is running around". [P 1 Campus Five, 15:409] "...I have indicated that if you can have the conduct of the lecturers as number one (throat clearing) it should be enforced and continually enforced to us". [P 1 Campus Two, 19:478]

Examiners play a vital role in ensuring that the OSCE process is credible, fair, valid and reliable (Zayyan, 2011:220). It is therefore critical that examiners conduct themselves in an exemplary manner in keeping with their gatekeeping responsibilities (Wong et al., 2020:279). Higher Education Institutions often have established rules, norms and standards which guide the conduct of examiners during student assessment. It is essential that examiners uphold these rules, norms and standards in order to maintain their professional status while protecting the credibility of assessment.

3.4.4.3 Sub-theme Three: The College of Nursing needs to provide adequate and suitable resources for OSCEs

Conducting OSCEs with limited resources was described by nurse educators as a hindrance to ensuring quality in the College OSCEs. The resource limitations mentioned by nurse educators included human and material resources. Nurse educators recommended that adequate and relevant resources be provided and that the provision of resources will eliminate improvisation. In addition, the clinical skills laboratories should be outfitted with relevant stock and equipment. Nurse educators stated that the public College of Nursing needs to benchmark from universities in order to align the College clinical skills laboratories with those of universities.

"The resources must be available because when we are improvising, we are not doing it when improvising. We must ensure during...starting from the formative evaluation that we are using the resources. So, we must ensure the availability of the resources, not to improvise". [P 2 Campus Two, 12:289]

"Erm something that I'm sure must be there because most of the time er varsities are on a higher level, usually than colleges. Even with regards to equipment because you go to their Sim labs now it's more advanced. So probably inviting us also to them for in-service for better equipment for better mannequins so that we can also...that will also assist in the quality, I think". [P 1 Campus One, 16:446] This finding is consistent with that of Fouad et al. (2019:38) who found that OSCEs require intensive organisation and preparation. Adequate organisation and preparation are known to strengthen the validity and reliability of OSCEs while contributing to the positive perception of examiners (Fouad et al., 2019:38).

Learning through practice in a simulated environment before exposure to the actual workplace can facilitate the students' acquisition of clinical skills (Nouhi, Sabzevari & Hosainrezaee, 2019:2). Clinical skills laboratories provide a dedicated area where students can practice repeatedly using a range of models and simulators (Dilly, Read & Baillie, 2017:581). The availability of sufficient resources such as clinical skills laboratories therefore provides opportunities for students to maximise the acquisition of the required clinical skills (Nouhi et al., 2019:2).

Universities are at the forefront of clinical laboratory skills training and thus provide opportunities for other education institutions to benchmark best practices regarding clinical skills laboratories. Higher Education Institutions have a growing desire to learn from each other and to share aspects of good practice (Achim, Căbulea, Popa et al., 2009:850). With the emphasis on collegiality and the recognition of the international role of the university, such desires have traditionally manifested themselves in various ways: meeting to share common interests; visits by delegations from one higher education system to examine practice in another; professional bodies working collaboratively with institutions in supporting academic provision and mediating standards; and, where formal quality assessment or accreditation systems exist, their ultimate dependence upon the maintenance of the goodwill of universities by providing their own staff to take part as assessors of other institutions (Achim et al., 2009:850).

The provision of adequate and appropriate resources forms part of the organisation and preparation phase of OSCEs. Each OSCE station needs to be provided with the necessary functional equipment allowing students to perform the required clinical skills (Khan et al., 2013:e1456). The OSCE stations must also have sufficient space, lighting and ventilation (Khan et al., 2013:e1456).

Nurse educators stated that the uneven distribution of resources threatens the uniformity of OSCEs in the multi-campus public College of Nursing. One of the nurse educators stated that OSCEs in his/her campus take the longest compared to other campuses due to limited human resources. Therefore, the provision of similar human

and material resources across the College of nursing was recommended. Nurse educators further stated that the level of human resourcing and quantity of equipment should be proportional to the number of students in each campus.

"We need more staffing if we want quality uhm or else if we are so few we can go home round about ten pm because of shortage of staff and equipment that can be able to be used by these hundred students and we have to finish that OSCE in a day so that it cannot leak". [P 2 Campus Two, 18:488]

"I think what's supposed to happen er all the colleges should be at the same level whether it's, whether they have lesser learners than others but all of us should have the same equipment because er we try to ensure standardisation and quality". [P 1 Campus One, 13:365]

Gormley (2011:129) states that in OSCEs, all candidates should experience the same assessment experience and conditions. However, the potential for variation (for example between different stations within the same OSCE) is inevitable (Gormley, 2011:129).

3.4.4.4 Sub-theme Four: External moderators should play a more meaningful role to help the College of Nursing improve quality management of OSCEs

There are three universities to which the multi-campus public College of Nursing is affiliated. These universities conduct external moderation of summative theory and clinical examinations (OSCEs) for this public College of Nursing. According to nurse educators, external moderation is an essential aspect for ensuring the quality of OSCEs in the College of Nursing.

"So, we get allocated an external moderator or moderators that would be one of the universities that we affiliate with...". [P 2 Campus Five, 8:219]

"Then we er the external moderators should be there to ensure the fairness, the validity and the quality of the, the exam". [P 3 Campus Three, 10:274]

Moderation is a quality assurance process which ensures that student assessment is well designed and is conducted in a robust, fair, consistent and accurate way (Handa, 2018:53). Internal moderation uses institutional processes to test the quality of assessment and standards whereas external moderation contributes to that process but also seeks to align quality with national standards (Bloxham, Hughes & Adie, 2016:4).

However, there are occasions where external moderators arrive late at some campuses due to the long distance they have to travel from the universities where they are employed. As a result, some campuses feel obliged to commence with OSCEs before the external moderators arrive. Sometimes external moderators implement changes to the OSCE tools despite some students having already completed their OSCEs. According to nurse educators, making changes to the OSCE tools after some students have already completed the OSCE is unfair. However, if external moderators arrive on time, they would have ample time to conduct their moderation duties.

"...the external moderators they usually come late and then they come late some of the students would have been done the OSCE already and then now they will come and then they will see something that is not supposed to be done or...during the OSCE while five or ten students are already out and then there's gonna be some changes now and then of course those students that went that came before or earlier they benefitted than the students that come later. So, the fairness there, there will be...ja there will be a bit of trouble". [P 1 Campus Three, 7:161]

"...if they could come early neh [Do you understand?] and then we read the instructions together and the scenarios and calculate the marks together and then if we make these changes we make those changes together...". [P 1 Campus Three, 8:211]

The purpose of moderation is to uphold the values and quality of education and thus maintain its significance in gaining and sharing of knowledge and learning (Handa, 2018:14). Moderation promotes assessment quality fairness whilst examiners are given opportunities to increase common understanding of standards and requirements (Handa, 2018:15). External moderators promote adherence to recognised norms, values and standards needed to achieve high quality student assessment. When external examiners are asked to review assessment procedures, academics can have some confidence that assessment processes have been externally verified and have thus provided students with appropriate guidance, adhered to the required moderation practices, and made consistent and legitimate decisions when a student's mark profile

indicated a borderline case (Bloxham et al., 2016:17). The absence of external moderators during the commencement of OSCEs therefore compromises the quality of student assessment.

Nurse educators conceded that recommendations made by external moderators regarding OSCE tools are sometimes not implemented by Programme Managers. However, external moderators raise their concerns with nurse educators during OSCEs. Because nurse educators are not involved in the setting or the selection of the final OSCE tools, they are unable to account for the non-implementation of external moderators' recommendations. Nurse educators recommended the establishment of a clear process of communication, verification and accountability to strengthen moderation of assessment in the public College of Nursing.

"Okay, with the external moderators, I expect that the external moderator, when given the, the paper, moderates the paper, give the, the, the recommendations or the corrections to the college and should make sure before it goes out to be er the exam day to, to, to communicate with the college. They must have the same understanding and, and, and er time frames for the corrections to be effected and sent back to them and to make sure if it's the correct thing that has been effected like the...you...I think the external moderators and the, the programme managers must have the communication and, and interaction quite before the exam day...". [P 2 Campus Four, 10:238]

The strength of moderation relies on transparency and peer scrutiny (Bhoxham et al., 2016:9). To promote transparency and peer scrutiny, internal and external moderators need to work collaboratively and share a common purpose to ensure appropriate, clear and fair standards of assessment (Handa, 2018:16). A study conducted by Handa (2018:42) found that examiners play an important role in delivering high quality assessment. Therefore, the role of an examiner is not only to design the assessment but to continuously improve the assessments by taking account of and implementing the feedback to make sure that the assessments are fit for purpose (Handa, 2018:42).

Nurse educators regard external moderators highly. External moderators have a wealth of knowledge and expertise which they should invest in empowering nurse educators and thereby contribute to capacity building in the College of Nursing.

"...external moderators. I expect them to support us as lecturers as well give advice to us moving forward because er to me any exercise is a learning curve. ...". [P 2 Campus Five, 21:572]

There is a paucity of research concerning this finding. However, Biggs (2011) (as cited in Handa, (2018:17)) states that external moderators are regarded as subject specialists, advisers and consultants to the institutions and play an important role in improving assessment practices.

3.4.4.5 Summary of Theme Four

In addition to nurse educators sharing their experiences regarding challenges related to the quality management of OSCEs in the public College of Nursing, they provided recommendations regarding how these challenges can be resolved. A policy framework, standard operating procedures and training regarding OSCEs; an explicit code of conduct for all stake holders involved in OSCEs; the provision of adequate and suitable resources for OSCEs; and definition of a more meaningful role for external moderators to help the College of Nursing improve quality management of OSCEs were recommended as interventions to strengthen the quality of OSCEs in the College of Nursing. The involvement of nurse educators in setting the final OSCEs as well as training of stakeholders involved in OSCEs were added as recommendations from external moderators' reports.

3.5 CHAPTER SUMMARY

In this Chapter, the themes and sub-themes which emerged from interviews with nurse educators from the multi-campus public College of Nursing as well as those from external moderators' reports were presented. A detailed discussion of the themes and sub-themes was provided. Relevant literature was incorporated into the discussion of the themes and sub-themes in order to contextualise the findings of this study into the body of existing literature.

CHAPTER FOUR

INTEGRATIVE LITERATURE REVIEW

4.1 INTRODUCTION

In Chapter Three, the themes and sub-themes which emerged from interviews with nurse educators from the multi-campus public College of Nursing and from the document analysis of external moderators' reports were presented. A detailed discussion of the themes and sub-themes was provided. Relevant literature was incorporated into the discussion of the themes and sub-themes in order to contextualise the findings of this study into the body of existing literature.

This Chapter outlines the details of an integrative literature review that was conducted to search, select, appraise, extract and synthesise the current literature regarding the best practices on the management of the quality of OSCEs in health science education.

4.2 INTEGRATIVE LITERATURE REVIEW

An integrative literature review was selected as the type of review for this phase of the study as it allows the use of a rigorous methodology, divided into a series of steps, to obtain the latest research evidence. An integrative literature review provides the flexibility to include literature from a wide range of sources, as opposed to a systematic review (Snyder, 2019:336). The researcher can thus obtain and use evidence arising from a range of studies, including that of randomised controlled trials (RCT), observational studies, qualitative research, clinical experts and any other relevant evidence in which the researcher objectively critiques, summarises and makes conclusions about a topic (Noble & Smith, 2018:40). The steps of the integrative literature review are outlined below.

4.3 STEPS FOR THE INTEGRATIVE LITERATURE REVIEW PROCESS

Using five adapted steps, as proposed by de Souza, da Silva and de Carvalho (2010:104), the researcher searched, selected, critically appraised and synthesised the current literature regarding best practices on the management of the quality of OSCEs in health science education. The steps applied by the researcher in conducting the review are elaborated in the next sections.

4.3.1 Step One: Preparing the guiding question (problem identification)

The researcher formulated searchable and answerable review question for the purpose of guiding the integrative literature review. The formulation of a searchable and answerable review question is crucial because it determines which studies will be included, the means adopted for identification of the studies to be included, and information gathered in each selected study (de Souza et al., 2010:104). The PICO (Population, Intervention, Comparison and Outcomes) framework was used, as follows, to guide the process of formulating the searchable and answerable review question:

Population: Literature on the quality of OSCEs in health science education. Intervention: Best practices regarding the management of the quality of OSCEs Comparison: Not applicable Outcome: Enhanced quality of OSCEs

The review question was formulated as follows: "What are best practices regarding the management of the quality of OSCEs in health science education?"

4.3.2 Step Two: Searching or sampling the literature

Step Two entails searching or sampling the literature. This step is intrinsically related to step one and entails the search in electronic databases, hand searching of references described in the selected studies and the manual search in Google Scholar as well as the selection or screening of literature based on pre-determined inclusion and exclusion criteria (Galvão, Sawada, Trevizan et al. as quoted by de Souza et al., 2010:104).

The use of an integrative literature review requires that researchers develop their own standards and a detailed plan to ensure that the appropriate literature is accurately retrieved to answer the review question, while promoting transparency of the review process (Snyder, 2019:336). A search protocol was therefore developed and reviewed by senior researchers and an experienced librarian to ensure that the search strategy to be used was sufficiently comprehensive to answer the review question. The researcher provided an in-depth description of the search strategy, the sources where data for the integrative literature review was sourced and of the screening process.

Before conducting an in-depth literature search, a preliminary search was performed. A preliminary search helps the researcher gain an overview of the range and depth of research that exists for a particular research topic (Paré & Kitsiou, 2017:163). Further, conducting a preliminary literature search is a useful way of guiding the researcher regarding the databases and keywords to use when searching for literature relevant to the research topic. The preliminary search can cover published work and discover on-going studies (Grewal, Kataria & Dhawan, 2016:635).

A comprehensive search strategy was utilised in order to maximise opportunities for obtaining the relevant literature. The first step in the search strategy involved searching the electronic databases, with the assistance of an experienced librarian. While the selection of the electronic databases should be based on the subject of interest and the potential coverage by the different databases, it is crucial to search several databases in order to produce relevant literature (Grewal et al., 2016:636). The following electronic databases were accessed through the Nelson Mandela Library: EBSCOhost including CINAHL, eBook Collection, E-journals, ERIC, Health Source- Consumer Edition, Health Source-Nursing/Academic Edition, Humanities International Complete and MEDLINE. Cochrane Online, PubMed, Taylor & Francis Online and ScienceDirect were also searched.

The use of Boolean operators and special filters helped the researcher to refine the literature search in the electronic databases (Grewal et al., 2016:637). While searching the electronic databases, the researcher realised that each electronic database required the keywords to be arranged in a specific way in order to obtain the relevant literature. Table 4.1 provides a record of the combination of key words used for each electronic database in order to obtain the most relevant literature:

Database	Set of keywords
EBSCOhost	"Objective Structured Clinical Examination" OR "OSCE" AND "Health Science Education" AND "Quality"
Cochrane Online PubMed Taylor & Francis ScienceDirect	"Quality of Objective Structured Clinical Examination" OR "OSCE in health science education"

Table 4.1: Set of keywords per database

The second step in the search strategy was the hand searching for applicable literature reflected in the reference lists of the relevant articles. Searching the reference lists of the relevant articles was essential for this study in order to find literature which was not previously identified. The third step was a manual search of grey literature which was conducted using Google Scholar in order to identify more relevant literature and complete the reference chaining. The inclusion of grey literature is central to retrieving a significant quantity of relevant literature and thereby reduce susceptibility to bias (Haddaway, Collins, Coughlin et al., 2015:3).

The inclusion and exclusion criteria were central to selecting the relevant literature. Guiding the literature selection process were the following inclusion criteria:

All available literature published from January 2010 to September 2020 (to obtain the latest evidence) in English (the language the researcher is proficient in and to avoid translation costs).

Research (experimental, non-experimental, descriptive and qualitative studies) and non-research documents (editorials, opinion letters) as well as unpublished literature to access a large pool of recent literature from all levels of evidence (see Figure 4.1). Literature retrieved was confined to the management of the quality of OSCEs in health science education.

Literature with no detailed information regarding the management of the quality of OSCEs, literature related to theoretical assessment, literature not written in English and literature from other contexts than health science education was excluded from this review.

In addition to screening the literature for inclusion, it is crucial for researchers to establish the strength, quality, and consistency of the literature to determine its applicability and usability in practice (Paré & Kitsiou, 2017:160). As such, the researcher utilised the guide suggested by Lobiondo-Wood and Haber (2018) as a basis to decide which level of evidence would be included. The levels of evidence utilised for this review are illustrated in Figure 4.1.





Figure 4.1: Levels of evidence

Two hundred and fifty-four articles were produced from searching the electronic databases. After removing one duplicate article from the search results, two hundred and fifty-three articles remained for screening of titles and abstracts. After screening

the titles and abstracts, fifteen articles were selected, while the rest of the articles (two hundred and thirty-eight) were rejected due to lack of relevance. A manual search was thereafter conducted through screening of reference lists and searching grey literature from Google Scholar, which yielded thirty-seven full-texts. However, one of the articles was not obtainable even after the assistance of an experienced librarian was attained to help search for this one article (Meert, Torabi, & Costella, 2016:271). Therefore, a total of fifty-one articles (thirty-six obtainable articles from the manual search as well as the fifteen articles from the search of electronic databases) were downloaded for full-text screening for possible inclusion in the selection.

After screening the fifty-one full-text articles, thirty-eight articles were excluded, based on the inclusion and exclusion criteria, while thirteen articles met the inclusion criteria and were therefore retained for critical appraisal. Figure 4.2 presents a PRISMA flowchart outlining the search and selection process. The process of critical appraisal is described in the next section.



Source: Adapted from Moher, Liberati, Tetzlaff, & Altman., 2009 Figure 4.2: PRISMA flow chart

4.3.3 Step Three: Critical analysis/appraisal of the studies included

Step Three, which was the critical analysis of the studies included in the integrative review, is similar to data analysis and involves an organised approach to weigh the rigour and characteristics of each study (de Souza et al., 2010:104). The inclusion and synthesis of both research and non-research evidence, as well as literature with diverse designs, during an integrative literature review requires that the researcher assesses the rigour of individual empirical and non-empirical literature according to a hierarchy of evidence. Assessing the rigour of scientific evidence guides the evaluation of research studies for their eligibility for inclusion in the final selection, revealing the quality, the quantity and the consistency of such evidence. The purpose of the appraisal was to select studies that had sufficient rigour, while flagging those which showed flaws in methodologies, unreliable/biased data, presence of major variations between the studies and those with data recording errors.

Using the hierarchy of evidence suggested by Lobiondo-Wood and Haber (2018), as outlined in Figure 4.1, the literature was ranked in order to measure its strength and susceptibility to bias. The thirteen articles included in the critical appraisal process were read thoroughly, after which each article was graded according the hierarchy of evidence and critically appraised.

In order to identify evidence from rigorous, reliable, unbiased and methodically appropriate research, an appropriate critical appraisal tool must be utilised (Bucheri & Sharifi, 2017:3). The Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool (Appendix E) was selected because it is a validated multipurpose tool that allows reviewers to answer simple questions, the answers to which enable users to determine the methodology of the study, and hence the levels of evidence (Bucheri & Sharifi, 2017:8). On the other hand, the Johns Hopkins Nursing Evidence-based Practice Non-Research Evidence appraisal tool (Appendix F) was selected because it guides users through identifying what type of non-research item they are appraising- clinical practice guideline, a consensus/policy statement, a literature review, an expert opinion piece, an organisational experience, a case report, or a community standard/clinician experience/consumer preference article (Bucheri & Sharifi, 2017:9).
During the critical appraisal process, each article appraised was assigned a score as a basis for its inclusion or exclusion in the data synthesis and extraction. The score was obtained by dividing the number of items on the critical appraisal tool that were answered 'yes' with the total number of items x 100. Assigning a score to each article after critical appraisal served as a measure for justification for selection and, in addition, simplified and enhanced transparency in the process of critical appraisal. Due to the limited articles available on the topic, and in order to include relevant articles with considerable rigour, sixty percent was assigned as a minimum or 'cut-off' score for the selection of each article.

Appraising evidence is best accomplished through a team approach as it brings multiple perspectives and sparks the critical thinking process (Mark, Park, Dudley-Brown e al., 2019:25). Therefore, the researcher and an independent reviewer each appraised every article using the same set of tools deemed suitable per article. A list of the articles was compiled by the researcher and sent to the independent reviewer, together with the appraisal tool used for each article. A meeting was held with the independent reviewer in order to discuss and reach consensus regarding the articles that were included after the critical appraisal. Table 4.2 illustrates the critical appraisal process of the thirteen articles included in the critical appraisal.

Table 4.2: Critical Appraisal (n=13)

Reference	Design (level of evidence)	Critical appraisal tool	Critical appraisal outcome and score
Systematic review (n = 1)			
Authors: Brannick, M.T., Erol-Korkmaz, H.T. & Prewett, M. <u>Year</u> : 2011 <u>Title:</u> A systematic review of the reliability of objective structured clinical examination scores. <u>Country</u> : United States of America.	Meta-analysis Level: I	Johns Hopkins Nursing Evidence-based Practice Non-Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Score:</u> Researcher: 73%; Independent reviewer: 63%
Single non-experimental studies (n=6)			
Authors: Goh, H.S., Tang, M.L., Devi, M.K., GN, K.C.E. & Lim, L. M. <u>Year</u> : 2016 <u>Title:</u> Testing the psychometric properties of Objective Structured Clinical Examination (OSCE) in Nursing Education in Singapore. <u>Country</u> : Singapore	Single non-experimental (Quantitative study) Level: IV	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Score:</u> Researcher: 73%; Independent reviewer: 67%

Reference	Design (level of evidence)	Critical appraisal tool	Critical appraisal outcome and score
Authors: Koviland, M., Esfandyari & Heydarpour, S. <u>Year</u> : 2020 <u>Title</u> : Examining validity and reliability of objective structured clinical examination for evaluation of clinical skills of midwifery undergraduate students: A descriptive study. <u>Country:</u> Iran	Single non-experimental study (Descriptive correlation) Level: IV	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Score:</u> Researcher: 73%; Independent reviewer: 67%
Authors: Ogah, A.O., Jama, M.P., Brits, H. & Ogah, O.G.A. <u>Year</u> : 2016 <u>Title:</u> Measuring the quality of the objective structured clinical examination in the Obstetrics and Gynaecology department of a resource limited institution in East Africa. <u>Country</u> : Tanzania	Single non-experimental study (Descriptive and cross- sectional study) Level: IV	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Scores:</u> Researcher: 73%; Independent reviewer: 67%

Reference	Design (level of evidence)	Critical appraisal tool	Critical appraisal outcome and score
<u>Authors</u> : Schleicher, I., Leitner, K., Juenger, J., Moeltner, A., Ruesseler, M., Bender, B., Sterz, J., Stibane, T., Koenig, S., Frankenhauser, S. & Kreuder, J.G. <u>Year</u> : 2017 <u>Title</u> : Does quantity ensure quality? Standardized OSCE-stations for outcome- oriented evaluation of practical skills at different medical faculties. Country: Germany	Single non-experimental study (Descriptive correlation) Level: IV	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Score:</u> Researcher: 64%; Independent reviewer: 60%
Authors: Trejo-Mejìa, J.A., Sańchez- Mendiola, M., Meńdez-Ramìrez, I. & Martìnez-González, A. <u>Year</u> : 2016 <u>Title: Reliability analysis of the objective</u> <i>structured clinical examination using</i> <i>generalizability theory.</i> <u>Country</u> : Mexico	Single non-experimental study: Observational cross- sectional study (quantitative) Level: IV	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome:</u> Included <u>Score:</u> Researcher: 82%; Independent reviewer: 75%

Reference	Design (level of evidence)	Critical appraisal tool	Critical appraisal outcome and score
Authors: Yousuf, N., Violate, C. & Zuberi, R.W. <u>Year</u> : 2015 <u>Title</u> : Standard setting methods for Pass/Fail decisions on High-Stakes Objective Structured Clinical Examinations: A validity study. <u>Country:</u> Pakistan	Single non-experimental study: quantitative analysis Level: IV	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Score:</u> Researcher: 73%; Independent reviewer: 75%
Expert opinion papers (n=3)			
Authors: Hastie, M.J., Spellman, J.L., Pagano, P.P., Hastie, J. & Egan, B.J. <u>Year</u> : 2014 <u>Title:</u> Designing and Implementing the Objective Structured Clinical Examination in Anesthesiology. <u>Country</u> : United States of America	Expert opinion (literature review) Level VII	Johns Hopkins Nursing Evidence-based Practice Non-Research Evidence appraisal tool	<u>Outcome:</u> Included <u>Score:</u> Researcher: 88%; Independent reviewer: 88%

Reference	Design (level of evidence)	Critical appraisal tool	Critical appraisal outcome and score
Authors: Khan, K.Z., Gaunt, K., Ramachandran, S. & Pushkar, P. <u>Year</u> : 2013 <u>Title</u> : <i>The Objective Structured Clinical</i> <i>Examination (OSCE): AMEE Guide No. 81.</i> <i>Part II: Organisation & Administration.</i> <u>Country:</u> United Kingdom	Expert opinion Level: VII	Johns Hopkins Nursing Evidence-based Practice Non-Research Evidence appraisal tool	<u>Outcome:</u> Included <u>Score:</u> Researcher: 100%; Independent reviewer: 100%
Authors: Pell, G., Fuller, R., Homer, M & Roberts, T. <u>Year:</u> 2010. <u>Title:</u> How to measure the quality of the OSCE: A review of metrics. Country: United Kingdom	Expert opinion Level VII	Johns Hopkins Nursing Evidence-based Practice Non-Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Score:</u> Researcher: 75%; Independent reviewer: 75%
Mixed methods studies (n=2)			
Authors: Kelly, M.A., Mitchell, M.L., Henderson, A., Jeffrey, C.A., Groves, M., Nulty, D.D., Glover, P. & Knight, S. <u>Year:</u> 2016 <u>Title:</u> OSCE best practice guidelines- applicability for nursing simulations. <u>Country</u> : Australia	Mixed methods (survey and focus group discussions) Level IV and VI	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome:</u> Included <u>Score:</u> Researcher: 67%; Independent reviewer: 67%

Mixed methods (survey and		
focus group discussions) Level: IV & VI	Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool	<u>Outcome</u> : Included <u>Score:</u> Researcher: 71%; Independent reviewer: 75%
Descriptive phenomenological study (Qualitative) Level: VI	Johns Hopkins Nursing Evidence-based Practice Research Evidence Appraisal tool	<u>Outcome</u> : Included <u>Score</u> : Researcher: 73%; Independent reviewer: 60%
	Mixed methods (survey and focus group discussions) Level: IV & VI Descriptive phenomenological study (Qualitative) Level: VI	Mixed methods (survey and focus group discussions) Level: IV & VIJohns Hopkins Nursing Evidence-based Practice Research Evidence appraisal toolDescriptive phenomenological study (Qualitative) Level: VIJohns Hopkins Nursing Evidence-based Practice Research Evidence Appraisal tool

As outlined in Table 4.2, thirteen (n=13) articles—six single non-experimental studies, two mixed-method studies, and one qualitative study were appraised using the Johns Hopkins Nursing Evidence-based Practice Research Evidence appraisal tool. Three expert opinion papers and one systematic review were appraised using the Johns Hopkins Nursing Evidence-based Practice Non-Research Evidence appraisal tool. All thirteen articles met the minimum critical appraisal score of 60 percent for both reviewers and were thus included in the final selection (see Table 4.3). Of the included studies, critical appraisal scores ranged between 100% and 60%. (Figure 4.2 outlines the PRISMA flowchart).

4.3.4 Step Four: Data extraction and synthesis

Step four includes the data extraction and synthesis process. After critical appraisal, data of the articles deemed to be rigorous was extracted so that it could be synthesised. For the purpose of data extraction, the researcher used a previously prepared data extraction instrument that enabled collection of all relevant data (de Souza et al., 2010:104). The data extraction instrument should be designed in such a way that it enables collection of relevant data and also minimises risk of transcription errors, guarantees precision and serves as a record (de Souza et al., 2010:104). Thirteen articles were extracted and displayed, starting with the highest level of evidence (see Table 4.3).

 Table 4.3: Data extraction (n=13)

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Systematic review (n	= 1) Level I evidence		
Brannick, M.T., Erol-Korkmaz, H.T. & Prewett, M. <u>Year</u> : 2011 <u>Title:</u> <i>A systematic</i> <i>review of the</i> <i>reliability of</i> <i>objective structured</i> <i>clinical examination</i> <i>scores</i> .	To describe the reliability (in terms of both mean reliability and variability of distribution) of the OSCE and to determine whether several features associated with the administration of the OSCE are related to the reliability of measurement.	Increasing the number of stations in an OSCE results in raising the reliability. Utilising a second examiner in an OSCE station substantially improves the reliability of an OSCE. The type of an OSCE rating tool (checklist versus Likert scale) may influence the reliability of an OSCE. The type of examiner (non-expert versus content expert) is a significant arbiter of cross-items reliability.	 Increase the overall reliability of OSCE scores in the <i>preparation and planning phase</i> by: Increasing the number of stations. Adding a second examiner. Using a global rating scale for scoring items such as communication. Using checklists for scoring technical clinical skills. Consider using expert rather than non-expert examiners.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Non-experimental res	earch (n=6 Level IV evide	ence	
Goh, H.S., Tang, M.L., Devi, M.K., GN, K.C.E. & Lim, L. M. <u>Year</u> : 2016 <u>Title:</u> Testing the psychometric properties of OSCE in nursing education in Singapore.	To describe development of OSCE within nursing education in Singapore, based on best practice, and report psychometric testing of OSCE for use within the Singaporean context.	Examiners play a crucial role in ensuring reliability of student assessment. Therefore, careful preparation of the examiners is essential. Use of content experts to validate the appropriateness of the OSCE stations. Appropriate blueprinting and mapping of the OSCE content against the competencies to be assessed.	 Enhancing the quality of OSCEs in the preparation and planning phase, and implementation phase through: Adequate preparation of examiners. Expert validation of OSCE stations. Alignment of OSCE content with the competencies expected of students.

Table 4.3: Data	extraction	(n=13)	(cont'd)
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Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Koviland, M., Esfandyari & Heydarpour, S. <u>Year</u> : 2020 <u>Title</u> : Examining validity and reliability of OSCE for evaluation of clinical skills of midwifery undergraduate students: A descriptive study.	To determine validity and reliability of Objective Structured Clinical Examination for evaluation of clinical skills of midwifery undergraduate students.	Use of content experts to determine the content validity of OSCEs. Effective planning and provision of relevant resources contributes meaningfully to the success of OSCEs.	 Ensure the success of OSCEs in the preparation and planning phase as well as implementation phase by: Utilising content experts to ensure content validity of OSCEs. Planning accurately. Providing experienced examiners. Providing access to references and equipment. Allocating adequate time to design and implement OSCEs. Providing a suitable venue to run OSCEs. Providing suitable measurement tools.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Ogah, A.O., Jama, M.P., Brits, H. & Ogah, O.G.A. <u>Year</u> : 2016 <u>Title</u> : <i>Measuring the</i> <i>quality of the OSCE</i> <i>in the Obstetrics</i> <i>and Gynaecology</i> <i>department of a</i> <i>resource limited</i> <i>institution in East</i> <i>Africa.</i>	To improve assessments by measuring the quality properties of OSCE scores of 10 x 3 rd year Clinical Medicine students in Obstetrics and Gynaecology department of a resource-limited medical school in Tanzania, using psychometric methods.	The use of robust psychometric tools is vital regarding the generation of valid, objective and consistent assessment of OSCE. Pass/fail decisions should be based on standardised pass marks and not on fixed institutionally endorsed marks. There is a need for extensive training of educators in resource limited medical schools in the OSCEs, global scoring and psychometric analysis. OSCE stations that show minimal reliability should be discarded.	 Strengthen the quality of OSCEs in the preparation and planning phase as well as the evaluation phase by: Using standardised cut-off marks to determine the pass/fail decisions. Training examiners. Cancelling unreliable OSCE stations.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Schleicher, I., Leitner, K., Juenger, J., Moeltner, A., Ruesseler, M., Bender, B., Sterz, J., Stibane, T., Koenig, S., Frankenhauser, S. & Kreuder, J.G.	To create standardised OSCE stations with identical checklists, which are then established at different medical faculties.	Using a common standard on assessment of competencies and a reference examiner at every OSCE site may minimise inter-examiner variability.	In the <i>preparation and planning phase</i> as well as the <i>evaluation phase</i> , it is crucial to consider the use of reference examiners to facilitate uniformity of OSCEs at multi-site institutions.
<u>Year</u> : 2017			
<u>Title:</u> Does quantity ensure quality? Standardized OSCE-stations for outcome-oriented evaluation of practical skills at different medical faculties.			

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Trejo-Mejiìa, J.A., Sánchez-Mendiola, M., Méndez- Ramìrez, I. & Martìnez-González, A. <u>Year</u> : 2016 <u>Title:</u> <i>Reliability</i> <i>analysis of the</i> <i>Objective Structured</i> <i>Clinical Examination</i> <i>using</i> <i>generalizability</i> <i>theory.</i>	To assess the reliability of an OSCE in medical students using G-theory and explore its usefulness for quality improvement.	An OSCE can be improved by using G-theory because it provides information about the main indices of quality and validity evidence in the results of an assessment. The reliability study using G-theory allows the identification of several sources of variation that are common in OSCEs. The analysis of the stations allows for improvement of the quality of the OSCE. The G-theory is helpful in confirming the reliability of OSCE scores.	 Enhance the reliability of OSCEs in the preparation and planning and the evaluation phases by: Using the G-theory to measure the reliability of OSCEs Identifying the sources of variance Confirmation of the reliability of OSCE scores.
Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Yousuf, N., Violate, C. & Zuberi, R.W. <u>Year</u> : 2015 <u>Title:</u> Standard setting methods for pass/fail decisions on high-stakes Objective Structured Clinical Examinations: A validity study.	To investigate various standard setting methods for OSCEs, based on convergent validity evidences, by comparing commonly used methods against each other and against cluster analysis as a prospective standard setting method.	Using standard setting methods (such as norm referenced and criterion referenced methods) to determine the pass/fail cut-off scores.	 Enhancing the defensibility in the preparation and planning phase of OSCE cut-off scores by: Establishing criteria for making acceptable pass/fail decisions in OSCEs. Selecting an appropriate standard setting method for pass/fail decisions.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Mixed methods (n=2)	Level IV and VI evidence		
Kelly, M.A., Mitchell, M.L., Henderson, A., Jeffrey, C.A., Groves, M., Nulty, D.D., Glover, P. &	To determine the applicability and value of the OSCE Best Practice Guidelines (BPGs) in an existing	Application of the seven best practice guidelines in the development and application of OSCE simulation activities.	Enhance the quality of OSCEs in the preparation and planning phase as well as the evaluation phase by:Applying the seven best practice
Knight, S. <u>Year</u> : 2016	formative simulation.		 guidelines. Assessing content that correlates with real life situations.
<u>Title:</u> OSCE best practice guidelines- applicability for nursing simulations.			 Administering OSCEs in simulation in order to provide safe practice environment.
Mitchell, M.L., Henderson, M., Jeffrey, C., Nulty, D., Groves, M., Kelly, M., Knight, S. & Glover, P. <u>Year</u> : 2015 <u>Title:</u> Application of best practice guidelines for OSCEs—An Australian evaluation of their feasibility and value.	To evaluate the feasibility and utility of using BPGs within an OSCE format in a broad range of tertiary education settings with under-graduate and post-graduate nursing and midwifery students.	Design OSCEs based on best available evidence. The design of OSCEs should help prepare students for clinical practice.	 Use best evidence to modify or design OSCEs in the <i>preparation and planning</i> <i>phase</i> of OSCEs ensuring: OSCE content is based on real life scenarios. OSCEs effectively prepare students for their imminent clinical practice.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Qualitative design (n=	1) Level VI evidence		
Obizoba, C. <u>Year</u> : 2018 <u>Title:</u> <i>Mitigating the</i> <i>challenges of</i> <i>Objective Structured</i> <i>Clinical Examination</i> <i>(OSCE) in nursing</i> <i>education: A</i> <i>phenomenological</i> <i>research study.</i>	To explore the strategies for mitigating the challenges of OSCE in baccalaureate nursing education program.	 Design, implementation, and evaluation of successful OSCEs require provision of the necessary human and material resources as well as support from senior academic staff. Delegation of available staff to ensure efficient implementation of OSCE. Use of clinical instructors and teaching assistants during evaluation ensures adequate manpower for the different OSCE stations. Selection and safeguarding of adequate validation of essential clinical skills that are relevant to the needs of practice. Enhance collaboration and close working relationship amongst all the relevant stakeholders. 	 Enhance the quality of OSCEs in the preparation and planning phase as well as the implementation phase by: Providing administrative and technical support. Utilising clinical instructors as examiners. Providing training to examiners. Aligning OSCE skills to the competencies expected of students. Mobilising support amongst other faculty staff.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Expert opinion (n=3) I	_evel VII evidence		
Hastie, J.M., Spellman, J.L., Pagano, P.P., Hastie, J. & Egan, B.J. <u>Year</u> : 2014 <u>Title:</u> Designing and implementing the Objective Structured Clinical Examination in Anesthesiology.	To review the history of OSCE and its current application in medical education and in different medical and surgical specialties.	Conduct a psychometric analysis to determine feasibility, objectivity, reliability, and validity of OSCEs.	Enhance the quality of OSCEs in the <i>preparation and planning</i> and <i>evaluation phases</i> by:
		Develop strategies for enhancing the validity, reliability and objectivity of OSCEs.	• Conducting psychometric analysis to evaluate the feasibility, objectivity, reliability and validity of OSCEs.
	To review the use of OSCE by anesthesiology programs and certification boards in the United States and internationally.		• Developing strategies for enhancing the validity, reliability and objectivity of OSCEs.
	To discuss the psychometrics of test design and implementation, with emphasis on reliability and validity measures as they relate to OSCE.		

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Khan, K.Z., Gaunt, K., Ramachandran, S. & Pushkar, P. <u>Year</u> : 2013 <u>Title:</u> The Objective Structured Clinical Examination (OSCE): AMEE Guide No. 81. Part II: Organisation and administration.	To assist the reader in applying the practical steps required to design and run a successful OSCE, from preparation and planning through to implementation and post-OSCE considerations.	 Preparation and planning: Set up an OSCE organisational committee to provide guidance in the OSCE process. Formulate the OSCE blueprinting and content mapping. Develop a bank of OSCE stations. Select a relevant scoring rubric and a standard setting method. Recruit and train examiners and standardised patients. OSCE implementation: Select appropriate OSCE venue, set up the OSCE circuit and provide relevant equipment. Decide on the OSCE command system, student control and conduct trouble shooting. Post-OSCE considerations: Conduct a cross-checking and verification exercise to ensure accuracy of OSCE results. Allow for process of ratification and publication of results. Allow time for complaints and appeals to be submitted. 	 Measures that need to be applied to strengthen the quality of OSCEs in the <i>preparation and planning phase</i> include: Establishing an organising committee to provide leadership and oversight. Conducting blueprinting and mapping of OSCE content. Developing a bank of OSCE stations. Selecting station writers. Selecting station types and number of stations. Conducting peer review workshops. Developing a station marking guide. Selecting standards. Recruiting and training examiners and standardised patients. Selecting an appropriate venue. Piloting OSCE stations.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
		Implement quality assurance measures, including external examiner input, psychometrics, standardisation, peer review of items, examiner training and evaluation in each of the above sections.	Measures that need to be applied to strengthen the quality of OSCEs during the <i>implementation phase</i> of OSCEs include:
			 Setting up the OSCE circuit and equipment.
			 Conducting examination-day briefings.
			 Selecting a command system.
			 Ensuring student quarantine.
			 Involving external moderators.
			Measures that need to be applied to strengthen the quality of OSCEs in the <i>evaluation phase</i> include:
			 Collection and checking of scoring sheets.
			 Allowing examiners and students time to provide feedback.
			Post-OSCE psychometric analysis.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
Pell, G., Fuller, R., Homer, M. & Roberts, T. <u>Year</u> : 2010 <u>Title:</u> How to measure the quality of the OSCE: a review of metrics.	To guide assessment practitioners, authors review metrics available for measuring quality and indicate how a rounded picture of OSCE assessment quality may be constructed by using a variety of such measures; also to consider which characteristics of the OSCE are appropriately judged by which measure(s).	Measuring quality of OSCEs using multiple metrics: <u>Cronbach's Alpha</u> : A higher than expected Alpha may require that quality improvement be undertaken by revisiting the performance of the station, and reviewing checklist and station design, or examining quality of teaching in the curriculum. <u>Coefficient of Determination</u> ² : A good (R ² > 0.5) indicates a reasonable relationship between checklist scores and global grades. <u>Inter-Grade Discrimination</u> : This statistic gives the slope of the regression line and indicates the average increase in checklist mark corresponding to an increase of one grade on the global rating scale. The recommended intergrade discrimination is between 30-35. <u>Number of failures</u> : Failure rates may be used to review the impact of a change in teaching on a particular topic - with higher rates indicating where a review of content and methods of teaching can help course design. <u>Between-Group variation (including assessor effects)</u> : In the ideal assessment process, all variation in marks will be due to differences in student performance, and not due to differences in environment.	 Use the following multiple metrics to confirm the quality of OSCE scores in the <i>preparation and planning phase</i> as well as the <i>evaluation phase</i> of OSCEs: Metric One: Cronbach's Alpha Metric Two: Coefficient of Determination R². Metric Three: Inter-grade discrimination. Metric Four: Number of failures. Metric Five: Between-group variation (including assessor effects). Metric Six: Between group-variance (other effects). Metric Seven: Standardised patients.

Article	Objective	Data extracted	Aspect of managing quality of OSCEs
		Between group variance (other effects): ANOVA analysis can be used when there are non- random allocations of either examiners or students, as is the case in institutions where multi-site assessment may occur. Such complex arrangements can result in the non-random assignment of assessors to circuits since it is often difficult for clinical staff to leave their place of work. This may lead to significant differences due to 'site effects', which can be identified with appropriate action taken in the analysis of results.	
		<u>Standardised patients</u> : Most centres that use standardised patients require them to rate candidates. In keeping with other metrics, a higher- than-normal proportion of candidates (over 10%) receiving adverse standardised patient ratings may indicate station level problems.	
		<u>Quality control by observation:</u> Detecting problems in the run up to OSCEs and on the day the OSCEs are run. It is informative for those concerned with minimising error variance between groups, to observe the OSCE assessment systematically.	
		Post hoc remedial action: In cases where students were unfairly treated during OSCEs, post hoc remedial action is undertaken to address the unfairness. Adjustment of total marks for site effects, adjustment at the station level and cancellation of a station ensure fair remediation of site effects.	

Following data extraction, thematic analysis was used to order, code, categorise, and summarise the data into unified and integrated themes (Cooper (1998), as cited in Whittemore & Knafl, 2005:550). The goal of analysis was to conduct a thorough and unbiased interpretation of primary sources and to provide an innovative synthesis of evidence. The discussion and presentation of the integrative literature review results (Step 5), will now be addressed.

4.3.5 Step Five: Discussion and presentation of integrative literature review results

The thirteen (n=13) articles that were included in the critical appraisal process demonstrated the required rigour for inclusion in the final selection and the data synthesis. Therefore, all thirteen (n=13) articles were included in the data synthesis process. Six (n=6) of the articles that were included in the data synthesis were single non-experimental designs (level IV of the evidence); three (n=3) expert opinion papers (level VII evidence); two (n = 2) were mixed methods (level IV and VI evidence), one (n=1) was a systematic review (level I evidence) and one (n=1) a qualitative study (level IV evidence). While research evidence obtained from articles graded on levels I, II and III is regarded to be strongest, the evidence grading system does not degrade lower-level evidence when deciding recommendations, if the results are consistent. (Burns et al., 2012:2).

In this step, data synthesis was conducted to bring together the extracted data from the set of thirteen included articles aiming to draw conclusions about a body of evidence. There are three distinct phases of OSCEs: namely preparation and planning, OSCE implementation and OSCE evaluation (Khan et al., 2013:e1447). Quality assurance is an ongoing process which begins during the planning phase of OCEs (Khan et al., 2013:e1457). Quality assurance is a continuous process that is applied in each of the phases of the OSCEs process. Importantly, Hastie, Spellman, Pagano, Hastie and Egan (2014:198) state that the credibility of an OSCE lies with the quality with which it is designed.

Based on the extracted data, attributes of quality applied during the three phases of OSCEs were identified, resulting in three themes, as illustrated in Table 4.4. The synthesised extracted data of the thirteen included articles will be discussed under the three themes outlined.

Themes	Quality measures	Level of evidence
Apply quality measures in the preparation and planning phase of OSCEs	 Establish an organising committee. Conduct blueprinting and mapping of the OSCE content. Develop a bank of OSCE stations. Select station writers. Select station types and decide on the number of stations. Conduct peer review workshops. Select a scoring rubric. Select a standard-setting method. Recruit and train examiners. Recruit and train standardised patients. Select an appropriate OSCE venue. Conduct an OSCE station piloting. 	I, IV, VI, VII
Apply quality measures in the implementation phase of OSCEs	 Set up an OSCE circuit and equipment. Conduct examination day briefings. Decide on the command system. Implement measures for student quarantine. Invite external examiners. 	IV, VI, VII
Apply quality measures in the evaluation phase of OSCEs	 Collect and check scoring sheets. Invite examiners and students to give post-OSCE feedback. Conduct a post-OSCE psychometric analysis. Ratify and publish OSCE results. Invite submission of complaints and appeals. 	IV, VI, VII

Table 4.4:	Themes	and	level o	of evidence
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4.3.5.1 Theme One: Apply quality measures in the preparation and planning phase of OSCEs

Thorough preparation and planning of OSCEs lays a firm foundation for running successful, valid and reliable OSCEs. Koviland, Esfandyari and Heydarpour (2020:6) emphasise the importance of accurate and adequate planning. Conducting a needs analysis and setting the goals and objectives for conducting OSCEs provide guidance regarding the strategies to be employed to ensure quality during the preparation and the planning phase of OSCEs. It is recommended that a procedure manual be developed to guide the OSCE design process (Koviland et al., 2020:6). The following thirteen quality measures were identified for the preparation and planning phase of OSCEs.

Establish an organising committee

Leadership in the form of an organising committee is a crucial measure to ensure quality in the preparation and planning phase of OSCEs. According to Khan et al. (2013:e1447), an organising committee is required to play an oversight role in the OSCE design and development process. The organising committee is also responsible for tasks such as implementation and review of the OSCE programme, the implementation of the required quality assurance measures, selection of examiners and standardised patients, setting up the OSCE circuit and ensuring smooth running of the OSCE (Khan et al., 2013:e1448).

It is recommended that a coordinator be appointed to ensure the integrity of the entire OSCE examination process as well as to provide advisory support to examiners (Goh et al., 2016:17). The coordinator should be knowledgeable and experienced in running OSCEs in order to provide the necessary support and mentorship to committee members. If the OSCE is being run simultaneously at different sites, a local organising team should be formulated at each site.

Conduct blueprinting and mapping of the OSCE content

Blueprinting is another quality measure which is applied during the preparation and planning phase of OSCEs. Blueprinting ensures that the correct standard is assessed and that an appropriate sample of the clinical skills is examined and is objectively mapped

to the curriculum in order to guarantee adequate content validity (Hastie et al., 2014:20; Pell, Fuller, Homer et al., 2010:60).

Because OSCEs are often conducted in simulation, they may prevent authentic clinical assessment experiences for students. To mitigate the risk of lack of authentic clinical assessment opportunities for students, the OSCE content should be mapped in such a way that it focuses on aspects of practice which are most relevant and likely to be commonly encountered and those aspects directly related to the delivery of safe patient care (Kelly, Mitchell, Henderson et al., 2016:5; Mitchell, Henderson, Jeffrey et al., 2015:704).

Blueprinting and mapping should also provide opportunities for students to perform tasks in an integrated manner rather than in a fragmented "just getting the skills right" fashion (Kelly et al., 2016:6). It is thus important to structure and deliver the OSCE in a manner which aligns directly with mastery of desired knowledge, attitudes and skill and in accordance with the students' level of training (Kelly et al., 2016:6; Mitchell et al., 2015:704). The blueprinting process should further ensure that the clinical skills selected for OSCEs are those that are essential for clinical practice in order for the OSCEs to be meaningful and worthwhile (Obizoba, 2018:73).

A panel of experts must verify the correct mapping of the OSCE content to the curriculum as well as its alignment to the competencies that students are expected to demonstrate in clinical practice (Goh, et al., 2016:15). According to Koviland et al. (2020:4), verification of the OSCE content by content experts does not only ensure correct mapping but promotes content validity of the entire OSCEs.

Khan et al. (2013:e1448) state that in high stakes (summative) OSCEs, a formal method or instrument, such as a Delphi or another survey method, may be used to select the content. For the OSCE content to be deemed relevant to the clinical competencies expected of students in the performance of clinical practice, it is essential for the panel of experts to unanimously agree on such relevance (Goh et al., 2016:15). Determining the length (time allocation) and number of stations is a crucial aspect of the blueprinting process (Hastie et al., 2014:200). An appropriate and realistic time allocation for tasks at individual stations improves the OSCE validity, while increasing the breadth of the content

(adequate number of stations per examination) improves reliability (Khan et al., 2013:e1449). It is further important to include all the learning domains, such as knowledge, skills and professional attitudes, when conducting the blueprinting and mapping (Goh et al., 2016:16). Assessing all the learning domains ensures that students are adequately prepared for the realities of clinical practice.

A lack of blueprinting may lead to poor content coverage and inadequate number of OSCE stations (Ogah, Jama, Brits et al., 2016:3880). The number of stations needed to generate a reliable score is represented by either the Cronbach's Alpha or Generalisability (G) coefficient (Hastie et al., 2014:200). A Cronbach's or G value between 0.7 and 0.8 reflects an acceptable reliability for high stakes examinations (Khan et al., 2013:e1449).

Develop a bank of OSCE stations

Developing and maintaining a bank of OSCE stations is also another quality measure conducted during the preparation and planning phase of OSCEs. A secure bank of robust and quality assured stations (tools) should be developed and maintained. Developing and maintaining a bank of OSCE stations contributes significantly towards the better reliability and validity of the OSCE scores (Khan et al., 2013:e1449). Peer review, piloting and psychometric analysis should be conducted before adding an OSCE tool into the OSCE bank (Khan et al., 2013:e1449).

Select station writers

Selection of station writers should be done as part of the preparation and planning phase of OSCEs to ensure quality. It is a responsibility of an OSCE leader to identify appropriate people to design and write the OSCE stations. Subject experts who are familiar with the principles underlying OSCEs should be selected to write OSCE stations (Khan et al., 2013:e1449).

Select station types and decide on the number of stations

The selection of station types is undertaken as part of the preparation and planning phase of the OSCEs to ensure quality. The four commonly used station types are: observed, unobserved, technology enhanced and linked stations (Khan et al., 2013:e1451). The OSCE committee leader or the person coordinating the station writing, should advise the question writers about the type of stations needed (Khan et al., 2013:e1450). An understanding of the range of OSCE station types is essential in the choice of appropriate station types for various assessment outcomes.

An appropriate template for station writing should be selected and developed. Such a template helps station writers to develop stations in a format standardised to others within the OSCE bank (Hastie et al., 2014:199). The sections of the template should highlight the information that ought to be considered in order to write an appropriate OSCE station.

Brannick et al. (2011:1186) state that increasing the number of stations improves the reliability of OSCE scores. However, Pell, et al. (2010:9) state that, in addition to the increase in the number of stations to achieve higher reliability of OSCE scores, the ensuring of standardisation or uniformity of such stations is crucial. More specifically, Trejo-Mejìa, Sánchez-Mendiola, Méndez-Ramìrez et al. (2016:4) recommend the use of the Generalisability theory for measuring the effect of the number of stations on the reliability of OSCE scores. The Generalisability theory allows examination of the implications of increasing or decreasing the number of stations for the reliability of OSCE stations (Trejo-Meija et al., 2016:4).

Conduct peer review workshops

Conducting peer review workshops is a key quality measure required for new OSCE stations (Khan et al., 2013:e14450). Once the station writers have written the new stations, they are invited to bring these to the workshops where delegates can review stations written by others, often in small groups. The presence of the station writers for individual stations at the workshops ensures that changes and clarifications are made more easily. In addition to looking at the clinical accuracy and appropriateness of the tasks involved in the station, the peer review process can help to identify validity issues.

Select a scoring rubric

Selecting a suitable scoring rubric is a quality assurance undertaking which forms part of the preparation and planning phase of OSCEs (Koviland et al., 2020:6). According to Khan et al. (2013:e1451), various scoring rubrics are available to mark different types of assessment. However, the analytic (checklist) and the holistic/global rating scale are the two main types of scoring rubrics used in OSCEs (Hastie et al., 2014:199). A checklist is a list of statements describing the actions expected of the students at the station (Hastie et al., 2014:199; Brannick et al., 2011:1187).

Khan et al. (2013:e1451) identify two types of checklists—namely, binary and the 5–7point rating scale. If a binary checklist is used, students are marked based on whether or not an action was performed, without any discrimination for the quality of their performance (Khan et al., 2013:e1451). Binary checklists may not be able to discriminate between lower and higher levels of performance (Hastie et al., 2014:199). Alternatively, checklists can be merged with a 5–7-point rating scale, which allows the examiners to mark candidates based upon the quality of the actions (Khan et al., 2013:e1451). Traditionally, it is perceived that a key strength of binary checklists is their ability to provide an objective assessment and that they lead to greater inter-rater reliability (Hastie et al., 2014:199).

Holistic/global rating scales, on the other hand, allow examiners to determine not only whether an action was performed, but also how well it was performed (Khan et al., 2013:e1451). Holistic/global scales permit that student performance is measured without the need to follow a pre-determined sequence of steps, as is the case with a checklist. Therefore holistic/global rating scales are recommended for assessing skills where the quality of performance needs to be measured (Khan et al., 2013:e1452). A holistic scoring rubric enhances both the precision of assessment and the reliability, which further allows judgement of student performance to be related to clinical practice as a whole rather than as a collection of discrete independent actions (Kelly et al., 2016:5).

The scoring rubric selected should be closely matched to the to the skill it is intended to measure. Brannick et al. (2011:1187) state that global rating scales are more suited to measuring subjective items, such as communication, attitude and professionalism, while

checklists are more suited to measure practical clinical skills. Although the step-wise approach associated with the use of a checklist leads to greater inter-rater reliability (Khan et al., 2013:e1451), it makes holistic and in-depth assessment of student performance impossible (Hastie et al., 2014:199).

The utilisation of global ratings scales also contributes to the assessment of non-cognitive behaviours while the checklists measure knowledge, practical application and technical performance of the skill (Schleicher, Leitner, Juenger et al., 2017:59). If the purpose of the OSCE is to determine whether a student is able to perform a selected practical clinical skill, a checklist would be a useful scoring rubric (Khan et al., 2013:e1450). However, if the purpose of the OSCE is to determine the extent of students' performance, a global rating scale would be the most appropriate scoring rubric (Brannick et al., 2011:1187).

Select a standard-setting method

The use of a fixed pass mark is not recommended in OSCEs due to students reaching the fixed pass mark even though their performance may be deemed less satisfactory for safe clinical practice (Ogah et al., 2016:3881). In addition to the variability in students' scoring by examiners, using standard pass marks may render OSCE decisions unreliable (Ogah et al., 2016:3881). It is therefore more appropriate to select a standard-setting method for pass mark to inform pass/fail decisions. Appropriate standard-setting eliminates variability and promotes fairness regarding the pass/fail OSCE decisions (Schleicher et al., 2017:59).

To mitigate the effect of human errors on the quality of OSCE scores, it is essential to use robust standard-setting methods (Pell, et al., 2010:5). Khan et al. (2013:e1453) define standard-setting as a determination of a score at which a student may pass or fail. Standard-setting is crucial as it enhances the defensibility of pass/fail decisions, thereby contributing to the reliability of OSCE scores (Yousuf et al., 2015:290). There is no gold standard for selecting a standard-setting method, but the choice is influenced by factors such as the expertise of academic staff, resources, number of students and institutional policies (Yousuf et al., 2015:290). The various methods of standard-setting are broadly categorised as the norm referenced and the criterion referenced methods (Yousuf et al.; Hastie et al., 2014:199).

The norm referenced methods of standard-setting evaluate the overall performance of students, wherein the mean of all borderline scores achieved by students on a task is considered the passing score for the given station (Hastie et al., 2014:199). In a norm referencing method, the standard set is based upon peer performance and can vary from cohort to cohort. In this standard-setting method, poorly performing students can pass an OSCE that they would otherwise have failed if they took it with best performing students (Khan et al., 2013:e1453). For this reason, use of norm referenced methods is not recommended for OSCEs because of their inability to objectively judge students' clinical performance.

The criterion-based methods of standard-setting are performed before the examination by a group of experts who look at each test item to determine its difficulty and relevance (Khan et al., 2013:e1453). Criterion-based methods identify cut-off scores based on the level of competence expected of students and are therefore deemed most appropriate for use in OSCEs (Yousuf et al., 2015:283).

Recruit and train examiners

Running OSCEs is labour intensive and thus requires a large number of personnel. Senior academic staff need to mobilise sufficient manpower to prepare and ensure efficient implementation of OSCEs (Obizoba, 2018:73).

The role of examiners in ensuring reliability in student assessment is crucial, with the result that careful preparation of the examiners is essential (Goh et al., 2016:17). Recruitment and training of examiners are crucial for strengthening the quality of OSCEs. Reliability of OSCE results is achieved when examiners assess students consistently and objectively (Khan et al., 2013:e1453). Examiner training workshops should be conducted well ahead of the OSCEs and the outcomes of such training must be documented (Hastie et al., 2014:199). Mock OSCEs provide an ideal opportunity for examiners to build OSCE marking skills.

When new examiners are added to the OSCE examiner team, it is crucial that they receive appropriate training (Khan et al., 2013:e1453). Existing examiners, on the other hand, need to be provided with refresher training in order to update their OSCE examination knowledge and skills.

The reliability of the scores generated by the examiners not only depends upon the consistent marking by the examiners but also their clinical experience relevant to the OSCE station (Khan et al., 2013:e1453; Koviland et al., 2020: 6). The shortage of expert examiners may require that non-expert examiners be utilised in OSCEs. Non-expert examiners, such as standardised patients, have been extensively used in OSCEs (Brannick et al., 2011:1187). While assessment by expert examiners is considered to be more objective and therefore reliable, evidence suggests that assessment by non-expert examiners may also be as reliable, especially when checklists are utilised for grading student performance (Khan et al., 2013:e1454).

Although non-expert examiners can be used in OSCEs, identifying, recruiting and retaining expert examiners who have relevant qualifications is recommended for the purpose of skill-matching (Khan et al., 2013:e1454). In cases where non-expert examiners are utilised, it is recommended that only those with interest in clinical education should be considered (Obizoba, 2018:73). It is further recommended that non-expert examiners be confined to the use of checklists for student assessment as global rating scales need a greater degree of interpretation compared to global rating scales (Brannick et al., 2011:1187). Therefore, the use of global rating scales by non-expert examiners could lead to lack of reliability of OSCE scores.

The number of examiners allocated in each OSCE station may influence the overall OSCE scores. According to Brannick et al. (2011:1186), allocating a second examiner in an OSCE station substantially improves reliability. In contrast, the use of a single examiner in OSCEs is well document. Schleicher et al. (2017:59) state that using one examiner in OSCEs prevents inter-rater variability and therefore contributes significantly to reliable OSCE scores.

Recruit and train standardised patients

A pool of trained standardised patients should be recruited and trained in preparation for OSCEs. Appointing a coordinator to undertake the selection process, keeping in mind the ability, suitability and credibility of the standardised patients, is recommended (Khan et al., 2013:e1454). Although standardised patients need to perform multiple roles in OSCEs, it is important that their training be customised to specific roles within each OSCE (Khan et al., 2013:e1455). Standardised patients must be trained well enough to understand the importance of portraying the clinical conditions required of them, reliably and repeatedly for every student performing an OSCE. Once training is completed each standardised patient's performance needs to be quality assured before being used in summative OSCEs examination (Khan et al., 2013:e1455).

Select an appropriate OSCE venue

An appropriate venue contributes to the quality of OSCEs (Koviland et al., 2020:6). The venue used for running OSCEs should have the capacity for briefing rooms, administrative offices, waiting rooms for standardised patients and examiners, quarantine facilities and refreshment areas (Khan et al., 2013:e1455). The OSCE venue should allow for erection of sign posts and should promote privacy and confidentiality. Measures should be taken to ensure that students do not overhear conversations taking place at other stations.

Conduct an OSCE station piloting

Piloting the OSCE stations helps identify challenges with the practical aspects and the time allocation for the prescribed tasks (Khan et al., 2013:e1450). Initial psychometric analysis on reliability and station quality could also be done during piloting. If quality challenges are identified with a station, the station should be redesigned and then repiloted. Piloting often takes place during mock or low-stakes (formative) OSCEs, which may have the additional benefits of orientating candidates to the OSCE and providing them with immediate feedback on their performance. If individual stations are piloted within the circuit of a high stakes (summative) examination, it is essential to inform the candidates about the inclusion of a pilot station and that its scores will not influence the

overall examination results. In order to get valid and reliable data on the pilot stations included in real examinations, the identity of such station is not disclosed (Khan et al., 2013:e1450).

4.3.5.2 Theme Two: Apply quality measures in the implementation phase of OSCEs

Running OSCEs requires multiple activities to be undertaken and thus needs information to be recorded as a form of guidance. All relevant information pertaining to the implementation of the OSCE could be held within a procedure manual, for future reference (Khan et al., 2013:e1455). The implementation phase of OSCEs, which happens on the day that the OSCEs are being conducted, also requires measures to ensure quality. A total of five OSCEs quality measures that are applied during the implementation phase of OSCEs were identified, as described below.

Set up an OSCE circuit and equipment

Khan et al. (2013:e1455) defines the circuit as the setup of stations for the seamless flow of candidates through the examination. Students should be guided through the OSCE circuit to ensure that the number of students who enter the circuit is equal to the number of stations and that each student visits all the stations (Khan et al., 2013:e1456). The stations should provide an appropriate environment for the candidates to perform the prescribed clinical skills.

Although all equipment should be provided well in advance of the OSCE, it is crucial to check and test it to ensure that it is in good working order on the day the OSCEs are conducted (Khan et al., 2013:e1456; Koviland et al., 2020:6). Similar equipment should be provided at every station in order to ensure the uniformity of OSCEs. Technical support should be on standby to provide assistance in case equipment failure occurs (Obizoba, 2018:73).

Conduct examination day briefings

According to Goh et al. (2016:17), examiner briefing is crucial for familiarising examiners with the OSCE process, the scoring rubrics, consistent scoring of student performance, what constitutes critical components and the pass/fail cut-off threshold. On the day OSCEs are conducted, there should be separate briefing sessions for the candidates, examiners and standardised patients (Khan et al., 2013:e1456). If there has been prior training and if written instructions have been provided, they need to be clear and brief.

According to Khan et al. (2013:e1456), examination day briefings should include instructions on the following aspects:

- Student briefing:
 - A description of the circuit, including their start stations, rest stations (if applicable) and pilot stations
 - Reminders of rules and regulations
 - Quarantine procedures and emergency procedures.
- Examiner briefing:
 - The objective of the examination
 - Verification of student identification at the start of the OSCEs
 - An overview of the scoring rubric and how to complete the mark sheets
 - The importance of keeping stations and students' scores confidential
 - Not to talk to the students any more than what is allowed in the script
 - To treat all candidates equally
 - The procedures for reporting concerns about students
 - Completing feedback after the examination
 - Emergency and quarantine procedures.
- Standardised patient briefing:
 - The importance of uniform and consistent performance for every student
 - Their role in providing feedback
 - Rest-breaks and refreshment facilities
 - Emergency procedures.

Decide on the command system

The movement of the candidates from one station to another can be managed by ringing a bell manually. Khan et al. (2013:1456) advise that OSCE starts with the command signal at predetermined intervals such as:

- 'Start preparation', during which time the candidates read the question,
- Followed by one minute later with instructions to 'Enter the station'.
- The next instruction could be 'One minute left' and the station would end a minute later with the command 'Move on'.

Implement measures for student quarantine

A system should be put in place to separate students who have completed the OSCE from those who have yet to take it on the same day in order to prevent perceived unfair advantage to the second set of candidates (Khan et al., 2013:e1457). Therefore, students scheduled for the early circuits should be 'quarantined' in a separate room until all of the later students have arrived and registered. Mobile phones and other devices with the means for remote communication should not be permitted in the examination centres (Khan et al., 2013:e1457).

Invite external examiners

External examiners play a crucial role in confirming the adherence of education institutions to quality procedures in summative examinations. External examiners should be invited to ensure that academic standards are being maintained and to certify that the assessment process measures student achievement rigorously and fairly and is conducted in line with policies and regulations (Khan et al., 2013:e1458).

4.3.5.3 Theme Three: Apply quality measures in the evaluation phase of OSCEs

Conducting an evaluation of OSCEs is a necessary measure that helps enhance the quality of future OSCEs (Hastie et al., 2014:199). The evaluation phase of OSCEs (which is the time soon after the OSCE has been conducted) deals with feedback from students

and examiners, processing of results, post-OSCE psychometric analysis, ratification and publication of the OSCE results, complaints and appeals (Khan et al., 2013:e1457). A total number of five OSCE quality measures were identified that are applied during the evaluation phase of the OSCEs.

Collect and check scoring sheets

Khan et al. (2013:e1457) state that the OSCE scoring sheets should be collected and cross-checked for accuracy and any missing data. Gaps that are identified should be addressed with the relevant examiners.

Invite examiners and students to give post-OSCE feedback

Examiners and students may be invited to submit their subjective views for the purpose of identifying and addressing gaps in the OSCE process (Khan et al., 2013:e1458). Any issues such as undue difficulty of tasks, lack of clarity of instructions for the candidates and appropriateness of tasks may be raised (Khan et al., 2013:e1458). According to Hastie et al. (2014:199), feedback from students should be sought in order to evaluate students' attitudes, satisfaction, and emotional response to the learning activity. This can be assessed by surveying students to evaluate their subjective response to the OSCEs. Further, Kelly et al. (2016:5) state that feedback provides an additional opportunity for students to receive debriefing.

Conduct a post-OSCE psychometric analysis

While being considered an objective method of clinical assessment of students, the validity and the reliability of OSCE may be influenced by factors such as the environment and the conduct of examiners. Conducting a post-OSCE psychometric analysis will indicate the overall reliability of the set of questions (Khan et al., 2013:e1450). Reliability is an aspect of psychometric analysis and refers to consistency and the reproducibility of OSCE scores (Hastie et al., 2014:199). For the purpose of this study, reliability comprises several components: inter-rater reliability and internal reliability. Inter-rater reliability is a measure of the degree of agreement between different examiners when scoring the performance of the same student at a specific station (Hastie et al., 2014:199). High interrater reliability implies that there is a high degree of correlation between examiners
(Hastie et al., 2014:200). Internal reliability is characterised by the extent to which performance across different test stations remains consistent (Hastie et al., 2014:199). In an OSCE, high internal reliability implies that the scores obtained on various items are capturing the knowledge, skills, and attitudes from the same conceptual domain, or closely interrelated domains (Hastie et al., 2014:200).

Validity, comprising of face validity and content validity, is another important aspect ensured through a psychometric analysis (Hastie et al., 2014:200). Face validity is an extent to which an OSCE measures what it is intended to measure. Content validity is the extent to which the OSCE content reflects not only the topic or domain of interest but that it also adequately captures the entirety of the subject matter in that domain (Hastie et al., 2014:200). In order to draw conclusions about the level of expertise in the desired knowledge, skills, or attitudes, the OSCE items have to be adequately representative of the full spectrum of the curriculum (Hastie et al., 2014:200).

The reliability of OSCE scores can be measured as Cronbach's Alpha or G coefficient. Application of Cronbach's allows the detection of errors at OSCE station level, and the application of the G theory allows the detection of other sources of error, including the items, assessors and interaction of candidates with items and assessors (Khan et al., 2013:e1458). Analysis allows for quality improvement of the OSCEs to be undertaken. Using the G theory enables the identification of the sources of variance in OSCE scores, including inter-examiner reliability and student characteristics (Trejo-Mejìa et al., 2016:5).

Pell et al. (2010:6) propose seven metrics that can be used as part of the post-OSCE psychometric analysis to confirm the quality of OSCEs. These metrics are essential for outlining the approaches for identifying and managing unsatisfactory OSCE scores (Pell et al., 2010:8). Briefly, the metrics are:

- Metric One. Cronbach's Alpha: A Cronbach's Alpha of 0.7 and above is considered as normal. However, a large variance between examiner marks and poorly designed scoring rubrics may lead to an abnormally high Cronbach's Alpha.
- Metric Two. Coefficient of Determination R²: The R² coefficient allows the determination of the degree of correlation between the checklist score and the

overall global rating at each station. A good correlation ($R^2 > 0.5$) will indicate a reasonable relationship between checklist scores and global grades. A poor correlation between checklist and global rating scores could result in poorly performing students acquiring high marks for the process instead of for the critical core content.

- Metric Three. Inter-Grade Discrimination: This statistic gives the slope of the regression line and indicates the average increase in checklist mark corresponding to an increase of one grade on the global rating scale. There is no agreed standard regarding the normal deviation between the increase in checklist marks and the increase in global rating scale. However, it is recommended that this discrimination index should be one tenth of the maximum available checklist mark.
- Metric Four. Number of failures: Failure rates may be used to review the impact of a change in teaching on a particular topic, with higher rates indicating where a review of content and methods of teaching can help course design. This metric is used to investigate station design and performance in order to identify problems.
- Metric Five. Between-Group variation (including assessor effects): This metric compares the variation in the performance of groups of students. In an ideal OSCE, the variation of students' marks should be due to students' performance and not as a result of the differences in the environment, location, or differences of assessor conduct. According to Ogah, et al. (2016:3881), external effects such as examiner conduct and the environment where OSCEs are conducted may influence OSCE outcomes. This metric gives an indication of the uniformity of the assessment process between groups. The acceptable Between-Group variance is below 30 percent.
- Metric Six. Between Group-variance (other effects): This metric is applied to institutions where multi-site OSCEs are conducted, which may lead to variations due to site effects. For multi-site OSCEs, site effects are common (Trejo-Mejìa et al., 2016:4) and are associated with the lack of randomisation in examiner allocation—moving examiners from one site to the other may present logistical

challenges. As a result, examiners are forced to assess students within the institutions where they are based. Other effects may include assessor training effects and student gender effects. In interpreting gender related effects, female students often perform better than their male counterparts in certain clinical skills, such as communication (Schleicher, et al., 2017:59).

 Metric Seven. Standardised patients: In institutions where standardised patients are utilised to rate students, adverse ratings of above 10 percent may indicate problems with the station. A higher-than-normal standardised patient rating may indicate inadequate teaching or student incompetence.

Pell et al. (2010:18) and Ogah et al. (2016:3881) recommend the following measures to be taken after the analysis of metrics:

- Adjustment of total marks for site effects: If the high failure rate amongst students is not confined to a single site, the OSCE marks should be adjusted to a common mean.
- Adjustment at station level: An adjustment at station level requires that the OSCE marks be adjusted to a common mean, as is the case above
- Removal of a station: In cases of adverse metrics which could disadvantage students to such an extent that the OSCE results will be indefensible when challenged, a station should be cancelled.
- Storage for future OSCEs: stations with satisfactory metrics can be stored in the OSCE bank for use in future OSCEs
- Station review: Those stations that show minimal deviation from the expected standard can be reviewed and re-used.

Ratify and publish OSCE results

Before the OSCE results are published, it is essential to have them scrutinised and indorsed by a formal institutional structure. The examination board ratifies the results and signs them off as an accurate reflection of students' performance (Khan et al., 2013:e1458). After the ratification, accurate OSCE results are published by a recognised institutional authority (Khan et al., 2013:e1458).

Invite submission of complaints and appeals

After the publication of OSCE results, students and examiners should be provided the opportunity to submit complaints and appeals in line with institutional policies and procedures. Appeals or complaints made by students or examiners need to be dealt with fairly and promptly after each examination (Khan et al., 2013:e1458). Valid complaints may help to inform changes to the examination as a part of the quality assurance process.

4.4 QUALITY OF THE INTEGRATIVE LITERATURE REVIEW

The credibility of an integrative literature review process requires that conceptual and methodological precision is upheld (Rocco & Plakhotnik, 2009:8). To this end, a range of a range of procedures were implemented in the conduct of the integrative literature review to ensure credibility.

A review protocol was therefore developed by the researcher and reviewed by senior researchers and an experienced librarian to ensure that the methods and search strategies used were sufficiently comprehensive to answer the review questions. The review question and the inclusion and exclusion criteria were clearly stated in the protocol. A detailed account of the procedures used to search, select, appraise, extract and synthesise the data was also included. To further aid in focusing the search strategy, a librarian was utilised to help with a comprehensive search from a wide range of databases (De Souza et al., 2010:104).

Furthermore, a preliminary search was conducted by the researcher in order to gain an overview of the range and depth of the literature regarding the management of the quality of OSCEs in health science education. The preliminary search further guided the

researcher regarding the best possible keywords and the databases to use. A relevant set of keywords were used for each of the databases that were searched. The researcher provided an in-depth description of the search strategy as well as the sources where data for the integrative literature review was sourced.

The steps taken to select the studies as well as the reasons for excluding studies was documented in order to ensure transparency. A relevant critical appraisal instrument was used to conduct an in-depth analysis of literature and the literature was ranked according to its strength to determine the best evidence available (Burns, et al., 2012:3). An independent reviewer was utilised to minimise bias and interpretation errors during the critical appraisal. Expert guidance was sought from the promoters throughout the study to confirm the findings and conclusions drawn from the literature.

4.5 CHAPTER SUMMARY

In this Chapter, the researcher described the integrative literature review methodology used to search, select, appraise, extract and synthesise the literature regarding the management of the quality of OSCEs in health science education. A critical appraisal of the relevant literature selected, the data extraction and synthesis processes, and presentation and discussion of the literature review results were made. Thereafter, a description of the three themes that emerged from the selected articles was provided, followed by an outline of the quality of the review. The next Chapter will discuss the development of a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing.

CHAPTER FIVE

A BEST PRACTICE GUIDELINE FOR THE MANAGEMENT OF THE QUALITY OF OSCES AT A MULTI-CAMPUS PUBLIC COLLEGE OF NURSING

5.1 INTRODUCTION

In Chapter Four, an integrative literature review was carried out to search, select, appraise, extract and synthesise relevant current literature regarding management of the quality of OSCEs in health science education. This Chapter outlines the synthesis of the findings of Phase One (interviews and document analysis) and of Phase Two (the integrative literature review) of the study, the methods and approach used to develop the guideline, and the measures taken to strengthen the rigour of the guideline development process.

5.2 BEST PRACTICE GUIDELINE

The aim of this research study was to develop a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing. Best practice guidelines are systematically developed from evidence-based resources to support clinical and management decision making and inform policy standards, protocols and direct practice (Registered Nurses' Association of Ontario, 2012:18). A guideline translates best evidence into best practice by reducing variations and improving accuracy and quality (Rosenfeld & Shiffman, 2009:4).

A best practice guideline adds a systematic approach to the development and management of OSCEs by providing a professional consensus on what encompasses high quality (Mitchell et al., 2015:701). It is therefore essential that the design of the guideline be underpinned by the best available evidence. In this study, the best practice guideline was developed on the basis of the synthesis of qualitative findings derived from interviews with nurse educators and a document analysis of external moderators' reports, as well as on an integrative literature review, as outlined in detail in the following section.

5.3 SYNTHESIS OF QUALITATIVE FINDINGS AND INTEGRATIVE LITERATURE REVIEW FINDINGS

In Phase One of this study, nurse educators were interviewed to explore and describe their experiences regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. A document analysis of external moderators' reports was also conducted in order to obtain a detailed account of the management of the quality of OSCEs at this College of Nursing from the perspectives of external moderators. In Phase Two of the study, an integrative literature review summarising literature regarding the management of the quality of OSCEs in health science education was conducted.

The interviews and document analysis that were performed yielded four main themes and several sub-themes. Three themes emerged from the integrative literature review, which were synthesised into three main recommendations (see Table 5.1).

	•					
Phase One: Summary of qualitative findings related to management of the quality of OSCEs		Phase Two: Summary of integrative literature review findings		Phase Three: Synthesis of Phase One and Phase Two		
Them	e One	Them	e One	RE	COMMENDATION ONE:	
Measu quality	ures are currently in place to facilitate y in the management of OSCEs at the ne of Nursing	 Apply quality measures in the preparation and 		Quality measures should be applied in th preparation and planning phase of OSCE		
o	A peer review system for OSCEs is in		OSCEs.	0	Develop a policy and standard operating procedures.	
	place.	Them	e Two	0	Develop a code of conduct for OSCE	
0	Control measures are applied by nurse	 Apply quality measures in the implementation 			stakeholders.	
OSCEs.		phase of OSCEs.	0	Establish an organising committee		
 Pre-OSCE briefing, orientation and validation of assessment tools take place on the day on which OSCEs are 	Theme Three		0	Conduct blueprinting and mapping of OSCE content.		
	0	Apply quality measures in the evaluation phase	0	Develop a bank of OSCE stations		
	conducted.		of OSCEs.	0	Select station writers.	
Them				0	Select station types and decide on the	
disco	nfort amongst nurse educators.				Conduct poor roview workshops	
regard	ding the assessment practices being			0	Soloct a scoring rubric	
usea	The guality of the OSCE tools raises			0	Select a standard-setting method	
0	concerns regarding the accuracy of clinical			0	Recruit and train examiners	
	assessment of nursing students.			0	Recruit and train examiners.	
0	• There is inadequate alignment between			0	Select an appropriate OSCE venue	
	assessment of nursing students.			0	Conduct OSCE station piloting	
				0	Sonduor Soor Station piloting.	

Table 5.1: Data synthesis from Phase One and Phase Two

Phase One: Summary of qualitative findings related to management of the quality of OSCEs	Phase Two: Summary of integrative literature review findings	Phase Three: Synthesis of Phase One and Phase Two
 The approach used for re-OSCEs raises doubts regarding the optimal assessment of nursing students' clinical competencies. Theme Three Resource constraints impair quality management of OSCEs in the College of Nursing Inadequate and uneven distribution of appropriate resources amongst campuses poses a threat of inconsistent clinical assessment of nursing students during OSCEs. Nurse educators' initiative to borrow equipment from nearby clinical facilities could compromise confidential OSCE information. Inappropriately skilled examiners are being utilised for OSCEs due to staff shortages. 		 RECOMMENDATION TWO: Quality measures should be applied in the implementation phase of OSCEs Set up an OSCE circuit and equipment. Conduct examination day briefings. Decide on the command system. Implement measures for student quarantine. Invite external examiners/moderators. RECOMMENDATION THREE: Quality measures should be applied in the evaluation phase of OSCEs Collect and check scoring sheets. Invite examiners and students to give post-OSCE feedback. Conduct a post-OSCE psychometric analysis. Ratify and publish OSCE results. Invite submission of complaints and appeals

Table 5.1: Data synthesis from Phase One and Phase Two (cont'd)

Table 5.1: Data synthesis from Phase One and Phase Two (cont'd)

Phase relate	e One: Summary of qualitative findings d to management of the quality of OSCEs	Phase Two: Summary of integrative literature review findings	Phase Three: Synthesis of Phase One and Phase Two
Them	e Four		
Recor facilit Colleç	nmendations for best practices that will ate quality management of OSCEs at the ge of Nursing		
0	A policy framework, standard operating procedures and training regarding OSCEs are needed.		
0	An explicit code of conduct for all stakeholders involved in OSCEs is needed.		
0	The College of Nursing needs to provide adequate and suitable resources for OSCEs.		
0	External moderators should play a more meaningful role to help the College of Nursing improve quality management of OSCEs.		

In summary, the qualitative findings in Phase One suggest that, while there are measures in place to promote quality in the management of OSCEs in the multicampus public College of Nursing—including a peer review system, control measures to facilitate confidentiality, pre-OSCE briefings, orientation and validation of assessment tools-these measures are not sufficient to achieve the desired level of guality in OSCEs. Nurse educators shared their uncertainty in relation to assessment practices being used- quality of OSCE tools, misalignment between summative OSCEs and formative clinical assessment, the approach used for re-OSCEs. Resource constraints- inadequate and uneven distribution of resources and related potential for compromised confidentiality and inappropriately skilled examiners. On the other hand, nurse educators and external moderators' reports recommended best practices for facilitating quality management of OSCEs at the College of Nursingdevelopment of a policy framework, standard operating procedures and training regarding OSCEs, development of an explicit code of conduct for all stakeholders involved in OSCEs, provision of adequate and suitable resources for OSCEs, external moderators contributing more meaningfully to help the College of Nursing improve quality management of OSCEs.

In the conduct of Phase Two, data obtained during the integrative literature review proposes measures that should be implemented to enhance quality in the management of OSCEs in the preparation and planning phase, the implementation phase and the evaluation phase. When continuous quality improvement measures are implemented throughout all the OSCE phases, quality OSCEs can be achieved.

The synthesised data from Phase One and Phase Two resulted in three recommendations related to quality measures that should be applied in the three phases of the OSCEs (preparation and planning phase, implementation phase and evaluation phase). The following section will outline the guideline development process.

5.4 GUIDELINE DEVELOPMENT PROCESS

This best practice guideline for the management of the quality of OSCEs was developed on the basis of the adapted framework proposed by the National Institute for Health and Care Excellence (NICE) and the aspects of the AGREE II (Appraisal of Guidelines for Research and Evaluation). The six domains of the AGREE II tool (scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and editorial independence) were used to guide the structure of the guideline. The guideline development methodology is discussed in Chapter Two of this research study.

The best practice development method (as adapted from NICE and AGREE II) comprises of scoping, developing the review question, planning the evidence review, reviewing the evidence used to inform the guideline, and wording of the recommendations. Additionally, the rigour of guideline development, applicability of the guideline and editorial independence are discussed. An elaboration of the above listed stages of the guideline development method is provided in the following sections.

5.4.1 Scoping

Guidelines translate best evidence into best practice. Rosenfeld and Shiffman (2009:18) state that a well-crafted guideline is underlined by a clearly defined scope. An explicit scope was thus prescribed in order to clarify the overall purpose of the guideline, to develop the review question, and to identify the target procedure and the target population for whom the guideline is intended. Further, the context to which the guideline will apply, the intended outcomes, the planning of the evidence review, the reviewing of the evidence used to inform recommendations and stakeholder involvement, and the wording of the recommendations were discussed (Rosenfeld & Shiffman, 2009:20), as described in the following sections.

5.4.1.1 Purpose of the best practice guideline

This best practice guideline was developed to provide evidence-based recommendations for nurse educators so as to enhance quality in the management of OSCEs at a multi-campus public College of Nursing. Data in Phase One of this study revealed that there are variations in the manner in which OSCEs are conducted, which may influence the quality of the OSCE process. A best practice guideline was intended to formalise the procedures to be used when conducting OSCEs and to enhance the quality thereof. The guideline identifies quality measures that should be applied in each of the three OSCE phases (preparation and planning, implementation, and evaluation) in order to enhance their overall quality.

5.4.1.2 Developing the review question

In Phase Two of this study, an integrative literature review was carried out, based on the following review question:

What are the best practices regarding the management of the quality of OSCEs in health science education?

The PICO (population, intervention, comparison and outcomes) framework was used to guide the researcher in searching and selecting the relevant literature in order to answer the review question. The application of the PICO framework in this study is summarised below:

Population: Literature on the quality of OSCEs in health science education.

Intervention: Best practices regarding the management of the quality of OSCEs

Comparison: Not applicable

Outcome: Enhanced quality of OSCEs

5.4.1.3 Target procedure

The search process, which entailed a comprehensive search of literature on the management of the quality of OSCEs in health science education, is discussed in detail in Chapter Four (Section 4.3.2) of this study. The target procedure for which the guideline was intended is OSCEs in the four-year basic diploma programme. There are four clinical disciplines for which OSCEs are conducted for summative clinical examinations of nursing students in the College of Nursing, namely: General Nursing Science (GNS), Psychiatric Nursing Science (PNS), Midwifery Nursing Science (MNS), and Community Nursing Science (CNS). All these disciplines are thus integral to the target procedure.

5.4.1.4 Target population

Identifying the population for whom the guideline is developed is critical because it determines the breadth and depth of the work and ensures that the best practice guideline focuses on areas in which providers most need advice (NICE, 2014:22). This best practice guideline is intended for use by nurse educators who are involved in running OSCEs at a multi-campus public College of Nursing. The evidence-based

recommendations, developed as part of this guideline, can assist nurse educators facilitate the process of enhancing the quality of OSCEs through application of measures that should be put in place during the three phases of OSCEs (preparation and planning, implementation, and evaluation).

Further, as professional nurses from nearby health facilities assist as examiners when OSCEs are conducted, this best practice guideline can also be utilised by other professionals (including professional nurses and simulation laboratory managers) who form part of the team that runs OSCEs in this College of Nursing. Although the involvement of other professionals during the preparation and planning phase of OSCEs is minimal, they are involved in all phases of the OSCEs and were therefore considered in the target population.

5.4.1.5 Context of guideline application

In order to develop best practice guidelines that identify and promote effective practice, it is important to understand the current context (NICE, 2014:21). Understanding the current context and how the guideline topic fits within this context helps to ensure that the best practice guideline focuses on achieving improvement in areas where they are most needed (NICE, 2014:21). According to NICE (2014:22), a best practice guideline is required in contexts where there is unacceptable variation in practice or uncertainty about best practice, areas of unsafe practice, uncertainty around the optimal service configuration and staffing levels, or where new evidence suggests current practice may not be optimal.

This best practice guideline is intended to be used at a multi-campus public College of Nursing situated in the Eastern Cape province of South Africa. The public College of Nursing for which the best practice guideline was developed is based on five campuses geographically spread throughout the Eastern Cape province. In this multicampus public College of Nursing, summative OSCEs for the four-year basic diploma programme are conducted simultaneously across all five campuses. The diverse cultures of the three universities of affiliation which support the College of Nursing and ensure its adherence to quality educational standards may further complicate the OSCE process. This best practice guideline was therefore developed to be contextually relevant to the public multi-campus public College of Nursing.

5.4.1.6 Outcomes

This research study was conducted for the purpose of developing a best practice guideline. If adopted for use by the College of Nursing, this best practice guideline could enhance quality of OSCEs at the multi-campus public College of Nursing. This best practice guideline could also be used as the basis for developing a policy regarding OSCEs in the College. The best practice guideline could also be contextualised to other institutions which have similar characteristics to the context where this study took place.

5.4.1.7 Planning the evidence review

The guideline development process is underpinned by an evidence review that outlines the background, objectives and the planned methods (NICE, 2014:72). It is essential for the evidence review to be transparent enough to allow for replication by other researchers (NICE, 2014:72). A detailed account of the evidence review, which was conducted as part of the integrative literature review, is provided in Chapter Four (Section 4.3) of this research report.

5.4.1.8 Reviewing the evidence used to inform recommendations

Evidence from a range of sources needs to be considered when recommendations are developed (NICE, 2014:67). Evidence obtained during literature searches needs to be reviewed to identify the most appropriate information to answer the review questions, and to ensure that the guideline recommendations are based on the best available evidence (NICE, 2014:89). It is thus necessary to obtain evidence from multiple sources, for different purposes and by different methods (NICE, 2014:67).

In this research study, evidence was obtained from interviews with nurse educators and from analysis of external moderators' reports, as well as from an integrative literature review. In Phase One of this study, the experiences of nurse educators regarding the management of the quality of OSCEs at a multi-campus public College of Nursing were explored and described. A document analysis of external moderators' reports was also conducted in order to obtain a detailed written account of the College of Nursing's OSCE process from the perspectives of external moderators. In Phase Two of the study, an integrative literature review was conducted to search, select, appraise, extract and synthesise the current literature regarding best practices on the management of the quality of OSCEs in health science education. Data obtained from these two phases was contextualised into recommendations for a best practice guideline regarding the management of the quality of OSCEs at a multi-campus public College of Nursing.

5.4.1.9 Stakeholder involvement

Stakeholders are people who have legitimate interest in and are familiar with the guideline content (Cluzeau, Wedzicha, Kelson et al., 2012:270). The best practice guideline development requires input from experts who are familiar with the guideline subject/topic (NICE, 2014:19). Diversity in the composition of the stakeholders is highlighted as a key component of good quality guideline (Rosenfeld & Shiffman, 2009:9). Involving the stakeholders makes the process transparent by opening it to scrutiny, through formal consultation (Cluzeau et al., 2012:270).

Eight stakeholders were invited to critique and validate the best practice guideline as expert reviewers. These expert reviewers were all experienced academics in clinical assessment and some of them were familiar with assessment in the higher education context. Seven of the expert reviewers held doctoral qualifications while the eighth held a Masters' Degree. The expert reviewers were experts in OSCEs and guideline development, based at Nursing Education Institutions in South Africa (six from the Eastern Cape, one from the Western Cape and one from the North West Province). NICE (2014:6) emphasises the importance of involving people who might be affected by the guideline recommendations in a collaborative and transparent way. Therefore, four of the expert reviewers were senior nurse educators based at the multi-campus public College of Nursing.

Recruitment of expert reviewers

The researcher invited all eight expert reviewers to participate in the guideline review by means of electronic mail and telephone communication. The rationale for developing the guideline was explained to the expert reviewers. Further, the importance of their participation in this guideline development process was also explained to them. All eight expert reviewers agreed to participate.

Review process

After agreeing to participate in the study, the expert reviewers were provided with the chapter of the research study which contained the draft guideline (Chapter Five), the OSCE content blueprinting tool (Appendix G), OSCE station design tool (Appendix H) and the AGREE II scoring tool (Appendix I), via email. Further, sharing of the chapter containing the draft guideline with the expert reviewers was done to enable them to have access to the procedures used to obtain the literature, as well as the design and methods used for guideline development.

Instructions regarding the use of the AGREE II scoring tool were provided to the reviewers. It was further communicated with the expert reviewers that the AGREE II scoring tool was designed for a clinical guideline and that therefore the items of the tool which were clinical in nature did not fully apply to this guideline. However, the researcher adapted the guideline content to align with the AGREE II scoring tool, where possible. The items whose content was adapted are 2, 11 and 16. The expert reviewers were thus requested to provide a score for every item on the AGREE II scoring tool and indicate any recommendations towards the best practice guideline, if applicable. Further clarity was provided to the expert reviewers were requested to provide feedback regarding the guideline review within seven working days of receiving the relevant documents.

Professional position and brief educational background of expert reviewers

<u>Reviewer One</u>: Was a senior lecturer and a Head of a simulation and clinical skills unit at a South African University. She was an experienced Registered Nurse and an academic holding a Bachelor of Social Science (Nursing), Bachelor of Social Science Honours in Critical Care Nursing Science, Master's Degree in Higher Education and a Doctor of Philosophy in Health Professions Education.

<u>Reviewer Two</u>: Was a senior nurse educator and a research and quality assurance manager at a College of Nursing in the Eastern Cape. She held a Bachelor of Nursing Science Degree and diplomas in Nursing Education, Nursing Administration, Clinical Management and Paediatric Nursing Science. Further, she held a Master's Degree and a Doctor of Philosophy in Nursing Science. Apart from her duties in the College of Nursing, she was involved in student research supervision with one of the universities and served on the Provincial Department of Health Research Ethics Committee.

<u>Reviewer Three</u>: Was a senior lecturer and a Head of Department at a campus in the public College of Nursing in the Eastern Cape. She was an experienced Registered Nurse and researcher holding a Degree in Nursing Science, Nursing Education and Nursing Administration. She further held a Master's Degree and a Doctor of Philosophy in Nursing Science. This reviewer also served on the Provincial Department of Health Research Ethics Committee.

<u>Reviewer Four</u>: Was a senior academic and a Programme Manager at a public College of Nursing in the Eastern Cape. She held a Bachelor of Nursing Science Degree, Nursing Education and Nursing Administration. She further held a Master's Degree as well as a Doctor of Philosophy in Nursing Science.

<u>Reviewer Five</u>: Was an experienced academic who had worked as a senior lecturer in one of the universities in the Western Cape, South Africa, before joining the public College of Nursing as Manager. She held a Degree in Nursing Science, Nursing Education and a Degree in Public Health. She further held a Master's Degree and a Doctor of Philosophy in Nursing Science.

<u>Reviewer Six:</u> Was an experienced professional nurse and nurse educator familiar with the public nursing education system as well as the higher education context. She was a Director of the Health Sciences Research Unit and held a Bachelor of Nursing Science Degree, Diploma in Nursing Education, a Master's Degree and a Doctor of Philosophy in Nursing Science.

<u>Reviewer Seven:</u> Was an experienced professional nurse and nurse educator with a special interest in clinical assessment of nursing students. She held a Bachelor of Nursing Degree in Nursing Science, certificates in wound care and frontline management, diplomas in Nursing Education and Nursing Administration, a Master's Degree and was studying towards a Doctor of Philosophy in Nursing Science.

<u>Reviewer Eight:</u> Was an experienced Registered Nurse and an academic based at a University in the North-West Province, South Africa. She was also an experienced researcher specialising on evidence-based practice, Advanced Midwifery and prevention of mother to child transmission of HIV. She held a Master's Degree and a Doctor of Philosophy in Nursing Science.

The AGREE II scoring tool

The expert reviewers independently appraised the best practice guideline using an AGREE II scoring tool which comprised six domains, namely: scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and clarity of evidence (Brouwers et al., 2010:183). Several items are listed under each of the domains in order to describe the indicators for achieving the requirements for each domain.

Items of the AGREE II scoring tool were arranged according to the AGREE II domains and each item assigned a score from 1 (representing 'strongly disagree') to 7 (representing 'strongly agree'). There were 23 items in the AGREE II scoring tool over six domains, which represents an overall weighting of 161.

There is a paucity of research regarding the calculation of the overall scores for the AGREE II domains. However, the researcher determined the overall scoring of the AGREE II domains by adding up the total weighting per scoring tool per expert reviewer (who participated in the review). Thereafter, the total scores assigned by the reviewers were added together, divided by the overall weighting and multiplied by 100. Further, a scoring of 4 and above per item was deemed to represent strong agreement by the reviewers as it is above the median.

Scoring of the domain items by the expert reviewers

The expert reviewers independently scored each of the items under the different domains according to the AGREE II scoring tool. The scores assigned are illustrated in Tables 5.2 to 5.7. The overall guideline assessment outcome is presented in Table 5.8. The domains with their respective items and obtained scores will now be outlined.

Domain One: Scope and purpose. There are three items listed under this domain, namely: the overall objective of the guideline, health questions covered by the guideline, and the population to whom the guideline is meant to apply. Scope and purpose scoring by the expert reviewers as illustrated in Table 5.2.

Reviewer	Item 1	Item 2	Item 3	Total
Reviewer One	6	6	5	17
Reviewer Two	7	5	7	19
Reviewer Three	7	7	7	21
Reviewer Four	5	6	6	17
Reviewer Five	7	4	7	18
Reviewer Six	6	7	6	19
Reviewer Seven	7	4	7	18
Reviewer Eight	7	6	5	18

 Table 5.2: Domain One: Scope and purpose

Domain Two: Stakeholder involvement. Three items are listed under this domain, namely: inclusion of individuals from all relevant professional groups, seeking of the views and the preferences of the target population, and clear definition of target users of the guideline. The scoring for the items of this domain is indicated in Table 5.3.

 Table 5.3: Domain Two: Stakeholder involvement

Reviewer	Item 1	Item 2	Item 3	Total
Reviewer One	4	5	5	14
Reviewer Two	7	5	7	19
Reviewer Three	6	7	7	20
Reviewer Four	4	6	6	16
Reviewer Five	7	7	7	21
Reviewer Six	6	6	6	18
Reviewer Seven	7	4	7	18
Reviewer Eight	6	6	5	17

Domain Three: Rigour of development. Eight items are listed under this domain, namely: use of systematic methods for searching the evidence, clear description of criteria for selecting the evidence, clear description of strengths and limitations of the body of evidence, clear description of the methods used for formulating the recommendations, discussion of considerations for benefits, side effects and risks in formulating the recommendations, demonstration of an explicit link between the recommendations and the supporting evidence, external review of the guideline by external experts before its publication, and provision of a procedure for updating the guideline. The scores provided by the expert reviewers are illustrated in Table 5.4 below.

Reviewer	ltem 1	ltem 2	ltem 3	ltem 4	ltem 5	ltem 6	ltem 7	ltem 8	Total
Reviewer One	5	5	4	6	4	6	7	4	41
Reviewer Two	7	7	7	7	4	7	7	7	53
Reviewer Three	7	7	5	7	5	7	7	7	52
Reviewer Four	7	7	7	7	7	7	7	7	56
Reviewer Five	7	7	5	7	4	7	7	4	48
Reviewer Six	7	6	6	6	5	6	6	5	47
Reviewer Seven	7	6	6	6	6	6	7	7	51
Reviewer Eight	7	7	6	6	4	7	7	6	50

 Table 5.4: Domain Three: Rigour of development

Domain Four: Clarity of presentation. There are three items listed under this domain, namely: presentation of specific and unambiguous recommendations, clear presentation of different options for the condition or health issue, and easy identification of key recommendations. The scores assigned by the expert reviewers in respect of this domain are illustrated in Table 5.5.

Reviewer	Item 1	Item 2	Item 3	Total
Reviewer One	5	4	4	13
Reviewer Two	7	5	7	19
Reviewer Three	6	7	7	20
Reviewer Four	4	6	6	20
Reviewer Five	5	5	7	17
Reviewer Six	6	6	6	18
Reviewer Seven	7	7	7	21
Reviewer Eight	6	6	7	17

Table 5.5: Domain Four: Clarity of presentation

Domain Five: Applicability. There are four items listed under this domain, namely: description of facilitators and barriers to the guideline application, provision of advice and/or tools on how the guideline recommendations can be put into practice, discussion of potential resource implications of applying the recommendations, and monitoring and/or auditing criteria. The scores assigned by expert reviewers in respect of this domain are illustrated in Table 5.6.

Reviewer	Item 1	Item 2	Item 3	Item 4	Total
Reviewer One	5	6	5	4	20
Reviewer Two	7	7	7	7	28
Reviewer Three	7	7	7	7	28
Reviewer Four	5	5	6	4	20
Reviewer Five	5	7	4	5	21
Reviewer Six	5	6	7	6	24
Reviewer Seven	6	7	7	6	26
Reviewer Eight	7	6	7	5	25

Table 5.6: Domain Five: Applicability

Domain Six: Editorial independence. The two items listed under this domain are: views of the funding body have not influenced the content of the guideline, and competing interests of the guideline development group members have been recorded and addressed. The expert reviewer's scores are shown in Table 5.7.

Reviewer	Item 1	Item 2	Total
Reviewer One	7	4	11
Reviewer Two	7	7	14
Reviewer Three	7	7	14
Reviewer Four	4	4	8
Reviewer Five	4	7	11
Reviewer Six	6	6	12
Reviewer Seven	7	6	13
Reviewer Eight	7	7	14

Table 5.7: Domain Six: Editorial independence

Overall guideline assessment: Rating for the overall quality of the guideline

All the items were scored between 4 and 7 by the expert reviewers; which is above the median score of 3.5. This is deemed an indication that the best practice guideline is of exceptional quality. Additionally, the expert reviewers scored the overall guideline assessment between 5 and 7, providing another indication of the outstanding quality of the best practice guideline. The overall score for the best practice guideline regarding the management of the quality of OSCEs at a multi-campus public College of Nursing per reviewer ranged from 116 (72%) to 155 (96%), while the total overall score for all reviewers was (1122/1288x100=87%). The overall score of 87% is considered a strong endorsement of the overall quality of the best practice guideline. All the expert reviewers recommended the implementation of this best practice guideline.

Table 5.8: Overall	guideline assessmen
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Reviewer	Overall guideline rating	Overall guideline score Total score (%)
Reviewer One	5	116 (72%)
Reviewer Two	6	152 (94%)
Reviewer Three	6	155 (96%)
Reviewer Four	5	137 (85%)
Reviewer Five	6	136 (84%)
Reviewer Six	7	138 (86%)
Reviewer Seven	7	147 (91%)
Reviewer Eight	6	141 (88%)
Total average rating /overall score	3.5	87%

Addressing the written comments and recommendations from expert reviewers

After the expert review process, the researcher scrutinised the comments and noted the recommendations from the expert reviewers that could be implemented in the guideline. Table 5.9 outlines the comments and recommendations made by the expert reviewers and how the recommendations were implemented:

Table 5.9: Expert reviewers' comments and recommendations andimplementation of the feedback

RECOMMENDATIONS	HOW RECOMMENDATIONS WERE IMPLEMENTED
 The personnel serving on the OSCE organising committee should not just be nursing experts but educational experts who understand the principles of assessment. 	 This recommendation is addressed under the preparation and planning phase of OSCEs in the guideline.
• Each campus should be allocated a simulation laboratory manager who should also serve on the organising committee as an OSCE coordinator, ensuring uniformity in running OSCEs.	• This recommendation could not be included in the guideline but is addressed under Section 6.5.1. as a recommendation for nursing education.
 To ensure the reliability of an OSCE, the number of stations should be between 12 and 18. 	 This recommendation is addressed in the guideline under the preparation and planning phase of OSCEs.
 Station writers should have experience in health sciences and in nursing education. 	 This recommendation is addressed in the guideline under the preparation and planning phase of OSCEs.
 Add information regarding remuneration of standardised patients. 	• Remuneration of standardised patients could not be included in the guideline but is addressed under the recommendations for nursing education (see Section 6.5.1).
• Specify the length of time students should remain in quarantine and how meal and comfort breaks will be handled.	• This recommendation was partially addressed in the guideline. Information regarding access to meals and comfort breaks for students under quarantine was provided under the implementation phase of OSCEs (See Item iv) However, it was not feasible to specify the length of time students should remain in quarantine as this depends on the length of an OSCE.

Table 5.9: Expert reviewers' comments and recommendations andimplementation of the feedback (cont'd)

RECOMMENDATIONS	HOW RECOMMENDATIONS WERE IMPLEMENTED
Consider moving setting of OSCE circuit and equipment to the preparation and planning phase.	• This recommendation could not be implemented. The setting of the OSCE circuit and equipment during the preparation and planning phase of OSCEs may not be ideal for resource constrained institutions, such as the public College of Nursing under study, due to limitations in procedures to promote confidentiality of OSCEs. The setting of the OSCE circuit and equipment therefore remains as part of the implementation phase of the OSCEs (see Recommendation Two).
• Large cohorts of students, resource constrained environments and the advanced statistical analysis required may make it impractical to conduct a post-OSCE psychometric analysis. The use of a very specific method or two, such as Angoff or the borderline regression method, was suggested.	• This recommendation could not be addressed in the guideline, but a tool for conducting a post-OSCE psychometric analysis was proposed as part of the researcher's post-doctoral studies. Further, the integration of post-OSCE psychometric analysis was addressed under the recommendations for nursing education in Section 6.5.1.
• The guideline should strongly focus on the development of Nursing Colleges' staff in the context of higher education so that they can understand the assessment principles and apply them appropriately.	• This recommendation could not be addressed in the guideline, but the training programme for professional nurses was addressed under the recommendations for nursing education in Section 6.5.1.
• Establishment of a clinical teaching model and recruitment of clinical educators. The clinical teaching model could be utilised to supplement OSCEs as a method of clinical assessment of students and serve as a strategy for developing the clinical assessment skills of professional nurses who assist in OSCEs. The clinical educators, on the other hand, could be utilised for clinical accompaniment (amongst other duties), thereby ensuring that students receive adequate clinical education.	This recommendation could not be addressed in the guideline, but was added to the recommendations for nursing education (See Section 6.5.1).
The need for suitable and sufficient resources for clinical teaching and for conducting OSCEs.	• This recommendation could not be addressed in the guideline, but was added to the recommendations for nursing education (see Section 6.5.1).

After the implementation of the recommendations from the expert reviewers, a revised version of the draft guideline was finalised, as outlined in the following section.

5.4.1.10 Wording of the recommendations

The recommendations were made, based on the synthesised data from the qualitative findings and integrative literature review findings appraised by the expert reviewers. The final recommendations, including the source of recommendations and level of evidence are outlined in Table 5.10.

Table 5.10: Final recommendations for the best practice guideline		
Recommendations for best practice guideline	Source of	Leve

Recommendations for best practice guideline regarding management of quality of OSCEs at a multi-campus public College of Nursing	Source of recommendations	Level of evidence	
RECOMMENDATION ONE Quality measures should be applied in the preparation and planning phase of OSCEs.	Data from interviews, document analysis and integrative literature review.	IV, IV, VI and VII	
The following quality measures should be applied in the preparation and planning phase of OSCEs:			
Develop a policy framework and standard operating procedures. It is recommended that a policy framework and standard operating procedures regarding OSCEs are developed.	Data from interviews, document analysis and integrative literature review.	IV and VII	
Develop a code of conduct for OSCE stakeholders. Developing an explicit code of conduct for all stakeholders involved in OSCEs is recommended.	Data from Phase One of study.	VII	
Conduct blueprinting and mapping of the OSCE content. It is recommended that blueprinting and mapping of the OSCE content are conducted to ensure OSCE alignment to the curriculum, assessment of all learning domains, and relevance of the content to realities of clinical practice.	Data from integrative literature review.	IV, VI and VII	
Develop a bank of OSCE stations. It is recommended that a bank of quality assured OSCE stations is developed and maintained.	Data from integrative literature review.	VII	

Table 5.10: Final recommendations for the best practice guideline (cont'd)

Recommendations for best practice guideline regarding management of quality of OSCEs at a multi-campus public College of Nursing	Source of recommendations	Level of evidence
Select station writers. It is recommended that content experts familiar with the principles underlying OSCEs are utilised to design and write OSCE stations.	Data from integrative literature review.	VII
Select station types and decide on the number of stations. It is recommended that a relevant station type is selected and a decision is made regarding the number of stations that will enhance the reliability of OSCEs.	Data from integrative literature review.	I, IV and VII
Conduct peer review workshops. Peer review workshops are recommended in order to evaluate the clinical accuracy and appropriateness of tasks involved in the station.	Data from integrative literature review.	VII
Select a scoring rubric. It is recommended that an appropriate scoring rubric (global rating scale or checklist) is selected, based on the skill to be examined.	Data from integrative literature review.	I, IV, VII
Select a standard-setting method. It is recommended that a standard-setting method is selected to determine the score at which a student may pass or fail, promoting fairness in making pass/fail decisions.	Data from integrative literature review.	VI and VII
Recruit and train examiners. It is recommended that examiners are recruited and trained in order to ensure that students are consistently and objectively assessed.	Data from interviews, document analysis and integrative literature review.	I, IV and VII
Recruit and train standardised patients. Recruiting and training of standardised patients is recommended to enable them to understand the importance of portraying the clinical conditions required of them reliably and repeatedly for every student performing an OSCE.	Data from interviews and integrative literature review.	VII

Table 5.10: Final recommendations for the best practice guideline (cont'd)

Recommendations for best practice guideline regarding management of quality of OSCEs at a multi-campus public College of Nursing	Source of recommendations	Level of evidence
Select an appropriate OSCE venue.	Data from interviews, document analysis and integrative literature review.	IV and VII
It is recommended that an appropriate venue for running OSCEs is selected, with capacity for briefing rooms, administrative offices, waiting rooms for standardised patients and examiners, quarantine facilities and refreshment areas.		
Conduct an OSCE station piloting.	Data from integrative literature review.	VII
Piloting the OSCE stations is recommended as an important measure for identifying challenges with practical aspects of and time allocation for prescribed tasks.		
RECOMMENDATION TWO	Data from	IV and VII
Quality measures should be applied in the implementation phase of OSCEs.	interviews, document analysis and integrative literature review.	
It is recommended that the following quality measures are applied in the implementation phase of OSCEs:		
Set up the OSCE circuit and equipment.	Data from integrative literature review.	IV and VII
It is recommended that an OSCE circuit and equipment are set up on the day the OSCEs are conducted.		
Conduct examination day briefings.	Data from interviews, document analysis and integrative literature review.	IV and VII
It is recommended that examiners, students and standardised patients are briefed regarding their roles, conduct and emergency procedures on the day OSCEs are conducted.		
Decide on the command system.	Data from interviews, document analysis and integrative literature review.	VII
It is recommended that a clear command system be established and be communicated to examiners and students.		
Implement measures for student quarantine.	Data from	VII
It is recommended that measures for student quarantine are implemented.	Interviews, document analysis and integrative literature review.	

Table 5.10: Final recommendations for the best practice guideline (cont'd)

Recommendations for best practice guideline regarding management of quality of OSCEs at a multi-campus public College of Nursing	Source of recommendations	Level of evidence	
Invite external examiners/moderators. It is recommended that external examiners be invited to facilitate quality of OSCEs.	Data from interviews, document analysis and integrative literature review.	VII	
RECOMMENDATION THREE	Data from integrative literature review.	IV, VI and	
Quality measures should be applied in the evaluation phase of OSCEs.		VII	
It is recommended that the following measures are applied in the evaluation phase of OSCEs:			
Collect and check scoring sheets.	Data from integrative literature review.	VII	
It is recommended that scoring sheets are collected and checked to verify accuracy and to address any gaps that are identified.			
Invite examiners and students to give post-OSCE feedback.	Data from integrative literature review.	IV, VI and VII	
It is recommended that students and examiners are afforded the opportunity to provide post-OSCE feedback regarding the OSCEs.			
Conduct a post-OSCE psychometric analysis.	Data from integrative literature review.	IV and VII	
It is recommended that post OSCE psychometric analysis is conducted to confirm the reliability of OSCE scores.			
Ratify and publish the OSCE results.	Data from integrative literature review.	VII	
It is recommended that OSCE results are scrutinised and endorsed by a formal institutional structure before they are published.			
Invite submission of complaints and appeals.	Data from integrative literature review.	VII	
It is recommended that students and examiners are afforded the opportunity to submit complaints regarding the OSCE results.			

The recommendations and a rationale per recommendation are provided below.

RECOMMENDATION ONE

QUALITY MEASURES SHOULD BE APPLIED IN THE PREPARATION AND PLANNING PHASE OF OSCES

The following quality measures should be applied in the preparation and planning phase of OSCEs. Preparation and planning entail the logistical arrangements and organisation which take place ahead of OSCE implementation (Sibiya & Lekhuleni, 2016:5). In the context of the College of Nursing under study, the preparation and planning phase involves the logistics and organisation related to the design and submission and moderation of OSCE tools in readiness for summative clinical assessment of nursing students.

i. Develop policy framework and standard operating procedures

It is recommended that steps are taken to develop a policy framework and standard operating procedures regarding OSCEs.

Rationale

Nurse educators and external moderators' reports highlighted gaps in the College's summative assessment policy. The gaps in the summative assessment policy include lack of explicit criteria and procedures for running OSCEs. Policies and standard operating procedures should be used to clearly describe the criteria and procedures for running OSCEs (Khan et al., 2013:e1448). A policy is a deliberate system of principles to guide decisions and achieve rational outcomes (Shakil, Al Noman, Hridi et al., 2016:1). Standard operating procedures (SOPs) are step-by-step instructions directing the course of action, which lend themselves to a definite or standardised procedure without loss of effectiveness (Akyar, 2012:369). Nurse educators and external moderators' reports recommended the development of a policy framework and standard operating procedures to guide OSCEs, which should stipulate:

- Criteria used for moderation and selection of the final OSCE tools
- Criteria for selecting professional nurses who assist as examiners in OSCEs
- Roles and responsibilities of each stakeholder participating in OSCEs

- Mechanism for ensuring uniformity in OSCE commencement time, addition of time for completing station tasks and amendments to OSCE tools
- Management of variance in OSCE scores
- Mechanism for differentiating between students who are eligible for re-OSCEs and those who have failed OSCEs outright
- Procedures for promoting correlation between formative and summative clinical assessment
- System for student reflection and redress.

A policy framework and standard operating procedures form the basis of robust and credible OSCEs (Sibiya & Lekhuleni, 2016:9). It is therefore recommended that a policy framework and standard operating procedures be formulated to provide explicit reference to and guidance through the processes of running OSCEs (Koviland et al., 2020:6). According to Khan et al. (2013:e1455), OSCEs generate considerable administrative work and therefore require all relevant information to be documented in standard operating procedures or procedure manual as a form of guidance. The management of the College of Nursing should develop a policy framework and standard operating procedures pertaining to running OSCEs.

ii. Develop a code for conduct for OSCE stakeholders

It is recommended that an explicit code of conduct be developed to guide the conduct of the relevant stakeholders involved in running OSCEs.

Rationale

Nurse educators shared their concerns regarding the conduct of some students, standardised patients and examiners during OSCEs. A code of conduct outlines the expectation regarding the acceptable behaviour and actions (Alahmad, 2013:1). A code of conduct was therefore recommended by nurse educators in order to set up rules, norms and standards regarding the conduct of all stakeholders involved in OSCEs. Nurse educators recommended that the code of conduct should address the following:

• Unlawfully attempting to assist a student during an OSCE

- Leaking (unlawful distribution, sharing or disclosure) confidential OSCE related information to students
- Use of electronic communication and recording devices during OSCEs by students standardised patients and examiners.

Unprofessional examiner conduct may negatively affect the credibility of OSCEs (Thawnarain, 2016:68). The maintenance of discipline and exemplary conduct is recommended as a requisite for the credibility of OSCEs (Wong et al., 2020:279). Higher Education Institutions often have established rules, norms and standards which guide the conduct of examiners during student assessment (Alahmad, 2013:1). Promoting academic integrity through the implementation of the code of conduct influences staff and students' moral development and encourages accountability for their actions (Alahmad, 2013:1). It is essential that the College managers formulate and enforce a code of conduct outlining the rules, norms and standards which staff and students are expected to uphold during OSCEs.

iii. Establish an organising committee

It is recommended that an organising committee be established to provide guidance and leadership when preparing and planning OSCEs.

Rationale

Running OSCEs requires more than academic personnel in that it necessitates the involvement of other professional staff who work collaboratively with academic staff in planning and conducting the OSCE (Taylor, 2018:1). Technical and administrative support provided by non-academic staff is critical in successfully designing and delivering quality OSCEs (Taylor, 2018:1). Organising an OSCE involves processes such as design, setting up, preparations and running of the OSCE (Ataro, Worku & Asaminew, 2020:422). It is therefore recommended that key personnel, such as subject specialists (nurse educators), simulation laboratory technicians, support staff members and internal moderators (Programme Managers), form part of the organising committee to facilitate efficient organisation of OSCEs.

It is also crucial to establish a leadership structure to provide guidance and oversight to all personnel involved in running OSCEs (Khan et al., 2013:e1447). It is recommended that the College of Nursing management set up an organising committee which is established for overseeing the examination process. The committee should also be assigned the responsibility for approving the OSCE blueprint, the selection of station writers, the appointment of station examiners, and making decisions regarding pass and fail criteria (Ware et al., 2014:25). In addition, the committee is responsible for implementation and review of the OSCE programme, the implementation of the required quality assurance measures, selection of moderators and standardised patients, setting up the OSCE circuit, and ensuring smooth running of the OSCEs (Khan et al., 2013:e1448).

It is further recommended that a single person is appointed to coordinate the entire OSCE process (Ware et al., 2014:25). An experienced and knowledgeable coordinator needs to be appointed to provide the necessary guidance, support and mentorship to committee members (Goh et al., 2016:17; Khan et al., 2013:e1448). The OSCE coordinator should be formally appointed by the College management based on his/her knowledge and experience in conducting OSCEs. The OSCE coordinator should have strong motivation, be well connected to resources (including in-house and outside examination facilities), and be able to communicate well and create team spirit (Ware et al., 2014:25). Depending on the nature, the scope of the OSCE and the size of the institution, OSCEs may be run simultaneously at multiple sites, resulting in the need for each site to establish its own organising committee (Khan et al., 2013:e1448; Ware et al., 2014:25). Therefore, the College management should appoint an organising committee and an OSCE coordinator for each campus to ensure efficient and smooth running of OSCEs on each campus. Heads of Departments and/ or Deputy Campus Heads are recommended as OSCE coordinators at campus level. Additionally, it is recommended that a clear strategy is used to communicate OSCE related decisions and adjustments of OSCE procedures across the College.

iv. Conduct blueprinting and mapping of the OSCE content

It is recommended that steps are taken to conduct blueprinting and mapping of the OSCE content.

Rationale

The OSCE coordinator and the organising committee are responsible for conducting blueprinting and mapping of the OSCE content. Blueprinting is a process by which the OSCE content is carefully planned and aligned against the curriculum learning objectives, thereby ensuring that all components of the curriculum are proportionally assessed (Ware et al., 2014:19). A special tool should be designed and used for blueprinting and mapping of the OSCE content, so as to ensure that all the cognitive, psychomotor and affective domains are covered as well as ensuring alignment to recognised educational taxonomies (Raymond & Grande, 2019:3). An OSCE content blueprinting tool is attached as Appendix G.

It is recommended that an OSCE blueprint be prepared by plotting the program contents against the program outcomes, then putting the components of the program and their weights in the rows and the tasks or competencies in the columns; the number of stations for each component is calculated and distributed across the competencies which are most appropriate for the component (Ware et al., 2014:19). The content selected for OSCEs should be based on a combination of the curriculum outcomes, the demands of clinical practice and the recommendations from statutory bodies (Khan et al., 2013:e1449).

Once the OSCE content has been determined, the number of OSCE stations and the clinical skills for each station are determined (Ware et al., 2014:20). Between ten and eighteen stations are required in order to obtain reliability of OSCEs. When an OSCE blueprint is ready, a station list is prepared by identifying the clinical conditions and tasks for each component of the educational unit (Ware et al., 2014:21). It is recommended that the OSCE blueprint specifies the resources (including the use of standardised patients, if required) and equipment needed to execute the OSCE to ensure feasibility of the OSCE implementation (Abdelzizi, Hany, Atwa et al., 2015:2). It is further recommended that the OSCE blueprint includes:

- Clear instructions for students to inform them of the tasks to be performed at the station
- Clear instructions for examiners and the roles they are expected to play at each station
- How long the station should last

- The scoring rubric that will be used and all the important aspects of the clinical skill being tested
- Details regarding the standardised patients (if they are required for the stations).

It is recommended that, following blueprinting and mapping, a panel of experts (with clinical and academic experience and expertise) verifies the correct alignment of the clinical skills to the competencies that students are expected to demonstrate in clinical practice (Goh et al., 2016:15). Additionally, an external moderator should approve the relevance and accuracy of the blueprinting and mapping of the OSCE content (University of Aberdeen, 2020:2). Time allocated to the tasks at individual OSCE stations should be adequate to allow students to complete the required tasks (Khan et al., 2013:e1449).

v. Develop a bank of OSCE stations

It is recommended that a bank of quality assured OSCE stations is developed and maintained.

Rationale

A bank of OSCE stations is a repository wherein robust and quality assured tools are stored for possible use in future OSCEs. It is recommended that electronic OSCE station banking software be used for storing and retrieving stations (Ware et al., 2014:17). It is recommended that the OSCE organising committee develops and maintains a bank of OSCEs to ensure that there is always a pool of quality assured and peer reviewed stations for future use (Khan et al., 2013:e1449).

Developing a bank of OSCE stations reduces the amount of time needed for preparing and planning future OSCEs (Krusen, 2019:2). When developing a station bank, it is crucial to include all the necessary supporting documents and materials, such as instructions, scoring rubrics, OSCE scenarios, list of equipment and an outline of special requirements (Ware et al., 2014:18). In cases where the curriculum and learning objectives are modified, new stations must be developed (Khan et al., 2013:e1449). It is the duty of OSCE coordinators to ensure that banked stations are not overused and that new items are regularly added to the banks (University of Aberdeen, 2018:3).
vi. Select station writers

It is recommended that content experts familiar with the principles underlying OSCEs be utilised to design and write the OSCE stations. In the context of the College of Nursing under study, station writers are nurse educators employed by the College to facilitate and run summative clinical assessment of nursing students.

Rationale

The OSCE coordinator has a responsibility to select appropriately skilled and experienced examiners (nurse educators) to write the OSCE stations (Khan et al., 2013:e1449). It is recommended that station writers who have extensive clinical experience, are familiar with the curriculum or training programme and published standards, and are open to suggestions for station revisions are selected (Ware et al., 2014:26). It is further recommended that OSCE writers design and develop stations as soon as the process of OSCE blueprinting and mapping have been completed. Programme Managers should select station writers amongst well trained and experienced Heads of Departments and nurse educators of each clinical discipline namely GNS, PNS, MNS and CNS as they have the required subject knowledge and an understanding of the subject assessment criteria. Additionally, explicit criteria for selecting station writers should be stated and used in the College of Nursing.

vii. Select station types and number of stations

It is recommended that steps are taken to select a relevant station type and to decide on the number of stations that will enhance the reliability of OSCEs.

Rationale

According to Khan et al. (2013:e1451), the four commonly used station types are: observed (usually a writing station with no examiner), unobserved (no examiner during the course of the OSCE), technology enhanced (characterised by use of advanced technology, such as high-fidelity mannequins) and linked stations (two consecutive stations based on the same scenario). An OSCE station design template comprising of the station types is attached as Annexure H. The selection of a station type should be based on the goal of the OSCE as well as the unique circumstances of an institution (Agarwal, Batra, Sood et al., 2010:85). However, it is recommended that OSCE

coordinators ensure that the selected stations facilitate the assessment of cognitive, psychomotor and affective domains.

Using a standardised format to design station types is crucial for ensuring the uniformity of the OSCE (Hastie et al., 2014:199). It is recommended that the organising committee select the OSCE content that properly aligns to the selected station type and which facilitates comprehensive assessment of clinical skills (Agarwal et al., 2010:86).

The number of OSCE stations is important in ensuring reliable OSCE scores. According to Eftekhar, Labaf, Anvari et al. (2011:3), an OSCE with fewer than ten stations might prevent adequate sampling and incorporation of the relevant content, thereby reducing its reliability and content validity. It is thus recommended to increase the number of stations to between ten and eighteen in order to achieve the required content representativity (Brannick et al., 2011:1186). A reasonable amount of time for each clinical task is required in order to allow students to complete their OSCE tasks (Eftekhar et al., 2011:4). All OSCE stations should be of equal duration and the time allocated for each OSCE station should be proportional to the tasks required of students (Eftekhar et al., 2011:4).

viii. Conduct peer review workshops

Peer review workshops are recommended in order to evaluate the clinical accuracy and appropriateness of the tasks involved in the station.

Rationale

Once the station writing process is completed, it is critical for examiners to be invited to attend peer review workshops in order to determine the quality of OSCEs (Brotchie, 2015:36). The peer review workshops facilitate the robust critique of the OSCE stations by experts, thereby providing diverse input regarding the quality of stations (Khan et al., 2013:e1450). Peer review is a reciprocal process whereby a colleague with the same level of training, knowledge and competence evaluates the work performance of another colleague (Muller & Bester, 2016:439). Peer review thus refers to the evaluation of the OSCE stations by colleagues who have similar training, knowledge and competence as the station writers.

Peer review workshops are recommended as they promote teamwork and provide a forum for diverse views on station design, as well as providing a means of adopting a system-based approach for assessing the clinical accuracy and appropriateness of station tasks, thus improving the quality of OSCEs (Brotchie, 2015:37). It is recommended that station writers are encouraged to attend the peer review workshops in order to facilitate dialogue, provide clarity where needed, and implement the changes identified as necessary in the workshops (Khan et al., 2013:e1450). Therefore, station writers from the relevant clinical disciplines should attend the peer review workshops before OSCEs conducted.

ix. Select a scoring rubric

It is recommended that steps are taken to select, based on the skill to be examined, an appropriate scoring rubric (holistic/global rating scale or checklist).

Rationale

In selecting an OSCE scoring rubric, station writers should follow the rules and standards agreed upon by the organising committee (Ware et al., 2014:13). A scoring rubric is a guideline for scoring each element or item of a students' performance on a measurement scale (National Board of Medical Examiners, 2019:2). There are two types of scoring rubrics available for use in OSCEs—a checklist and a holistic/global rating scale (Hastie et al., 2014:199). A checklist is a list of statements describing the actions expected of the students at the station (Hastie et al., 2014:199; Ware et al., 2014:14). Holistic/global rating scales, on the other hand, allow examiners to determine whether an action was performed, as well as how well it was performed (Khan et al., 2013:e1451). Holistic/global rating scales also contribute to the assessment of non-cognitive behaviours, while checklists measure knowledge, practical application and technical performance of the skill (Schleicher et al., 2017:59).

Although the step-wise approach associated with the use of a checklist leads to greater inter-rater reliability (Khan et al., 2013:e1451), it makes holistic and in-depth assessment of students' performance impossible (Hastie et al., 2014:199). Where checklists are preferred, it is recommended that they are merged with a rating scale, which allows examiners to score students based upon the quality of the actions (Khan et al., 2013:e1451). Further, it is recommended that station writers design checklists

to include items that help to differentiate between students' depth of knowledge thus avoiding rewarding learners who use a rote approach (Daniels & Pugh, 2018:1209). It is further recommended to apply differential weights to checklist items, based on their perceived importance, in order to discriminate between academically weak and academically strong students (Daniels & Pugh, 2018:1210).

Holistic/global rating scales are more suited to measuring subjective items, such as communication, attitude and professionalism, while checklists (as noted above) are more suited to measure practical clinical skills (Brannick et al., 2011:1187). For this reason, holistic/global rating scales are recommended for use in OSCEs because they offer precise and in-depth assessment of student performance, thereby facilitating reliability, which further allows judgement of student performance to be related to clinical practice as a whole rather than to a collection of discrete independent actions (Kelly et al., 2016:5).

Holistic/global rating scales are also recommended for assessing skills where the quality of performance needs to be measured (Khan et al., 2013:e1452). Holistic/global rating scales could also be used for the purpose of standard setting in a borderline group through the provision of tick boxes at the bottom of the scoring rubric to allow the examiner to offer a global judgment on the students' performance, indicating whether he/she considers the student a "clear pass", "borderline", or "clear fail" (Ware et al., 2014:14). Because holistic/global rating scales comprise a comprehensive assessment of the complex, multi-faceted characteristics of the tasks undertaken by students, it is recommended that their use is confined to expert examiners (Yune et al., 2018:1).

x. Select a standard setting-method

It is recommended that a standard setting-method be selected that determines the score at which a student may pass or fail, promoting fairness in making pass/fail decisions.

Rationale

The use of a fixed pass mark is not recommended in OSCEs due to students reaching the fixed pass mark even though their performance may be deemed less than satisfactory for safe clinical practice (Ogah et al., 2016:3881). It is recommended to select and use a formal standard-setting method, which fairly determines a score at which a student will pass or fail an OSCE (Daniels & Pugh, 2018:1211; Kamal, Sallam, Gouda et al., 2020:1). Norm-referenced and criterion-referenced methods can be used for this purpose (Khan et al., 2013:e1453).

The norm-referenced methods evaluate the overall performance of students, wherein the mean of all borderline scores achieved by students on a task is considered the passing score for the given station (Hastie et al., 2014:199). In a norm-referencing method, the standard that is set is based upon peer performance and can vary from cohort to cohort. In this standard setting method, poorly performing students can pass an OSCE that they would otherwise have failed if they took it with best performing students (Khan et al., 2013:e1453). For this reason, use of norm-referenced methods is not recommended for OSCEs because of their inability to objectively judge students' clinical performance.

The criterion methods of standard setting are performed before the examination by a group of experts who look at each test item to determine its difficulty and relevance (Khan et al., 2013:e1453). Criterion-based methods identify cut-off scores based on the level of competence expected of students, and are therefore deemed most appropriate for use in OSCEs (Yousuf et al., 2015:283).

It is recommended that a detailed rationale is provided to support the standard-setting method that has been selected (Daniels & Pugh, 2018:1211). A standard-setting method should be selected carefully in order to promote the validity of OSCEs (Daniels & Pugh, 2018:1211). An additional measure for determination of pass/fail decisions, such as setting a minimum number of stations a student must pass, may be considered in order to further assess the depth or breath of a students' knowledge (Daniels & Pugh, 2018:1211).

xi. Recruit and train examiners

It is recommended that examiners are recruited and trained in order to consistently and objectively assess students. In the context of this study, examiners are personnel who assess students at the OSCE station level, including nurse educators and professional nurses.

Rationale

There has been a concern that examiner selection may affect the reliability of OSCEs due to possibility of inconsistent marking and inter-rater variability (Besar, Siraj, Manap et al., 2012:444). Examiners play a vital role in delivering a robust and fair OSCE. Content experts familiar with the subject and the competencies to be assessed are recommended as examiners in OSCEs (Besar et al., 2012:444). However, due to limited resources and time constraints, the content experts are usually replaced or supplemented with non-experts who are not familiar with the competencies being examined and the OSCE marking process (Besar et al., 2011:444). Examiners with a relevant background, such as appropriate specialities, good medical knowledge, experience in scoring or rating a candidate, and acceptable levels of qualification are preferred in OSCE (Besar et al., 2012:444). The reliability of the scores generated by the examiners depends upon both the consistent marking by the examiners and their clinical experience relevant to the OSCE station (Khan et al., 2013:e1453; Koviland et al., 2020: 6).

It is imperative for education institutions to ensure that examiners are trained and competent to undertake their roles (Gormley, 2011:129). Therefore, it is recommended that the organising committee which use OSCEs develop examiner training programmes to empower examiners with clinical assessment skills required to carry out their role consistently and objectively (Gormley, 2011:129). After the training sessions, examiners should be provided the opportunity to practice scoring using relevant scoring rubrics (Gormley, 2011:129). Provision of a code of good practice setting out minimum standards for good assessment is also recommended to improve assessment practices (Gormley, 2011:129). Examiner training workshops should be conducted well ahead of the OSCEs and the outcomes of such training must be documented (Hastie et al., 2014:199). It is further recommended that the organising committee selects examiners based on confirmed competence in OSCEs.

xii. Recruit and train standardised patients

Recruitment and training of standardised patients is recommended to enable them to understand the importance of portraying the clinical conditions required of them, reliably and repeatedly for every student performing an OSCE.

Rationale

Standardised patients play a vital role in providing the necessary clinical experiences students need to perform their OSCEs (Gormley, 2011:130). The OSCE coordinator is responsible for selecting standardised patients according to their ability, suitability and credibility (Khan et al., 2013:e1454). A rigorous training programme for standardised patients is recommended as it reduces variability in their performance and thus facilitates the reliability and the validity of evidence for the integrity of OSCE scores (Daniels & Pugh, 2018:1210).

It is further recommended that standardised patients be provided with a script to guide their portrayal (Daniels & Pugh, 2018:1210). The script should include sufficient detail demanded by the OSCE scenario to help the standardised patients portray their role accurately, meaningfully and in an authentic manner (Daniels & Pugh, 2018:1210; Gormley, 2011:130). Standardised patients should act in an objective and realistic fashion, without modification over time (Huang, Chan, Wu et al., 2010:590). Once training is completed, each standardised patient's performance needs to be quality assured, by means of evaluation, before they are allowed to participate in OSCEs (Khan et al., 2013:e1455).

It is further recommended that steps be taken to enhance the realism in the performance of standardised patients. Gormley, Sterling, Menary et al. (2012:384) recommend the following procedures to enhance the realism of the performance of standardised patients:

- Provision of opportunities for role playing and refining the OSCE clinical scenarios to ensure accuracy and consistency.
- Provision of equipment, devices or mannequins which facilitate the prescribed special/sensory effects needed to mimic real-life medical encounters, such as wounds and bruises, stoma, blood or smell of alcohol.

It is recommended that the organising committee train and maintain a sufficient pool of standardised patients to assist in OSCEs when necessary.

xiii. Select an appropriate OSCE venue

It is recommended that the venue used for running OSCEs should have the capacity for briefing rooms, administrative offices, waiting rooms for standardised patients and examiners, quarantine facilities and refreshment areas.

Rationale

A dedicated venue or custom-built skills laboratory is preferred for running OSCEs (Ware et al., 2014:29). The OSCE organisers should ensure that the venue is mapped, station placement and type (for example, unmanned, manned and with patients) noted, and flow patterns shown (Ware et al., 2014:29). The layout of the venue should be such that the bell(s) used to indicate the time to change stations can be heard throughout the examination area (Ware et al., 2014:29). In venues where video recording technology is utilised, a control room where real time video feed from each station can be monitored on display monitors and scored by examiners must be provided (Ware et al., 2014:29). It is recommended that the organising committee ensure that the venue used for running OSCEs have the capacity for briefing rooms, administrative offices, waiting rooms for standardised patients and examiners, quarantine facilities and refreshment areas (Khan et al., 2013:e1455).

xiv. Conduct an OSCE station piloting

Piloting the OSCE stations is recommended as an important measure for identifying challenges with the practical aspects of and the time allocation for the prescribed tasks.

Rationale

Pilot testing is crucial for new OSCE stations as it provides the opportunity to identify and correct errors, ensure that the tasks are objective and achievable and that the time suggested is appropriate (Ware et al., 2014:15). It is recommended that the organising committee ensure that OSCE station piloting is conducted to help familiarise examiners with the OSCE requirements, scoring rubrics, determination of the appropriateness of the instructions, the duration of each station task, interconnectedness of the tasks, and number and order of OSCE stations as these aspects of the OSCE are crucial for ensuring their validity and reliability (Yesodharan & Valsaraj, 2020:9380). After the necessary technical review, the formatted and edited stations should be presented to the OSCE committee for scientific review and for determination of the compliance of the station construction with the blueprint and measurement of validity (Ware et al., 2014:26).

RECOMMENDATION TWO

QUALITY MEASURES SHOULD BE APPLIED IN THE IMPLEMENTATION PHASE OF OSCES

It is recommended that quality measures be applied in the implementation phase of OSCEs. The implementation phase of OSCEs entails the execution of OSCEs based on the preparation and planning (Sibiya & Lekhuleni, 2016:7). In the context of the College of the Nursing under study, the implementation phase of OSCEs involves the summative clinical assessment of nursing students.

i. Set up an OSCE circuit and equipment

It is recommended that an OSCE circuit and equipment are set up on the day the OSCEs are conducted. While setting up the OSCE circuit and equipment is an integral part of the preparation and planning phase of OSCEs, the College of Nursing under study has limited resources for facilitating confidentiality of OSCEs- for this reason, setting up the OSCE circuit should be done as part of the implementation of the OSCEs (the day the OSCEs are conducted).

Rationale

On the day the OSCEs are conducted, the organising committee members should arrive early to set up the circuit and equipment (Ware et al., 2014:30). Nurse educators recommended that every station should be provided with sufficient and identical equipment as prescribed in the OSCE blueprinting. Providing sufficient and identical equipment in every station promotes uniformity of the OSCEs. It is recommended that the organising committee confirm that every station is provided with the resources and equipment described in the OSCE blueprint. Although all equipment should be provided well in advance of the OSCE, it is crucial to check and test it on the day the OSCEs are conducted to ensure that it is in good working order (Khan et al., 2013:e1456; Koviland et al., 2020:6). Technical support should be on standby to provide assistance in case equipment failure occurs (Obizoba, 2018:73). During each change over, organisers must ensure the exam is running smoothly by replenishing the stations and arranging the equipment for the next student (Ware et al., 2014:30).

It is essential that students are guided through the OSCE circuit to ensure that the correct number of students is allocated according to the number of OSCE stations in the circuit (Khan et al., 2013:e1455). It is recommended that the OSCE stations are clearly marked and the direction of flow should be unambiguous (Zayyan, 2011:221). It is crucial to ensure completion of arrangement of furniture, screening off of areas where patients are to be examined, setting up and equipping the stations, labelling stations, posting signage and arrows, and checking that the bell system is working (Ware et al., 2014). To accommodate the number of candidates, a morning and afternoon session may be necessary—in which case catering arrangements must be made for examiners and standardised patients (Ware et al., 2014:30).

ii. Conduct examination day briefing

It is imperative to brief examiners, students and standardised patients regarding their roles, conduct and emergency procedures.

Rationale

Briefing of students, examiners and standardised patients should be undertaken separately on the day the OSCEs are conducted (Sibiya & Lekhuleni, 2016:7). It is recommended that examiners arrive at least 45 minutes before the start time to familiarise themselves with the details of the station (Ware et al., 2014:30). Examiners should be briefed about their roles and responsibilities, and about the rules and regulations governing OSCEs. It is recommended that examiners are reminded to score students fairly and objectively, limit communication with students and use scoring rubrics appropriately (Sibiya & Lekhuleni, 2016:8).

Students should arrive at least 30 minutes before the OSCEs start and should be briefed about quarantine, starting positions on the OSCE circuit, the direction of the movement within the OSCE circuit, time allocation for each task, and rules and regulations (Ware et al., 2014:30; Sibiya & Lekhuleni, 2016:8).

Standardised patients should be reminded about their roles, how to respond to questions and the behaviour they should adopt in response to stimuli or students' actions (Daniels & Pugh, 2018:1210). It is recommended that a detailed patient profile, and instructions on how the standardised patient should dress and act during his/her interactions with students should be provided in writing by the OSCE organising committee (Daniels & Pugh, 2018:1210). It is further recommended to make available backup standardised patients in case the allocated standardised patient is unable to continue with OSCEs (Sibiya & Lekhuleni, 2016:8).

iii. Decide on the command system

It is recommended that a clear command system be established and communicated to examiners and students.

Rationale

The movement of students from one station to another can be managed by use of a bell, coupled with verbal instructions, such as 'Start' and 'Stop' (Sibiya & Lekhuleni, 2016:7). Clear signals by the command system should be made strictly at predetermined times to prevent ambiguity and confusion (Ware et al., 2014:30). It is recommended that the organising committee monitors adherence to the command systems by examiners and students to prevent delays in the circuit change over and unauthorised station time extension.

iv. Implement measures for student quarantine

It is recommended that measures for student quarantine are implemented.

Rationale

Because OSCEs usually run throughout the day, the sharing of OSCE content between student cohorts sitting for the same examination is possible (Gormley, 2011:131). Leakage in this manner of OSCE content could potentially endanger the integrity and creditability of the assessment process (Gormley, 2011:131). It is therefore recommended that students be quarantined between different sittings of the same OSCE—following an earlier sitting of an OSCE, students are placed in a holding area, without access to their mobile phones or other electronic devices, until the final cohort of students have finished the OSCE (Gormley, 2011:131). It is recommended that students are allowed access to meals during quarantine. It is further recommended that students have access to ablution facilities during quarantine. Additionally, a staff member should be delegated to monitor and assist students who are under quarantine.

v. Invite external examiners (moderators)

In the College of Nursing under study, external examiners are referred to as external moderators- the concept 'external moderators' is therefore used instead of 'external examiner'. It is recommended that external examiners be invited to facilitate the implementation of quality of OSCEs.

Rationale

Nurse educators highlighted gaps in the external moderation process, including late arrival at OSCE venues and unilateral implementation of amendments to the OSCE tools. Non-implementation and partial implementation of changes recommended by external moderators regarding the OSCE tools were also raised as concerns. Therefore, nurse educators recommended the following:

- Establishment of a clear process of communication, verification and accountability.
- Joint external moderation of all the phases of the OSCEs by all the universities of affiliation.
- Empowerment of nurse educators with relevant skills in order to improve assessment practices in the College of Nursing.

Moderation is an important measure for assuring the integrity of OSCEs and of enhancing the defensibility of its outcomes (Sibiya & Lekhuleni, 2016:8). It is recommended that external moderators are invited to ensure that academic standards are being maintained and to certify that the assessment process measures student achievement rigorously and fairly and is conducted in line with policies and regulations (Khan et al., 2013:e1458). It is further recommended that the College management and the universities of affiliation set up standards for joint external moderation of the College OSCEs. Additionally, the use of internet-enabled video conferencing equipment for joint moderation of the OSCEs is recommended.

RECOMMENDATION THREE

QUALITY MEASURES SHOULD BE APPLIED IN THE EVALUATION PHASE OF OSCEs

It is recommended that quality measures be applied during the evaluation phase of OSCEs. In the context of the College of Nursing under study, the evaluation phase of OSCEs entails the post-hoc review conducted to collect data regarding the strengths and weaknesses of OSCE preparation and implementation and measures taken to improve future OSCEs.

i. Collect and check scoring sheets

It is recommended that scoring sheets are collected and checked to verify accuracy and to provide the opportunity to address any gaps that are identified.

Rationale

Once the OSCE is completed, it is vital to collect the scoring sheets and verify their completeness and the accuracy of information contained therein (Daniels & Pugh, 2018:1210). Gaps that are identified should be addressed with the relevant examiners (Khan et al., 2013:e1457). Because it is not feasible to call students back into the OSCE in order to address missing data from the scoring sheets, it is recommended that practicable decisions regarding the missing data should be taken by the organising committee, which may include revising the station weighting or cancelling the station completely (Pell et al., 2010:18). The organising team should ensure that scoring sheets are collected and checked for accuracy before capturing the OSCE outcomes on the institutional marks capturing system.

ii. Invite examiners and students to give post-OSCE feedback

It is recommended that students and examiners be afforded the opportunity to provide post-OSCE feedback regarding the OSCEs.

Rationale

Feedback provided by students and examiners helps improve the quality of future OSCEs. It is important to determine students' and examiners' subjective views regarding the OSCE process (Khan et al., 2013:e1458). An evaluation form should be given to students inviting them to provide feedback about the organisation of the OSCE, the relevance of the tasks, time allocation, examiner attitudes and performance of standardised patients (Munkhondya, 2014:711). In addition, students and examiners should be requested to provide suggestions for improving the quality of future OSCEs (Munkhondya et al., 2014: 711). Feedback from students and examiners should be considered when reviewing stations for future use (University of Aberdeen, 2018:2). On completion of an OSCE, it is recommended that students and examiners are invited to provide their subjective experiences regarding the OSCEs.

iii. Conduct a post-OSCE psychometric analysis

It is recommended that post-OSCE psychometric analysis is conducted to confirm the reliability of OSCE scores.

Rationale

The quality of OSCE scores may be influenced by errors during the design, administration, scoring, and interpretation of performance (Tavakol & Dennick, 2012:e161). To improve the quality of OSCEs, errors should be minimised and, if possible, eliminated. Conducting a post-OSCE psychometric analysis is a formal system for assessing the overall threat to reliability and validity of the OSCEs (Khan et al., 2013:e1450).

As no single index is sufficient for measuring the reliability of OSCE scores, multiple metrics are essential for assessing the reliability of OSCE outcomes (AI-Osail, AI-Sheikh, AI-Osail et al., 2015:2). Pell et al. (2010:6) propose seven metrics that can be used as part of the post-OSCE psychometric analysis to confirm the quality of OSCEs. Thus, the following metrics are essential for identifying and managing unsatisfactory OSCE scores (Pell et al., 2010:8):

• Metric One. Cronbach's Alpha (a measure of internal consistency): A Cronbach's Alpha of 0.7 and above is considered as normal. However, a large

variance between examiner marks and poorly designed scoring rubrics may lead to an abnormally high Cronbach's Alpha. It is recommended that station items be individually assessed to determine if any one of them is causing deviation from the normal Cronbach's Alpha and, if so, such items should be removed from the station (University of Aberdeen, 2018:1).

- Metric Two: Coefficient of Determination R² (a measure of the correlation between the checklist score and the global rating for individual stations): The R² coefficient allows the determination of the degree of correlation between the checklist score and the overall global rating at each station. A good correlation (R² > 0.5) indicates a reasonable relationship between checklist scores and global grades. A poor correlation between checklist and global rating score could result in poorly performing students acquiring high marks for the process instead of for the critical core content. A low correlation would require consideration of why a mismatch between the checklist marks given and the examiners' global score occurred, and would prompt re-writing of the station (University of Aberdeen, 2018:1).
- Metric Three. Inter-grade Discrimination: This statistic gives the slope of the regression line and indicates the average increase in checklist mark corresponding to an increase of one grade on the global rating scale. There is no agreed standard regarding the normal deviation between the increase in checklist marks and the increase in global rating scale. However, it is recommended that this discrimination index should be one tenth of the maximum available checklist mark.
- Metric Four. Number of failures: Failure rates may be used to review the impact of a change in teaching on a particular topic. Evidence of an unusually small or large number of students failing a single station should prompt investigation (University of Aberdeen, 2018:2).
- Metric Five. Between-group variation (including assessor effects): This metric compares the variation in the performance of groups of students. In an ideal OSCE, the variation of students' marks should be due to student performance and not as a result of the differences in the environment, location, or differences

of assessor conduct. This metric gives an indication of the uniformity of the assessment process between groups. The acceptable between-group variance is below 30 percent. If the between-group variation is higher than 30 percent, an investigation of possible systematic biases in terms of time, site or examiner factors must be conducted (University of Aberdeen, 2018:1).

- Metric Six. Between group-variance (other effects): This metric is applied to institutions where multi-site OSCEs are conducted, which may lead to variations due to site effects. Other effects may include assessor training effects and student gender effects.
- Metric Seven. Standardised patients: In institutions where standardised patients are utilised to rate students, adverse ratings of above 10 percent may indicate station level problems. A higher-than-normal standardised patient rating may indicate inadequate teaching or student incompetence.

It is further recommended that all OSCE stations be reviewed by the organising committee before they may be re-used, and if extreme deviations are identified the stations in question should be removed from the OSCE bank (University of Aberdeen, 2018:2). However, stations which meet the minimum standards for reliability may be stored in the OSCE bank for future use (University of Aberdeen, 2018:2).

iv. Ratify and publish the OSCE results

It is recommended that OSCE results are scrutinised and endorsed by a formal institutional structure before they are published.

Rationale

Before the OSCE results are published, it is essential to have them scrutinised and indorsed by a formal institutional structure (Khan et al., 2013:e1458). It is critical that a recognised authority, such as an examination board, ratifies the results and signs them off as an accurate reflection of student performance (Khan et al., 2013:e1458). After the ratification, accurate OSCE results are published by a recognised institutional authority (Khan et al., 2013:e1458).

v. Invite submission of complaints and appeals

It is recommended that students and examiners are afforded the opportunity to submit complaints regarding the OSCE results.

Rationale

After the publication of OSCE results, students and examiners should be provided the opportunity to submit complaints and appeals, in line with institutional policies and procedures (Khan et al., 2013:e1458). It is recommended that appeals or complaints made by students or examiners be dealt with fairly and promptly after each OSCE (Khan et al., 2013:e1458). Valid complaints may help to inform changes to the OSCEs as a part of the quality assurance process (Khan et al., 2013:e1458). It is further recommended that complaints and appeals be invited after the publication of the OSCE results.

5.4.2 Rigour of development

To confirm the quality of the guideline development, the researcher developed the guideline based on the NICE guideline development methods and aspects of the AGREE II framework (NICE, 2014:165). In addition, scientific evidence obtained by triangulating findings from Phase One and Phase Two of this study was used to inform the guideline recommendations. The guideline recommendations were clearly stated so as to elicit the intended action which they sought to achieve. Methods for updating the guideline and searching the evidence are discussed in the following sections. A detailed description of the methods used for developing the guideline was presented (see Section 5.4). The guideline was reviewed by a group of eight experienced and suitably qualified expert reviewers.

5.4.2.1 Updating the guideline

During the development process, a plan for review or update of the guideline should be stated (NICE, 2014:13). A specified timeframe or the emergence of new evidence could be factors to be considered as requiring the updating of a guideline (NICE, 2014:204). It is recommended for this best practice guideline to be updated with the latest evidence after a period of two years. However, if compelling new evidence emerges before the stated period, this guideline could be updated sooner. Additionally, this best practice guideline should be adapted along with the anticipated migration of the College of Nursing into higher education.

5.4.2.2 Methods used for searching the evidence

The methods and procedures used for searching the evidence are comprehensively described in Chapter Four (Section 4.3).

5.4.3 Applicability of the guideline

According to the Registered Nurses Association of Ontario (2012:7), best practice guidelines are transformative recommendations developed to achieve one or more of the of the following objectives:

- To deliver an effective service based on current evidence and eliminate the use of interventions not recognised as best practice
- To resolve a problem in the practice setting
- To achieve service delivery excellence by meeting or exceeding quality assurance standards
- To introduce an innovation.

The qualitative findings of this study revealed that there were concerns regarding the management of the quality of OSCEs at a multi-campus public College of Nursing. These challenges needed to be resolved by implementing innovative solutions which were based on best evidence to achieve the desired level of excellence. The application of this best practice guideline is therefore crucial to address the challenges experienced at the College of Nursing and to provide the necessary innovation and excellence, based on best evidence. The following sections clarify the process of application of the best practice guideline.

5.4.3.1 Advice or tools for recommendations for application

It is essential for guideline developers to provide advice and/or tools to support its implementation (NICE, 2014:197). The researcher provided simple recommendations for use by nurse educators in applying this best practice guideline. An OSCE station design template (Annexure H) and an OSCE blueprinting template (Annexure G) were developed to further simplify the application of this best practice guideline.

5.4.3.2 Potential facilitators and barriers to the application of recommendations

It is important to identify the potential factors that could facilitate or block the implementation of the recommendations (Registered Nurses' Association of Ontario, 2012:54). Identifying potential facilitators enables and maximises support for implementation while understanding of the barriers stimulates planning effective strategies to overcome or mediate the barriers early in the process of implementation. Presenting the recommendations of this best practice guideline to the College management, universities of affiliation and the student body could facilitate support for its implementation. The simplicity of the recommendations and the application tools are further facilitators. As the College of Nursing is in the process of migration into higher education, these recommendations could be utilised to support the application for accreditation with the South African Nursing Council and the Council on Higher Education.

The application of any recommendations is at the discretion of the College Senate and Council--which are the highest decision-making bodies at the College of Nursing. Obviously, if the decision is not to adopt the best-practice guidelines, this could be a barrier to its implementation. Conducting further networking and lobbying of key College leaders and structures, such as senior lecturers and the Programme Managers, could enhance buy-in and promote the applicability and implementation of the recommendations.

The non-availability of the necessary resources in the College of Nursing may be another barrier to the application of the recommendations. To overcome resource challenges, the College of Nursing could be advised to prioritise the application of those recommendations for which resources are already available. These include the development of a policy framework and standard operating procedures, as well as the development of a code of conduct for OSCE stakeholders. A phased approach, wherein the recommendations could be applied incrementally at individual campuses, would be another strategy to overcome barriers.

5.4.3.3 Consideration of potential cost implications of applying the recommendations

For the most part, the recommendations do not require the allocation of an additional budget. Although there are some costs with regard to acquiring additional resources (staff and equipment), such an investment would be justified by the level of excellence expected of a Higher Education Institution Therefore, the cost implications regarding the application of the recommendations are minimal.

5.4.3.4 Consideration of potential resource implications of applying the recommendations

Resources associated with extension of human capacity, financial, time, physical or space allocations can be barriers as well as facilitators (Registered Nurses' Association of Ontario, 2012:57). The College of Nursing already has the crucial resources such as staff, budget, buildings and some equipment required to start the application of the recommendations. In addition, the College of Nursing is in the process of prioritising securing the resources needed as part of accreditation of new qualifications, such as lecturers, mannequins and medical equipment. Therefore, resources are not regarded as a major deterrent to the application of the recommendations.

5.4.3.5 Key review criteria for monitoring and / or audit purposes

Identifying the criteria for monitoring the adoption and the adherence to the recommendations, and evaluating the outcomes resulting from implementation thereof, are important (Registered Nurses' Association of Ontario, 2012:81). Monitoring provides an indication of the extent to which the best practice guideline recommendations are known, accepted and applied, as well as providing an indication of the extent to which the implementation interventions were successful in changing clinical practice (Registered Nurses' Association of Ontario, 2012:85). Auditing is a strategy to assess the impact of implementing the recommendations. In line with the suggestions by the Registered Nurses' Association of Ontario (2012:82), surveys, observations and interviews are applied to monitor and audit the adoption of and adherence to the recommendations. The monitoring and auditing of adherence to the

recommendations should be performed every year by senior academics and quality assurance personnel.

5.4.4 Editorial independence

Commercial sponsorship and conflict of interest could threaten the impartiality of guideline developers and thereby also threaten the credibility of best practice guidelines (Boyd, Ikl, Baumann et al., 2012:234). The cost and labour intensity associated with guideline development often compels developers to rely on commercial sponsors to cover some of the costs (Boyd et al., 2012:234). Concerns regarding the possibility that guideline developers may be pressured by the commercial sponsor to make recommendations favourable to the sponsor's interests have been raised (Boyd et al., 2012:234).

A conflict of interest exists when an individual's personal interests have the potential to compete with or influence behaviour related to the individual's professional interests or obligations (Boyd et al., 2012:234). This best practice guideline was developed for the purposes of obtaining a qualification (Doctor of Philosophy in Nursing). No external funding bodies were involved in the development of this best practice guideline. The guideline is therefore editorially independent and no views of any funding body influenced the content of the guideline. Conflicts of interest of guideline development members as well as competing interests of guideline developers are therefore not applicable.

5.5 CHAPTER SUMMARY

This Chapter outlined the procedures that were used to develop the best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing. An outline of the synthesis of qualitative research and the integrative literature review findings were provided. Accounts were given of the guideline development process, the final recommendations generated from the evidence synthesis and the rigour, applicability and editorial independence of the guideline. In the next chapter, the conclusion, limitations and the recommendations of the study will be discussed.

CHAPTER SIX

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

In Chapter One of the study, an overview of the study and the background of the study were provided. In Chapter Two, a detailed description of the research design and methods of the study was provided. Chapter Three of this study presented a detailed discussion of the qualitative research findings and literature control in Phase One of the study (semi-structured interviews with nurse educators and document analysis). The themes and sub-themes were discussed and contextualised into the realm of existing literature. Chapter Four outlined the integrative literature review (Phase Two of the study), whereas Chapter Five included the development of a best practice guideline for the management of the quality of OSCEs (Phase Three), based on the synthesis of the findings of Phase One and Phase Two. This chapter will outline the conclusion, limitations and recommendations of the study.

6.2 CONCLUSION

Public nursing colleges in South Africa have historically been operating under the Department of Health. However, in terms of the Higher Education Act, 1997 (Act 101 of 1997 as amended), public colleges of nursing fall under the ambit of the Department of Higher Education and Training. At the time of conducting this research study, the multi-campus public College of Nursing under study was in the process of transition to qualify it to be incorporated into Higher Education. It is therefore expected of this public College of Nursing that it functions in line with the minimum norms and standards governing Higher Education Institutions in South Africa.

One of the obligations of this public College of Nursing is to conduct clinical assessment of its nursing students, based on the best available evidence. A best practice guideline for the management of the quality of OSCEs was developed as a means of supporting the College to meet its obligation to use best evidence to guide clinical assessment of nursing students.

The study was conducted in three phases, each in response to an objective, as follows:

Objective One: To explore and describe the experiences of nurse educators regarding the management of the quality of OSCEs at a multi-campus public College of Nursing (Phase One)

Objective Two: To search, select, appraise, extract and synthesise best research evidence regarding the management of the quality of OSCEs in health science education (Phase Two)

Objective Three: To develop a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing (Phase Three).

The data obtained in Chapter Two, acquired through individual semi-structured interviews with nurse educators and a document analysis of external moderators' reports, facilitated the achievement of Objective One of this study. Findings obtained from the integrative literature review helped to achieve Objective Two of the study. The accomplishment of the development of a best practice guideline helped attain Objective Three.

Findings from Phase One of the study revealed that there are some measures implemented in the College of Nursing to facilitate quality in the management of OSCEs. These measures include a peer review system for OSCEs, application of control measures to facilitate confidentiality, and the conduct of pre-OSCE briefing, orientation and validation of assessment tools on the day on which OSCEs are conducted. However, feelings of uncertainty regarding the assessment practices being used in OSCEs at the College of Nursing were reported by nurse educators. The finding also revealed that resource constraints impair the management of the quality of OSCEs in the College of Nursing. Nurse educators and external moderators' reports made recommendations to enhance value in the management of the quality of OSCEs in the College of Nursing.

The integrative literature review findings revealed that the quality of OSCEs should be strengthened by applying quality measures in the preparation and planning phase, implementation phase and evaluation phase of the OSCEs. Findings of the interviews and document analysis, and of the integrative literature review, were synthesised into three main recommendations for the best practice guideline, namely: quality measures should be applied in the preparation and planning phase of OSCEs, in the implementation phase of OSCEs, and in the evaluation phase of OSCEs. The best practice guideline was validated through a review of experts in the fields of OSCEs and of guideline development.

6.3 RESEARCH PARADIGM

The Joanna Briggs Institute (JBI) model for evidence-based healthcare was used as a theoretical basis for this study. The JBI model stresses the need for practices that are feasible, appropriate, meaningful and effective and that are informed by the best available evidence (Pearson, Jordan & Munn, 2012:2). The JBI model is composed of four components, namely: evidence generation, evidence synthesis, evidence transfer and knowledge utilisation (Pearson, et al., 2012:2). For the purposes of this study, the researcher utilised the first two components of the model—namely, evidence generation and evidence synthesis—as the focus of the study was the development of a best practice guideline. The last two components of the JBI model (evidence transfer and knowledge utilisation) may be used for guideline implementation in a post-doctoral study. The two components selected, evidence generation and evidence synthesis, are now outlined.

6.3.1 Evidence generation

The JBI model recognises that a rigorous literature search across different research methodologies is essential to provide the most meaningful and useful information to inform practice (Pearson et al., 2012:3). Evidence generation for this study comprised of the following measures:

In Phase One of the study, the experiences of nurse educators regarding the management of the quality of OSCEs at a multi-campus public College of Nursing were explored and described. Thereafter, a document analysis of the external moderators' reports was conducted in order to obtain written accounts regarding the college OSCEs from the perspective of external moderators.

In Phase Two of the study, an integrative literature review was conducted to search, select, appraise, extract from and synthesise best research evidence regarding the management of the quality of OSCEs in health science education.

6.3.2 Evidence synthesis

Evidence synthesis is the evaluation or analysis of research evidence and opinions on a specific topic to aid in decision making (Pearson et al., 2012:2). Findings pertaining to Phase One (qualitative findings) and Phase Two (integrative literature review) were synthesised into a best practice guideline. Evidence synthesis comprised of a comprehensive literature search, screening of literature to determine its strength and applicability, a critical appraisal of the studies included, and data extraction. The findings were summarised into themes. Evidence from the qualitative findings (interviews and document analysis) and the integrative literature review findings was thereafter synthesised into recommendations, completing the evidence synthesis. This paved the way for the development of a draft guideline for the management of the quality of OSCE at a multi-campus public College of Nursing, which was reviewed by experts in OSCEs and in guideline development.

6.4 LIMITATIONS

Although the objectives of this study were accomplished, the following limitations were encountered:

 In Phase One of this study, the researcher initially intended to interview external moderators from the universities of affiliation in order to explore and describe their experiences regarding the management of the quality of OSCEs at a multicampus public College of Nursing. However, it was not possible to interview external moderators due to delays in obtaining ethical approval from the universities of affiliation. As an alternative, approval was requested and obtained for the conduct of a document analysis of external moderators' reports in an attempt to obtain the external moderators' experiences regarding the management of the quality of OSCEs at a multi-campus public College of Nursing

- At the time of conducting the integrative literature review (Phase Two of the study), there was limited literature on management of the quality of OSCEs in health science education to support the best practice guideline recommendations. This led to some recommendations lacking detail regarding its implementation
- Although an experienced librarian and independent reviewer were consulted to ensure a review as comprehensive and rigorous as possible, the integrative literature review was conducted by a single researcher instead of by a team, using databases accessible to the University only. Relevant literature may have been missed.
- Although expert reviewers were requested to appraise the guideline to ensure the guideline was contextualised (Phase Three of the study), the focus of the guideline development methods (NICE, 2014) and appraisal tool used (AGREE II tool) is mainly for clinical issues, which made it challenging to contextualise the necessary aspects of guideline development into a non-clinical topic.

6.5 **RECOMMENDATIONS**

The recommendations of this study relate to nursing education and to nursing research.

6.5.1 Recommendations for nursing education

- It emerged from the findings from Phase One of this study that nurses from clinical practice are utilised as examiners in College OSCEs. However, their examination skills are limited. Further, nurse educators at the College stated that inexperience in OSCEs may hinder their ability to accurately assess students. It is therefore recommended that a training programme for professional nurses involved in the clinical assessment of student nurses be developed and implemented by Nursing Education Institutions (NEIs).
- Further, a mentoring programme for newly appointed and inexperienced nurse educators is recommended to help them gain the required experience in student clinical assessment.

- Findings from Phase One of the study revealed that there is no guidance regarding the criteria for selecting nurse educators and professional nurses as examiners in the clinical assessment of nursing students. Further, the study findings revealed that the number of student nurses is not proportional to the number of nurse educators, and ultimately examiners. It is therefore recommended that the statutory body provides regulations regarding who can conduct the clinical assessment of nursing students to ensure suitable examiners are selected as well as that explicit staffing norms and student/nurse educator ratios at NEIs be developed by nursing education bodies.
- Establishment of a clinical teaching model and recruitment of clinical educators are recommended. The Clinical teaching model could be utilised to supplement OSCEs as a method of clinical assessment of students and to serve as a strategy for developing the clinical assessment skills of professional nurses who assist in OSCEs.
- The findings of this study in Phase One revealed inadequate resources for assessing student nurses. It is recommended that nursing education bodies prescribe minimum requirements regarding equipment for teaching, learning and clinical assessment in order to facilitate fair assessment.
- To address concerns of nurse educators and external moderators in Phase One of the study regarding the quality of assessment tools and alignment between formative and summative assessment, and the comment raised by one of the expert reviewers in Phase Three of the study that the use of rigorous tools such as the post-OSCE psychometric analysis is minimal in South African NEIs, it is recommended that NEIs develop norms and standards regarding clinical assessment and alignment between formative and summative clinical assessment. Nursing Education Institutions should also develop a post-OSCE psychometric analysis tool and an OSCE standard setting tool in order to strengthen the reliability of OSCE results.
- The expert reviewers in Phase Three of the study further suggested that simulation laboratory managers would be ideal coordinators of the OSCE organising committees and that standardised patients should be remunerated

for assisting in the OSCEs. It is thus recommended that the management of the Colleges of Nursing that are based on the multi-campus model appoint simulation laboratory managers for each campus and capacitate them with the skills necessary to run the simulation laboratories. In addition to running the simulation laboratories, the simulation managers should be delegated as OSCE coordinators and procurement facilitators for the simulation laboratory resources. It is further recommended that a remuneration package for standardised patients be established to ensure that standardised patients are fairly remunerated for the services they render to the Colleges of Nursing.

6.5.2 Recommendations for nursing research

- A follow up research study to determine whether other nursing colleges in South Africa experience similar challenges as the College under study is recommended. The results of this proposed study could inform the development of a national best practice guideline on the quality of OSCEs.
- There is limited literature regarding external moderation and clinical assessment of nursing students based on the multi-campus model. It is thus recommended that more rigorous large-scale studies, such as quantitative or randomised controlled trials, are conducted in this area.
- The articles obtained from the integrative literature reviews did not address the nurse educators' concerns regarding the management of a large variance (in allocation of scores) between examiners in OSCEs. Further research studies regarding the management of large variance between examiners are recommended.
- The views and experiences of internal and external moderators regarding the management of the quality of OSCEs were not explored in this study. It is recommended that a qualitative, in-depth research study be conducted to obtain data from both internal and external moderators.
- When this research study commenced, the outbreak of the novice Corona virus had not been reported in South Africa. However, South Africa reported the first case of Corona virus in March 2020, which was towards the completion of the

study. Lessons learned during the outbreak included innovations in the use of internet enabled video conferencing technology as a means of clinically assessing students as part of e-OSCEs (Virtual OSCEs). Further research regarding the use of e-OSCEs in nursing education needs to be conducted.

- The lack of guideline development methods focusing on non-clinical topics may be a limitation for researchers aiming to develop non-clinical guidelines. It is recommended that methods for non-clinical guidelines should be adapted/developed to address this gap.
- When new evidence regarding this best practice guideline emerges, it is recommended that the guideline be updated. The developed best practice guideline should be updated when new evidence on managing the quality of OSCEs emerges. It is further recommended that this best practice guideline is piloted on a smaller scale before implementing it on a larger scale.

6.6 CHAPTER SUMMARY

This Chapter summarised the research study into a best practice guideline for the management of the quality of OSCEs at a multi-campus public College of Nursing. The conclusion of the study and research paradigm, the limitations, and the recommendations for nursing education and nursing research were discussed. The developed best practice guideline regarding the management of the quality of OSCEs, which is the first for this College, could be further developed, piloted and implemented to be used by nurse educators to enhance the quality of OSCEs, which ultimately could enhance nursing and patient outcomes through quality nursing education.

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Appendix A: Data Extraction Tool for Document Analysis

Report no:

Year:

External moderator/University:

<u>Campus:</u>

Assessor:

 Quality aspects of the OSCE 								
What did the external	Comments/quotations							
moderator report on the								
OCSE's regarding:								
Uniform								
Fair								
Objective								
Standardised								
Accurate								

• General comments on the quality of the OSCE

Appendix B: Ethics approval from the FPGSC



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Chairperson: Research Ethics Committee (Human) Tel: +27 (0)41 504 2347 sharlene.govender@mandela.ac.za

NHREC registration nr: REC-042508-025

Ref: [H19-HEA-NUR-006] / Amendment]

1 September 2020

Prof D van Rooyen Faculty: Health Sciences

Dear Prof Van Rooyen

A BEST PRACTICE GUIDELINE FOR THE MANAGEMENT OF THE QUALITY OF OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS AT A MULTI-CAMPUS PUBLIC COLLEGE OF NURSING

PRP: Prof D van Rooyen PI: Mr T Nyangeni

The request for an amendment to the above-entitled application served at the Research Ethics Committee (Human) for approval. The study is classified as a medium risk study. The ethics clearance reference number remains **H19-HEA-NUR-006** and approval is subject to the following conditions:

- 1. The immediate completion and return of the attached acknowledgement to https://www.lmtediate.cc.za, the date of receipt of such returned acknowledgement determining the final date of approval for the study where after data collection may commence.
- Approval for data collection is for 1 calendar year from date of receipt of above mentioned acknowledgement.
- 3. The submission of an annual progress report by the PRP on the data collection activities of the study (form RECH-004 available on Research Ethics Committee (Human) portal) by 15 November this year for studies approved/extended in the period October of the previous year up to and including September of this year, or 15 November next year for studies approved/extended after September this year.
- 4. In the event of a requirement to extend the period of data collection (i.e. for a period in excess of 1 calendar year from date of approval), completion of an extension request is required (form RECH-005 available on Research Ethics Committee (Human) portal)
- 5. In the event of any changes made to the study (excluding extension of the study), completion of an amendments form is required (form RECH-006 available on Research Ethics Committee (Human) portal).
- 6. Immediate submission (and possible discontinuation of the study in the case of serious events) of the relevant report to RECH (form RECH-007 available on Research Ethics Committee (Human) portal) in the event of any unanticipated problems, serious incidents or adverse events observed during the course of the study.
- 7. Immediate submission of a Study Termination Report to RECH (form RECH-008 available on Research Ethics Committee (Human) portal) upon expected or unexpected closure/termination of study.
- 8. Immediate submission of a Study Exception Report of RECH (form RECH-009 available on Research Ethics Committee (Human) portal) in the event of any study deviations, violations and/or exceptions.
- 9. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Research Ethics Committee (Human).

Please quote the ethics clearance reference number in all correspondence and enquiries related to the study. For speedy processing of email queries (to be directed to <u>Imtiaz.Khan@mandela.ac.za</u>), it is recommended that the ethics clearance reference number together with an indication of the query appear in the subject line of the email.

We wish you well with the study.

Yours sincerely

ender

Dr S Govender Chairperson: Research Ethics Committee (Human)

Cc: Department of Research Capacity Development Faculty Manager: Health Sciences

<u>Appendix 1</u>: Acknowledgement of conditions for ethical approval

Appendix C: Ethics approval from the Eastern Cape department of Health



Room 000 • 0th Floor • Grosvenor Lodge • 31 Taylor Street • King Williams Town• Eastern Cape Private Bag XOO38 • Bhisho • 5605 • REPUBLIC OF SOUTH AFRICA Tel.: +27 (0)40 608 0856/30• Fax: +27 (0)86 494 7847 • Email: zonwabele.merile@echealth.gov.za

Date: 03/09/2020

To: Mr Thandolwethu Nyangeni

Cc: Prof RM Van Rooyen

Dr TW ten Ham-Baloy!

RE: A BEST PRACTICE GUIDELINE FOR THE MANAGEMENT OF THE QUALITY OF OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS AT A MULTI-CAMPUS PUBLIC COLLEGE OF NURSING (AMENDED)

Dear Sir

The Department of Health acknowledges receipt of your application to grant permission on your amended research protocol.

Please be informed that amendments on your research protocol have been noted and accepted. You are therefore expected to be guided and follow the revised research protocol at all times when conducting this study.

I take this opportunity to wish you all the best on your research study.

Zonwabele Merile

Date: 02/09/2020

Epidemiology & Research Unit

Appendix D: Ethics approval from the public College of Nursing



Room 46 • 2rd Floor • East London Central Office, 40 Lennox Road, Amalinda, East London, 5200 / Private Bag X0028 • Bhisho • 5605 • Eastern Cape, REPUBLIC OF SOUTH AFRICA Tel.: +27 (0)43 7009 9702 Fax: +27 (0)43 Website: www.echealth.gov.za Email: psmashudu@gmail.com

Enquiries: Dr. SENTI - (QA and Research Manager) (0732670797)

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TO	MR NYANGENI T.
FROM	DR. JE BEREDA-THAKHATHI: ACTING COLLEGE PRINCIPAL: LILITHA COLLEGE OF NURSING
SUBJECT	PERMISSION TO CONDUCT RESEARCH IN LILITHA COLLEGE OF NURSING
DATE	17.07.19

- I. The subject matter above refer
- This correspondence serves to confirm that permission is hereby granted for you to conduct research in Lilitha College of Nursing, the topic being: A BEST PRACTICE GUIDELINE FOR THE MANAGEMENT OF THE QUALITY OF OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS AT A MULTI-CAMPUS PUBLIC COLLEGE OF NURSING.
- The College will be waiting to be forwarded the results/recommendations from your study for implementation purpose by the college campuses.
- 4. The organization takes this opportunity to wish you success in your studies.

ereda

Dr. JE Bereda-Thakhathi: Acting College Principal

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Lilitha College Of Nursing

United in achieving quality health care for all Fraud Prevention line: 0800 701 701 24 hour call centre: 0800 0323 64 Website: www.ecdoh.gov.za





Appendix E: Johns Hopkins Evidence-Based Practice Research Evidence Tool

Evidence Level:

Article title:					Number:	
Authors:					Date:	
Setting:			Sample (Compositio	on/size)):	
Experimental	Meta- analysis	Quasi- experimental	Non-experimental	Quali	tative	Meta- synthesis
Does this stud question?	y apply to the p					
If the answer i	s NO, STOP her	e (unless there a	re similar characteris	tics)		
Strength of stu	ıdy design					
Was sample si	ze adequate an	d appropriate?				
Were study pa	rticipants rand	omized?				
Was there an intervention?						
Was there a control group?						
If there was m	ore than one g	roup, were group	os equally treated,			
except for the	intervention?					
Was there ade	quate descript	ion of the data co	ollection?			
Study results				T		
Were the resu	Its clearly prese	ented?				
Was an interp	retation or ana	lysis presented?				
Study conclusi	ons			1		
Were conclusi	ons based on c	learly presented	results?			
Were study limitations presented and discussed?						
Pertinent stud	y findings and ı	recommendation	IS:			1
Will the result	s help improve	the quality of OS	CEs?			
Weighting=						

Appendix F: Johns Hopkins Nursing Evidence-Based Practice Non-Research Evidence Tool

Evidence level:

Article title:				Number	:		
Authors:				Date:			
Journal:							
Systematic Review	Review Clinical Practice Guideline Organisational (QI Expert 0						
		financial data)	Study, Literature Review				
Does the evidence apply	to the population targeted b	by my practice question?					
If the answer is no, stop	here (unless there are simila	r characteristics					
Systematic Review							
Is the question clear?							
Was a rigorous peer-rev	iewed process used?						
Are search strategies spe	ecified, and reproducible?						
Are search strategies ap	propriate to include all pertir	ent studies?					
Are criteria for inclusion	and exclusion of studies spec	cified?					
Are details of included st	tudies (design, methods, ana	lysis) presented?					
Are methodological limit	tations disclosed?						
Are the variables in the s	studies reviewed similar, so t	hat studies can be combine	ed?				
Clinical Practice Guidelin	ies						
Were appropriate stakel	holders involved in the develo	opment of this guideline?					
Are groups to which guid	delines apply and do not appl	y clearly stated?					
Have potential biases be	en eliminated?						
Were guidelines valid (re	eproducible search, expert co	nsensus, independent revi	ew,				
current, and level of sup	porting evidence identified for	or each recommendation)?	1				
Are recommendations c	lear?						
Organisational Experience	се						
Was the aim of the proje	ect clearly stated?						
Is the setting similar to s	etting of interest?						
Was the method adequa	ately described?						
Were measures identifie	ed?						
Were results adequately	described?						
Was interpretation clear	and appropriate?						
Individual expert opinion	n, case study, literature revie	W					
Was evidence based on	the opinion of an individual?						
Is the individual an expe	rt (evidence of publication or	n the topic) on the topic?					
Is author's opinion base	d on scientific evidence?						
Is the author's opinion c	learly stated?						
Are potential biases ack	nowledged/conflict of interes	st?					
Pertinent conclusions an	nd recommendations:						
Sound management, aw	areness of potential problem	IS					
Were conclusions based	on the evidence presented?						
Will the results help imp	rove the quality of OSCEs?						
Weighting=							

Appendix G: OSCE content blueprinting tool

Name of the clinical m	odule								
Year level									
Assessment objectives	S								
Outcomes as prescrib	ed in the curriculum								
Examples of the areas	Examples of the areas covered in the prescribed curriculum								
Peadiatric nursing	Medical nursing	Surgical nursin	Ig	Geriatric nursing					
OSCE content per out	OSCE content per outcome								
Determine OSCE cont	tent from each of the pr	escribed outcom	nes/stat	ion tasks					
Peadiatric nursing	Medical nursing	Surgical nursin	ng	Geriatric nursing					
(growth monitoring,	(admission of a	(post-operative) -	(history taking,					
administration of	patient to hospital,	care, removal	of a	counselling)					
childhood vaccines)	resuscitation of a	chest drain)							
,	patient)	,							
Station numbers and l	ength								
Determine the number	r of stations and clinical	skills for each ir	n line w	ith the OSCE content					
and curriculum conten	t								
Station types		I							
Specify the station typ	e for each clinical skill								
Growth monitoring	Resuscitation of a	Removal of a c	chest	History taking and					
unobserved	patient: technology	drain: observe	d	counselling: linked					
station/writing	enhanced station	station	u i	station					
station		Station		31211011					
31211011									
Woighting of the OSC	E contont								
Determine the percent	tage of the content inclu	ided in the OSC		act the prescribed					
curriculum outcomes y	age of the content inclu	and od porconta	⊏ ayaıı	ist the prescribed					
			iye)						
Pasauraa raquiramant		<u> </u>							
Specify the recourses	lð. And aguinmant nagaga			<u>۲</u>					
Specify the resources	and equipment necess	ary to execute the	10 USC						
Venilication and appro-	val of the OSCE blueph	Int							
Outline Instructions									
Instructions to the	Instructions to	students	Instruc	tions to standardised					
examiners			patient	ts					
Invite at least three inc	dependent content expe	erts to confirm th	e relev	ance and objectivity					
of the OSCE blueprint		<u>.</u>							
Signing and handing c	over the OSCE blueprin	t							
Approved blueprints m	nust be signed off and h	anded over to s	tation v	vriters					
	Č								

Appendix H: OSCE station design tool

Module name							
Learning outcomes being assessed							
Purpose of assessment							
Station type							
Clinical scenario							
Station duration							
Resources required							
Instructions to the exami	iners						
Instructions to students							
Instructions to the stand	ardised patients						
Scoring rubric:							
Assessment criteria	Pass/fail criteria	Weighting	Gradin	g/mark ob	otained		
Minimum requirements f	or determination of	f a final OSCE o	outcom	es			
MinimumMinimumMinimumrequirements torequirements toto determine a fadetermine a passdetermine a re-outcomeOSCEOSCEOSCE							
	Confirmation of a	lignment with					
Total marks obtained							
Overall station outcome:	pass/fail/re-exami	nation					

Pass/Fail Criteria: Is critical intervention or data expected of a student to pass each assessment criteria

Appendix I: AGREE II scoring tool

			AGREE II Ra				Rati	ting		
Domain		Item	1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree	
Scope and purpose	1.	The overall objective(s) of the guideline is (are) specifically described.								
	2.	The health question(s) covered by the guideline is (are) specifically described.								
	3.	The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.								
Stakeholder involvement	4.	The guideline development group includes individuals from all the relevant professional groups.								
	5.	The views and preferences of the target population (patients, public, etc.) have been sought.								
	6.	The target users of the guideline are clearly defined.								
Rigor of development	7.	Systematic methods were used to search for evidence.								
	8.	The criteria for selecting the evidence are clearly described.								
	9.	The strengths and limitations of the body of evidence are clearly described.								
	10.	The methods for formulating the recommendations are clearly described.								
	11.	The health benefits, side effects and risks have been considered in formulating the recommendations.								
	12.	There is an explicit link between the recommendations and the supporting evidence.								
	13.	The guideline has been externally reviewed by experts prior to its publication.								
	14.	A procedure for updating the guideline is provided.								
Clarity of presentation	15.	The recommendations are specific and unambiguous.								
	16.	The different options for management of the condition or health issue are clearly presented.								
	17.	Key recommendations are easily identifiable.								

		AGREE II Rating							
Domain	Item		1 Strongl Disagre	y 2	3	4	5	6	7 Strongly Agree
Applicability	18.	The guideline describes facilitators and barriers to its application.							
	19.	The guideline provides advice and/or tools on how the recommendations can be put into practice.							
	20.	The potential resource implications of applying the recommendations have been considered.							
	21.	The guideline presents monitoring and/ or auditing criteria.							
Editorial independence	22.	The views of the funding body have not influenced the content of the guideline.							
	23.	Competing interests of guideline development group members have been recorded and addressed.							
Overall Guideline Assessment	1.	Rate the overall quality of this guideline.	1 Lowes possibl quality	t e	3	4	5	6	7 Highest possible quality
Overall Guideline Assessment	2.	I would recommend this guideline for use.	Yes	Υe	s, wit	h mo	dific	ation	s No