ORIGINAL RESEARCH

Evaluation of a low cost OSCE in family nurse practitioner students: An emphasis on self-assessment in competency-based education

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ABSTRACT

Objective: The American Association of Colleges of Nursing has identified competency-based education (CBE) as a priority in nursing education. The Objective Structured Clinical Examination (OSCE) has been used across health professions as a tool to incorporate competency-based education. However, the OSCE has been correlated with intensive faculty resources and high costs. The objective of this study was to discuss the evaluation of a low cost OSCE and its ability to incorporate the role of self-assessment in competency-based education within a nurse practitioner program.

Methods: Faculty at a public university developed and evaluated an OSCE, exploring its implementation as a component of CBE while minimizing costs using a quasi-experimental design. Nine nurse practitioner students in their third year of a BSN-DNP program completed a pre- and post- assessment of their perceived ability in three OSCEs. Undergraduate nursing students were recruited for the standardized patient role. The OSCEs were recorded for evaluation by faculty and for self-evaluation by the students.

Results: There was no significant difference noted in student self-evaluations pre- and post-assessment. There was a statistical difference in the faculty ratings of the student in the otitis media OSCE, with the student rating their performance higher than faculty. There was no statistical difference noted in either the women's health or hypertension assessments.

Conclusions: Recordings of the OSCEs allowed students to identify strengths and weaknesses, cultivating the practice of self-assessment. Integration of minimal cost OSCEs provides opportunities for programs with varying budgets to incorporate it as a component of CBE.

Key Words: OSCE or objective structured clinical exam, Competency-based education, DNP program, Self-assessment, Minimal resource OSCE

1. INTRODUCTION

Current healthcare trends and transforming health care systems have challenged nursing programs to re-examine traditional models of health education. Traditionally, graduate nursing schools have created objectives within a program and formed a predetermined curriculum to meet these objectives.[1] The American Association of Colleges of Nursing (AACN) has been charged with developing a new set of Core Competencies for Professional Nursing Education. The new essentials identify competency-based education as one of the foundational elements of nursing education.[2]

The AACN defines competency-based education (CBE) as a system of instruction that focuses on assessment, feedback,

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self-reflection and academic reporting.[2] The AACN (2021) stresses that CBE within nursing should be practical, integrative, active and interactive, developmental and transferable. The goal of competency-based learning is that the student will be able to demonstrate the integration of these concepts as they progress through their education.

The traditional methods of completing an assigned skill and being checked off, although assessing the student's technical skills, are deficient in measuring a student's ability to apply clinical reasoning, knowledge, emotions, and values.[3] AACN (2021) stresses the importance of the integration of self-reflection and feedback within CBE, which may be missing in traditional nursing curricula.[2] Therefore, in order for nursing institutions to align with the AACN Core Competencies for Professional Nursing Education, CBE must be integrated within advanced nursing programs.

Competency-based education was proposed more than 60 years ago and is currently used in medical schools. Although there is not one universal approach, CBE expects the student to demonstrate the attainment of identified required skills, knowledge and attitudes prior to leaving the learning setting.[3] The Objective Structured Clinical Examination (OSCE) is an assessment tool that has been used across medical schools and more recently in nursing schools and throughout the health professions to incorporate CBE within curricula.[3–8]

In the 1970s, Dr. Ronald Harden introduced The Objective Structured Clinical Exam (OSCE) to medical schools. The examination consists of multiple standardized stations in which students are asked to complete varying tasks.[7] Standardized patients or actors and simulations are used to assist with the exam. Students have the opportunity to demonstrate assessment skills and clinical judgment in a controlled, safe environment. In summary, the OSCE has been established as an important component of competency-based education within schools of medicine.

During the 2000s, some nursing schools adopted the OSCE as a form of assessment.[7] Currently the use of the OSCE in graduate nursing education has been minimal and there are gaps within nursing as to the sustainability of the OSCE examination in nursing education.[6,8] The OSCE is noted to be resource intensive and is commonly associated with high costs for implementation.[3] Yet it has the potential to incorporate a system of instruction that focuses on the key components of competency-based education as defined by the AACN: assessment, self-reflection and academic reporting. The objective of this paper is to discuss the evaluation of a low cost OSCE and its ability to incorporate the role of self-assessment in competency-based education within a family nurse practitioner program.

1.1 Review of literature

Currently, there is a vast amount of research present on the role of the Objective Structured Clinical Exam within medical schools. Research has also demonstrated the use of the OSCE across the health professions.[3] This review will explore the role of CBE in graduate nursing programs, and the ability of the OSCE to incorporate the AACN key components of CBE: assessment and self-reflection and identification of barriers to OSCE implementation.

1.1.1 *Role of CBE in graduate nursing programs*

Research exploring competency-based education and graduate nursing education within the United States has been conducted over the last 10 years. Using the keywords competency-based education and graduate nursing education a search was conducted using CINAHL from the years 2010-2020 revealing 20 articles, of which even fewer focused on graduate nursing education within the United States. Nursing education has been criticized for having poorly designed assessments that lack reliability and validity, producing graduates whose skills vary among one another. This leads to confusion over what the employer can expect from a newly graduated advanced nurse practitioner.[9] While students complete required clinical hours, experiences vary across programs and required competencies are often omitted.[10]

The AACN has been a leader in the advancement of nursing education since 1969. As an organization it has acted to improve the quality of nursing care by re-envisioning traditional nursing roles, strengthening nursing education programs, and striving to create a more highly educated nursing workforce.[2] In 2017, the AACN published "Common Advanced Practice Registered Nurse Doctoral-Level Competencies".[11] This document stressed the need for a common language and clear expectations of the newly graduated advanced practice nurse. Despite the work of the AACN, gaps remained present in the education of APRNs particularly in their ability to translate performance expectations in clinical settings to practice settings, leading to further research and inquiry.[3]

Recently, the AACN gathered a workforce to discuss the role of CBE within nursing education and in April 2021, released the Essentials: Core Competencies for Professional Nursing Education.[2] Within this document, Advanced Practice Nursing institutions are charged with the task of ensuring that graduates have "sufficient clinical/practice experiences to demonstrate end-of-program student outcomes" and "competencies required by applicable national, specialty organizations and/or for national advanced nursing practice specialty

or advanced nursing practice role certification." It is the role of each graduate nursing program to document clear evidence of competency achievement.

1.1.2 *The OSCE: Role in assessment*

While traditional methods of assessing students in nursing include passive learning, simulation, and student-centered activities: the evaluation of student competencies provides increasing challenges. Clinical preceptor feedback, peer assessment, checklists, OSCEs, simulation and skill laboratories are methods currently used today to assess student performance and completion of competencies. Each of these present their own challenges to nursing faculty, related to lack of consistency and reliability.[3] The OSCE has been used extensively in medical education and its use amongst health professions is increasing.[12, 13]

The OSCE was established in nursing in the early 2000s.[7] The OSCE uses standardized patients (SPs) who are trained individuals to simulate a specific set of symptoms. Student examiners are then tasked with conducting a focused history, assessment and development of a plan while being evaluated by faculty. They may be used as both summative and formative methods of assessment.[3, 7]

OSCEs have provided a variety of benefits to the learner. The OSCE has the potential to assess both theory and practice.[7] Through paper exams, faculty can examine a student's learning, but it is difficult to assess a student's ability to "show how" on paper. An advantage of using simulation models or SPs is that there is no risk to the patient and all students are being evaluated on the same parameters. OSCEs have also been used to evaluate technical skills, communication skills, and introduce sensitive topics and diversity to the student learner.[4] The OSCEs incorporation of SPs provides a method for constructive feedback and reflection for the student. These characteristics of the OSCE demonstrate that with proper implementation and focus the OSCE has the ability to provide nursing institutions with an opportunity to evaluate practice-based competencies, better preparing students for transition to practice.[3]

Walsh, Bailey and Koren in their integrative review of the OSCE's evaluation of clinical competence within nursing education reviewed 41 papers.[8] Findings suggested that while clinical competence can be addressed through the use of the OSCE, there were concerns regarding the conceptual limitations and lack of psychometric properties of the tool within nursing education. In 2017 a systematic review was conducted exploring the validity and reliability of the OSCE in nursing. With 19 studies reviewed, the OSCE was found to be a valid and reliable evaluation method in nursing education.[14] A larger review conducted by Goh, Zhang, Lee, Wu, and Wang (2019) reviewed 204 articles published between 1982 and 2018 demonstrating the use of OSCEs amongst various nursing specialties in 33 countries, confirming the validity and reliability of the OSCE.[15] While early research found inconsistencies in the psychometric properties, recent research has found increased consistency in the validity and reliability of OSCES. OSCEs provide an objective evaluation of safety, skills and quality of assessment, integral components of CBE.[8, 14, 15] The OSCE is currently being used in countries such as Canada, New Zealand, Australia, South Africa, United Kingdom and the United States.[8] More recently, research has indicated that the use of checklists, rubrics and global rating scales have been found to increase the reliability and validity of the OSCE within nursing.[3]

The OSCE presents an opportunity for the nursing student to experience learning, practice and assessment of core skills prior to clinical placement. Naulty et al. provided seven best Practice Guidelines for OSCES in nursing education including: focus on patient safety, emphasis on areas of practice that are most commonly occurring, holistic care, integration of skills, emphasis on structure and delivery pertinent to mastery of skill and knowledge, timed in sequence with students learning outcomes, and ability for ongoing practice of integrated clinical assessment and interventions skills, ensuring timely feedback.[6] The OSCE allows the student to assess themselves, receive feedback, learn, and focus. At the same time, it allows the faculty to observe and evaluate competencies in an objective format over other assessment tools currently used in clinical practice.[16]

Overall the OSCE provides an opportunity for faculty to observe assessment skills. Early research demonstrated lack of validity and reliability, however more recent research has established the OSCE as a reliable and valid assessment tool.[8, 15] Although limited, literature regarding the use of the OSCE in graduate nursing education has been associated with positive outcomes. Developing a universal approach to CBE that can be used consistently across nursing curricula is paramount for the success of competency-based nursing education and transition into practice.

1.1.3 *Role in self-reflection*

An important aspect of CBE is the ability of the student to participate in assessment and self-reflection. Research conducted across the health professions has indicated that there is a difference in student's perceived self-assessment and actual performance.[17–19] A systematic review comparing self-assessment with OSCEs using a pre-self-assessment, followed by the OSCE within health professions found that of 18 studies reviewed, only 2 were specific to nursing. Only 8 of the eighteen were conducted within the United States.[13]

Findings of the review suggested that self-assessment instruments are not parallel to performance on the OSCE. High performers often underestimate their ability and low performers are noted to overestimate their ability.[13,20] With schools now being held more accountable for the competence of individuals upon graduation, educators are becoming aware of the importance of teaching students how to accurately assess their own performance.[13] Further exploration of the instruments used for self-assessment is indicated.

Paul explored the use of video feedback to assist students to self-reflect regarding their performance in an OSCE that evaluated CPR effectiveness.[21] Results found that students consistently graded themselves higher than faculty after reviewing their video performance. However, all students felt that the video feedback allowed them to identify their own strengths and weaknesses. Using video feedback may contribute to their ability to accurately assess their individual strengths and weaknesses.[17,21]

1.1.4 *Implementation of the OSCE in nursing education*

Although the OSCE has the potential to provide CBE assessment and evaluation within nursing, it has been known as a resource intensive and costly tool to implement.[15] Traditional OSCEs consist of staff development of 8-10 stations, simulation encounters, multiple faculty and management of standardized patients. Therefore, the cost and resources required are often unreachable to many nursing institutions. In a review of literature examining the value of the OSCE in nursing programs, only 5 of the 204 articles reviewed from 1982-2018 referred to the cost of the OSCE. The cost of the OSCEs ranged from 75 to 275 U.S. dollars per student.[15] Therefore prior to implementation the cost and resources required must be addressed by graduate nursing programs as curricula are revised to incorporate assessment and evaluation of competency-based education.

Minimal research has been conducted on reducing expenses incurred in OSCE implementation. Harden argued that the cost of running an OSCE can be reduced with thought, imagination and organization.[22] Using undergraduate students as standardized patients has demonstrated increased learning for students, while reducing cost burden to institutions.[19,22,23] Sharing stations and equipment amongst institutions is another way to reduce costs.[22] Further research is needed to assess whether the OSCE can be incorporated at a reasonable cost as a method of CBE within advanced practice nursing education.

1.2 Conceptual framework

Patricia Benner's model serves well as a framework for evaluating nurses as they move through stages of professional growth. The theory describes how nurses move from the novice to the expert over time through the acquisition of skills and knowledge[24] The initial novice stage includes the individual who has no prior experience with the situation they are currently experiencing.[25] Although, nurse practitioner students have experience as a registered nurse, and may be an expert in the position, they are now taking on the role of novice as they prepare for a career as a nurse practitioner.

Benner discusses how inexperienced nurses rely on rational and analytical knowledge, but experience leads them to rely more on acquired knowledge[24] This concept reinforces that nurses learn certain skills through experience. Using OSCEs for patient care assessments will add to the nurse practitioner student's new patient care experiences and assist them in moving through the stages of becoming an expert. The aim of the OSCE is to evaluate the nurse's acquired knowledge and provide feedback and self-reflection to improve their newly learned skills. Knowledge acquired through experience improves the new practitioner's ability to identify what is important to evaluate during patient encounters and compare this with previous learned experiences which further moves them towards becoming an expert.[26]

2. METHODS

A quasi-experimental research design was used to evaluate student self-assessment scores before and after participation in the OSCE, as well as compare student assessment to faculty assessment scores. A convenience sample of nine family nurse practitioner (FNP) students enrolled in their third year of a rural BSN-DNP program in the Southeastern region of the United States participated in a formative OSCE. The institute was accredited by the Commission on Collegiate Nursing Education (CCNE). Therefore, implementation of competency-based education on a limited budget was essential to this institution. The project was submitted for review by the International Review Board at the participating location and was determined to be exempt from review and oversight. Benner's framework describing the role of nurses moving from novice to expert guided the methodology.

Five nursing faculty met as a group to develop the OSCE. Three stations were chosen: otitis media, hypertension and a women's health problem. An evaluation rubric was developed by the faculty for each scenario. Faculty also discussed current challenges regarding students' self-reflections of their performance in the clinical setting. These challenges included lack of consistency between students' evaluation of their performance in areas such as assessment, diagnostic reasoning and education compared to preceptor feedback and their inability to accurately identify their true strengths and weaknesses. To further assess students' self-assessment

ability and decrease the number of faculty needed for each station, faculty proposed that the students record their performance at each station. To reduce costs, Canvas Studio ®, an institutional resource, was used to record each student's performance. After the student had completed the station, they were then provided with the opportunity to watch their performance on their devices and complete the identical evaluation rubric that the faculty would use for student feedback as shown in Figure 1.

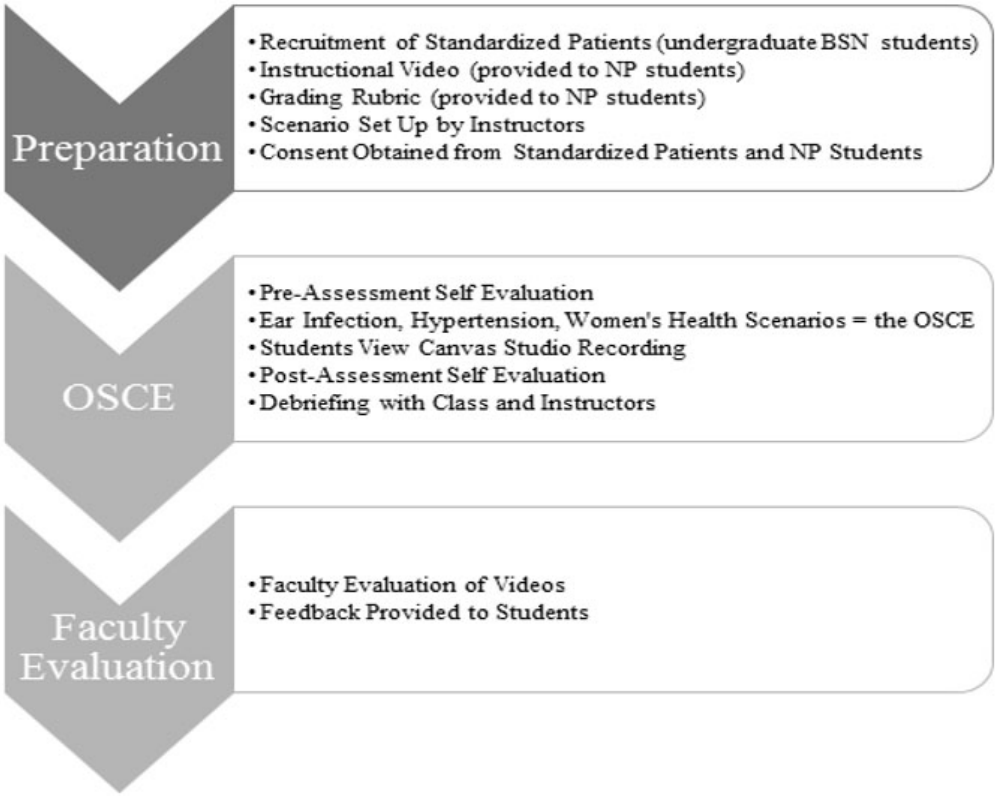

Figure 1. OSCE flowchart

As self-assessment is an integral part of competency-based education, faculty considered varying methods of assessment that would aid the student in better understanding their own strengths and weaknesses.[24] Due to lack of standardized self-assessment tools within nursing, the faculty developed their own self-assessment survey using 11 objectives derived from the National Organization Nurse Practitioner Faculties (NONPF) Common Advanced Practice Registered Nurse Doctoral Level Competencies (2017).[27] This survey was completed by the nurse practitioner students prior to completing the OSCE and again upon completion of the OSCE, watching their performance and grading their performance, providing an opportunity for students to participate in self-reflection.

Prior to the day of the OSCE, the graduate students were provided with an instructional video describing the exercise and objectives as well as an example of the evaluation rubric. On the day of the OSCE, students received instructions, took the self-assessment survey and began rotations through the recorded scenarios. As students finished each station, they were given the opportunity to watch the recordings and complete the grading rubric using their video playback as a resource. Students were then given the identical self-assessment survey that they completed prior to completing the OSCE again. Finally, a debriefing session occurred giving the students the opportunity to participate in self-reflection and identify successes and challenges within each scenario.

To reduce the number of faculty needed during the OSCE, the students' recorded videos were uploaded to Canvas ® for faculty review. Faculty evaluated student performance using the recorded videos and developed grading rubrics. Students were divided between 5 faculty. The same faculty graded all three of the stations: hypertension, otitis media and women's health. Completed evaluation rubrics and comments were then sent to the students within a week for them to review.

Data analysis was conducted at the conclusion of the OSCE. Basic descriptive statistics were used to describe the stu-

dent population of interest in relation to sample size, gender, and race. Analysis was conducted examining student Self-Assessment before and after the OSCE. The Wilcoxon signed-rank test was used to evaluate the Likert scores pre- and post-assessment. In addition, data were analyzed to see if there was a statistically significant difference in the grading rubric scores between the student's self-assessment and the instructor's assessment using an independent-samples T-test.

Maintaining minimal costs and resources was important for the OSCE implementation. Table 1 portrays a breakdown of costs related to the project.

Table 1. OSCE Budget

Resources Used for OSCE	How They Were Obtained	Cost
Standardized Patients (3)	Recruited from BSN Adult Health Class	Volunteers ($0)
Faculty (5) to assist with OSCE development, resources, running the OSCE, technical support, and student evaluation and feedback	Recruited from NP Faculty at Institution	No additional cost, an estimated 8 hours of additional work for each faculty member
Otoscopes and Supplies	School of Nursing equipment/supplies	Previously purchased ($0)
Pelvic Model (1)	NP program equipment	Previously purchased ($0)
Paper/Copies	School of Nursing equipment/supplies	$30.00
Location/Space	School of Nursing Skills Lab	($0)
Canvas Studio for recording/evaluation	Institutional Learning Management Resource	($0)

Using Canvas Studio ® reduced the number of faculty needed, as students were able to upload their interactions as assignments and faculty were then able to review and provide feedback to the students on their own time. Funding and availability of standardized patients was not available. Therefore, students enrolled in the undergraduate BSN program were recruited to play the role of the standardized patients in each scenario. Undergraduate students met with lead project faculty a week prior to the OSCE and were provided with instructions and information regarding the client role they would enact.

3. RESULTS

The sample size for this study was 9 NP students in their third year of DNP studies. All of the participants were female, 8 (89%) were White/Caucasian, and 1 (11%) was African American. All participants were open to recording themselves during the examination and instructors were present to assist if technical difficulties were encountered. The following objectives were evaluated by students before and after participation in the OSCE:

- Focused assessment performance,
- Focused history collection,
- Presentation of findings to the healthcare team,
- Formulating healthcare diagnoses,
- Identifying and evaluating interventions,
- Patient and family education,
- Self-analysis of strengths and weaknesses of knowledge and skills,
- Performing interpersonal and communication skills,
- Assessing and addressing sensitive issues with patients,
- Incorporating cost, quality and access into patient care, and
- Collaborating with the patient in developing a plan of care.

3.1 Student self reflections

Each of these clinical objectives were derived from the National Organization Nurse Practitioner Faculties (NONPF) Common Advanced Practice Registered Nurse Doctoral Level Competencies (2017) which were developed in response to the recommendations of the AACN APRN Clinical Training Task Force, AACN convened the APRN Competency-Based Education for Doctoral-Prepared APRNs Work Group in 2016.

The first analysis compared student pre-self-assessment evaluations with the post-self-assessment evaluations. Students evaluated themselves using a 4-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). The Wilcoxon signed-rank test was performed to examine if a change occurred when students evaluated themselves before and after participating in the OSCE. A significant difference was not found ($p > .05$) when comparing self-evaluation rat-

ings of performance of each of the objectives before and after the OSCE. Although significant differences were not seen in student self-evaluations, open responses were elicited to obtain student feedback. Examples of student feedback are as follows:

"After completion, I immediately thought of what I could have/should have done better. I was nervous for this- more nervous than seeing patients in the clinic! But I already feel better about my next patient."

"This experience was nerve-wracking but very helpful!"

"I was a little frazzled with time and organization. I felt like I was going too fast."

"I thought the OSCE was an excellent educational tool. It allowed me to look at my strengths and weaknesses and work to improve my skills. I feel that they should be introduced to DNP students after their first clinical and then following each clinical experience. I think it would allow students to assess their strengths and weaknesses and work to improve each semester. I think it would lead to more self-confidence and knowledge as the program progressed through each semester."

Several comments on the student evaluations of each case scenario related to students missing key areas of assessment and identifying areas of weaknesses. For instance, one student stated, "(I) need to work on discussing non-pharm interventions and side effects" when evaluating the standardized patient with Otitis Media. Students took several notes after the experience on the evaluation forms reviewing areas where they felt there was need for improvement.

3.2 Comparing performance evaluations between student and instructor

In addition to comparing student self-assessment of performance, students and faculty completed an Evaluation Rubric for each of the three scenarios. An independent-samples *t*-test was conducted to compare OSCE evaluations between student self-evaluations and instructor evaluations of performance. Although there was not a statistical difference in the scores for the Women's Health OSCE ($p \geq .05$) or the Hypertension OSCE ($p \geq .05$), there was a statistically significant difference with the Otitis Media scenario ($p = .047$). Scores for the student (M = 16.78, SD = 1.56) were significantly higher than the instructor's rating of student performance on the grading rubrics (M = 14.00, SD = 3.54); $t\,(16) = 2.56$, $p = .047$.

4. Discussion

Overall, the project provided valuable information related to the implementation and sustainability of an OSCE in a smaller institution. Although there were not statistically significant results identified when comparing student pre- and post-evaluations, possibly due to the small sample size, valuable information was obtained from the students' comments. Certainly, the OSCE provided an opportunity for the students to participate in self-reflection, providing an opportunity for increased self-awareness and knowledge.

Students participating in the project were in the last semester of the FNP program, therefore, they may have been more proficient in the objectives measured, which could have affected the results of the evaluations. Further research could compare results between a formative and summative OSCE. Asking the students to complete the post self-assessment survey after they received faculty evaluation rubrics should be considered.

In regards to implementation of an OSCE as part of a method of CBE in advanced practice nursing education, the project successfully demonstrated that the OSCE has the potential to contribute to student learning of assessment and participation in self-reflections. Using undergraduate nursing students allows for learning opportunities for both undergraduate and graduate students and aids in keeping costs to a minimum. Further exploration of the undergraduate students' learning experience could be evaluated in future studies.

Consideration should be given to expanding the OSCE across the curriculum and re-evaluating with a larger sample size. Evaluation of the process by the nursing faculty after the OSCE could also provide good insight into the process and potential barriers and opportunities for future successes. Students' reflections indicated that the OSCE provided insight into their strengths and weaknesses. Initiating the OSCE earlier in the graduate program would allow students to identify these earlier so that they can work towards improving and focusing on these identified strengths and weaknesses.

Evaluating the significance of the higher student self-evaluation scores in the otitis media scenario is important. Further information is needed to determine why students' scores were significantly different from instructor scores in only the otitis media evaluations. Understanding why students scored themselves higher than instructors should be taken into consideration with future studies. This finding reinforces the lack of consistency in students' self-assessment abilities which is similar to previous studies.[17–19] Increased research regarding self-assessment techniques and evaluation is warranted. Looking more at particular areas of the OSCE, such as assessment, diagnostics, and management might provide insight.

The education of faculty in supporting and implementing an OSCE should be a priority to improve objectivity among

individual students. Policies and procedures could be incorporated to ensure faculty development in this area. Continued faculty development may improve various experiences and potentially varied competency evaluation.[10] Identifying faculty in areas of expertise and utilizing that familiarity in the development of scenarios may be beneficial. For example, using a women's health practitioner to develop a women's health scenario, training faculty on how to use the rubric could lead to increased reliability. Evaluation and development of rubrics and self-evaluation tools could increase reliability and validity. Again, future studies could include faculty evaluations of the process to provide more perspective. Lastly, implementation of an OSCE experience may bridge the gap in relation to performance in the clinical setting versus practice settings and open further discussion among nursing educators for innovative solutions to assist student transition successfully.[3]

Limitations

The goal of the OSCE was to measure competency but there were several limitations identified in the study. For example, the tools used for evaluation were developed by the team and have limited evidence of reliability and validity. Also, the sample size was low (n = 9) with all participants female which could skew the results. Using recruited undergraduate nursing students and available campus resources, such as Canvas Studio ®, kept the costs to a minimum. Conversely, utilizing available undergraduate nursing students as standardized patients presented challenges as students were enrolled at different levels of the BSN program which may present inconsistencies with standardization. For example, the background knowledge that individual students had about the presenting conditions could affect their responses to the questions the NP students asked during their assessment, which could present variability in the scenarios. Although each of the BSN volunteers were given some guidance on responses based on the NP decision, the team understands that a script may have been a beneficial tool to strengthen the equality of the experience from one participant to the next.

Consideration should be given to utilizing students from other disciplines as standardized patients. Nursing students may provide responses to questions based on their knowledge of health conditions. To emulate typical patient encounters, students from other disciplines could be used for a more realistic patient/clinician experience. Partnering with students from other majors, such as theater arts, could provide learning experiences for students in both disciplines.

Another limitation identified is that different faculty graded each student. Although faculty were assigned to OSCE stations within their area of expertise, inconsistencies amongst faculty evaluations are certainly possible. Allowing one faculty member to grade all students in a particular station might allow for more consistent results. Encouraging faculty participation in workshops offered by the Society for Simulation in Healthcare would assure best practices are utilized in the design and implementation of OSCEs.

Conflicts of Interest Disclosure

The authors declare that they have no competing interests.

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