

Undergraduate Nursing and Healthcare Students' Perception of Soft Skills Assessment in OSCE: A Systematic Review

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ABSTRACT

Background: The Objective Structured Clinical Examination (OSCE) is widely recognized in healthcare education for assessing clinical skills, yet its application in evaluating soft skills is still evolving. Soft skills, such as communication, empathy, and teamwork, are essential in patient-centered care but are not consistently included in OSCE assessment.

Methods: This systematic review aims to identify undergraduate nursing and healthcare students' perceptions of integrating soft skills and their assessment within OSCE. A comprehensive literature review was conducted, adhering to PRISMA guidelines, yielding 29 relevant studies published between 2017 and 2023. Studies were appraised using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Quasi-Experimental Studies, the Critical Appraisal Skills Programme (CASP) Qualitative Research Checklist, and the Mixed Methods Appraisal Tool (MMAT).

Results: Three themes emerged from the analysis: (1) Perception and satisfaction of nursing students towards OSCE, (2) Perception and satisfaction of other healthcare students towards OSCE, and (3) Implementation of soft skills in OSCE. The findings indicate a positive reception of OSCE as an objective assessment tool, with students appreciating its structure and consistency. However, students highlighted challenges related to the time constraints and stress associated with OSCEs, particularly when soft skills are evaluated. Incorporating soft skills enhances students' readiness for real-world clinical practice, yet its assessment remains inconsistent across studies.

Conclusion: Integrating soft skills into OSCE is critical for developing well-rounded healthcare professionals. Future research should focus on standardizing soft skill assessments in OSCE and exploring their impact on student performance and patient outcomes to meet the evolving demands of healthcare practice.

Keywords: Undergraduate; Nursing; Healthcare; Soft skills; Clinical skills assessment

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INTRODUCTION

The Objective Structured Clinical Examination (OSCE), introduced in 1975 by Ronald Harden at Dundee University, Scotland, has become a global standard in assessing clinical competencies to evaluate healthcare students through a structured and the OSCE has since been adopted across various healthcare disciplines (1,2). This format allows students to demonstrate their clinical skills in scenarios that simulate real-life situations, providing a reliable and consistent assessment of competencies essential for effective patient care (1). Initially designed for medical students, the OSCE uses a structured, multi-station format in which students engage in specific tasks or assessments involving standardized patients, manikins, task trainers, or scenarios, all observed by assessors (3). This format enables a rigorous and consistent evaluation of clinical abilities, with students rotating through stations for equal durations, and is recognized as more accurate and valid than traditional methods like written exams, oral presentations, and patient assessments (4).

As healthcare practices demand more than technical knowledge alone, soft skills such as communication, critical thinking, teamwork, leadership, ethical decision-making, and interpersonal skills are increasingly essential inpatient care (5). However, integrating and assessing these soft skills within the OSCE presents unique challenges. Given their crucial role in clinical settings, it is important to understand whether undergraduate healthcare students recognize the significance of these skills within the OSCE framework.

While prior studies have examined general perceptions of OSCEs, few have specifically addressed students' views on soft skills assessment within this context (4–7). This gap highlights the need for a more comprehensive understanding of students' perceptions and satisfaction levels with the inclusion of soft skills in the OSCE. Although some research has explored soft skill elements within structured clinical assessments for nursing students and evaluated these components in clinical audits (8,9), a detailed analysis of undergraduate healthcare students' perspectives on soft skills assessment within the OSCE remains limited.

Therefore, this systematic review aims to address these gaps, with objectives centred on the primary research question: How do undergraduate healthcare students perceive the relevance, satisfaction, and importance of soft skills

assessment in the OSCE? Specifically, the review will identify students' perceptions of soft skills integration, assess their satisfaction with soft skills assessment in the OSCE, and compare the perceived importance of soft skills to technical competencies. Together, these objectives seek to provide a comprehensive analysis of healthcare students' views on soft skills elements within the OSCE, contributing to a broader understanding of clinical assessment in undergraduate healthcare education.

METHODS

This study used a systematic review method to answer the study questions and meet the objectives. The systematic review approach was utilized to maximize study inclusion while preserving the integrity of the findings across various study types (10,11). This method allows for a comprehensive analysis of existing literature, ensuring that diverse perspectives and results are considered, which enhances the overall validity of the review's conclusions.

The databases such as Pub Med, Willey, ProQuest, and Science Direct were used to search for the articles for their relevance to nursing and healthcare research. The search strategy involved methodically combining specific keywords to explore literature on undergraduate healthcare students' perceptions of soft skills assessment in the Objective Structured Clinical Examination (OSCE). The keywords used were "undergraduate healthcare students," "perception," "soft skills," "assessment," and "Objective Structured Clinical Examination." Boolean operators "AND" and "OR" facilitated the construction of precise search queries, enhancing the relevance of the search outcomes.

As shown in **Figure 1**, the literature search utilizing the specified keywords identified 3,460 studies from electronic databases, with an additional 2 studies found from alternative sources. After excluding 57 duplicate studies, 3,405 articles remained. Of these, 3,273 were deemed irrelevant to the topic and subsequently excluded. From the remaining 132 studies, 103 were excluded due to lack of access to full text or publication dates outside the 2017–2023 range. Ultimately, this process yielded 29 articles included in the literature review, which align with the focus on undergraduate healthcare students' perceptions of soft skills assessment in the OSCE. The PRISMA 2020 guidelines were followed to ensure a systematic and transparent approach to the literature search and selection process (12).

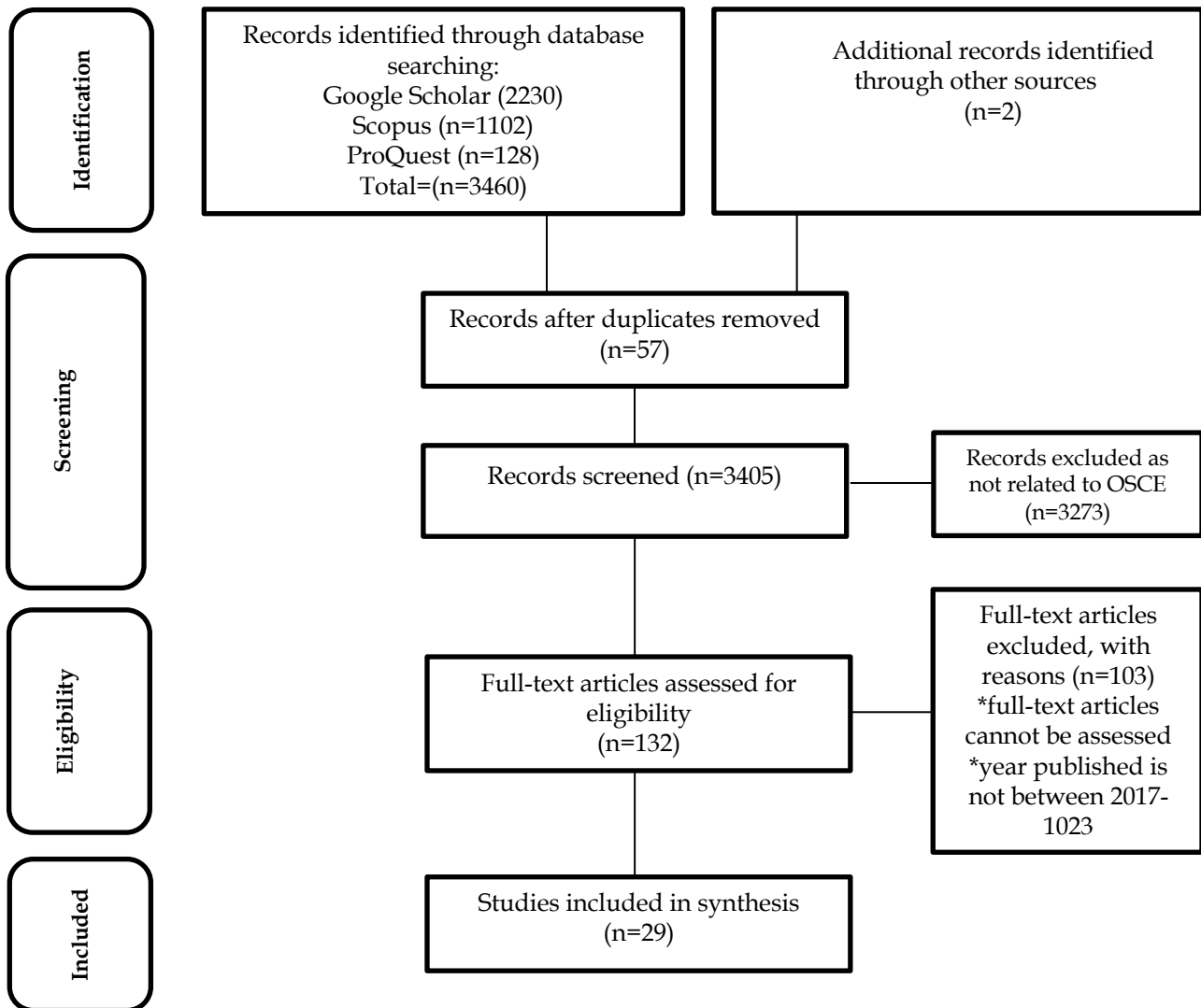
Inclusion and Exclusion Criteria

Articles were selected based on the following

inclusion criteria: published between 2017 and 2023, written in English, consisting of primary

research published in peer-reviewed journals. The exclusion criteria eliminated systematic reviews, unpublished articles, secondary sources, and restricted articles that were inaccessible in full text.

Figure 1: Literature search flow by using PRISMA



Quality Assessment

A total of 29 articles were reviewed in this study. Two reviewers independently assessed each selected article. Of the reviewed articles, 19 were quantitative studies, 6 were qualitative studies, 2 were quasi-experimental studies, and 2 employed mixed methods designs. Quantitative studies were appraised using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Quasi-Experimental Studies, while qualitative studies were evaluated with the Critical Appraisal Skills Programme (CASP) Qualitative Research

Checklist. Quasi-experimental studies were assessed using the JBI Checklist, and mixed-methods studies were critiqued using the Mixed Methods Appraisal Tool (MMAT).

Most studies used a cross-sectional design, collecting data through questionnaires or surveys, with additional study designs including case-control, quasi-experimental, and observational methods. For qualitative studies, participant data were primarily gathered through interviews. Sample sizes for quantitative studies ranged from 44 to 1,027 participants, qualitative studies

involved 6 to 57 participants, quasi-experimental studies included 100 participants, and mixed-methods studies ranged from 122 to 315 participants.

Geographically, most studies were conducted in Egypt (4 articles) and Saudi Arabia (3 articles), followed by Spain (3). Other countries represented included India (2), Germany (2), the United States (2), as well as Pakistan (1), Lebanon (1), New York (1), Australia (1), Bahrain (1), Taiwan (1), Malaysia (1), Oman (1), China (1), Nepal (1), Iraq (1), Switzerland (1), and Nigeria (1).

Data Analysis

This systematic review utilized a thematic analysis approach to identify, analyze, and interpret patterns within the data, focusing on understanding undergraduate healthcare students' perceptions of soft skills assessment in OSCE. **Table 1** represent the data extraction and synthesis for included studies. The thematic analysis followed a structured approach:

1. Data Extraction: Key findings from each study were systematically extracted and organized into a matrix, facilitating comparisons across quantitative, qualitative, quasi-experimental, and mixed-method studies. This matrix highlighted commonalities and differences in perceptions and satisfaction toward OSCE, particularly in soft skills assessment, and enabled a comprehensive synthesis across diverse study designs (13,14).
2. Coding and Theme Development: Each data point was coded line-by-line. Conceptually similar codes were grouped into distinct themes that addressed the review's objectives. This process ensured that all relevant perspectives were captured, supporting a detailed examination of undergraduate healthcare students' perceptions, satisfaction with OSCE, and the integration of soft skills within the assessment framework (15,16).
3. Synthesis and Interpretation: The identified themes were synthesized to provide insights into the research topic, offering a richer understanding of students' perceptions and satisfaction with OSCE, as well as how soft skills are implemented in these assessments. The synthesis allowed integration of diverse findings into a coherent narrative, in line with the objectives to evaluate and enhance OSCE as a tool for soft skill assessment (13,16).

FINDINGS

A total of 29 articles were included in this study, with thematic analysis applied to synthesize the findings. Three key themes emerged from the analysis and are discussed in detail below:

1. Perception and Satisfaction of Nursing Students Towards OSCE: This theme captures nursing students' perspectives and satisfaction levels regarding the OSCE, highlighting their experiences and reflections on this assessment method.
2. Perception and Satisfaction of Other Healthcare Students Towards OSCE: This theme explores how OSCE is perceived and valued by healthcare students in fields other than nursing, offering a broader view of its reception and effectiveness across different disciplines.
3. Implementation of Soft Skills in OSCE: This theme examines the integration of soft skills into the OSCE, considering how effectively these skills are assessed and the perceived relevance of their inclusion in the undergraduate healthcare programs.

The following session describe further on the three themes findings:

Perception and Satisfaction of the Nursing Students Towards Objective OSCE

This section, covering Perception and Satisfaction of Nursing Students Towards OSCE, synthesizes findings from 14 articles examining nursing students' perceptions and satisfaction levels with the OSCE as a method for clinical skills assessment.

Two studies findings reflected a positive perceptions and satisfaction towards OSCE (2,17). A study at Minia University in Egypt, with 132 third-year nursing students in paediatric nursing courses (2). The majority of students (95.4%) agreed that OSCE was well-organized, structured, and provided a fair and effective evaluation of their knowledge and skills, reducing the chance of failure compared to traditional exams. Another study also found that students had favourable views of OSCE, appreciating it as a beneficial, stress-free evaluation tool that enhanced practical skills, identified weaknesses, and demonstrated flexibility (17). However, challenges with communication with simulated patients were noted, with some students expressing a preference for traditional examinations.

Table 1: Data Extraction and Synthesis for Included Studies

No.	Authors/ Date/ Country	Study Design	Methodology	No. of Sample	Objectives	Outcome measures	Appraisal
1.	Perception of undergraduate nursing students towards Objective Structured Clinical Examination (OSCE). Awad, L. A., Ahmed, S., Alshamandy, A. A., & Abolwafa, N. F. 2017 Egypt	A study method of cross-sectional descriptive design was conducted.	- Quantitative - Tools: the study was carried out using a structured self-administered questionnaire, which consists of the following parts: Socio-demographic data of the students and a modified version of Likert scale were used to assess the students' response to OSCE as a method of assessment and students' satisfaction level towards the examination.	This study group was selected by using a systematic random sample of 132 students in the third year, second semester, who are all enrolled in paediatric nursing course (Faculty of Nursing, at Minia University, Egypt) in the academic year 2015-2016 (the students are listed together and every odd number in the list was chosen systematically).	To investigate the feedback obtained from undergraduate nursing students on Objective Structured Clinical Examination as a mode of assessment for their clinical skills at the Faculty of Nursing Minia University.	Reliability and validity analysis was initiated to test the suitability of the research instrument as the Cronbach Alpha for overall was 0.962. Analysis of the respondents towards their perception shows the majority of students (95.4%) agree that the examination was well organised, well-structured and appropriately sequenced. According to the majority of students, the main results also show that the nursing students agree that OSCE was fair in testing knowledge and skills and minimised their chance of failure in the exam as compared to other test formats.	Strengths: - The study provides valuable insights into nursing students' perceptions of OSCEs, which can inform the development and implementation of this assessment tool in nursing education. - The study used a large sample size (n=500), which increases the generalizability of the findings. - The study used a mixed-methods approach, which allowed for both quantitative and qualitative data to be collected and analysed. Limitations: - The study was conducted at a single institution, which may limit the generalizability of the findings to other nursing programs. - The study relied on self-reported data from nursing students, which may be subject to bias or inaccuracies. - The study did not include a comparison group (e.g. students who did not participate in an OSCE), which makes it difficult to draw conclusions about the effectiveness of this assessment tool compared to other methods.
2.	Nursing students' perceptions regarding modality use of the Objective Structured Clinical Examination (OSCE). Mohammed, N. A., & Amer, H. A.	A cross-sectional descriptive design was conducted in the Obstetrics and Gynecology nursing lab at Qena Faculty of Nursing,	-Quantitative -Tools of data collection were collected through one main tool: A structured interview questionnaire, distributed to the nursing students at the end of the examination of perception of students about the OSCE as a method of evaluation.	A random sample of (88) third year nursing students in the Obstetrics and Gynecology nursing lab at Qena Faculty of Nursing, South Valley University, Egypt was recruited.	To evaluate nursing student's perceptions regarding the use of the Objective Structured Clinical Examination as a nontraditional method of clinical evaluation.	Results of the study indicated that the perceptions of the third year nursing students regarding the OSCE. It was found that 85.2% of them considered the OSCE as the best method of evaluation. Moreover, 79.5% suggested that they need training about using	Strengths: Some strengths of this study include the use of a validated and reliable tool for data collection, the use of appropriate statistical analysis, and the inclusion of both qualitative and quantitative data. The study also provides insights into the advantages and disadvantages of the OSCE as perceived by

	2018 Egypt	South Valley University, Egypt.				the OSCE and preparation before the final exam. The correlation between “perception score” and “conversation skills score” = 0.943 which means the existence of a strong statistical positive relationship between both of them.	nursing students, which can inform future improvements in the implementation of this evaluation method. Additionally, the study highlights the importance of adequate training and preparation for nursing students to overcome anxiety and fear of examination, which can improve their clinical competency and skills. Limitations: One limitation of the study is that it was conducted in only one nursing school in Saudi Arabia, which may limit the generalizability of the findings to other settings. Additionally, the study did not consider the impact of cultural factors on nursing students' perceptions of the OSCE. Finally, the study did not address the potential impact of students' prior clinical experience on their perceptions of the OSCE
3.	Relationship between soft skills and academic achievement among 4th year nursing students. Mohamed, A., Abozeid, H., Mohammed, F., & Ahmed, Z. 2019 Egypt	A descriptive research design was used in this study.	-Quantitative -Two tools were used in the present study 1- Soft skills questionnaire form including two parts. Part one: demographic characteristics to collect data about 4th year nursing students (name, age, gender, and residence). Part two: soft skills scale which was developed by and modified by the researchers based on the related literature this questionnaire was developed to measure soft skills for university students. 2- Students achievement sheet: which was taken from 4th year nursing students control room (recording and	The representative number of 4th year nursing students based on the formula to calculate study subjects no= 170 students of Nursing Faculty, Assiut University, Egypt, they are randomly selected.	This study was conducted with the aim to determine the relationship between soft skills and academic achievement among 4th year nursing students.	The present study results revealed that the majority of 4th year nursing students were female (79.4%), and (58.2%) of them are lived in urban areas, and they had satisfactory soft skills regarding truth with achieved point (81.7%), followed by emotional expression with achieved point (79.5%), and managerial skill with achieved point (76%)	Strengths: - The study used a well-established method (Cronbach's Alpha Coefficients) to measure reliability and ensure internal consistency of the study questionnaire. - The researchers organised a meeting with students to explain the purposes of the study and provide adequate explanations and guidance before distributing the questionnaire, which may have increased the accuracy and validity of the data collected. - The study offers insight into the relationship between soft skills and academic achievement among nursing students, which can inform the development of curriculums and admission processes in nursing faculties

			monitoring students' grades committee) for only nursing courses (Nursing Administration, Gerontological Nursing, Community Health Nursing and Critical Care Nursing) after taken written permission from Vice Dean of Education and Students Affair. 4th year nursing students' achievement were calculated into two important parts as follows;1) Theoretical grades which was calculated from the sum of (oral and written exam), and 2) Practical grades which was calculated from the sum of objective structure clinical exam (OSCE) & and semester work which includes all students' activities during practical training hours which will be given for students by assigned academic teaching staff.				and other higher education institutions. Limitations: - The study was conducted on a specific group of participants (4th year nursing students at a particular university), which may limit the generalizability of the findings to other populations. - The study relied solely on self-reported data from the participants, which may be subject to social desirability bias or other forms of response bias. - The study did not explore the potential causal relationship between soft skills and academic achievement, which may limit the ability to draw definitive conclusions about the direction of this relationship.
4.	Nursing students' perceptions on the use of clinical simulation in psychiatric and mental health nursing by means of Objective Structured Clinical Examination (OSCE). García-Mayor, S., Quemada-González, C., León-Campos, Á., Kaknani-Uttumchandani, S., Gutiérrez-Rodríguez, L., del Mar Carmona-Segovia, A., & Martí-García, C.	A descriptive, transversal study was conducted.	-Quantitative -Tools: the participants in a mental health course need to complete a questionnaire which consist of two parts: 1) demographic 2) satisfaction with the experience.	The study population consisted of 141 nursing students enrolled in a mental health course and currently in the third year of their Nursing Degree studies at the University of M'alaga, Spain.	To examine the perceptions and satisfaction of nursing students after their participation in a targeted mental health course in which the main specialist skills were acquired via clinical simulation.	The overall satisfaction expressed was more than 8 out of 10 (mean score = 8.43, SD = 1.25) and the students' satisfaction with specific aspects of the procedure exceeded 4 out of 5. The study results show that these nursing students considered the methodology in question to be useful preparation for clinical practice (mean score = 4.78, SD = 0.45), that they appreciated the participation of an expert (mean score = 4.72, SD = 0.60) and that receiving the opinions of their peers about their performance was an enriching part of the experience (mean score	The strengths of this study include the use of multivariate analysis to determine factors associated with overall satisfaction, the inclusion of both streaming and live simulation scenarios, and the opportunity for students to conduct self-assessment during the final debriefing. The study also sheds light on the potential effectiveness of non-technical skills training, such as communication skills, in simulations. However, the study has some limitations. For example, there was no control group, so a comparison of simulation vs. traditional seminars was not possible. Additionally, the study

	2021 Spain					= 4.54, SD = 0.64).	did not evaluate the mediating role of anxiety in these settings or determine the levels of stress and anxiety experienced according to whether the scenario is carried out live or via streaming, using standardised tools. Finally, the questionnaire used in the study did not include short-answer questions, which could have provided more informative responses.
5.	Implementation of Objective Structured Clinical Examination (OSCE): perceiving nursing students' and teachers' attitude & satisfaction. Elbilgahy, A. A., Eltaib, F. A., & Mohamed, R. K. 2020 Saudi Arabia	Quasi experimental design (one group pre-posttest) was used to achieve the aim of the study.	-Qualitative -Tools: (1) Students' perception and satisfaction with the OSCE Exam questionnaire. The following scale was designed by the investigator once reviewing related literature. The used questionnaire comprising four parts consisting of 24 items; the questionnaire was in the variety of three points Likert scale ranging as 1= Agree, 2= uncertain & 3= Not agree). (2) Faculty staff and clinical instructors' perception toward OSCE. This scale was developed by the researcher after reviewing related literature. The questionnaire included two parts. Part one includes demographic characteristics of faculty staff such as age, years of experience, academic position and previous evaluation & experience with OSCE. The second part composed of 28 statements in the form of three points Likert scale ranging as 1= Agree, 2= uncertain & 3= Not agree).	The study was conducted on a convenience sample composed of two groups: group one includes a sample of 91 undergraduate nursing students and the second group includes 25 nursing faculty staff members who are clinical instructors and assistant professors at Faculty of Nursing, Northern Border University (Kingdom of Saudi Arabia).	To evaluate the effectiveness of Objective Structured Clinical Examination (OSCE) on nursing students and teachers' attitudes & satisfaction.	A statistical significant difference was found in relation to students' perception of structure and conduction of OSCE examination in the first and second trail. More than one third the students (35.2%) were replying that the OSCE format reduces the risk of failing in the first trial; the percentage was improved to more than two thirds (69.2%) in the second trail. More than half of faculty teachers were replying with strong agreement regarding involvement of OSCE in nursing curriculum, OSCE assesses all the students objectively and it is fair to all students and it offers new experience for students and faculty staff.	Strengths: -The study used a mixed-methods approach, which allowed for a more comprehensive understanding of the attitudes and satisfaction levels of both nursing students and teachers towards OSCE. -The study included a pilot test of the data collection tool, which ensured the clarity, feasibility, and consistency of the study tool. -The study obtained executive sanction from the Dean of the faculty of nursing and informed consent from both faculty staff and students, ensuring ethical considerations were met. -The study provides evidence that OSCE is an effective evaluation method in clinical exams and should be included in all practical nursing subjects. Weaknesses: -The study was conducted at a single institution, which may limit the generalizability of the findings to other nursing programs. -The study did not include a comparison group, which limits the ability to draw conclusions about the effectiveness of OSCE compared to other evaluation methods. --The study used a convenience sample, which may

							limit the representativeness of the sample. -The study relied on self-reported data, which may be subject to social desirability bias or other response biases. -The study did not assess the long-term impact of OSCE on nursing students' clinical skills or patient outcomes
6.	OSCE: Nursing Students' Perception, Satisfaction and Feedback. Kattili, S., SSö, M., & Varkeyñ, E. 2022 India	Non experimental approach with descriptive survey design was adopted for the study.	-Quantitative - The tools used were perception rating scale, OSCE satisfaction rating scale and open-ended questionnaire to assess the feedback of the students on OSCE respectively.	The sample of this study consisted of 46 nursing students who had attended OSCE as part of their practical examination at Baby Memorial College of Nursing, Kozhikode (Kerala).	Firstly, to explore the perceptions of students on OSCE. Secondly, to assess the level of satisfaction of students on OSCE. Lastly, to identify the feedback of the students on OSCE	Students' perception A greater percentage of the subjects (69.6%) felt that the exam was well administered. Majority (73.9%) perceived that exam was well structured and sequenced; 30.4 percentage of the subjects felt that there was a need for more time in the respective stations. Majority (76.1%) of the subjects perceived that the students were aware about the level of information they needed. Student's satisfaction on OSCE The findings of the study identified that 43 percent of the subjects were highly satisfied about OSCE as an assessment method, 40 percent were moderately satisfied and a less percentage of subjects (17%) were unsatisfied about the examination system of OSCE. Feedback on OSCE The subjects opined that OSCE is a good method of evaluation, it is stress-free, time-bounded and helps improve practical skill and knowledge. They also indicated that OSCE helped to identify the	Strengths: - The study used a three-point Likert scale to assess the required data, which is a simple and effective way to measure attitudes and perceptions. - The study used a partial enumeration sampling technique, which is a non-probability sampling method that can be useful when the population is small and homogenous. Limitations: - The study used a retrospective case series design, which is a type of observational study that lacks a control group and is subject to bias and confounding factors. - The study had a small sample size of 80 fourth-year BSc Nursing students from a single institution, which limits the generalizability of the findings to other populations and settings

						weakest areas of their competency and was more flexible. Few suggested that it was very hard to communicate with dummies and clinical examination was better than OSCE	
7.	The student voice to improve OSCE Raziani, Y., Qadir, S. H., Othman, B. S., & Ahmed, A. M. 2022 Iraq	Exploratory design (descriptive)	-Qualitative - The data were collected by using semi-structured interviews. The interviews were verbatim transcribed and analysed according to the qualitative content analysis based on Graneheim and Lundman method.	Twenty-five students who experienced OSCE in their university were selected. The study population will be selected from nursing students. Criteria for student entry were passing all theory units and being eligible for the OSCE and willingness to participate in the study and expression of experiences.	To investigate the student's view points toward the OSCE exam, considering the merits and disadvantages of this method, and including their suggestions in assessment toward best evaluation.	Two main themes emerging during data analysis were: 1- Management aspects problem, that includes 3 categories: i) supervisor's behaviour, ii) time management, iii) Facilities, and 2- Educational aspects problem including three categories of i) Simulation, ii) Educational background, iii) Question design which are key factors in conducting a more rational and helpful OSCE exam.	Strengths: The strengths of the study include the use of interviews to gather data from nursing students and the categorization of problems into management and educational aspects. Additionally, the study provides insights into the impact of supervisor behaviour on student confidence and performance during the exam. Weaknesses: One of the limitations of the study is the small sample size and the lack of control over the effects of unfamiliar clinical test conditions for test takers. As a result, the findings of this study cannot be generalised to all nursing students. Another limitation is that the questions designed for the OSCE may not have been challenging enough for students to think and decide what to do.
8.	Medical students' perception regarding objective structured clinical examination in Medical College, Chitwan. Jaiswal, P., & Mehta, R. K. 2019 Nepal	A descriptive cross-sectional study design was adopted.	-Quantitative -Tools: self-administered questionnaires with 5-point Likert scale were used to collect the data. Descriptive and inferential statistics was used to analyse data.	A total 173 respondents were selected from MBBS 4th and 5th year of Chitwan Medical College by using probability stratified proportionate random sampling technique.	This study was conducted to identify perception towards OSCE among medical students.	About half of the Bachelor of Medicine and Bachelor of Surgery (MBBS) students had a positive perception toward OSCE. There is significant association between the level of perception towards OSCE and year of study ($p=0.002$), choice of study MBBS ($p=0.045$) and evidenced based learning ($p=0.041$).	Some possible strengths of the study include the use of a probability stratified proportionate random sampling technique to select a representative sample of medical students, the use of a self-administered questionnaire with a 5-point Likert scale to collect data, and the use of descriptive and inferential statistics to analyse the data. The study also identified significant associations between the level of perception towards OSCE and year of study,

							choice of study MBBS, and evidence-based learning. Some possible limitations of the study include the cross-sectional design, which limits the ability to establish causality, and the use of a self-administered questionnaire, which may be subject to response bias. The study also focused on a single medical college in Nepal, which may limit the generalizability of the findings to other contexts.
9.	Evaluation of undergraduate students' nursing assessment and communication skills through an objective structured clinical examination within a high-fidelity simulation using a student-simulated patient. Yuan, H. B. 2021 China	A descriptive design was conducted.	- Quantitative -The nursing assessment OSCE checklist (NAOC) and the communication evaluation rubric (CER) were used as observational measurements with three-point Likert scales (2 = Achieved, 1 = Partly achieved, 0 = Not completed/Incorrect).	This study involved a convenience sample of baccalaureate nursing students who had completed courses of fundamentals of nursing, health assessment, and medical-surgical nursing. A total of 54 students completed nursing assessment OSCE.	To evaluate nursing students' assessment and communication skills through an objective structured clinical examination (OSCE) within a high-fidelity simulation using a student-simulated patient (SSP) and analyze the validity, reliability, degree of difficulty, and discriminability of the OSCE.	Difficulty coefficients of the exam were 0.63 for nursing assessment skills and 0.56 for communication skills. The discrimination index of the majority items of the NAOC (86.4%) was >0.20, showing a better to good discriminability. The items of the CER had satisfactory indexes of item discrimination (from 0.38 to 0.84). Students received high scores in conducting blood oxygen saturation and cardiac and lung auscultation but low scores in vomiting and diarrhea assessment. Students presented good communication skills in eye contacting and listening, but culture assessment needs to be improved. The students with experiences in simulation or simulated patient (SP) interactions had better assessment and communication skills than students without those experiences. There was a positive relationship between nursing assessment and	The strengths of this study include the use of SSPs to enhance the realism of interactions in simulated scenarios, the satisfactory reliability and validity of the OSCE, and the positive relationship between nursing assessment and communication skills. The study also provides valuable insights into the degree of difficulty and discriminability of the exam, as well as the characteristics of participants. However, the study has some limitations. The small convenience sample of students from one nursing school limits the generalizability of the findings to larger populations and other nursing programs. The assessment tools used in the study need to be further tested to verify their validity and reliability, especially when used in different contexts or among students with different cultural backgrounds in SSP-based simulations. Additionally, student stress and anxiety in OSCEs were not explored in this study and require further investigation.

						communication skills ($r = 0.67, P = 0.000$).	
10.	Nursing students' perception and attitude towards Objective Structured Clinical Examination in Oman. Alamri, S., Al-Hashmi, I., Shruba, K., Jamaan, S., Alrahbi, Z., & Al Kaabi, T. 2022 Oman	The cross-sectional descriptive study was conducted.	-Quantitative - Two self-administered questionnaires were utilized to obtain data on students' perception and attitude towards OSCE. Students' feedback on OSCE was collected using open-ended questions about OSCE strengths, weaknesses and recommendations for improvement. Survey responses were based on five points ordinal scale, ranging from strongly disagree to strongly agree. Students' feedback on OSCE was analysed as descriptive data by identifying the common themes and categorising them in groups	During the study timeframe, 250 nursing students were identified with a previous experience of OSCE and met the inclusion criteria. The sample size was calculated using the Yamane formula. Considering that the accessible population was equal to 250 subjects, the formula indicated that a sample size of 109 participants at a confidence level of 95% and an error of 5% was adequate to achieve a minimum power of 80%. Incorporating a 10% attrition rate, the final required sample size was set at 119 subjects. Convenient sampling was used to recruit the required study sample.	To explore undergraduate nursing students' perception and attitude towards the Objective Structured Clinical Examination (OSCE).	Most did not find the atmosphere of OSCE to be pleasant (66.3%) and preferred more modes of practical examination (40.6%). Moreover, 64.4% believed the time limitation to be inadequate. The data depict that 33.1% of the examinees deemed the OSCE more stressful than the full practical examination. In addition, a few students confirmed that the OSCE improved their communication skills and confidence in nursing skills.	One of the strengths of this study is the use of validated questionnaires. This means that the questionnaires used in the study were previously tested and proven to be reliable and valid measures of the constructs being studied. The use of validated questionnaires increases the credibility and accuracy of the study's findings. Additionally, the study had an adequate sample size and employed a sound study design, which further enhances the reliability of the results. However, there are also a few limitations that must be acknowledged while interpreting the results of this study. First, this study was conducted after one semester had passed following the OSCE, as the teaching in the institution was suspended due to the COVID-19 pandemic. Therefore, students' recollection of the OSCE might have been impacted during that time period. Second, this study cannot be generalised among nursing students as it was conducted in a single institution and on a relatively smaller sample of students by employing convenience sampling.
11.	Soft skills and implications for future professional practice: Qualitative findings of a nursing education escape room. Morrell, B. L., Eukel, H. N., & Santurri, L.	A basic interpretive qualitative methodology was used to explore baccalaureate nursing students' perceptions of	-Qualitative -Tools: All 57 students who took part in the escape room were made aware of the purpose of the study and were invited to participate in a focus group verbally and via email. Experienced, doctorally-prepared qualitative researchers, who	Participants are 57 baccalaureate nursing students who had recently participated in a cardiovascular-themed educational escape room were purposefully	To explore baccalaureate nursing students' perceptions of a cardiovascular-themed educational escape room. During the data analysis, researchers uncovered unique findings related to participant	Four overarching themes were identified in the data, including game and learner characteristics, learning outcomes, and implications for future professional practice. The theme of implications for future professional practice included two sub-	The study had some strengths and limitations. To enhance the trustworthiness of this qualitative study, the research team considered credibility, dependability, and confirmability. The engagement of multiple researchers, including those with a strong background in qualitative

	E. 2020 Midwest United States	their experience in a cardiovascular-themed educational escape room.	were not involved in the implementation of the escape room, conducted the focus groups. A semi-structured focus group guide, which included open-ended questions related to overall perceptions of the experience, knowledge and learning, teamwork, features of the escape room, and areas for improvement, was used to structure the dialogue with participants.	recruited. The study was conducted at a medium-sized private, not-for-profit university in the Midwest United States.	soft skill development and implications for participant future professional practice.	themes: soft skill development and the real-life nature of the activity.	research, peer coding/debriefing during the data analysis process, and a clear description of methods, were all strategies employed to increase rigor. However, the study was conducted at a single site and detailed demographics of the students were not collected, so transferability to other populations should be made cautiously. Additionally, the study focused particularly on soft skill development rather than content knowledge, so further research can consider the impact of escape rooms on exam performance and longer-term content retention.
12.	Perception of Malaysian Undergraduate Medical Students regarding soft skills: A qualitative study. Terng, S. J., Nair, A. A., Jafri, M., Binti, N. A., Pillai, S., Kularatne, R., ... & Umakanth, S. 2022 Malaysia	Focus group study design	-Qualitative -Tools: The students attended a one-hour lecture session about soft skills conducted by a clinician. Within a week of the lecture, we held four focus group discussions (FGDs). Each focus group consisted of six students. This qualitative study's sample selection process was by the convenience sampling technique until participant numbers reached data saturation. Thematic analysis was used to interpret the transcripts of the FGDs	Four Focus Group Discussion (FGDs) included n=24 (27.2%) students (each FGD consisted of 6 students), from the total number (n=88) of students, resulting in data saturation.	This study aimed to determine the perception of undergraduate medical students on soft skills.	Thirteen (54.1%) students had prior knowledge limited to some attributes of soft skills during high school and via community service. Introduction to soft skills specifically occurred to 18 (75.0%) students after joining the medical college. Ten (41.6%) students opined that empathy is the most essential, whereas nine (37.5%), four (16.6%), one (4.1%) mentioned that communication skills, teamwork, and time management, respectively, are essential soft skills for physicians.	According to the text, the strengths of this study include the use of focus group discussions (FGDs) to gather data from a homogeneous group of undergraduate medical students. All 24 students who participated in the study agreed that soft skills are essential for physicians, indicating a high level of agreement among the participants. Additionally, the study provides recommendations for future research, including the need to incorporate the affective domain into the medical curriculum. However, the study also has some limitations. For example, the sample size is relatively small, as only undergraduate medical students from a single institution were included in the study. This limits the generalizability of the findings to other populations. Additionally, the study relied on convenience sampling, which may introduce bias into the results. Finally, the study did not explore the impact

							of soft skills training on medical students' performance or patient outcomes, which could be an area for future research.
13.	The effect of simulation-based training on nursing students' communication skill, self-efficacy and clinical competence for nursing practice. Mohamed, S. A., & Fashafsheh, I. H. 2019 Saudi Arabia	Quasi-experimental one-group pretest-posttest was used for this study.	-Qualitative -Tools: Analysis is done by SPSS version 20 software. Data were collected by four tools by questionnaire: 1) Demographic data; 2) Communication skill (CS); 3) General self-efficacy Scale (GSES); and Clinical Competence Scale (CCS)	A convenience sample of 100 junior students from third year and fourth year undergraduate nursing students. This study was conducted at the nursing department – College of Applied Medical Sciences, medical surgical and critical simulation labs in University of Bisha, Saudi Arabia.	To evaluate the effects of simulation-based training on nursing students' communication skill, self-efficacy and clinical competence in practice.	Participants who received the simulation-based training, showed statistical significant improvement in communication skill, self-efficacy, and clinical competence scores after participation in the simulation program ($t = -32.64, p = 0.001$; $t = -19.9, p = 0.001$; $16.4, p = 0.001$). Also, there are significant relations between gender and clinical competency ($t = 2.768, p < 0.05$).	The strengths of this study include the use of both low and high-fidelity simulators, the inclusion of multiple outcome measures, and the use of a pilot study to ensure the clarity and applicability of the tools used. However, the study is limited by its small sample size and the lack of random selection of participants, which limits the generalizability of the findings. Additionally, the study did not include a control group, which makes it difficult to determine the extent to which the observed improvements were due to the simulation-based training.
14.	The development of a six-station OSCE for evaluating the clinical competency of the student nurses before graduation: A validity and reliability analysis. Lee, K. C., Ho, C. H., Yu, C. C., & Chao, Y. F. 2019 Taiwan	The study was conducted with a summative assessment, observational design.	-Quantitative -An OSCE of 6 stations of 10 min each was adopted. Blueprint setting, checklist development, and standard patient and examiner training were conducted. The mean, standard deviation, item scale (item-total correlation) and comparisons of extreme groups for item analysis. The inter-coder of examiners and inter-case of students were used to test reliability. Content Validity and concurrent validity were used to evaluate validity of OSCE.	A convenience sampling was used for selecting the participants. The participants included final-year students of two BSN programs from universities in central Taiwan. Of the 117 students enrolled in this study, 17 refused to participate because of the following reasons: no interest ($n = 12$), absence ($n = 3$), and stress ($n = 2$). A total of 100 students successfully completed the study. The average age of the participating	The aim of this study was to develop and validate a six-station OSCE for evaluating the clinical competency of the student nurses before graduation.	The mean OSCE score of students who passed the registered nurses' examination was significantly higher than that of students who failed. Significant differences in OSCE score between students who remain versus left clinical job were observed at 3, 6 and 9 months after graduation.	The strengths of this study include the use of a six-station OSCE to evaluate the clinical competency of nursing students, the use of global rating scores to score the checklist, and the appropriate interrater reliability at each station. The study also determined acceptable internal consistency for all stations and had appropriate discriminatory power for item analysis. However, the study has several limitations. Firstly, the study participants were not selected through random sampling, and the number of participants accounted for only 1% of Taiwan's nursing undergraduates. Therefore, generalizations based on the results should be made with caution. Secondly, the study did not arrange sufficient examiners for each station, and future research should explore whether

				students was 22.38 years, 95% were women.			including different assessors is a reliable method of assessing clinical competence in the OSCE. Finally, the study did not employ long-term follow-up for rating the clinical competence of students by other workplace stakeholders, such as patients, preceptors, and head nurses.
15.	Using a station within an objective structured clinical examination to assess interprofessional competence performance among undergraduate nursing students. González-Pascual, J. L., López-Martín, I., Saiz-Navarro, E. M., Oliva-Fernández, Ó., Acebedo-Esteban, F. J., & Rodríguez-García, M. 2021 Spain	Cross-sectional study.	-Quantitative -63 second-year nursing undergraduate students completed an interprofessional competencies station within an 8-station OSCE. Communication, Roles and Responsibility and Teamwork competences were assessed. The Interprofessional Collaborator Assessment Rubric (ICAR) was used as a model to assess the performance of students. Inter-observer concordance analysis was performed using the kappa coefficient and the concordance rate.	63 students of second year undergraduate nursing (73.3%) agreed to participate. This study was conducted in Spain.	To describe and analyse the use of a station within an OSCE to assess interprofessional competence performance in undergraduate nursing students. The specific objectives were: - To measure the students' level of competence performance in relation to the interprofessional competencies Roles and Responsibilities, Communication and Teamwork. - To determine inter-observer concordance in the assessment of the interprofessional competences.	92.1% of students reached a good level in communication competence, 88.9% in roles and responsibility competence, and 55.6% in teamwork competence. The global concordance rate was 83.8%, and the kappa coefficient was 0.67.	Strengths: -The study used a rigorous methodology, including the use of an OSCE station to assess interprofessional competence performance and the calculation of interobserver concordance rates. - The study assessed interprofessional competence performance among nursing students, which is an important area of research given the increasing emphasis on interprofessional collaboration in healthcare practice. -The study's findings could inform the development of interventions to improve interprofessional competence performance among nursing students. Limitations: -The study was conducted at a single university in Spain, which may limit the generalizability of the findings to other contexts. - The OSCE station used in the study may not have captured all relevant aspects of interprofessional competence performance. - The study did not assess the impact of the interprofessional competence performance on patient outcomes.
16.	Exploring nursing students experience with Objective Structured Clinical	A mixed methods research design was	-Mixed-method -Tools: concurrent data collection was done using questionnaires and semi-	Participants were 122 nursing students (25 males, 97 females) who	This study aims at identifying the experiences of students with OSCE as	The study results suggest that OSCE could be applied for the assessment of students' clinical	Strengths: - The study provides valuable insights into nursing students' perceptions of OSCE as an

	Examination (OSCE) as an assessment tool: A mixed methods research. John, B. Bahrain 2020	adopted with a convenience sampling technique.	structured interviews.	were involved with OSCE assessment during the Foundations of Nursing Course.	an assessment tool and exploring their feedback for quality improvement.	competencies. However, the students' demands on increasing the practice sessions with supervision, increasing the number of stations, and allotting more time for the tasks should be carefully weighed against the feasibility of the available faculty and other resources, and the time available for conducting the exam. Future studies could explore alternative evaluation strategies other than OSCE in the light of examining a large number of students and to foster their learning.	assessment tool. - The study used a mixed-methods approach, which allowed for a more comprehensive understanding of the students' experiences. - The study findings are consistent with previous studies carried out in other countries, which adds to the generalizability of the results. Limitations: - The study was carried out in one setting and with only nursing students, which may limit its application to other university settings or programs. - The study did not explore the perspectives of the faculty or clinical instructors who conducted the OSCE assessments. - The study did not compare the OSCE assessment results with the students' actual clinical performance, which could have provided additional insights into the validity of OSCE as an assessment tool.
17.	Communication skills of medical students: survey of self- and external perception in a longitudinally based trend study. Graf, J., Loda, T., Zipfel, S., Wosnik, A., Mohr, D., & Herrmann-Werner, A. 2020 Germany	This study is a longitudinal trend study based on seven semester-cohorts.	-Quantitative -Tools: examining the communication skills of medical students in the OSCE both from the perspective of students and from the viewpoint of standardised patients (SP). Altogether, 1027 students from seven semester cohorts were asked to rate their own communication skills (self-perception) before the OSCE exam started. Here, sub-analyses were performed to outline a potential influence of previous history-taking group participation. The SP evaluated the students' communication skills in	One thousand twenty-seven students from 7 semester cohorts (summer semester 2011 to summer semester 2014) were recruited. It was conducted among medical students from Tuebingen University, Germany.	The aim of the study was to examine the development of the communication skills of medical students during an OSCE as part of a longitudinal trend study in order to investigate how the communication competence has developed between different student cohorts.	Only in the dimension of non-verbal expression could a statistically significant change be found in students' self-perception over the years. Notably, the rating of communication skills as self-rated by the students has risen constantly, whereas they deteriorated from the perspective of standardised patients (SP). It has also been found that previous history-taking courses have a positive influence on the structural dimension of communication skills in particular.	Strengths: - The study included a large number of medical students (n = 1047) and examined four dimensions of communication skills (empathy, structure, verbal expression, and non-verbal expression). - The study compared self-perception and external perception of communication skills, which is important for understanding the accuracy of self-assessment. - The study is the first longitudinal trend studying the communication skills of medical students. Limitations: - The study was conducted in the busy and tense atmosphere

			external perception during the OSCE exam at each station with history-taking or physical examinations. The communication skills in both groups were ascertained in the dimensions of empathy, content structure, verbal expression, and non-verbal expression				of an examination, which may have affected the ratings of communication skills. - The study used different scaling of the questionnaires for students and standardised patients (SPs), which may have affected the results. - The study did not compare expected self-evaluation with experienced self-evaluation, which may have limited the interpretation of the results. - The study did not examine the influence of power discourses on the response behavior of the students.
18.	Health science students' perceptions about Objective Structured Clinical Examination (OSCE) as a method of clinical evaluation. Alaskar, A., Subbarayalu, A. V., Alfaraj, E., Ramzi, O. I., Alameri, N. S., Alhababi, A., & Vijayan, M. 2022 Saudi Arabia	A descriptive cross-sectional design was used to assess the perceptions of health sciences students about OSCE as an evaluation method of clinical skills.	-Quantitative - Data were collected through a structured questionnaire and analysed quantitatively. This study used a structured questionnaire developed by, and it has two parts. Part I includes demographic variables such as age, gender, and educational status (year of study). Part II consists of 23 item statements that are divided into four sections. Section-I includes eleven statements that assess students' general opinions regarding OSCE. Section-II contains three statements that capture participants' satisfaction with how the OSCE was carried out. Section-III includes four statements that investigate how participants perceived the outcome of OSCE, and lastly, section-IV consists of five statements that assess whether participants are satisfied with the preparation of OSCE. The	157 students of five health science programs, who undergo real-time OSCE at Prince Sultan Military College of Health Sciences (PSMCHS), Dhahran, were invited to participate in this study.	To assess health sciences students' perceptions about OSCE as an evaluation method of clinical skills acquisition.	The findings revealed that 57.8% of the participants perceived OSCE positively due to its unique features related to structure, logical sequence, standardised score tools, and coverage of a broad spectrum of critical clinical skills. On the contrary, 62.3% (n=96) of participants believed OSCE was stressful, and 58.4% (n=90) thought it was threatening because of inadequate preparation.	Strengths: - The study had a high response rate of 98%, indicating a high level of participation and engagement from the students surveyed. - The study used a structured questionnaire with 23 item statements, which allowed for a standardised and systematic approach to data collection. - The study was approved by the Institutional Review Board of the Prince Sultan Military College of Health Science, indicating that ethical considerations were taken into account. Limitations: - The study was conducted at a single institution (Prince Sultan Military College of Health Science), which may limit the generalizability of the findings to other contexts. - The study relied on self-reported data from students, which may be subject to bias or inaccuracies. - The study did not compare OSCE to other methods of clinical evaluation, which may

			participants' responses concerning the feedback/opinions about OSCE, perceptions of satisfaction with OSCE, and the outcome of OSCE were captured using a five-point Likert scale.				limit the ability to draw conclusions about the relative strengths and weaknesses of different evaluation methods.
19.	Perception of OSCE as an assessment tool in Undergraduate Students of Private Medical College in Karachi, Pakistan. Pario, S., Anwar, S. B., Baloch, Z. H., Ghafoor, S., Aftab, S., Rashid, S., ... & Salauddin, Z. 2021 Pakistan	A cross-sectional observational study included undergraduate medical students.	-Quantitative -Tools: Questionnaire was designed to gather information from students regarding OSCE, composed of following feedback items, stations in OSCE were simple and easily interpretable, OSCE thoroughly assessed practical skills, skills acquired were taught in clinics, OSCE stations were according to course of instruction, OSCE stations were appropriately timed, Adequate instructions were provided before exam, OSCE is superior and preferable to viva, examiners during OSCE were attentive and gracious, OSCE is comprehensive clinical assessment, OSCE assists in improvement of clinical skills, OSCE was demanding and tough, finally OSCE is unbiased, reliable and valid. Response was rated by students for each statement as strongly agree, agree, no idea, disagree or strongly disagree.	153 undergraduate medical students of United Medical & Dental college Karachi, who completely filled the proforma were included in study among them 31% were male and 69% were females.	To explore the perception of undergraduate students of United Medical and dental college towards objective structured clinical examination as an assessment tool.	Mostly agreed that stations in OSCE were simple and easily interpretable and assessed practical skills thoroughly. Majority of students accepted that skills inquired were taught in clinics, stations were according to course and stations were appropriately timed. 66 % confirmed that adequate instructions were provided before the exam. 84.31% believed that OSCE is preferable to viva. 57.51% of candidates stated that examiners during OSCE were attentive and gracious but 20.91 % objected to it, while 21.57% remained neutral. Almost half of examinees labelled it as a comprehensive clinical assessment. Overall, 67.97 % perceived OSCE as demanding and tough assessment. Finally views of students for statement that OSCE is unbiased, reliable and valid were positive in 50.32%. There was a significant difference in the opinion of male and female (p-value is less than 0.05) in statement that OSCE thoroughly assessed practical skills, stations	Strengths: - The study is the first of its kind from a private medical college located in a metropolitan city, which adds to the diversity of research on this topic. - The study included a comprehensive set of questions and their stratification according to gender, which provides a more nuanced understanding of the perceptions of medical students towards OSCE. - The study used a statistical package for social science (SPSS) to analyse the data, which is a widely used and reliable tool for statistical analysis. - The sample size of the study was relatively small, with only 153 medical students included in the analysis. - The study only included final year medical students, which limits the generalizability of the findings to other years of medical education. - The study only collected data from one medical college, which limits the generalizability of the findings to other institutions. - The study did not collect data on the perceptions of examiners towards OSCE, which could provide additional insights into the effectiveness of this assessment tool.

						were according to course of instruction, Adequate instructions were provided before exam, superior and preferable to viva, assists in improvement of clinical skills, demanding and tough and finally OSCE was unbiased, reliable and valid.	
20.	Perception of medical students and their facilitators on clinical communication skills teaching, learning and assessment. Dewi, S. P., Wilson, A., Duvivier, R., Kelly, B., & Gilligan, C. 2023 Australia	A qualitative descriptive approach was conducted in a 5-year undergraduate medical program in Australia	-Qualitative -Tools: A researcher interviewed all facilitators to explore their teaching practice and perceptions of students' communication skills in both the classroom and clinical environment. A semi-structured interview allows researchers to explore interviewees' responses by asking further questions, enabling in-depth discussion, incorporating new information, and following new ideas as they come up in the interview. Students who agreed to participate were invited to take part in focus group discussions. Focus group discussions collect data from multiple participants simultaneously (40). This method is helpful in exploring participants' knowledge, experiences, feelings, attitudes and behaviours, as well as the inter-relational dynamic among participants, to enhance the depth and breadth of ideas shared.	The participants were recruited using non-probability sampling, applying a combination of convenience and snowball methods. Twelve facilitators and sixteen medical students participated in semi-structured interviews and focus-group discussions, respectively.	To identify barriers and facilitators of transferring communication skills from the classroom to clinical environments.	This study reinforces the value placed on teaching and learning clinical communication skills by facilitators and students. Both groups agree that classroom learning provides students with a structure to use in communicating with real patients, which can be modified to suit various situations and patient needs. Though, the lack of realism and the discomfort of being the centre of attention during role-play was seen by students as disadvantages of this type of learning. Despite these challenges and facilitators' perception of students' lack of engagement, these learning opportunities were valued by students, particularly in providing a structure to apply in interactions with real patients and in observing clinicians. Students have limited opportunities, however, to be observed and receive feedback on their real-patient encounters.	The study's strengths include the use of two data collection methods (interviews and focus groups) to obtain a more comprehensive understanding of the perceptions of students and facilitators on CS teaching and learning. Additionally, the demographic spread of participants and the nature of the clinical schools and rotation allocations suggest that a relatively representative sample was obtained. However, the study also has several limitations. Firstly, the study was conducted in a single institution, and the participants were mostly facilitators who also taught in the classroom. This may limit the generalizability of the findings to other clinical teaching populations. Secondly, the study employed convenient and snowball methods to recruit participants, and the study was voluntary, which may have resulted in a selection bias. Finally, the study's findings may be limited by the fact that it was conducted in a specific cultural and educational context.
21.	Comparison of self and simulated patient assessments	A cross-sectional study design was	-Quantitative -Tools: the participants were asked to evaluate the	OSCE participants, including 172 first-year medical	Identified self- and simulated patient (SP)-reported ratings of US	Simulated Patient (SPs) assessed all 172 students in the OSCE, while 43.6%	The study has several strengths, including the use of a standardized assessment tool

	of first-year medical students' Interpersonal and Communication Skills (ICS) during Objective Structured Clinical Examinations (OSCE). Roshal, J. A., Chefitz, D., Terregino, C. A., & Petrova, A. 2021 United States	conducted.	students' ICS using the American Board of Internal Medicine–Patient-Satisfaction Questionnaire (ABIM-PSQ), electronically and via paper, respectively. Self- and SP-reported ratings of students' ICS were presented as the median on a 5-point Likert-scale and as three categories defined as “good,” “very good,” and “inadequate.”	students and 15 SPs were asked to evaluate the students' Interpersonal and Communication Skill (ICS).	first-year medical students' ICS and the influence of age and gender on performance appraisal during the Objective-Structured Clinical Examination (OSCE).	of students assessed their own performance. The majority of students and SPs evaluated the students' ICS as very good. 23.3% of SPs and 5.3% of students rated the medical students' ability to encourage patient question-asking and answer questions as inadequate ($P < 0.002$). Neither age nor gender influenced the medical students' self-assessment of ICS. Female SPs assigned lower scores to students in regard to respecting patients and encouraging patient question-asking and answering. Older SPs were more likely to assign lower scores on all survey questions.	(ABIM-PSQ) to evaluate ICS, the inclusion of a large sample size of first-year medical students, and the use of simulated patients to provide a standardised assessment of ICS. However, the study also has several limitations, including the external validity of findings from a sample of a single medical school, the risk of response bias due to a low response rate, and the inability to perform a paired analysis due to anonymity. Additionally, the study did not collect data on whether the medical students successfully finished their simulated patient encounters within the allotted time, which may have influenced the ratings of ICS. Finally, the study did not collect racial and ethnic data, which may be important for understanding the expectations of a culturally diverse patient population in regard to the ICS of future physicians.
22.	Pharmacy students standardised self-assessment of interprofessional skills during an Objective Structured Clinical Examination. Doloresco, F., Maerten-Rivera, J., Zhao, Y., Foltz-Ramos, K., & Fusco, N. M. 2019 New York	Pre and posttest study design.	-Qualitative - Third-year pharmacy students completed three cases designed to evaluate the skills they would need to engage in effective interprofessional collaborative practice as part of a capstone objective structured clinical examination (OSCE). Students then also completed a brief survey regarding the quality of the cases and the Interprofessional Collaborative Competency Attainment Survey (ICCAS). Student performance on each of the three cases was assessed using the Global	There were 127 students enrolled in the capstone assessment course, and 124 (97.6%) consented to be part of the study. Two students had missing responses on the pre-OSCE ICCAS. Therefore, the total valid sample size for the ICCAS was 122, while the sample size for the other variables was 124.	To examine pharmacy students' self-assessment and evaluator assessment of the global performance of skills required for effective interprofessional collaborative practice during an objective structured clinical examination (OSCE).	One hundred twenty-four students participated in the study. The majority of students reported that the OSCE cases were realistic and of high quality. The average total ICCAS score (out of 7) was 5.1 (SD50.8) at pre-assessment and 5.9 (SD50.6) at post-assessment; the difference in scores was significant. The mean GRS scores (out of 5 points) for the three cases were 4.2 (SD50.5), 4.5 (SD50.6), and 4.6 (SD50.5); and the mean score for the three cases combined was 4.4 (SD50.3). A weak relationship was found between the total GRS and	Strengths: - The study employed a reliable instrument (ICCAS) developed to self-assess interprofessional collaborative behaviours based on established interprofessional collaboration competencies. - The grading rubric used to evaluate the performance of students in each of the three cases designed to evaluate skills needed for effective interprofessional collaborative practice was also a reliable tool. - The study used appropriate statistical analysis to analyse the data collected. - The study provides evidence that OSCEs can be used to assess interprofessional collaborative skills and positively impact

			Rating Scale (GRS). Paired sample t tests were conducted to compare differences in mean change in ICCAS scores. Correlations between the GRS ratings and ICCAS pre- and post-assessment scores and changes in scores were examined.			ICCAS post-assessment scores.	students' self-assessment of interprofessional collaborative behaviors. Weaknesses: - The study was conducted at a single institution, which may limit the generalizability of the findings to other institutions. - The study was designed to include simulated interprofessional interactions rather than interactions with actual health professionals. - Students are aware that the cases were simulated rather than real, which may affect their approach to the simulations.
23.	Perceptions of Lebanese nursing students and examiners regarding the Objective Structured Clinical Examination Method (OSCE) in nursing fundamentals: A mixed method study. Fawaz, M., & Alsalamah, Y. 2021 Lebanon	This study employed a survey and focus group discussions on collecting the data.	-Mixed-method -Tools: A structured survey and focus group discussions were used to gather data, utilise semi-structured inquiries, and collect and transpose thematic analysis. Through the SPSS program, quantitative data were analysed.	Both students participating in the nursing fundamentals course (N = 315) and examiners (N = 18) were eligible to join the study. The nursing department was selected as the setting for this research at a renowned university in Beirut, Lebanon.	This research aimed to offer a viewpoint on the importance of OSCE amongst bachelor level nursing students in the evaluation of nursing fundamental skills.	The findings showed that participants found the OSCE to be a robust evaluation method that increases students' in-depth training and clinical settings readiness. Students instead considered the test to be a stressful encounter highlighting the necessity for more time on OSCE stations.	Strengths: - The study used a mixed-methods approach, which allowed for a more comprehensive understanding of the perceptions of nursing students and examiners regarding the OSCE method. - The study used a validated questionnaire to assess the perceptions of nursing students regarding the OSCE method. - The study used focus group discussions to gather in-depth information about the perceptions of nursing students and examiners regarding the OSCE method. Limitations: - The study was conducted at a single university in Lebanon, which may limit the generalizability of the findings to other contexts. - The study only included nursing students and examiners, and did not include other stakeholders such as patients or practising nurses. - The study did not assess the actual performance of nursing students in the OSCE, which may

							limit the ability to draw conclusions about the effectiveness of the method in assessing clinical skills.
24.	How good are medical students at communicating risk? An implementation study at three German medical schools. Groene, O. R., Bergelt, C., & Ehrhardt, M. 2022 Germany	We conducted an observational study in three German medical schools located in Hamburg, Göttingen and Heidelberg.	-Quantitative -Tools: We developed a risk communication skills Objective Structured Clinical Examination (OSCE) station and implemented it in three medical schools in Germany. 596 students contributed data to a risk communication checklist and a risk communication self-assessment. Multiple linear regression models were used to identify factors associated with the risk communication OSCE performance. Socio-demographic data such as age, gender, native tongue, and admission procedures of the participating students were collected as part of the survey administered at the end of the OSCE. In the survey, students were also asked to rate their risk communication skills on a scale from 1 (very poor) to 4 (very good); the self-assessment of risk communication skills was collected in Hamburg and Göttingen. All data were collected between June 2019 and June 2020.	In all three study locations a total number of 650 students completed the risk communication OSCE station and were invited to take part in our study (Table 1). The students were either in their 2nd/3rd (Hamburg), 4th (Heidelberg) or 5th (Göttingen) year of their studies depending on the curriculum structure.	To assess the objective and subjective risk communication skills of medical students in three universities in Germany.	Participants in our study achieved on average 73.5% of the total risk communication skills score, which did not differ between locations ($F(2, 595) = 1.96; p = 0.142$). The mean objective performance of students who assessed their skills as poor was significantly worse than the performance of students who assessed their skills as good ($t(520) = -5.01, p < 0.001$). The risk communication skills score was associated with native language but not with gender nor General Point Average ($p < 0.001$).	The study has several strengths, including the use of a standardised OSCE station to assess risk communication skills, the inclusion of multiple universities and a large sample size, and the use of both objective and subjective measures of communication skills. However, the study also has limitations, such as the variation in the duration of the OSCE station across the three locations and the implementation of the OSCE station in different study years. Additionally, the study did not assess the impact of cultural or linguistic differences on communication skills, and the self-assessment of communication skills may be subject to bias.
25.	Objective Structured Clinical Examination: An evaluation of radiography students' perception and preference. Anyanwu, C. E., Ugwu, A. C., Ugwuanyi, D. C.,	A prospective cross-sectional survey approach was adopted and the participants were asked to complete a self-administered	-Quantitative -Tools: the study instrument was an adapted, culled and modified forty items, seven sectioned well-structured questionnaire assessing data of demographics, students' perception and preference of OSCE under the following domains using a four-point scale as follows: from	A total of 124 participants were recruited into this study and accurately filled the questionnaire employed. The study population included all registered, eligible radiography	The study is aimed at evaluating Radiography students' perception and preference for OSCE, as a clinical assessment method.	Students' perception and preference to the OSCE were investigated. Eighty percent (80%) of the respondents showed higher preference of the OSCE organisation, nature of examination, composition, scoring and expectation compared to the TCE. Eighty Seven	The strengths of this study include the use of a well-structured questionnaire that was validated by experts, the inclusion of a large sample size of radiography students, and the assessment of multiple domains related to students' perceptions and preferences of OSCEs. Additionally, the study provides valuable insights into the

	Maduka, B. U., & Robinson, E. D. 2022 Nigeria	questionnaire at the end of the examination. The study was conducted within the department of Radiography and Radiological Sciences, Faculty of Health Sciences and Technology, Nnamdi Azikiwe University, Nnewi Campus, Nnewi, Anambra State, Nigeria.	strongly disagree (score of 1) to strongly agree (score of 4). The sections focused on attributes, organisation and validity rate of OSCE	students in their 5th year of study during the 2018/19 academic session, who participated in the Objective Structured Clinical Examinations of the 2018/19 academic session and Traditional Clinical Examination of 2017/18 Session.		Percent (87%) of the study population perceived that OSCE has good orientation and favorable perception to the attributes, organisation and validity rate of the OSCE against the TCE. The study participants had favourable preference and perception over OSCE scores. The study results show that the majority perceived and preferred the OSCE as a valuable practical experience. About 85% believed that the OSCE tested appropriate skills, provided a true measure of essential clinical skills in radiography and opted for it to remain as an examination method in the department. Students' feedback on perception and preference suggested that the OSCE was a valuable tool and served to encourage its implementation within the undergraduate curriculum.	effectiveness of OSCEs as a formative assessment tool for radiography students. However, the study also has some limitations. Firstly, the study was conducted in a single institution, which may limit the generalizability of the findings to other settings. Secondly, the study relied on self-reported data from students, which may be subject to response bias. Finally, the study did not assess the long-term impact of OSCEs on students' clinical skills and patient outcomes.
26.	Perception of students and faculties for OSCE as a tool for assessment of clinical competence in summative examination of general medicine. Jha, R. K., Mishra, S., & Kosta, S. 2023 India	A cross-sectional study was conducted on students and faculties undertaking OSCE from June 2021 to February, 2022.	-Quantitative -Tools: The 12-item questionnaire included questions based on to assess the faculties and students' awareness and to evaluate their overall satisfaction for OSCE based on the level of agreement. The agreement scale included five categories ranging from strongly agree, agree, undecided, disagree and strongly disagree with numerical values assigned to each.	A total of 150 Final Professional Medical Students appeared for final MBBS part II clinical exam of Sri Aurobindo Institute Of Medical Science & PG Institute, Indore, and 10 faculties of the Medicine Department were included.	The objective structured clinical examination (OSCE) has become a standard assessment tool in undergraduate medical school training. The aim of this study was to assess the Perception of Students and Faculties for OSCE as a tool for assessment of clinical competence in Summative Examination of	We collected the feedback structured questionnaire from faculties and students and were analysed. A total of 73% study subjects strongly agreed, 51% agreed and 14% disagreed respectively as per their perception for conduct, utility acceptability and feasibility of OSCE as an assessment tool in the subject of medicine.	Strengths: - The study collected feedback from both faculties and students, providing a comprehensive view of the effectiveness of OSCE as an assessment tool. - The study used a structured questionnaire to collect data, which can increase the reliability and validity of the results. - The study used both quantitative and qualitative data analysis methods, which can provide a more nuanced understanding of the data. Limitations:

					General Medicine.		- The study was conducted in a single institution, which may limit the generalizability of the findings to other contexts. - The study did not include a comparison group, which makes it difficult to determine whether the results are due to the use of OSCE or other factors. - The study did not provide information on the training and experience of the examiners, which may affect the reliability and validity of the results.
27.	Development, validity and reliability of objective structured clinical examination in nursing students. Chabrera, C., Diago, E., & Curell, L. 2023 Spain	This research involved an observational study to validate a measurement instrument and consisted of two phases: Phase I. Design and development of the OSCE, and Phase II. Validity and reliability analysis. The study period was September 2017 to July 2019.	-Quantitative -Tools: before the OSCE, the students were received in a classroom where the dynamics were explained again; they were able to listen to the audio sound indications that indicated the times, and possible doubts were resolved. In addition, they were given the questionnaire of perception of acquired competencies and levels of stress. Each student finished the round according to the established schedule, completing the 10 stations; each station lasted 12 min (2 min to read the case and 10 min to resolve the scenario). At the end of the OSCE, students and evaluators reported their level of satisfaction.	A convenience sampling was carried out, and third-year students in the nursing program at Tecno-Campus (a centre attached to the Pompeu Fabra University) were included in the study. A total of 118 students participated in the study.	The purpose of this study is to develop an OSCE, analyse its validity and reliability in the nursing curriculum and measure self-assessment, stress and satisfaction.	Ten scenarios were designed that incorporated six competency components extracted from the curriculum. Good results were obtained in face validity, content validity (CVI .82-.95), criterion validity ($r=.71$, $p < .001$), and reliability (α Cronbach .84). Satisfaction and stress scores were high, and self-assessment scores were lower than the scores obtained.	One of the main strengths of the study is that it provides evidence of the reliability and validity of the OSCE as a tool for assessing the clinical competence of nursing students. The study also details the methodological process and analysis of the validity and reliability of the OSCE, which can be used as a reference for future studies. One of the main limitations of the study is that the OSCE was not compared with conventional evaluation methods. Additionally, student stress during the OSCE was considered one of the main limitations, despite training sessions being carried out to reduce stress. Finally, the study did not make use of random sampling, so generalisations based on the results should be made with care.
28.	Health science students' perceptions about Objective Structured Clinical Examination (OSCE) as a method of clinical evaluation. Alaskar, A., Subbarayalu, A. V.,	A descriptive cross-sectional design was used to assess the perceptions of health sciences students about OSCE as an evaluation method of	-Quantitative -Tools: This study used a structured questionnaire developed by [27], and it has two parts. Part I includes demographic variables such as age, gender, and educational status (year of study). Part II consists of 23 item statements that are divided into four sections.	157 students of five health science programs, who undergo real-time OSCE at Prince Sultan Military College of Health Sciences (PSMCHS), Dhahran, were invited to	This study aims to assess health sciences students' perceptions about OSCE as an evaluation method of clinical skills acquisition.	The findings revealed that 57.8% of the participants perceived OSCE positively due to its unique features related to structure, logical sequence, standardised score tools, and coverage of a broad spectrum of critical clinical skills. On the contrary, 62.3% (n=96) of participants believed	Strengths: - The study had a high response rate of 98%, indicating a high level of engagement from the participants. - The study used a structured questionnaire that was developed by a previous researcher, which may have helped to ensure the validity and reliability of the data collected.

	Alfaraj, E., Ramzi, O. I., Alameri, N. S., Alhababi, A., & Vijayan, M. 2022 Saudi Arabia	clinical skills.	Section-I includes eleven statements that assess students' general opinions regarding OSCE. Section-II contains three statements that capture participants' satisfaction with how the OSCE was carried out. Section-III includes four statements that investigate how participants perceived the outcome of OSCE, and lastly, section-IV consists of five statements that assess whether participants are satisfied with the preparation of OSCE. The participants' responses concerning the feedback/opinions about OSCE, perceptions of satisfaction with OSCE, and the outcome of OSCE were captured using a five-point Likert scale (i.e., strongly disagree-1, disagree-2, true sometimes-3, agree-4, strongly agree-5).	participate in this study		OSCE was stressful, and 58.4% (n=90) thought it was threatening because of inadequate preparation.	- The study provides valuable insights into the perceptions of health science students regarding OSCE, which could inform future research and practice in the field. Limitations: - The study was conducted at a single institution (Prince Sultan Military College of Health Sciences), which may limit the generalizability of the findings to other contexts. - The study relied on self-reported data from the participants, which may be subject to bias or inaccuracies. - The study did not include a comparison group of students who were evaluated using other methods, which makes it difficult to draw conclusions about the relative effectiveness of OSCE compared to other methods of clinical evaluation.
29.	Undergraduate student feedback on OSCE: The first experience of a nutrition department, University of Benghazi 2019. Elfagi, S., Elamni, S. F., Nouh, F., Eltohami, A., & Omar, M. 2020 Libya	Descriptive study design was conducted	-Quantitative -Tools: the feedback Questionnaires related to OSCE were distributed to all students to obtain their views and comments, and they were collected before they left the session of the exam. The Feedback Questionnaire was validated by senior experts and it contained 20 questions that include questions about design of OSCE exam, factors affecting the exam, students' views about the instruction during conducting exam, and their opinion about exam as assessment tool to improve their clinical skills.	The study involved all third year (pre-graduated year) nutrition students (n=120), they were 3 males and 117 females with mean age 24 years. Study was conducted in Al-Gala Hospital and Medical Benghazi Center on undergraduate students in the Nutrition department, faculty of Public Health, University of Benghazi.	The aim of this study was to assess the third year nutrition student's perception about the Objective Structured Clinical Examination (OSCE) in the clinical nutrition practice.	74% of the students indicated that they received adequate information about the exam before conducting it, and about 72% reported that the instructions of each station were as expected. 50 % of students found the OSCE exam was easier than the essay question, oral and MCQ exam, while the most average exam was oral exam as reported by 54% of students and 35% of them found that MCQ exam was more fair than OSCE and other exams. Shows that the most factors that facing students	Some potential strengths of the study include the use of a validated feedback questionnaire to collect data from all students, the clear and organised structure of the OSCE exam, and the recommendation for the use of OSCE as an important method of assessment in practical academic years. Some potential limitations of the study may include the small sample size (no specific number is provided), the fact that the study was conducted at a single institution, and the lack of comparison with other assessment methods beyond the brief mention in the introduction and discussion sections. Additionally, the study only

						during conducting OSCE exam were stressful and time that was conducted at each station, 78% of students said the exam was so stressful and 69% of them reported the time was not enough at each station. This study concluded that the structure and design of the OSCE exam were clear and organised and most students received adequate information before conducting the exam. Almost all of the students agreed that the OSCE exam is a useful experience to improve their practical skills in clinical nutrition.	focuses on the perceptions of nutrition students and may not be generalizable to other healthcare fields or student populations.
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In contrast views, a study reported that 66.3% of participants found the OSCE atmosphere unpleasant and preferred alternative examination methods (40.6%) (18). Additionally, 64.4% cited time constraints as an issue, and 33.1% perceived OSCE as more stressful than comprehensive practical exams, with only a minority reporting enhanced communication skills or confidence due to OSCE. A study found suggestions for improvement that while OSCE is effective for assessing clinical competencies, student feedback indicates a need for more supervised practice, additional stations, and extended task time (19). This highlights the importance of balancing student needs with faculty resources, and future research may explore alternative assessment methods, especially for large cohorts.

Studies also found that high satisfaction levels among students, with OSCE being valued as a robust and fair evaluation tool that prepares students for clinical practice (20,21). A study further suggests OSCE's reliability in assessing competencies and support further investigation into its role in knowledge transfer and simulation-based learning (20). While a study observed that most of the 88 third-year nursing students at South Valley University in Egypt found OSCE to be fair and effective yet emphasized the need for additional training to reduce anxiety and improve clinical skills (3).

A study also found that more than a third of students initially felt that OSCE minimized their failure chances, with support growing to 69.2% upon a second attempt (22). Faculty members also strongly supported OSCE, citing its objectivity and fairness, and suggested it offered beneficial new experiences for both students and faculty members. Another study identified challenges related to management and educational aspects in OSCEs. Their study emphasized the importance of integrating student feedback to enhance OSCE's relevance in nursing education, advocating for more student-centered teaching methods and resources to bridge the gap between academic learning and real-world practice (23).

This theme underscores the varied experiences and perceptions of nursing students toward OSCE, highlighting its perceived strengths in structured assessment and fairness while also identifying areas for improvement, such as enhanced preparation, stress reduction, and increased faculty resources. These insights are essential for refining OSCE to better serve nursing students in their journey toward clinical competency.

Perception and Satisfaction of Other Healthcare Students Towards Objective OSCE

Under this theme, six articles explored the perceptions and satisfaction of healthcare students outside of nursing regarding the OSCE.

A study discovered approximately half of Bachelor of Medicine and Bachelor of Surgery (MBBS) students reported a positive perception toward OSCE (24). Similarly, a study conducted research with 157 students from five health science programs at Prince Sultan Military College of Health Sciences (PSMCHS), Dhahran (6). Here, 57.8% of participants held a positive view of OSCE, valuing its structured and standardized format, logical sequence, and comprehensive assessment of essential clinical skills. However, 62.3% of students considered OSCE to be stressful, and 58.4% found it intimidating, citing inadequate preparation as a contributing factor.

A study done with 153 undergraduate medical students at United Medical & Dental College, Karachi, and found that most respondents appreciated the clarity of OSCE stations and affirmed that the skills tested were aligned with their clinical training and coursework (25). The students acknowledged that the OSCE stations were appropriately timed and accurately assessed practical skills, contributing to their overall positive perception of OSCE. Another study examined students' preferences and perceptions regarding OSCE and found that a significant majority of radiography students (85%) valued OSCE as a practical and effective examination method (7). They believed that OSCE accurately assessed essential clinical skills and strongly preferred its continued use within their department.

A recent study used a structured feedback questionnaire with 150 final-year MBBS students and 10 faculty members at the Sri Aurobindo Institute of Medical Science & PG Institute, Indore (26). Their findings showed high levels of agreement on the usefulness, acceptance, and practicality of OSCE as a method for clinical skills assessment, with 73% of students strongly agreeing, 51% agreeing, and only 14% expressing disagreement. This positive reception underlines OSCE's broad acceptance among medical students and faculty alike.

A study also described about the findings about student' challenges with stress and time constraints towards OSCE (27). Their study

carried out with third-year nutrition students, with 74% indicating they received adequate information prior to the OSCE, and 72% reporting that the station instructions met their expectations (27). Half of the students found OSCE easier than traditional assessment methods like essays, oral exams, and multiple-choice questions (MCQs), though 78% found OSCE highly stressful and 69% felt that the time allocation per station was insufficient. Additionally, 54% of students rated the oral exam as moderate in difficulty, and 35% preferred the fairness of MCQ exams over OSCE.

In summary, healthcare students generally perceived OSCE as a structured and practical method for assessing clinical competencies. However, recurring concerns included stress and time constraints, underscoring the importance of addressing these challenges to enhance student experiences across diverse health disciplines.

Implementation of Soft Skills in OSCE

Ten studies were identified under this theme regarding the role of OSCE in assessing and developing soft skills, including communication, empathy, teamwork, and clinical competencies across healthcare students.

Two studies described about soft skills evaluation and reliability in OSCE (3,28). Among them, one study assessed 4th year nursing students at Assiut University, Egypt, where 81.7% demonstrated strong skills in truthfulness, emotional expression, and management (3). However, gaps emerged in examining a causative link between soft skills and academic success. Another study found that while a global rating scale was reliable in evaluating communication within individual stations, challenges existed in maintaining consistency across stations, revealing the need for improvements in communication assessment during OSCE (28).

Studies also discovered about communication and cultural competency assessment in OSCE by using simulated patients (29–31). They used Simulated Standardised Patients (SSPs) to assess nursing students' communication and assessment skills (29). Students scored highly in eye contact and active listening, although areas for improvement included cultural sensitivity and explanatory skills. Third-year students with 30 weeks of clinical practice and experience in simulations performed better in communication, suggesting practical exposure enhances these skills. Another study found that third- and fourth-year nursing students at University of Bisha, Saudi Arabia, who

received simulation-based training, showed significant improvements in communication, self-efficacy, and clinical competence ($t = -32.64$, $p = 0.001$) (30). Gender was associated with variations in clinical competency ($t = 2.768$, $p < 0.05$), suggesting simulation can positively impact soft skills alongside technical proficiency. A study evaluated first-year U.S. medical students' interpersonal skills using Simulated Patients (SPs), with 43.6% self-assessing their skills (31). Both SPs and students rated Interpersonal Communication Skills (ICS) highly, although SPs noted areas for improvement in encouraging patient questions. Gender and age affected SP ratings, with female SPs assigning lower scores for respecting patients, emphasizing diversity in feedback and assessment.

A study also found that exposure to soft skills was started in secondary education level (32). They found that 54% of medical students reported initial soft skills exposure in high school or community service, while 75% encountered these skills formally in medical school. Among these, 42% identified empathy as essential, followed by communication (38%), teamwork (17%), and time management (4%). A study carried out in Spanish described that nursing students' interprofessional skills, with over 50% achieving good scores in communication and role understanding, though less than 10% excelled in teamwork (33). High concordance (83.8%) among observers emphasized the reliability of OSCE in assessing teamwork and other competencies critical to patient safety.

A study observed that medical students at Tuebingen University, Germany, demonstrated strong empathy, verbal and non-verbal expression, though differences existed between self-assessed and externally evaluated skills, indicating that OSCEs offer valuable perspectives from both students and observers in communication assessment (34). Another study described about real-life behaviour in OSCE where they studied pharmacy students at the University at Buffalo and found that awareness of being graded influenced student performance in OSCE, potentially differing from real-world behaviour (35). This suggests that while OSCEs are effective, their high-stakes nature may not fully capture students' true competencies.

A study also discovered about risk communication and contributing factors in OSCE where they found that medical students in Germany displayed varying levels of risk communication, affected by gender, native

language, and admission processes, highlighting the impact of personal and cultural factors on communication competency in healthcare (36).

In summary, OSCEs effectively assess and enhance soft skills across healthcare students, though factors such as station design, observer diversity, and real-world versus exam behaviour present challenges that can be addressed to refine OSCE's role in comprehensive soft skill assessment.

DISCUSSION

This section further discusses the findings on nursing and healthcare students' perceptions and satisfaction with OSCE, as well as the implementation of soft skills within the OSCE assessment.

Perception and Satisfaction of Nursing Students Towards OSCE

The literature suggests that OSCE is largely perceived by nursing students as a valuable tool for enhancing practical skills, identifying weaknesses, and boosting confidence (2). Two studies note that students see OSCE as a constructive, relatively low-stress method for evaluating practical skills (2,17). This consensus underscores OSCE's utility as a skills-building and confidence-enhancing experience for nursing students.

However, some studies indicate that OSCE may not comprehensively assess soft skills, despite its emphasis on technical abilities (18,19). These studies reveal that while OSCE is generally effective in assessing clinical competence, it may fall short in capturing nuanced soft skill interactions, suggesting the need for more inclusive assessment methods. A similar finding by a study where they are arguing that a well-organized OSCE process can create an environment that allows students to exhibit their soft skills effectively, highlighting the importance of assessing communication and interpersonal skills within the OSCE (21).

Additionally, studies emphasize that nursing students view OSCE as a fair and objective method, with all students assessed equally on a pre-defined checklist (3,23). Similarly, a study suggests that ongoing development in OSCE strategies, informed by student feedback, could enhance nursing education and better prepare future nurses (23).

Perception and Satisfaction of Other Healthcare Students Towards OSCE

Healthcare students across various fields similarly value OSCE's structured format, standardized scoring, and alignment with clinical skills development (24). Positive perceptions are often tied to its comprehensive assessment of practical abilities, which aligns with academic and clinical training. However, OSCE-induced stress is a common concern, attributed to limited preparation time and the high-stakes nature of the assessment. For example, a study report that 78% of nutrition students felt stressed, and 69% believed that time constraints hindered their performance (27).

Such stress seems prevalent across healthcare disciplines, particularly among students unaccustomed to OSCE. Despite this, the majority recognize OSCE's effectiveness in testing clinical competencies, particularly in fields like radiography and medical sciences (7,25). These findings suggest that while OSCE is broadly valued, adjustments to reduce stress may further improve its effectiveness.

Implementation of Soft Skills in OSCE

Integrating soft skills within OSCE has garnered substantial attention, as these skills are essential for effective patient care. Studies across healthcare fields highlight varying levels of student proficiency in soft skills. For example, a study observed that nursing students excelled in truthfulness and emotional expression, though consistency in evaluating these skills across stations remains challenging (30). Similarly, a study highlighted the limitations of a four-item global scale, which struggles to differentiate between students with varying communication skills (28).

Communication skills, in particular, are emphasized as critical components of soft skills. A study found nursing students showed strengths in eye contact and active listening, yet they often need improvement in cultural sensitivity and clear communication about patient visits (29). Clinical exposure and simulation training correlate positively with communication skills, indicating that experiential learning can enhance these competencies.

Perceptions of soft skills can vary significantly between self-assessment and external evaluation. For instance, a study found that students often rate their communication abilities more

favourably than external evaluators, underscoring the need for objective and standardized assessment tools (34). Likewise, a study observed that simulated patients (SPs) highlighted certain soft skill deficiencies, such as encouraging patient questions, which students may overlook in self-assessment (31).

Moreover, factors like gender, age, and awareness of evaluation influence students' behaviours during OSCE. A study suggests that OSCE's structured environment, particularly with grading and video recording, may not fully reflect real-life interactions (35). This highlights an area for potential refinement in OSCE design to achieve a more authentic and holistic evaluation of both technical and interpersonal skills (36).

Therefore, OSCE is widely regarded as an effective tool for assessing technical and clinical competencies but incorporating comprehensive soft skill assessments remains a challenge. Addressing the stress associated with OSCE and refining assessment tools to evaluate soft skills accurately may enhance the overall effectiveness and acceptability of OSCE among healthcare students.

CONCLUSION

This systematic review emphasizes the significance of soft skills within the OSCE framework and highlights the generally positive perceptions of undergraduate healthcare students, especially nursing students, towards incorporating these skills. The findings suggest that while technical proficiency remains fundamental, integrating soft skills in OSCE assessments is essential to cultivating well-rounded healthcare professionals. Future research should aim to develop standardized tools for evaluating soft skills in OSCE and investigate their effect on both student performance and patient outcomes. The integration of soft skills not only supports student development but also aligns with the evolving requirements of the healthcare sector, where qualities like effective communication, empathy, and teamwork are increasingly crucial.

RECOMMENDATION AND IMPLICATION FOR THE CLINICAL PRACTICE

Previous studies have primarily focused on undergraduate nursing and healthcare students' perceptions of OSCE in general terms, without delving into the nuanced integration of soft skills within the OSCE assessment. Additionally, most

of these studies were conducted internationally, with limited research from Malaysia, highlighting a gap in locally relevant findings. Furthermore, existing studies largely utilized quantitative designs to examine students' perspectives on OSCE, and there is a noticeable lack of research specifically addressing nursing students' views on the assessment of soft skills within OSCE. This creates an opportunity for future studies to explore Malaysian nursing students' perceptions of OSCE, especially with an emphasis on soft skills.

To improve the integration of soft skills within OSCE for the better clinical practice outcomes, it is recommended that healthcare educational institutions revisit their OSCE assessment to incorporate comprehensive assessment criteria for essential soft skills, such as communication, critical thinking, problem-solving, interpersonal skills, social skills and responsibilities, numeracy skills, and ethical decision-making like a previous studies mentioned (4,37,38). This could involve designing specific OSCE stations dedicated to these skills, enhancing the holistic evaluation of student competencies. Additionally, training for OSCE examiners should include specialized programs focused on objectively assessing soft skills, supported by detailed rubrics and guidelines. Preparing students through targeted resources, such as workshops and simulation-based activities, can also emphasize the role of soft skills in clinical practice. Lastly, implementing continuous evaluation and feedback mechanisms can help monitor the impact of these enhancements, ensuring that the soft skills assessment within OSCE positively influences student readiness for professional roles.

CONFLICT OF INTEREST

None.

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AUTHOR CONTRIBUTIONS

TSSJ: data analysis and finalizing the

manuscript.

MSN: conceptualizing idea for the study and overall supervision for the project.

SHMS: literature findings and drafting the manuscript.

MKCH: data synthesis.

KKY: quality appraisal

WN: literature support for discussion.

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