

Exploring the Perceptions and Practices of Nursing Faculty in Evaluating Basic Laboratory Skills of Nursing Students

Maryam Al Shezawi¹, Bherlyn Joy Leccio^{*2}, Karen Castillo³, Fatma Al Balushi⁴, Fatma Hamdan Al Muqbal⁵

^{1,2,3,5}Department of Nursing, North Batinah Branch, Oman College of Health Sciences, Suhar, Oman.

⁴Department of Foundation, North Batinah Branch, Oman College of Health Sciences, Suhar, Oman.

*Corresponding Author Email: Bherlynjoyleccio@gmail.com

Received: 25/05/2026, Revised: 22/06/2026, Accepted: 29/06/2026, Published: 01/07/2026

Abstract:

Objectives: This study explored the perceptions and practices of nursing faculty in evaluating basic laboratory skills among nursing students at Oman College of Health Sciences (OCHS).

Methods: A qualitative descriptive design was used. Ethical approval was obtained from the OCHS Research and Ethical Review Committee. Fifteen nursing faculty members from all seven OCHS branches were purposively selected to participate in semi-structured interviews conducted either face-to-face or online through Zoom. Interviews explored participants' experiences, laboratory evaluation practices, and challenges in assessing basic laboratory skills. Data were transcribed, coded using Taguette, and analyzed using Braun and Clarke's thematic approach.

Results: The analysis generated two main themes: (1) checklist-driven evaluation of basic laboratory skills reflects a strong reliance on structured checklists as the primary mechanism for determining student competence, while also highlighting concerns related to critical elements, checklist clarity, and standardization and (2) the nature of the evaluation process in laboratory skills assessment captures the broader assessment context, including faculty roles, assessor judgment, and structural constraints that shape evaluation practices.

Conclusion: The findings suggest that checklists support structure, consistency, and fairness in laboratory skills assessment, while professional judgment remains integral to the evaluation process. The study also identifies key priorities for practice, including clearer assessment guidelines, ongoing checklist refinement, targeted assessor training, and sufficient institutional support. Nevertheless, these findings should be interpreted in the context of a single-institution study based on faculty self-report. Future research incorporating student perspectives and direct observational data would further strengthen the understanding of the effectiveness of checklist-based assessment.

Keywords: Laboratory Assessment, Qualitative Research, Nursing Faculty, Basic Laboratory Skills, Nursing Students

1. Introduction

Nursing practice requires advanced psychomotor competence to ensure safe, high-quality patient care. Nursing education studies highlight the significance of skills laboratories in helping students acquire and refine clinical skills through a systematic and guided learning environment for demonstration, practice, and feedback before clinical exposure (Reaves et al., 2024). All nursing graduates are expected to develop clinical competence reflecting the integration of knowledge, skills, and attitudes, enabling them to provide safe and effective care (Immonen et al., 2019; Nursing and Midwifery Board of Australia, 2016). This competence is developed through theory, skills practice modules, and clinical-based learning experiences. Therefore, the nursing curriculum should be aligned to facilitate students' progression from novice to competent practitioners through continuous skills practice and clinical learning experiences.

The nursing skills laboratory (NSL) provides a structured pre-clinical learning environment where nursing students develop psychomotor skills, apply theoretical knowledge, and prepare for safe performance in clinical settings (Harvey et al., 2024; Reaves et al., 2024). NSLs use varied simulation-based methods, including low-fidelity and high-fidelity simulation, standardized patients, audiovisual aids, scenario-based exercises, and Objective Structured Clinical Examinations (OSCEs), which support reflective thinking, clinical reasoning, skill competence, and evaluation of clinical performance (Al Balawi & Rezaq, 2024; Nair et al., 2024). OSCEs have been recognized as structured assessment tools, with studies suggesting that examiners and students perceive them positively for their thoroughness and standardization in meeting learning outcomes (Fisseha & Desalegn, 2021; John et al., 2021; Khan et al., 2022).

Commonly identified challenges related to the implementation of NSLs include inadequate preparation, time constraints, resource limitations, and stress for both faculty and students (Fisseha & Desalegn, 2021; John et al., 2021; Khan et al., 2022). Examiner-related factors may also influence variability in NSL assessment, including assessor experience, interpretation of criteria, professional judgment, and contextual factors. Recent assessment literature indicates that assessor cognition can contribute to score variability in performance-based assessment, while structured guidance, assessor training, calibration, and shared understanding can improve the quality and consistency of judgments (Malau-Aduli et al., 2023; Oudkerk Pool et al., 2018; Roduta Roberts et al., 2020). These factors underscore the need for clear assessment criteria, assessor preparation, and refinement of laboratory skills evaluation processes.

These international findings provide an important basis for understanding laboratory skills assessment; however, local institutional contexts may influence how assessment tools are designed, interpreted, and implemented. In Oman, the Oman College of Health Sciences (OCHS) uses laboratory-based instruction and checklist-guided evaluation to support the development of basic nursing skills before students enter clinical placements (Oman College of Health Sciences, 2019). Students acquire and refine selected nursing procedures through demonstration, supervised practice, and assessment within a simulated learning environment. Assessment checklists serve as structured tools for evaluating performance, with critical elements focusing on patient safety, ethical conduct, and essential competency standards. Developed by course task forces and aligned with learning outcomes, these checklists assess the critical elements of basic nursing skills. Faculty members with different levels of teaching experience and assessment responsibilities are involved in implementing laboratory courses and evaluating students' basic nursing skills (Oman College of Health Sciences, 2019).

Since nursing skills form the foundation of clinical competence development, laboratory assessments should align with clear methodological standards, course objectives, and evidence-based assessment practices. Despite this, evidence remains limited regarding how nursing faculty perceive and implement checklist-based assessment of laboratory skills, particularly in the context of multi-branch nursing education institutions such as those in Oman. Therefore, this study aims to explore nursing faculty perceptions and practices in evaluating basic nursing skills among nursing students at Oman College of Health Sciences, to inform improvements in laboratory assessment practices.

2. Methodology

2.1. Study Design

This study employed a qualitative descriptive design to explore nursing faculty perceptions and practices when evaluating nursing students' basic laboratory skills. A qualitative descriptive design is appropriate for studies that aim to provide a clear and direct description of participants' experiences and practices in real-world healthcare or educational settings (Doyle et al., 2020; Sandelowski, 2000). This design was suitable for the present study because limited evidence is available regarding nursing faculty perceptions and practices in checklist-based laboratory skills assessment within the OCHS context (Polit & Beck, 2021).

2.2. Study Setting

The study was conducted in Oman College of Health Sciences (OCHS), a government-established higher education institution in the Sultanate of Oman. The study was undertaken within the nursing programme across the college's seven branches: North Al Batinah, South Al Batinah, Al Dakhiliya, Al Dhahirah, Dhofar, North Al Sharqiyah, and South Al Sharqiyah.

2.3. Sampling and Participants

A purposive sampling technique was used to select participants who had relevant experience in teaching and evaluating basic nursing laboratory skills. Purposive sampling is appropriate for identifying information-rich participants who can provide in-depth insights into the phenomenon under study (Polit & Beck, 2021). This approach supported the inclusion of nursing faculty from Oman College of Health Sciences who were directly involved in laboratory courses and assessment activities. To obtain varied perspectives, participants were selected based on years of experience, nationality, and academic roles, including laboratory lecturers, laboratory coordinators, and course task force coordinators and members. Faculty members with less than two years of experience at OCHS, external teachers, and non-laboratory assessors were excluded to ensure that participants had sufficient institutional exposure and direct experience with OCHS laboratory teaching and assessment practices. Although participants were recruited from all seven OCHS branches, the qualitative design aimed to gain an in-depth understanding of nursing faculty perceptions and practices rather than to achieve statistical representativeness across branches.

2.4. Ethical Considerations

Ethical approval was obtained from the Research and Ethical Review and Approval Committee of Oman College of Health Sciences before recruitment and data collection (Approval No. OCHS/REC/PROPSAL-APPROVED/3/2024; Date: 17 January 2024). Written informed consent was obtained from all participants before the interviews. Participants were informed about the study purpose, voluntary participation, confidentiality, anonymity, audio recording, and the right to withdraw at any time without consequences. To protect participants' privacy, all interview recordings and transcripts were de-identified and assigned unique codes. Electronic data were stored on password-protected devices accessible only to the research team. Recordings, transcripts, and coded data will be retained in accordance with institutional research policy and securely deleted after the required retention period.

2.5. Recruitment Procedures

Following ethical approval, a gatekeeper from OCHS, who was a member of the overall research committee, contacted the research focal points in each branch to inform them about the study and assist in identifying potentially eligible participants. The branch research focal points shared the contact details of eligible faculty members with the gatekeeper, who then forwarded the information to the research team. As this recruitment approach may have introduced selection bias, the principal investigator subsequently contacted potential participants directly by telephone or email to provide further information about the study and invite their participation.

2.6. Data Collection Instrument

Data were collected using a semi-structured interview guide. The guide consisted of two sections. The first section gathered demographic information, while the second included open-ended questions with probing and follow-up prompts to explore participants' perceptions and practices related to the evaluation of basic nursing laboratory skills. These questions were developed in alignment with the research objectives while allowing participants to express their views freely without leading their responses. To ensure clarity and appropriateness, the interview

guide was reviewed by a qualitative research expert, and minor revisions were made based on the feedback received before data collection.

2.7. Data Collection Procedure

Interview dates and times were arranged by mutual agreement between the principal investigator and each participant. A total of 15 participants were interviewed, with 11 interviews conducted online via Zoom and four conducted face-to-face. Each interview lasted between 30 minutes and just over one hour. Face-to-face interviews were audio-recorded using a mobile recording application, while online interviews were recorded via Zoom. To enhance consistency across interview modes, all interviews were conducted by the principal investigator using the same semi-structured interview guide. Interviews continued until data saturation was achieved, as indicated by recurring themes and the absence of new substantive information.

2.8. Data Analysis

All interviews were transcribed verbatim, and each transcript was assigned a participant pseudonym. Two members of the research team reviewed the transcripts for accuracy and verification. The verified transcripts were coded and organized using Taguette, a web-based qualitative data analysis tool.

Data were analyzed using Braun and Clarke's six-step thematic analysis approach. This process involved familiarization with the data, generation of initial codes, searching for themes, reviewing and refining themes, defining and naming themes, and producing the final report. Thematic analysis was selected because it is a flexible and widely used method for identifying, analyzing, and reporting patterns within qualitative data (Braun & Clarke, 2006). The researchers used an iterative process throughout the analysis, moving back and forth between transcripts, codes, and themes to refine the findings (Dawadi, 2020). A codebook was maintained to document code definitions, theme development, and changes made during the analysis process.

2.9. Trustworthiness

Trustworthiness was enhanced through several strategies. Before coding, two members of the research team independently reviewed the interview transcripts to verify accuracy. Code and theme development were discussed collaboratively among the researchers to promote analytic consistency and minimize individual interpretive bias. An external qualitative research expert reviewed the coding process and emerging themes for clarity, relevance, and alignment with the study objectives. Member checking was also conducted via Zoom, during which preliminary findings were shared with participants for confirmation and validation.

Reflexivity was addressed by acknowledging the research team's institutional affiliation with Oman College of Health Sciences and their contextual familiarity with nursing laboratory instruction and assessment practices. Potential positional bias related to pre-existing professional relationships with some participants was minimized using a semi-structured interview guide, encouragement of open participant expression, and continued emphasis on confidentiality and voluntary participation throughout the study.

3. Results

3.1. Participants' Characteristics

Fifteen nursing faculty participated from multiple OCHS branches, both Omanis and non-Omanis. Online interviews predominated ($n = 11$). Science Teachers (8), Science Tutors (4), and Assistant Science Tutors (3). Most Masters ($n = 13$), two doctorates. Average age was 46.5, and average nursing education was 20.9 years. Participants taught Fundamentals of Nursing, Adult Health Nursing, and Maternal and Child Health labs. Some participants taught multiple courses. Table 1 summarizes participant profiles.

Table 1: Summary Profile of Participants (n = 15)

Characteristic	n (%) or Summary
Interview Mode	Online, 11 (73.3%); Face-to-face, 4 (26.7%)
OCHS Branch	North Al Batinah, 4 (26.7%); South Al Batinah, 3 (20.0%); Al Dakhiliya, 1 (6.7%); Al Dhahirah, 1 (6.7%); Dhofar, 2 (13.3%); North Al Sharqiyah, 2 (13.3%); South Al Sharqiyah, 2 (13.3%)
Role/Position	Science Teacher, 8 (53.3%); Science Tutor, 4 (26.7%); Assistant Science Tutor, 3 (20.0%)
Highest Qualification	Master's, 13 (86.7%); Doctoral, 2 (13.3%)
Age (Years)	Mean 46.5 years
Years in Nursing Education	Mean 20.9 years
Laboratory Courses Taught*	Fundamentals of Nursing (FON), 7; Adult Health Nursing (AHN), 7; Maternal Health Nursing (MHN), 3; Child Health Nursing (CHN), 2

*Counts are not mutually exclusive (some participants taught more than one course).

Figure 1 shows two main themes derived from the data analysis: (1) Checklist-Driven Evaluation and (2) The Nature of the Evaluation Process. The related subthemes describe issues concerning critical elements, checklist clarity, assessor judgment, faculty roles, organizational constraints, and standardization.

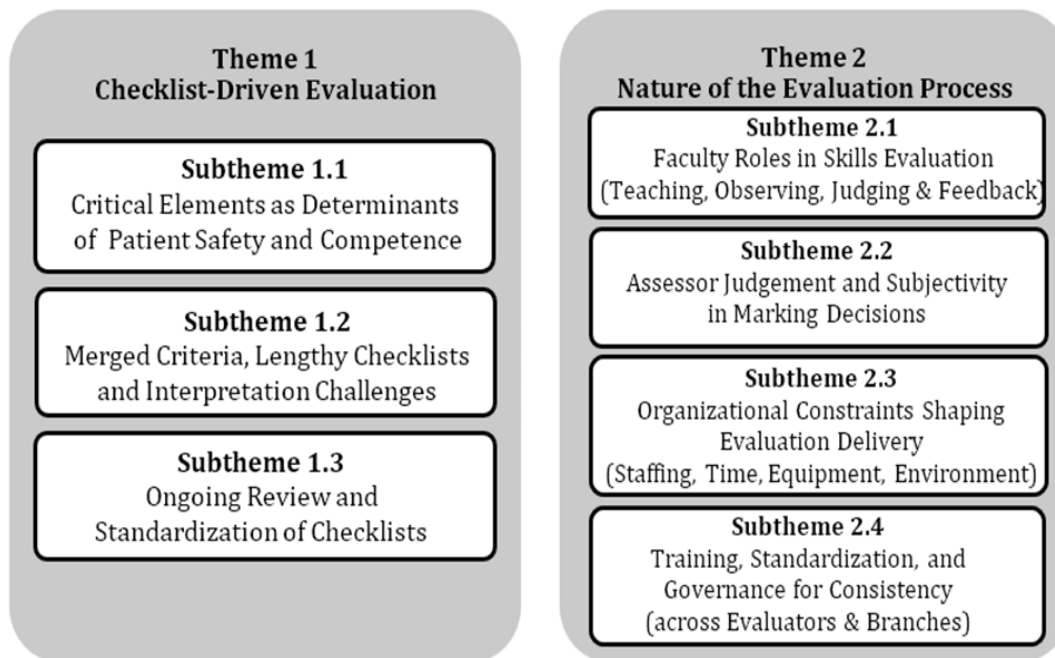


Figure 1: Thematic Framework Findings

3.2. Theme 1: Checklist-Driven Evaluation of Basic Laboratory Skills

All OCHS branches use the skills checklist as their main evaluation tool for all laboratory courses. Participants noted that checklists give structure and uniformity in evaluating student laboratory skills, but they also raised concerns regarding critical elements, interpretation issues, and the need for ongoing updates and standardization. One participant explained, “We follow the checklist in marking to be fair with all students.” (Participant 3, lines 25–27).

Subtheme 1.1: Critical Elements as Determinants of Patient Safety and Competence

Participants highlighted the steps with “critical elements” of the skills checklist as non-negotiable indicators of competence and safety. Missing these steps justified failure that could harm patients. A participant stated, “...we judge based on students’ performance, and we determine whether they are [safe to practice] ... if they missed a critical element, then we fail the student.” (Participant 1, lines 257–259)

To further clarify how critical elements are judged within this safety framework, one participant explained that the checklist operationalizes competence through explicit performance ratings: “The checklist clearly written [is] zero for not done... For two, like, competent... partially competent, and then competent.” (Participant 14, lines 108–110)

While other participants noted that the asterisk used to denote critical elements often became students’ primary focus: “They don’t mind a zero mark in any of the steps, except on the critical elements. They don’t care about the other steps, as far as they don’t forget the critical elements.” (Participant 11, lines 357–359)

However, most participants believed that there were inconsistencies in the placement of the critical elements in every checklist and across year levels. Based on one participant, “The critical elements have inconsistency issues ... it should be consistent throughout the laboratory skills, not [only] in [the] first year but also in all levels.” (Participant 10, lines 110–115)

Another participant echoed the same sentiment, “...it [critical elements] should be the same from one level to another level.” (Participant 13, lines 213–214)

Moreover, another participant illustrated how the designation of critical elements can fluctuate across year levels, creating inconsistent expectations as the students progress through the program. In addition, the participant emphasized that the task force committee in all laboratory courses must jointly agree on the placement of critical elements to ensure uniformity.

“What is happening is, let’s say, in the first year, this is not critical. But when they reach the second year, this is critical; in the third year, not critical; and in the fourth year, critical. So, there is no consistency. I think to have consistency from year one to four, all the leads for laboratory courses should sit for a particular skill to have the same critical elements.” (Participant 7, lines 129–133)

One more concern raised is related to the step placement of the critical elements, suggesting that the existing allocation may not genuinely reflect patient safety priorities. One participant noted that, “We have critical elements, but I don’t think they, like, make sense. Sometimes, yeah, we do consider that a critical element, but sometimes those critical elements are not critical.” (Participant 13, lines 137–139)

Another highlighted both over-identification and omission of truly safety-threatening actions, stating,

“I feel the allocation of this asterisk is more than supposed to be ... there is one point which is critical and there is no asterisk on it ... it needs really to be reviewed ... to put only the very critical things that endanger the patient’s life and safety.” (Participant 15, lines 180–184)

Subtheme 1.2: Merged Criteria, Lengthy Checklists, and Interpretation Challenges

Participants noted that checklist design and lengthy content may cause score ambiguity and inconsistency. One participant said, “It [the checklist] is very difficult to use in assigning the actual mark, as some steps include two or three elements in one statement.” (Participant 2, lines 134–153)

In addition, participants identified checklist length as a practical weakness during skills evaluation, noting that: “The weakness [of the checklist] is that it is very long. A very long checklist can make students, you know, confused.” (Participant 9, line 167)

Some checklist steps appeared to merge distinct phases of a procedure, which could blur the expected sequence of actions and contribute to student confusion. One participant noted, *“The procedure steps are merged, and we need to give more instructions to the students to avoid confusion.”* (Participant 14, line 276)

Subtheme 1.3: The Need for Ongoing Review and Standardization of Checklists

Faculty from all branches stressed the necessity for checklist reform to align with current clinical practice and reduce student confusion during clinical placement. One participant explained, *“We found out when we asked the staff in the hospital, those steps were not done anymore. So, there is some confusion with the student. The checklist must be revised by the task force now.”* (Participant 7, lines 118–119)

Likewise, some items in the checklist were no longer applicable in clinical settings and therefore required updates. One participant stated, *“It [the checklist] must be updated, as some steps were no longer applied in the hospital.”* (Participant 7, lines 133–134)

In addition to the checklist update being ideal in practice, most participants stressed the importance of standardizing the checklist implementation in the laboratory skills assessment to promote uniformity and fairness across all branches. One participant suggested, *“Review the checklist and, if possible, guidelines or rules in doing the return demonstration ... I think it will be better, so there will be uniformity in all the branches.”* (Participant 4, lines 349–351)

Participants also stressed multi-level collaboration in checklist revision, as one participant said, *“...when we go to practice, the checklist varies, and that creates some sort of confusion. I think we need to go back to lab skills courses task forces, they can meet and then update the checklist.”* (Participant 8, lines 88–94)

Overall, participants considered checklist review as a crucial quality assurance activity that aligns assessment with clinical practice, increases consistency across evaluators and campuses, and maintains fair, transparent, and justified expectations. Regular revision significantly reduced student misunderstanding when switching between lab and clinical environments and reinforced competency and patient safety norms.

3.3. Theme 2: Nature of the Evaluation Process in Laboratory Skills Assessment

This theme highlights faculty roles, assessor judgment, contextual constraints, and strategies for promoting consistent laboratory skills evaluation across assessors and OCHS branches.

Subtheme 2.1: Faculty Roles in Delivering Skills Evaluation (Teaching, Observing, Judging, and Feedback Provider)

The faculty described evaluation as a cycle of preparation, teaching, student observation, and feedback. Participants portrayed their role as ensuring students achieve competence through demonstration, re-demonstration, and corrective guidance. As one participant stated, *“We are making sure that the students are involved with us ... it starts with providing the students with the checklist, identifying the items ... also in demonstrating the skill.”* (Participant 5, lines 43–47)

Another participant stressed that evaluation must ensure fairness and patient safety during performance, saying, *“We follow the checklist in marking to be fair with all students. We give them feedback if there are things to be corrected or if there is any risk of harm to the patient; we are there to stop the students from causing harm.”* (Participant 3, lines 25–27)

A participant defined their main function as trainer and assessor:

“Training and evaluating the students, that’s my main role ... we first demonstrate and tell them the rationale of each step, why we must do it, and what is the proper way of doing those skills ... to see that they are prepared before we evaluate.” (Participant 1, line 212)

Feedback helps identify flaws and drive progress, as one participant highlighted. *“After evaluation, and we correct the papers, we give feedback. They will know exactly where they have made a mistake to avoid it next time.”* (Participant 9, lines 52–54)

Participants described laboratory skills evaluation as a continuous teaching–assessment cycle in which teachers prepare students, demonstrate and observe performance, provide corrective feedback, and avoid unsafe practice.

Subtheme 2.2: Assessor Judgment and Subjectivity in Marking Decisions

Despite reliance on checklists, participants acknowledged that judgment is involved in assessment decisions, particularly where performance is safe but incomplete, or checklist items require interpretation. One said, *“I think that the challenge is the subjectivity of the assessment.”* (Participant 8, lines 112–113)

Another participant directly acknowledged, *“Subjectivity is there. You need to decide whether to pass or not, especially if only one is missed out.”* (Participant 1, lines 622–623)

This difficulty led some participants to emphasize deliberate efforts to minimize bias by adhering strictly to checklist criteria, describing assessment as, *“...I read the checklist because the students are going to be evaluated using it. I comprehend [the checklist], so it will not be based on my knowledge, preferences, or experience. It’s based on the checklist.”* (Participant 13, lines 68–70)

This subtheme emphasizes the conflict between the checklist-based assessment’s objectivity and assessor judgment in skills evaluation.

Subtheme 2.3: Organizational Constraints Shaping Evaluation Delivery (Staffing, Time, Equipment, and Environment)

Faculty across branches described system-level constraints that affected the conduct of laboratory skills assessment, including staffing shortages, limited time, inadequate equipment, and resource limitations.

Staff shortage and workload were frequently identified as barriers. One participant noted, *“...here in our branch, we are having [a] shortage of nursing teachers ... that’s the main concern.”* (Participant 6, line 117)

Other participants linked staffing shortages with increasing student numbers and limited assessment time. One participant stated, *“...staff shortage is there because now the students’ number [is] increasing.”* (Participant 12, line 117)

Another participant added, *“We don’t have enough faculty to conduct the assessment, and we need to finish the assessment within a day.”* (Participant 8, lines 164–165)

Participants also expressed concerns about outdated mannequins and insufficient equipment. One participant stated, *“...because our mannequins are obsolete [laughs]. We need new mannequins, new equipment, it would really help ... the best recommendation also is simulation.”* (Participant 10, lines 237–239)

Another participant emphasized the need for improved simulation resources: *“We need high fidelity mannequins, some simulations, that is what we are lacking. Our resources are lacking, so we cannot go for a one-hundred percent judgment. That is the biggest problem we are facing now.”* (Participant 12, lines 67–69)

Resource limitations also extended to consumables and basic equipment. One participant noted, *“...we, teachers are making the indents. We request, and sometimes we buy the equipment from our own budget.”* (Participant 13, lines 248–249)

In addition to staffing and equipment concerns, participants highlighted limitations in laboratory space and infrastructure. One participant explained, *“...we have big numbers of students, but we don’t have enough area and*

equipment for the lab. This will improve the students' education in basic skills and will give them a better chance for practice.” (Participant 3, lines 78–81)

Overall, participants indicated that limited staffing, time, space, equipment, and simulation resources affected opportunities for repeated practice, supervision, feedback, and consistent delivery of laboratory skills assessment.

Subtheme 2.4: Training, Standardization, and Governance for Consistency (across Evaluators and Branches)

Participants stressed the importance of assessor training, standardized guidance, and task-force governance to reduce variation and improve consistency across evaluators and OCHS branches.

Several participants recommended structured training before faculty members evaluate students in different branches. One participant suggested, *“Before sending the teachers to other branches, it would be better to give training on how to evaluate the students in the lab to ensure uniformity for all branches.”* (Participant 4, lines 201–203) Participants also emphasized the need for periodic refresher training to maintain assessment standards. One participant stated, *“We need to go through training again, like me, for example. I’ve been teaching those skills for a long time, and I need an update, and other teachers too.”* (Participant 1, lines 877–881)

Participants also called for standardized institutional guidance to minimize variation in assessment practices across year levels and branches. One participant suggested, *“...a specific unified guideline for skill assessment is needed for all year level[s] ...”* (Participant 6, lines 167–168)

Governance through centralized task force committees was also viewed as important for strengthening consistency in laboratory skills assessment. Participants explained that task force committees could support the development and review of shared rubrics and checklists. One participant stated, *“...to co-develop uniform rubrics for best practice that is important.”* (Participant 12, lines 144–145) Another participant recommended task force-led review of laboratory skills checklists, stating, *“I strongly feel there should be a core committee that actually look[s] over the lab skills checklist, reviews and sees things that need to be removed, and needs to be consistent across all levels, not only one level.”* (Participant 8, lines 227–230)

Overall, participants described training, standardized instructions, and formal governance as complementary strategies for improving assessment uniformity, reducing assessor variability, supporting fair decision-making, and harmonizing expectations across branches and year levels.

Taken together, the findings suggest that faculty used structured checklists as a framework for assessing basic laboratory skills, while also recognizing challenges related to identifying critical elements, checklist clarity, assessor judgment, organizational constraints, and the need for greater standardization. These findings highlight that, although checklist-based assessment can promote consistency, its effective use still depends on professional judgment, assessor preparation, and institutional support.

4. Discussion

This study explored nursing faculty perceptions and practices related to the evaluation of nursing students' basic laboratory skills across OCHS. The findings showed that checklists were the primary tool used to evaluate student performance and were valued for promoting structure, consistency, and objectivity in laboratory assessment. At the same time, participants recognized that checklist-based assessment was not entirely free from subjectivity, particularly when checklist items lacked clarity, critical elements were interpreted differently across settings, or assessor judgment was required in borderline situations. Critical elements were seen as steps that must be performed consistently to support safe practice and function as safety gatekeepers, representing minimum thresholds for clinical readiness rather than measures of excellence (Oman College of Health Sciences, 2019). This finding is consistent with recent nursing education literature emphasizing the importance of structured skills laboratory learning, guided practice, feedback, and assessment in developing students' psychomotor competence

before clinical exposure (Harvey et al., 2024; Reaves et al., 2024). It also reflects broader assessment literature showing that structured tools can support consistency and transparency, but do not fully eliminate assessor interpretation or professional judgment in performance-based assessment (Malau-Aduli et al., 2023; Roduta Roberts et al., 2020).

However, the findings also showed that critical elements were not consistently defined across year levels and branches, with the same skill being labelled as critical in one course but not in another. Such inconsistency may undermine fairness, standardization, and assessor interpretation, particularly when pass–fail decisions depend on how critical elements are understood and applied. This may mean that pass–fail decisions reflect local practices rather than institution-wide standards. Recent assessment literature emphasizes that clear assessment criteria, assessor training, calibration, and shared understanding are needed to improve the consistency and quality of professional judgments in performance-based assessment (Malau-Aduli et al., 2023; Roduta Roberts et al., 2020). Faculty should also be cautious about linking critical elements directly to patient safety. Although laboratory assessment may strengthen students’ readiness for clinical practice, it does not by itself prevent adverse clinical outcomes. Patient safety is influenced by interactions among systems, teams, procedures, and practice environments, with education and assessment functioning as upstream safeguards (Carayon et al., 2018; World Health Organization, 2017). Therefore, critical elements should be viewed as structured indicators of minimum safe performance in the laboratory setting rather than direct predictors of patient outcomes.

Merged or multi-component checklist items and lengthy checklists emerged as important design challenges in checklist-based evaluation. Assessors may be required to score the partial completion of several actions within a single item, which can increase subjectivity and reduce scoring clarity (Oman College of Health Sciences, 2019). Even when structured tools are used, unclear or overly detailed criteria may increase reliance on assessor interpretation and professional judgment. These design weaknesses may lead to inconsistent scoring for equivalent performances, difficulty providing meaningful feedback, and student uncertainty regarding expectations. Recent assessment literature indicates that assessor cognition, interpretation of criteria, and differences in how assessors attend to performance evidence can contribute to score variability in performance-based assessment (Oudkerk Pool et al., 2018; Roduta Roberts et al., 2020). Therefore, checklist items should be clear, specific, and focused on observable performance criteria to support consistent scoring, transparent feedback, and fair assessment decisions.

Faculty calls for checklist updates suggest that some checklist criteria may no longer align with current clinical practices and that assessment tools may not adequately reflect evolving standards of care. Misalignment between laboratory and hospital practices may confuse students and contribute to the theory–practice gap (Tambunan, 2024). Because students may question procedural steps that no longer reflect routine care, systematic checklist review is necessary to preserve clinical relevance. In this sense, checklist-based assessment becomes not only a content issue but also a governance concern. Recent assessment literature emphasizes the importance of clear criteria, explicit rubrics, assessor training, calibration, and shared understanding in improving consistency and fairness in performance-based assessment (Malau-Aduli et al., 2023; Oudkerk Pool et al., 2018; Roduta Roberts et al., 2020). Task-force governance, assessor alignment activities, and common scoring guidance may help reduce unwarranted variation and support informed professional judgment in high-stakes pass–fail contexts. Using checklists, particularly critical elements, as institution-wide standards rather than course-specific tools may help improve uniformity, fairness, and credibility in laboratory skills assessment.

Participants repeatedly described the laboratory skills evaluation cycle as involving preparation, demonstration, observation, judgment, and feedback. Recent nursing education literature emphasizes that laboratory learning supports the development of psychomotor competence through structured instruction, simulation, deliberate practice, feedback, and reflective learning (Harvey et al., 2024; Reaves et al., 2024). Faculty prepare, instruct, and guide students in ways that help build both confidence and skill. The participants’ emphasis on feedback supports the view that continuous teaching and learning processes strengthen learning in the nursing skills laboratory. This integration of theory and practice may support the development of both psychomotor and cognitive skills.

Simulation literature also highlights the importance of faculty supervision and structured learning activities in promoting students' clinical competence and safe performance, which is consistent with participants' descriptions of intervening during unsafe performances (Al Balawi & Rezaq, 2024; Reaves et al., 2024).

Although participants valued checklists for promoting structure, consistency, and objectivity, they also recognized that assessor judgment continued to influence marking decisions, particularly in borderline cases and student mark disputes. This highlights an important tension in checklist-based assessment: while checklists can support standardization, they do not fully eliminate subjectivity. Recent assessment literature indicates that assessor cognition, interpretation of criteria, professional experience, contextual factors, and differing judgments about performance evidence can contribute to score variability in performance-based assessment (Oudkerk Pool et al., 2018; Roduta Roberts et al., 2020). The literature also suggests that structured assessment tools may not capture all dimensions of performance, requiring assessors to consider completeness, safety, professionalism, and overall competence when making judgments (Oudkerk Pool et al., 2018; Roduta Roberts et al., 2020). Therefore, assessor collaboration, calibration, shared understanding of criteria, and structured guidance may strengthen assessment quality and improve consistency in borderline judgments (Malau-Aduli et al., 2023; Roduta Roberts et al., 2020).

These findings should also be interpreted in light of the participants' academic and professional backgrounds. Most participants held master's degrees, while two held doctoral qualifications, indicating that the sample largely comprised academically prepared nursing faculty. In addition, participants had substantial experience in nursing education, which may have supported more informed reflections on checklist use, assessor judgment, standardization, and institutional factors influencing laboratory skills assessment. This is particularly relevant because assessor experience, interpretation of criteria, and professional judgment can influence decision-making in performance-based assessment (Malau-Aduli et al., 2023; Roduta Roberts et al., 2020). However, because the sample consisted predominantly of experienced and academically prepared faculty members, the findings may reflect the perspectives of established educators more than those of newly appointed or early-career faculty.

Participants also emphasized the importance of adequate nursing skills and laboratory resources. Recent simulation-based studies in nursing education show that resource constraints, including limited equipment, consumables, space, time, and faculty expertise, can affect the implementation and quality of simulation-based learning and skills development (Al Balawi & Rezaq, 2024; Park et al., 2025). Time limitations and equipment shortages may disrupt continuity of practice, which is essential for competency development and consistent assessment. In addition, outdated mannequins and limited access to advanced simulation resources may affect learning opportunities, clinical realism, and faculty confidence in performance decisions. Adequate resources, appropriate learning environments, faculty preparation, and structured instructional design are therefore important for effective skills laboratory teaching, simulation-based learning, and credible assessment of student performance (Getie et al., 2021; Park et al., 2025; Reaves et al., 2024).

Participants further advocated systematic training, standardization, and centralized coordination to reduce variability in assessment and address organizational constraints. Research on OSCEs and nursing skills assessment suggests that faculty training, clear guidelines, examination preparation, and collaboration can improve dependability, objectivity, fairness, and uniformity in assessment practices (Fisseha & Desalegn, 2021; John et al., 2021; Khan et al., 2022). Integrated evaluation rubrics, standardized procedures, and task-force recommendations may therefore help address concerns about differences in standards across assessors and settings. Recent assessment literature also indicates that shared understanding, assessor calibration, and structured guidance can reduce score variation and strengthen the quality of professional judgments in performance-based assessment (Malau-Aduli et al., 2023; Oudkerk Pool et al., 2018; Roduta Roberts et al., 2020). Without such shared understanding, assessors may unintentionally apply inconsistent pass-fail thresholds in borderline cases. Together, these findings reinforce the need for a coherent assessment framework, assessor preparation, and greater standardization across branches.

These findings have important practical implications for nursing educators and program administrators. For nursing educators, the findings highlight the need for regular review of checklist content, clearer identification of critical elements, and greater consistency in how assessment criteria are interpreted and applied. Ongoing faculty development, including assessor training, calibration exercises, and shared scoring guidance, may help reduce variation in judgment and strengthen fairness in pass–fail decisions. For program administrators, the findings emphasize the importance of institution-wide standardization across branches, structured governance of checklist development and revision, and adequate provision of time, equipment, and simulation resources to support credible and effective laboratory assessment. Strengthening these areas may improve the consistency, transparency, and educational value of nursing skills laboratory evaluation.

Taken together, the findings suggest that nursing skills laboratory assessment is shaped not only by checklist design but also by assessor judgment, faculty preparation, institutional resources, and governance structures. While checklist-based assessment can support consistency and fairness, its effective implementation depends on clear standards, assessor calibration, structured feedback processes, and sustained institutional support. These findings highlight the importance of continued institutional investment in nursing skills laboratory assessment as a core component of teaching, learning, and professional development.

5. Limitations

This study has several limitations. First, because it was conducted within a single higher education institution in Oman, the findings may not be transferable to other nursing education settings with different curricula, assessment systems, faculty profiles, or resource contexts. Second, although participants were recruited from all seven OCHS branches, the relatively small number of participants from each branch may not have fully captured branch-specific variations in laboratory skills assessment practices. Third, the study included nursing faculty only and did not incorporate student perspectives or direct observation of laboratory assessment practices. Fourth, the study focused on faculty members with at least two years of experience at OCHS to ensure sufficient institutional exposure to laboratory teaching and assessment practices; therefore, the findings may not fully reflect the perspectives of newly appointed or early-career faculty, particularly in relation to orientation, training needs, and adjustment to checklist-guided assessment. Fifth, the findings were based on self-reported interview data, which may not fully represent actual assessment practices in laboratory settings. Finally, the use of both online and face-to-face interviews may have influenced the depth of interaction and the observation of non-verbal cues during data collection.

Despite these limitations, the study provides valuable insight into nursing faculty perceptions and practices related to laboratory skills assessment across multiple OCHS branches and highlights important considerations for improving checklist-based evaluation in nursing education.

6. Conclusion

This study provides insight into nursing faculty perceptions and practices related to the assessment of basic laboratory skills across OCHS. The findings suggest that laboratory skills assessment is shaped by both checklist design and the broader nature of the evaluation process. While checklists were valued for promoting structure, consistency, and transparency, their effectiveness may be limited by unclear items, inconsistent use of critical elements, and variation across branches and year levels. At the same time, assessment remained influenced by professional judgment, particularly in borderline situations, highlighting the ongoing tension between objectivity and subjectivity in performance evaluation.

The study also highlights the importance of assessor preparation, checklist standardization, and institutional support. Regular checklist review, faculty training, calibration activities, and adequate laboratory resources may help strengthen fairness, consistency, and credibility in assessment. Overall, these findings contribute to understanding the complexities of nursing skills laboratory evaluation and may inform future improvements in nursing education, practice, and policy.

Acknowledgement

Special thanks to the OCHS Central Research Committee, as well as the associate deans and level coordinators, for their cooperation with data collection.

Data Availability Statement

The data generated and analyzed during this study are not publicly available due to the qualitative nature of the interview data and the need to protect participant confidentiality. The interview transcripts contain information that could potentially identify individual participants and institutional practices. De-identified excerpts of the data may be made available from the corresponding author upon reasonable request, subject to institutional approval and ethical considerations.

References

- Al Balawi, M. M., & Rezaq, K. A. (2024). Evaluating clinical skill competence and professional behaviors in nursing students following simulation training at the University of Tabuk. *SAGE Open Nursing*, 10, 23779608241274194. <https://doi.org/10.1177/23779608241274194>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Carayon, P., Wooldridge, A., Hose, B.-Z., Salwei, M. E., & Benneyan, J. (2018). Challenges and opportunities for improving patient safety through human factors and systems engineering. *Health Affairs*, 37(11), 1862–1869. <https://doi.org/10.1377/hlthaff.2018.0723>
- Dawadi, S. (2020). Thematic analysis approach: A step-by-step guide for ELT research practitioners. *Journal of NELTA*, 25(1–2), 62–71. <https://doi.org/10.3126/nelta.v25i1-2.49731>
- Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. *Journal of Research in Nursing*, 25(5), 443–455. <https://doi.org/10.1177/1744987119880234>
- Fisseha, H., & Desalegn, H. (2021). Perception of students and examiners about Objective Structured Clinical Examination in a teaching hospital in Ethiopia. *Advances in Medical Education and Practice*, 12, 1439–1448. <https://doi.org/10.2147/AMEP.S342582>
- Getie, A., Tsige, Y., Birhanie, E., Tlaye, K. G., & Demis, A. (2021). Clinical practice competencies and associated factors among graduating nursing students attending at universities in Northern Ethiopia: Institution-based cross-sectional study. *BMJ Open*, 11(4), Article e044119. <https://doi.org/10.1136/bmjopen-2020-044119>
- Harvey, G., MacLean, H., El Hussein, M. T., Zettel, S., & Benacchio, D. (2024). Developing formative strategies to support undergraduate nursing student's learning in the lab. *Journal of Nursing Education*. Advance online publication. <https://doi.org/10.3928/01484834-20240122-02>
- Immonen, K., Oikarainen, A., Tomietto, M., Kääriäinen, M., Tuomikoski, A. M., Kaučič, B. M., Filej, B., Riklikienė, O., Flores Vizcaya-Moreno, M., Perez-Cañaveras, R. M., De Raeve, P., & Mikkonen, K. (2019). Assessment of nursing students' competence in clinical practice: A systematic review of reviews. *International Journal of Nursing Studies*, 100, Article 103414. <https://doi.org/10.1016/j.ijnurstu.2019.103414>
- John, B., Narayanan, G., Al-Sawad, M., & Ali, N. S. (2021). Assessing clinical skills of nursing students: A triangulation study to explore faculty experiences and feedback in Objective Structured Clinical Examination (OSCE). *World Journal of Nursing Research*, 1(1), 8–20. <https://doi.org/10.31586/wjnr.2021.105>

- Khan, S. A., Naz, N., Khaum, S., Zabeeda, M., Siddique, U., & Salman, M. S. (2022). Perception of faculty teachers towards OSCE in public nursing colleges of Peshawar. *Pakistan Journal of Health Sciences*, 3(5), 157–161. <https://doi.org/10.54393/pjhs.v3i05.203>
- Malau-Aduli, B. S., Jones, K., Alele, F. O., O'Connor, T., & Teague, P.-A. (2023). Twelve tips for improving the quality of assessor judgments in the workplace-based assessment. *Medical Teacher*, 45(10), 1048–1054. <https://doi.org/10.1080/0142159X.2023.2216364>
- Nair, M. A., Muthu, P. S. B., & Abuijlan, I. (2024). The effectiveness of high-fidelity simulation on clinical competence among nursing students. *SAGE Open Nursing*, 10, 23779608241249357. <https://doi.org/10.1177/23779608241249357>
- Nursing and Midwifery Board of Australia. (2016). *Registered nurse standards for practice*. <https://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Professional-standards/registered-nurse-standards-for-practice.aspx>
- Oman College of Health Sciences. (2019). Nursing Programme Laboratory Skills Guidelines [Internal Institutional Document].
- Oudkerk Pool, A., Govaerts, M. J. B., Jaarsma, D. A. D. C., & Driessen, E. W. (2018). From aggregation to interpretation: How assessors judge complex data in a competency-based portfolio. *Advances in Health Sciences Education*, 23(2), 275–287. <https://doi.org/10.1007/s10459-017-9793-y>
- Park, Y.-S., Lee, S.-J., & Hur, Y. (2025). Facilitators, barriers, and future direction of high-fidelity simulation in nursing education: A qualitative descriptive study. *BMC Nursing*, 24, Article 881. <https://doi.org/10.1186/s12912-025-03541-8>
- Polit, D. F., & Beck, C. T. (2021). *Nursing research: Generating and assessing evidence for nursing practice* (11th ed.). Wolters Kluwer.
- Reaves, C., Martel, M., & Rose, K. A. (2024). Teaching psychomotor skills in undergraduate nursing education: An integrative review. *Journal of Nursing Education*, 63(7), 421–426. <https://doi.org/10.3928/01484834-20240505-01>
- Roduta Roberts, M., Cook, M., & Chao, I. C. I. (2020). Exploring assessor cognition as a source of score variability in a performance assessment of practice-based competencies. *BMC Medical Education*, 20, Article 168. <https://doi.org/10.1186/s12909-020-02077-6>
- Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334–340.
- Tambunan, E. H. (2024). Theory-practice gap during clinical learning: A descriptive qualitative study of nursing students' experiences and perceptions. *Journal of Caring Sciences*, 13(2), 74–81. <https://doi.org/10.34172/jcs.33251>
- World Health Organization. (2017). *Patient safety: Making health care safer*. World Health Organization. <https://www.who.int/publications/i/item/WHO-HIS-SDS-2017.11>

استكشاف تصورات وممارسات أعضاء هيئة التدريس في التمريض بشأن تقييم المهارات الأساسية في المختبر لدى طلبة التمريض

مريم الشيزاوي^١، بيرلين جوي ليسيو^{٢*}، كارين كاستيلو^٣، فاطمة البلوشي^٤، فاطمة حمدان المقبالي^٥
^{١,٢,٣,٥} قسم التمريض، فرع شمال الباطنة، كلية عُمان للعلوم الصحية، صحار، سلطنة عُمان.
^٤ قسم السنة التأسيسية، فرع شمال الباطنة، كلية عُمان للعلوم الصحية، صحار، سلطنة عُمان.

الملخص:

الأهداف: هدفت هذه الدراسة إلى استكشاف تصورات وممارسات أعضاء هيئة التدريس في التمريض بشأن تقييم المهارات المختبرية الأساسية لدى طلبة التمريض في كلية عُمان للعلوم الصحية.

المنهجية: استخدم تصميم وصفي نوعي في هذه الدراسة. وحصلت الدراسة على الموافقة الأخلاقية من لجنة البحوث والمراجعة الأخلاقية بكلية عُمان للعلوم الصحية. وتم اختيار خمسة عشر عضواً من أعضاء هيئة التدريس في التمريض بطريقة قصدية من جميع فروع الكلية السبعة للمشاركة في مقابلات شبه منظمة، أجريت إما حضورياً أو عبر منصة زوم. واستكشفت المقابلات خبرات المشاركين، وممارساتهم في تقييم المهارات المختبرية، والتحديات المرتبطة بتقييم المهارات المختبرية الأساسية. ثم فرّغت بيانات المقابلات، ورُمِزت باستخدام برنامج Taguette، وحُلِّلت وفق المنهج الموضوعي الذي اقترحه براون وكلاارك.

النتائج: أسفر تحليل البيانات عن موضوعين رئيسيين: (١) التقييم القائم على قوائم التحقق للمهارات المختبرية الأساسية، والذي يعكس الاعتماد الكبير على قوائم التحقق المنظمة بوصفها الآلية الرئيسية للحكم على كفاءة الطلبة، مع إبراز التحديات المتعلقة بالعناصر الحرجة، ووضوح قوائم التحقق، وتوحيد معايير التقييم؛ و(٢) طبيعة عملية التقييم في تقويم المهارات المختبرية، والذي يجسد السياق الأوسع لعملية التقييم، بما في ذلك أدوار أعضاء هيئة التدريس، والحكم المهني للمقيمين، والقيود التنظيمية التي تؤثر في ممارسات التقييم.

الاستنتاج: تشير النتائج إلى أن قوائم التحقق تسهم في تعزيز التنظيم، والاتساق، والعدالة في تقييم المهارات المختبرية، في حين يظل الحكم المهني عنصراً أساسياً في عملية التقييم. كما تحدد الدراسة مجموعة من الأولويات العملية، تشمل وضع إرشادات أكثر وضوحاً للتقييم، والتطوير المستمر لقوائم التحقق، وتقديم تدريب موجه للمقيمين، وتوفير الدعم المؤسسي الكافي. ومع ذلك، ينبغي تفسير هذه النتائج في ضوء كونها مستمدة من دراسة أجريت في مؤسسة واحدة واعتمدت على الإفادات الذاتية لأعضاء هيئة التدريس. وتوصي الدراسة بإجراء بحوث مستقبلية تتضمن وجهات نظر الطلبة وبيانات الملاحظة المباشرة لتعزيز فهم فاعلية التقييم القائم على قوائم التحقق.

الكلمات المفتاحية: تقييم المختبر، البحث النوعي، أعضاء هيئة التدريس في التمريض، المهارات المختبرية الأساسية، طلبة التمريض.