HLRC | HIGHER LEARNING RESEARCH COMMUNICATIONS

Higher Learning Research Communications
2023, Volume 13, Issue 2, Pages 61–82. DOI: 10.18870/hlrc.v13i2.1425

Original Research

WALDEN UNIVERSITY

Scaffolded Simulation in Psychiatric Mental Health Nursing Education

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Abstract

Objectives: The purpose of this study was to investigate the impacts of using scaffolded clinical simulations on nursing students' confidence in clinical reasoning, clinical judgment, and critical thinking skills. Next, we also attempted to gain insights into students' perceptions of the benefits of scaffolded clinical simulations.

Method: We used a mixed-methods research design to investigate the impacts of using scaffolded clinical simulations on 133 second-semester baccalaureate nursing students' confidence in clinical reasoning, clinical judgment, and critical thinking skills.

Results: Findings from this study indicate that students who perceived the benefits of scaffolded simulation activities (i.e., peer observations, debriefings, and self-reflections) were more likely to engage in this deep learning process, which in turn led to their higher confidence in clinical reasoning, clinical judgment, and critical thinking skills.

Conclusions: This study demonstrates that scaffolded simulations in psychiatric clinical settings, coupled with the novice to expert model in nursing education, are a valuable tool for preparing nursing students for the rigors of clinical practice, despite decreased in-person client experiences in nursing programs.

Implications: This study has implications for designing and implementing scaffolded clinical simulations that foster clinical judgment and help students perform tasks with which they are already familiar, while new responsibilities are introduced throughout the semester.

Notes: **Conflict of interest**: The authors disclose that they have no actual or perceived conflicts of interest.
Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Keywords: *scaffolding, nursing education, Patricia Benner, simulation*
Date Submitted: April 3, 2023 | **Date Accepted:** October 3, 2023 | **Date Published:** December 6, 2023

Recommended Citation

Bobo, L., Mikel, S., Chandler, Y., & Tseng, H. (2023). Scaffolded simulation in psychiatric mental health nursing education. *Higher Learning Research Communications, 13*(2), 61–82. https://doi.org/10.18870/hlrc.v13i2.1425

Introduction

Baccalaureate nursing program cohort sizes continue to increase, despite a decrease in clinical site availability (Aebersold, 2018). Faculty in an undergraduate baccalaureate nursing program therefore sought to incorporate meaningful simulation learning experiences to supplement hospital-based clinical experiences. Scaffolded simulation allows nursing students to progress in their learning, despite the lack of in-person clinical experiences. The potential to provide safe, high-quality care is contingent upon the ability to deliberate and decide the appropriate action for any patient situation. Evidence shows there are three crucial and related skills in nursing, which are referred to as the *3C skills*: critical thinking, confidence in clinical reasoning, and clinical judgment. This evidence helps guide best practices for teaching, learning, and assessment of clinical judgment in new graduate nurses (Jessee, 2021). Simulation is often used throughout the nursing curriculum to offer opportunities for students to engage in critical decision-making activities (Guerrero et al., 2022; Stenseth et al., 2022). Research supports simulation to improve necessary thinking skills and foster clinical judgment (Strickland et al., 2017). Moreover, as nursing education becomes more dependent on technology and independent learning, scaffolding is often incorporated into curriculum design. Current definitions of scaffolding describe the use of supportive technological learning environments for complex cognitive tasks and thinking processes. With educational scaffolding, students receive support along their learning journey, and a gradual withdrawal of assistance occurs as the learner becomes more independent. Scaffolding moves a learner from dependence on faculty to self-reliance. Effective scaffolding facilitates content proficiency and skill progression alignment and reveals where support for students may be required (Coombs, 2018).

Benner et al. (1996) asserted, “The assumption that nurses are fully ready to practice by the time they finish nursing education reflects the difficulty within the culture and the discipline in recognizing expertise acquired through experience in practice” (p. 314). To explain how nurses acquire skills and knowledge and to close gaps between theory and practice, Benner (1984) applied and extended Dreyfus and Dreyfus’ (1980) skill acquisition work to nursing. Benner (1984) described five specific stages nurses move through as they gain skills and proficiency: (a) novice, having no experience and able to perform tasks that can be recognized without situational experience; (b) advanced beginner, can demonstrate marginally acceptable performance, has enough real experience learned from recurrent situational components; (c) competent, has specific experience, can now see his or her actions in terms of long-range plans; (d) proficient, has the ability to recognize whole situations and know how to modify plans in response to unexpected events; and (e) expert, has enormous background and experience and can operate from a deep understanding of the situation (Appendix A). Furthermore, Benner (1984) argued that for nurses at the competent level to advance to the proficient or expert levels of performance, adapting simulation-based learning can be beneficial for providing opportunities to practice planning and coordinating multiple and authentic patient care demands.

A noteworthy issue in nursing education is coordinating theory and clinical practice. After reviewing evaluations and course synopses in clinical courses, researchers noted that students reported a need for greater understanding of the 3C skills. To develop these skills in undergraduate psychiatric nursing students, we proposed an innovative approach for designing multiple psychiatric scenario-based simulations, by coupling scaffolding with the novice to expert model.

Literature Review

Scaffolding in Teaching and Learning

Scaffolding is the allocation of support to promote understanding when introducing skills to the student nurse, which is followed by a gradual withdrawal of faculty counsel as the student nurse progresses and assumes an increasingly independent role (Valdez et al., 2013). One advantage of using scaffolded clinical simulation is that the participants can learn and make mistakes in a secure and supervised environment (Higginson & Williams, 2018). The increasing difficulty of scenarios allows students to build confidence in client interactions. Several studies report that simulation improves psychomotor skills, procedural compliance, critical thinking, clinical decision-making, communication, interprofessional relationships, and team dynamics (Zook et al., 2018). Research indicates that nurses with higher confidence, knowledge, and self-efficacy are more prepared to deal with problems they encounter, particularly in terms of client safety (Lyons et al., 2017).

Research also shows that learning occurs during the debriefing phase of simulation because participants are asked to reflect on performance (Coro-Montanet et al., 2021) and identify what is required for future development (Mulvogue, 2019). According to Kinney (2022), simulation-based learning is not only an effective way to engage students, but also a teaching strategy to establish strong trust within cohorts. Moreover, Tseng and Hill's (2020) study reveals that students are more confident in applying their existing knowledge in simulations that are designed to transfer theory to practice in a non-threatening environment.

Scaffolding in education is analogous to building construction. The building is the student's understanding of concepts under study, and the scaffolding is the support to guide the student to competency, just as scaffolds allow construction workers to reach the higher levels of a building. As a building's construction is completed, scaffolds are gradually removed. In the same way, the number of scaffolds in a simulation decreases as the student comprehends the targeted concepts. As scaffolding is reduced, students naturally assume more responsibility for grasping concepts, and they depend less on assistance (Quarles et al., 2009). The assumption that content comprehension and clinical experience alone will create safe, effective students is false. In education, scaffolding introduces multiple techniques to help students progress toward greater understanding and become more independent learners (Al Mamun et al., 2020; Ludwig-Hardman & Dunlap, 2003). There are several types of scaffolds. Conceptual scaffolding, for example, uses cues to help students arrive at a solution. Other types of scaffolding include coaching, which offers a direct teaching approach; feedback, which provides ongoing suggestions while the task is underway; reflection, which requires students to self-monitor their practice; and modelling, which involves exemplars or demonstrations of anticipated performance. Simulation encourages active participation among students, because they are directly involved in the learning process (Erlam et al., 2017). Scaffolding in the simulation setting allows students to engage in tasks beyond their current skill level in a safe environment. As learners progress through scaffolded simulations, comprehension and critical thinking skills improve (Ahmadi Safa & Motaghi, 2021).

We designed the simulations used in this study using the novice to expert model derived from the Dreyfus model (Dreyfus & Dreyfus, 1980). The theory of novice to expert (Benner, 1984) also served as a framework for assessing and anticipating the developmental progress of the cohorts in all domains of the simulation-based curriculum. The theory posits that skills are mastered through clearly planned instruction, practices, and experience (Inch, 2013). This theory can help nursing educators tailor the experiences to students' current stages of development and design the scenarios, degrees of interventions, and feedback provided accordingly (Davis & Maisano, 2016). For instance, since the novice nurse has no experience and needs rules and directions to accomplish tasks, the initial scenario in the simulation must be designed constructively to guide students in developing a care plan for their patients. Moreover, we incorporated pre-briefing into every scenario to assist students in outlining learning objectives and becoming familiar with the simulation-based context (Page-

Cutrara, 2015). We provided detailed and structured feedback to help novices recognize their knowledge level and build a foundation for learning improvement (Brykczynski, 2017). We also incorporated the theory of novice to expert to encourage self-reflection and collaboration with a team member (Tseng et al., 2019) to resolve patient problems. Self-reflection is an instrument for recounting student experiences that profoundly impacts learning. In particular, it allows nursing students to refine their capacity to recognize and analyze complications and discover solutions (Reljic et al., 2019). Next, we gradually increased the complexity of the scenarios, as students progressed through the stages of competence. Although we increased the levels of challenging patient issues, opportunities for decision-making, and real-world cases of prioritizations, we kept the scenarios manageable and helped students bridge the gap between practical experience and theoretical knowledge.

Due to newly licensed nurses' need to address increasingly complex decisions during patient care, the National Council of State Boards of Nursing (NCSBN) developed the clinical judgment measurement model (NCJMM) to validate entry-level clinical judgment and decision-making. One approved item type is an unfolding case study, which contains questions representing a clinical scenario that evolves as the patient's condition changes (NCSBN, 2023). We designed each scenario to unfold based on student intervention. If the anticipated interventions were appropriate and therefore incorporated, the simulation would move forward as expected; however, if incorrect actions were performed, there would be a change in patient status, requiring additional patient care. Along with suitable clinical judgment, licensed nurses must maintain a nonjudgmental and supportive attitude, provide a safe environment, voice an authentic intent to help, and demonstrate interpersonal skills in validating the client's pain and emotional state (American Psychiatric Nurses Association, 2015).

Purpose of the Study and Research Questions

The purpose of this study was to investigate the impacts of using scaffolded clinical simulations on confidence in clinical reasoning, clinical judgment, and critical thinking skills in nursing students. We also wanted to gain insights into student perceptions of the benefits of scaffolded clinical simulations. A mixed-methods research design was used to address the following research questions:

RQ1: Did nursing students' confidence in clinical reasoning, clinical judgment, and critical thinking improve as they progressed through four scaffolded simulations?

RQ2: What are the relationships between nursing students' clinical related skills (confidence in clinical reasoning, clinical judgment, and critical thinking) and their perceptions of the effectiveness of scaffolded simulation after they have completed the multi-patient simulation?

RQ3: What are nursing students' perceptions of their learning experience and clinical judgment in relation to the scaffolded clinical simulations?

Methods

Participants and Research Design

The undergraduate nursing program faculty collaborated with the drama department and recruited live actors enrolled at the university. Four scaffolded simulations were conducted over one academic year, involving approximately 150 second-semester baccalaureate nursing students enrolled in a second-level, five-credit-hour psychiatric nursing course. This course was the first semester of clinical experience in a 3-year internship journey, and it introduced therapeutic nursing communication in a mental health setting. Participants had no psychiatric clinical or simulation experience, and the median student age was 21. The study was approved by the institutional review board at the researchers' university.

Researchers for this study incorporated the novice to expert model and the clinical judgment measurement model into the scaffolded simulations to refine students' critical-thinking skills and help them gain knowledge from previous experience. During the initial simulation, when students were novices or beginners, they concentrated on therapeutic communication, a focused psychiatric assessment, and safety. The second simulation added medication administration and monitoring of side effects, review of laboratory values, and nursing interventions that advanced students to the beginner or competent level. The third simulation introduced a potential medication error, requiring physician notification and obtainment of a telephone order, which resulted in classifying students as competent or proficient. Finally, the fourth simulation incorporated the skills from previous experiences while requiring students to care for multiple patients with diverse issues. This necessitated participants to focus on prioritization and delegation, demonstrating performance at the proficient or expert levels.

Settings and Scenarios of Four Scaffolded Simulations

The mental health patient scenarios increased in complexity throughout the semester, while coordinators withdrew faculty support, per scaffolding and novice-to-expert models. Drama students and recruited live actors received a script and instructions for ad-lib parameters to ensure each student nurse received a similar experience (Appendix B). In preparation for high-level simulation, the course set clear objectives and expected outcomes for each simulation-based experience, and faculty provided this information to students before each experience. Faculty delivered content in the classroom, and students completed relevant instructional modules before each simulation. Using a learning management system, students completed a "Ticket to Sim," an assessment of classroom knowledge consisting of twenty questions, prior to entering the simulation. They were required to show documentation to the pre-briefer before the event. Participants were required to meet a mastery level of 90% for admission, in order to confirm the acquisition of the knowledge, skills, and attitudes (KSA) needed for continued improvement of the quality and safety in the healthcare setting (Quality and Safety Education for Nurses [QSEN] Project, 2022). Nursing students signed a confidentiality and realism contract stating that all communication, including feedback and discussion, must be straightforward and delivered respectfully. During simulation and debriefing, students were encouraged to discuss the experience and relevant content amongst themselves, but guiding students who still needed to complete the scenario was prohibited since sharing simulation details would compromise the integrity of the activity and violate professional and ethical conduct.

Students were randomly paired in groups of two, and each participant played the role of nurse in each simulation experience. All students received a situation, background, assessment, and recommendation (SBAR) report at the beginning of the simulation. The SBAR communication tool is used frequently in healthcare and has been proven effective in reducing clinical errors. This tool provides a framework for communication among healthcare team members about a patient's condition, and it can be used when formulating any conversation requiring a clinician's immediate attention (Park, 2020). Upon arrival at the bedside, all students obtained vital signs and performed a head-to-toe assessment; thereafter, each simulation varied in difficulty and required faculty support.

According to the International Nursing Association of Clinical and Simulation Learning (INACSL), all simulation-based tasks must include a debriefing process, which may include feedback, debriefing, or guided reflection (Watts et al., 2021). After each of the four simulations, there was a 1-hour debriefing session. Debriefing for each simulation followed the same pattern, with general leads specific to each scenario. Nursing students were randomly assigned to focus groups with course faculty, who used a script to ask questions (Appendix B). During the focus groups, feedback was provided to help identify core concepts and to improve beginner nursing students' skills in assessment, recognition of nursing problems, implementation, and evaluation. The purpose of the focus group sessions was to encourage the students and make them more secure in developing their nursing skills, as well as to collect data. Faculty adapted feedback based on the mastery of student learning outcomes.

The students completed self-reflection questions (Appendix C) in the learning management system. Finally, students shared thoughts and feelings anonymously about the simulation experience through the learning management system. They were asked to provide suggestions for altering the simulation to better meet their learning needs.

The four simulations are described below.

Therapeutic Communication Simulation

The first simulation focused on therapeutic communication with a client in crisis after a house fire. The primary objectives of the live-actor simulation were to identify the signs and symptoms of a patient in crisis, complete a focused psychiatric nursing assessment, practice therapeutic communication, and provide a safe environment by inspecting client belongings and evaluating environmental safety. Another primary focus of this simulation was to help students become comfortable assessing for suicidality. Nurses must develop a therapeutic relationship with clients at risk for suicidality. Students did not administer medications or monitor lab values during this scenario, which allowed them to focus on the basic psychiatric nursing skills of communication, safety, and developing rapport with a client. Actors were provided a script and asked to limit ad-libbing to decrease distractions from the objectives and to provide continuity of experiences. The faculty provided actors with a checklist to evaluate their perceptions of student goal attainment.

Bipolar Simulation

The second simulation featured a client diagnosed with bipolar disorder who was experiencing a manic episode. Objectives for this simulation were to identify the signs and symptoms of increasing mania; complete a focused psychiatric nursing assessment, including an assessment of suicidality; practice therapeutic communication; apply practical techniques for managing delusions of grandeur; and maintain a safe environment. Students were to administer psychiatric medications safely, monitor for side effects, examine lab values, and recognize and intervene appropriately for nutrition imbalance. A lithium level was on the client's medical record, and the students had to determine if the lab results were within a normal range before administering the medication. Faculty debriefers for this simulation asked the participants about the deterrents encountered when completing the nursing interventions for this client and allowed them to critically analyze strategies used during the simulation.

Schizophrenia Simulation

The third simulation highlighted a client diagnosed with schizophrenia. Although safety and communication were primary objectives, the faculty introduced several potential errors. First, the students were to administer Risperdal, per physician orders. If administered, the client began itching. The objective was for students to recognize the potential medication error prior to this, but if they did not, they would notice the symptoms and take steps to correct them. If the medication error was identified, and the student notified the physician, they would receive an order for Clozaril. Additionally, they were meant to acknowledge the need to monitor the complete blood count for elevated white blood cells, an adverse effect of the medication. Also, participants were required to monitor for extrapyramidal side effects from prescribed medications and were expected to recognize and intervene appropriately.

Multi-Patient Simulation

The final simulation was a multi-patient scenario focused on prioritization and delegation. The objectives of this simulation were to identify adverse reactions to psychiatric medications experienced by patients with schizophrenia. Learners were asked to complete a nursing assessment of various patients and to prioritize care based on assessment findings while collaborating with the nursing team to develop a care plan for multiple patients.

The first client with schizophrenia experienced neuroleptic malignant syndrome. A high-fidelity mannequin was used, rather than a live actor, so physical symptoms could be presented. Students were to assess the client and identify a temperature of 103.6, a heart rate of 130, a blood pressure of 150/100, diaphoresis, muscle rigidity, and an inability to swallow. Participants needed to connect these symptoms with prescribed medications. They were to notify the physician, provide increased care, prepare for emergency interventions, and monitor the client until orders were received.

The second client with schizophrenia experienced agranulocytosis, and a live actor was used. Students performed an assessment and were required to recognize a sore throat, fever, and flu-like symptoms that could be related to Clozaril. Students would not administer Clozaril and would review physician orders. Participants would then request a complete blood count, per the physician's standing orders, and report the white blood cell levels to the primary care provider.

The third client with schizophrenia experienced extrapyramidal symptoms (EPS). Participants were to perform an assessment and recognize EPS. In addition, they needed to avoid administering scheduled antipsychotic medications. Students were to review the medication administration record, check orders for Cogentin, Artane, or Benadryl, administer as ordered, and notify the primary care provider for further orders.

The fourth client with schizophrenia experienced anticholinergic effects. Nursing students performed an assessment, administered prescribed medications, and identified side effects. The client was allowed to open their medication, and the student offered an unopened snack. Students were expected to educate the client about medication side effects and management and to report findings to the charge nurse for discussion in the daily team meeting.

The fifth client had depression and suicidal ideations and was experiencing postural hypotension. Students assessed the client in pairs and discovered postural hypotension by checking blood pressure while the client was lying, sitting, and standing. Participants reported their findings to the assigned charge nurse, also a nursing student. The client was then to be educated about causes and interventions for postural hypotension. Ten minutes into the scenario, the charge nurse called for a huddle, and all students gathered to prioritize client care. Students reported all findings to the charge nurse for discussion in the daily team meeting.

Instrumentation

Learner perceptions were measured using a questionnaire that was administered through the university learning management system. The Simulation Evaluation Questionnaire consists of 13 items and one open-ended question developed by the researchers. Three researchers, who have over five years of teaching experience with clinical simulation-based courses and are content experts in simulation development and testing, reviewed the questionnaire. They concluded that the items reflected the content domain and were appropriate in the learning context for clinical practices. The questionnaire aimed at gathering students' insights on their learning experience and perceptions for altering the simulation to meet their learning needs better (see Appendix D). Each item is measured on a 3-point Likert scale with higher scores indicating greater levels in the four categories of *confidence in clinical reasoning, clinical judgment, critical thinking,* and *perceived effectiveness of scaffolding simulations*. Alpha for the entire scale was .906, indicating excellent internal consistency.

Confidence in Clinical Reasoning

This category includes six items, with Cronbach's alpha of .866. Mean scores were calculated by taking the average of all six items of the category. Higher scores indicate greater levels of confidence in developing an action plan by collecting and processing patient information. Example items include, "I feel better prepared to care for real patients," "I developed a better understanding of the pathophysiology of the conditions in the simulation experience," and "I feel more confident in my decision-making skills."

Clinical Judgment
This category includes two items, with Cronbach's alpha of .592. The items are, "I developed a better understanding of the medications that were in the simulation," and, "I am more confident in determining what to tell the healthcare provider."

Critical Thinking
This category includes two items, with Cronbach's alpha of .672. The items are, "The instructor's questions helped me to think critically," and, "I was challenged in my thinking and decision-making skills."

Perceived Effectiveness of Scaffolding Simulations
This category includes three items, with Cronbach's alpha of .726. The items are, "Completing the simulation helped me understand the classroom information better," "I learned as much from observing my peers as I did when I was actively involved in caring for the simulated patient," and, "Debriefing and group discussion were valuable."

Data Analysis

The data analysis in this study involved descriptive analysis, one-way analyses of variance (ANOVA), correlational analysis, and thematic analysis. IBM SPSS Statistics version 28.0 was used for statistical analysis. For RQ1, a one-way ANOVA was conducted to examine if participants' mean scores on confidence in clinical reasoning, clinical judgment, and critical thinking differed as they progressed through four scaffolded simulations (with alpha set at .01). Additionally, Fisher's least significant difference (LSD) was used to identify exactly which simulations differ significantly from one another. For RQ2, a correlational analysis was performed to test the degree of the relationships between students' mean levels on the three clinical related skills and their perceptions of the effectiveness of scaffolded simulations for the multi-patient simulation.

The third research question involved thematic analysis. Thematic analysis is a "qualitative research method that can be widely used across a range of epistemologies and research questions" (Nowell et al., 2017, p. 2); it was used to explore participants' additional comments regarding the benefits of scaffolded simulations in their clinical learning. For the qualitative (thematic) analysis, we followed Braun and Clark's (2006) method, which consists of six phases: (a) familiarizing oneself with the data, (b) generating initial codes, (c) searching for themes, (d) reviewing the themes, (e) defining and naming themes, and (f) producing the report. We made use of these phases in our analysis: (1) First, we read the students' responses several times and marked ideas for coding. (2) Next, we coded interesting features of the data and grouped them into short segments, using Taguette (Rampin et al., 2019) qualitative data analysis software. (3) Then we collated the different codes into potential themes. (4) These themes were reviewed to ensure they were related to the coded extracts and the entire data set. (5) Then we named our themes, describing what concepts each theme captures. (6) Finally, we selected the extracts that were the most vivid and most relevant in terms of theory and employed them in reports and discussions.

Results

The results of the descriptive statistics and ANOVA for each clinical-related skill associated with four scaffolded clinical simulations are shown in Table 1. First, the results showed that participants reported similar levels of confidence in clinical reasoning across four simulations, with the largest difference in means of .047 (between the bipolar and schizophrenia simulations). The results indicated means on clinical judgment were improved (from $M = 2.41$ to $M = 2.84$; $F(3,537) = 22.81$, $p = .001$) as students progressed through each simulation and scenarios increased in complexity. Moreover, ANOVA post hoc test using LSD indicates that participants' mean levels were statistically and significantly higher on the multi-patient

simulation (M = 2.84, SD = .34), the schizophrenia simulation (M = 2.77, SD = .38), and the bipolar simulation (M = 2.71, SD = .42) than those on the therapeutic communication simulation (M = 2.41, SD = .63). In terms of critical thinking, means were high on all simulations, ranging from 2.92 to 2.97.

Table 1. *Means, Standard Deviations, and One-Way Analyses of Variance on Clinical Related Skills of Four Simulations*

	Therapeutic communication (n = 129)	Bipolar (n = 138)	Schizophrenia (n = 141)	Multi-patient (n = 133)		
Variable	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*F*	*p*
All survey items	2.80 (.20)	2.83 (.25)	2.86 (.24)	2.87 (.63)	2.02	.111
Confidence in clinical reasoning	2.82 (.27)	2.79 (.31)	2.84 (.29)	2.82 (.31)	.60	.616
Clinical judgment	2.41 (.63)	2.71 (.42)	2.77 (.38)	2.84 (.34)	22.81	.001
Critical thinking	2.97 (.11)	2.94 (.21)	2.92 (.24)	2.94 (.20)	1.73	.16

Correlational Analysis

Table 2 depicts the Pearson correlation coefficients between confidence in clinical reasoning, clinical judgment, critical thinking, and perceived effectiveness of scaffolding simulations for the multi-patient simulation. First, participants reported the highest mean score (M = 2.94, SD = .20) on their critical thinking skills; in addition, they also expressed strong perceived effectiveness of scaffolding simulations (M = 2.92, SD = .22). Next, the results also revealed that all factors were statistically intercorrelated, with Pearson correlation coefficients (r) ranging from r = .37 to r = .78 (p < .001). Confidence in clinical reasoning was positively and significantly correlated with clinical judgment (r = .78, p < .001). Finally, the results indicated that participants' perceived effectiveness of scaffolding simulations was highly and significantly correlated with their confidence in clinical reasoning (r = .69, p < .001), followed by critical thinking (r = .68, p < .001) and clinical judgment (r = .58, p < .001).

Table 2. *Descriptive Statistics and Correlation among Factors for the Multi-patient Simulation*

Factors	*M*	*SD*	1	2	3	4
Clinical related skills						
Confidence in clinical reasoning	2.820	.307	1			
Clinical judgment	2.838	.335	.783**	1		
Critical thinking	2.944	.201	.407**	.371**	1	
Perceived effectiveness of scaffolding simulations	2.920	.218	.688**	.583**	.675**	1

*Note: **p < .001*

Thematic Analysis

Three major themes emerged from students' responses. These are 1) confidence and preparations for real clinical experience, 2) understanding and interaction in the hospital setting, and 3) the effectiveness of scaffolded simulations.

Theme 1: Confidence and Preparations for Real Clinical Experience
More than 95% of participants gave positive comments and feedback on the clearly planned and scaffolded simulations for building their confidence in client care, procedural compliance, and therapeutic communication.

Sub-Theme: Client Care
The biggest confidence gain reported by participants was in client care. Students indicated that the scaffolded simulations prepared them to prioritize patients based on what level of care is needed, and most of them enjoyed reviewing other patients and understanding how prioritizing patients works and why. For instance, one student stated, "I feel more prepared after simulation to go into an actual clinical [setting] to take care of my patients. I now feel like I know the questions I need to ask." Another student commented, "All semester I was struggling to see what a real psychiatric unit might be like, and through this [simulation] I was able to get a better understanding of the day in the life of a psych nurse!"

Sub-Theme: Communication Skills
Another point of positive feedback from students was that the simulations helped strengthen their communication skills, as they were involved in real-life learning situations. One student stated, "The [simulation] helped me realize what aspect of care (like communication and safety for both mine and the patient's [care]) I need to improve on."

Theme 2: Understanding and Interaction in the Hospital Setting
The four scaffolded simulations in the study, with their increasingly difficult scenarios, allowed students to build confidence in client interactions. We believe that simulation-based learning in nursing education enables students to apply knowledge in a process that is embedded within events that require students to interact with people and circumstances within the environment.

Sub-theme: Situated Interactions
Most of the participants expressed that having real patients for psych simulations greatly increased their understanding of interaction in the hospital setting. For example, several students made comments such as, "This [simulation] was very helpful. I'm glad we got to experience it before going to interact with a real patient," and, "I liked how we were able to have other people be a part of [the simulation]. There were other students there to help us with our learning process."

Sub-theme: Scenario-Based Learning
Participants commented that the various scenario-based situations enabled and encouraged them to use information they learned in class and put it into practice within the simulation. Some positive comments included, "[This simulation] experience makes me eager to get started with our future scenarios," and, "Being able to actually have a scenario and consult with instructors afterwards really helped."

Theme 3: Effectiveness of Scaffolded Simulations
The third main theme was the effectiveness of the scaffolded simulations. Most participants expressed their appreciation of the scaffolded simulations through the benefits they perceived, including "critical thinking," "knowledge application and connection in debriefing," and "reflective observations and feedback from peers."

Sub-Theme: Critical Thinking
First, students perceived the simulation experiences to be promising in terms of advancing their critical thinking skills. Moreover, they indicated that simulation-based learning provided them with many opportunities to connect prior knowledge when evaluating and analyzing new situations for accurate decision-making. Students stated, "[This simulation] helped me to think critically about what to do next with my patient," and, "This [simulation] was very beneficial in getting me to think critically and decide what the next step of action would be for my patient."

Sub-Theme: Knowledge Application and Connection in Debriefing

Students enjoyed how they interacted with instructors and peers in the authentic learning process. This was especially true during the group debriefing, when they could take a deeper look at their actions and connect their thoughts and beliefs, which could, in turn, lead to enhanced future clinical performance. For instance, students stated, "I really liked how [the instructor] did the debrief and how she answered our questions and was able to add on to what we thought we did wrong or right," and, "[Debriefing] really helped me to understand the content of the course. It also helped me to be able to put what I have learned into practice."

Sub-Theme: Reflective Observations and Feedback From Peers

Finally, students reflected on the fact that scaffolded simulations enriched their learning experience, as they were increasingly challenged through the scenario-based situations and were able to receive feedback from the live actor clients and peers. One student remarked, "I really enjoyed the break in the middle of the simulation. I felt I learned as much from my own experience as I did from the others around me."

Discussion

In nursing, effectual clinical reasoning permits a nurse to recognize a patient's condition and choose the most appropriate response. Clinical reasoning is the process underlying clinical judgment, decision-making, quality improvement, self-awareness, and competence in nursing (Mohammadi-Shahboulaghi et al., 2021). The learning objectives of each scaffolded simulation were designed to incorporate specific mental health patient scenarios, and the skills required increased in complexity throughout the semester. According to the results, scaffolded simulation can improve nursing students' 3C skills (confidence in clinical reasoning, clinical judgment, and critical thinking).

This study aligns with larger simulation and critical thinking research findings, including those related to scaffolded learning, novice-to-expert theory, and 3C skills. Erlam et al. (2017) found that scaffolding improved student performance and participation while managing a deteriorating clinical situation. Benner (1984) ascertained that each stage of the novice to expert model builds on the previous stage as concepts are refined and augmented by experience and clinical expertise. Jessee's (2021) findings suggest that learning outcomes and teaching strategies should coincide with the student's knowledge level and experience and progress toward more complex judgments as the student advances. Results from the present study are also consistent with other simulation and critical thinking studies. Doğan and Şendir (2022) and Al Gharibi and Arulappan (2020) found that simulation-based learning can involve students in realistic scenarios and authentic activities, which improve their critical thinking and competence.

Unique to this study is the integration of scaffolded learning and the theory of novice to expert (Benner, 1984) into the design of simulated-based curricula and alignment of learning objectives. Many nursing educators argue that using simulation technology requires interactive pedagogy that encourages constructive thinking and decision-making (Al-Za'areer et al., 2023; New et al., 2022; Waxman & Telles, 2009). Our findings also suggest that these four purposefully designed simulations ensure that students can maintain high levels of critical thinking as we gradually increase the complexity of the scenarios. Following the novice to expert model, students receive clear guidance and feedback through instructor-driven debriefings. As students advance to the next target stage, the instructors gradually withdraw support and feedback but continuously encourage students to improve their ability to innovate in complex situations. This approach aligns with the idea that learners move through increasing levels of expertise with varying levels of support from faculty. Novel to this study is the use of live actors and scaffolded simulations of mental health scenarios in a psychiatric setting.

Regarding the relationships between clinical-related skills and students' perceptions of the effectiveness of scaffolding simulations (RQ2), the findings show that if students perceive simulations as effective, this

positively influences their clinical reasoning, clinical judgment, and critical thinking skills. These conclusions align with Ahn and Kim's (2015) study, which indicated that students believe simulation-based learning contributes to their learning experience. This increased perception of effectiveness tends to boost their motivation, resulting in higher self-confidence in their clinical reasoning and critical thinking skills. While immersive healthcare simulation may pose challenges in learning, particularly for novice nurses, students can refine their skills and enhance their performance through repetitive exposure and deliberate practice (Alshehri et al., 2022; Al-Za'areer et al., 2023; Leong, 2023). Additionally, it encourages self-reflection and the gradual shift from depending on rules and guidelines to cultivating intuitive expertise. Moreover, experiential learning connects intricately with simulation (Kolb, 1984). Through hands-on experiences, reflection, and continuous education, nursing students develop the clinical-related skills necessary to provide safe and effective patient care as they advance toward expertise (Chmil et al., 2015; Tseng & Hill, 2020).

In terms of the qualitative results from the thematic analysis, our findings are aligned and compatible with prior research, in which nursing students reported high levels of self-confidence in client care, procedural compliance, and therapeutic communication (Kaliyaperumal et al., 2021; Lamé & Dixon-Woods, 2020; Zook et al., 2018). Students who perceived the benefits of the scaffolding simulation activities (i.e., peer observations, debriefings, and self-reflections) were more likely to engage in the process of deep learning, which led to higher confidence in clinical reasoning, clinical judgment, and critical thinking skills. The participants also highlighted that their proficiency in clinical reasoning and critical thinking skills is essential to their providing quality care and noted further that simulation can guide them to employ their knowledge effectively within real clinical contexts. These discoveries substantiate several components of Tanner's clinical judgment model (2006), which explicates how the process of clinical judgment and critical thinking relies on background knowledge to assess a given situation and respond appropriately to clinical challenges.

Limitations

The sample size consisted of 133 baccalaureate nursing students, all of whom were in their second semester of nursing training. Participants were from a single university, and the study lasted for one academic year. The findings of this study, therefore, have limited generalizability. Additionally, because students' perceptions were collected from a retrospective, self-reported questionnaire, we also need to be aware that when certain groups of survey participants are likely not to respond or to drop out of a survey, the nonresponse bias can result. In other words, if a specific demographic is less inclined to participate, the sample may not be representative of the entire population.

Implications and Recommendations for Future Studies

This study provides evidence that clinical simulations employing extensive scaffolding foster self-directed learning and allow students to learn in complex and cognitive domains (Doo et al., 2020). The mental health scenarios were the only scaffolded simulations currently in use at the university. Scaffolded simulations in clinical courses throughout the program would enhance clinical reasoning, clinical judgment, and critical thinking among participants as students enter professional practice. As we continue to employ scaffolded learning and further our design of scaffolding activities in clinical simulations, critical questions need to be asked, including, "What to scaffold, when to scaffold, how to scaffold and when to fade scaffolding" (Lajoie, 2005, p. 542).

Clinical judgment is an essential element of professional nursing. In clinical practice, high-risk decisions often must be made, with little room for error. Also, now, more than ever, nurses are charged with more responsibility and greater accountability. The healthcare system continues to be confronted with the ramifications of patients living longer with numerous comorbidities, and studies continue to show a correlation between clinical judgment and patient safety. New nurses have a wealth of knowledge, but their ability to generate sound decisions that promote favorable patient outcomes continues to decline. Simulation

and comprehensive debriefing are key strategies for fostering clinical judgment, offering a safe place for students to practice making decisions and providing interventions, without fear of harming a patient if a mistake is made (Tseng & Hill, 2020; Jessee, 2021). In addition, in this study, participants were not required to complete extensive preparation work. Instead, they received a verbal report on the simulation patient immediately before the scenario, just as they would in clinical practice. The resulting knowledge and increased confidence gained during the activity will foster clinical judgment that will be conveyed to clinical practice.

In future research endeavors, it will be advisable to incorporate additional variables into the analysis, such as nursing students' diverse mindsets, emotional intelligence, and knowledge-sharing behaviors. To evaluate nursing students' clinical judgment and critical thinking comprehensively, researchers should consider utilizing multiple data sources, including observational notes from facilitators and reflective journals completed by students during post-simulation debriefing sessions.

Conclusion

The current study's primary aim was to examine the impacts of four purposefully designed scaffolded clinical simulations on nursing students' confidence in clinical reasoning, clinical judgment, and critical thinking. Evidence suggests that scaffolded simulation improves critical thinking, clinical judgment, communication, and client safety in nursing education. Findings from this study indicate that scaffolded psychiatric simulations, coupled with the novice-to-expert model in nursing education, are a valuable tool for preparing nursing students for the rigors of clinical practice, despite decreased in-person client experiences in the nursing program.

Fostering clinical judgment early in nursing education is imperative for safe nursing practice. Apprehension surrounding deficient practice preparedness and the upcoming addition of clinical judgment items on the NextGen National Council Licensure Examination (NCLEX) have heightened interest in teaching clinical judgment (Nielsen et al., 2023). The study findings reveal that scaffolding in educational simulation places the student nurse on a novice-to-expert trajectory. Benner (1984) outlined expert clinical judgment as a series of reasoning patterns developed over time through reflection on experiences. Students in this study performed tasks with which they were already familiar while new responsibilities were introduced throughout the semester. The scaffolded simulation process promoted confidence as expectations increased.

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Appendix A

Patricia Benner's Theory: From Novice to Expert

Appendix B

Mental Health Scaffolded Simulation Actor Checklist and Debriefing Questions

I. Actor Checklist

Please circle Yes or No:

1. Did the nurse introduce themself to you? Yes or No
2. Did the nurse ask for the patient's name, date of birth, and allergies? Yes or No
3. Did the nurse display a caring attitude? Yes or No
4. Do you think the nurse used therapeutic communication? Yes or No
5. Did the nurse educate you on the medications administered? Yes or No
6. Did the nurse administer a medication you were allergic to? Yes or No

Add any additional comments on the nurse's performance below:

II. Debriefing Questions

1. How did this experience make you feel?
2. What made you the most uncomfortable?
3. What therapeutic communication techniques did you use?
4. How did assessing suicidality make you feel?
5. What do you believe you did well in this simulation?
6. What do you think you need to improve on?
7. What was an obstacle for you during this simulation?
8. If you could do the simulation again right now, what would you do differently?

Appendix C

Reflection Questions

Simulation #1: Crisis Simulation Reflection Questions

1. What type of crisis is the client experiencing? How do you know?
2. How did working with this client make you feel? Explain your answer.
3. What was your greatest strength utilized during this simulation?
4. What would you do differently next time?
5. List five interventions that are the priority for this client and explain why you chose each.

Simulation #2: Bipolar Simulation Reflection Questions

1. What was the most challenging aspect of working with this client? Explain your answer.
2. Explain the importance of completing a nursing assessment on all patients, regardless of their diagnosis, at the beginning of the shift.
3. If you could repeat the simulation today, what would you do differently? Explain.
4. How did this simulation make you feel? Explain your answer.
5. List five priority nursing interventions for this client and explain why you chose each.

Simulation #3: Schizophrenia Simulation Reflection Questions

1. What was the most challenging aspect of working with this client? Explain your answer.
2. Describe at least five symptoms displayed by the client that indicate the client is suffering from altered perceptions and disturbed thought processes.
3. What is the appropriate nursing intervention for each symptom?
4. If you could repeat the simulation today, what would you do differently? Explain.
5. What would you discuss with the family when planning care for this client? What referrals could benefit the client in the future?

Simulation #4: Multi-Patient Simulation Reflection Questions

1. What was the diagnosis of your assigned patient? Describe their symptoms.
2. What was the priority NURSING problem of your assigned patient?
3. Describe the process used to determine which patient of the group of five patients received priority care.
4. What interventions did you perform for your assigned patient?
5. Explain what you would do differently in the simulation if you could do it again today.

Appendix D

Simulation Evaluation Questions

Confidence in Clinical Reasoning

- I feel better prepared to care for real patients.
- I developed a better understanding of the pathophysiology of the conditions in the simulation experience.
- I feel more confident in my decision-making skills.
- My assessment skills improved.
- I feel more confident that I will be able to recognize changes in my real patient's condition.
- I can better predict what changes may occur with my real patient.

Clinical Judgment

- I developed a better understanding of the medications that were in the simulation.
- I am more confident in determining what to tell the healthcare provider.

Critical Thinking

- The instructor's questions helped me to think critically.
- I was challenged in my thinking and decision-making skills.

Perceived Effectiveness of Scaffolding Simulations

- Completing the simulation helped me understand the classroom information better.
- I learned as much from observing my peers as I did when I was actively involved in caring for the simulated patient.
- Debriefing and group discussion were valuable.

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