Clinical Competence, Satisfaction, and Confidence of Prelicensure Nursing Students Following Video Prebriefing in a Women's Health Simulation

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Background

According to the International Nursing Association for Clinical Simulation and Learning (INACSL), the purpose of prebriefing is to prepare learners for the simulation rules, agenda, expectations, and environment prior to the experience (INACSL Standards Committee et al., 2021). Prebrief and preparation materials are based on the objectives of the simulation and the knowledge and experience of the learners.

Prebriefing is essential to ensure that students are as prepared to care for simulated patients as they would be in the clinical setting (Dileone et al., 2020). An integrative review demonstrated that a prebriefing foundation for simulation had positive effects on nursing student clinical judgment and self-confidence (Dileone et al., 2020). However, prebriefing was not consistently used, and there were no established standards.

Ludlow (2021) identified an overlap between the concepts of simulation preparation and prebriefing which created a barrier to the development and operationalization of prebriefing. Ludlow asserts that structured prebriefing is essential to simulation for decreasing learner anxiety and increasing performance and confidence; however, no model exists (Ludlow, 2021). Structured prebriefing should correspond to the three domains of learning: preparatory, orientation, and prebriefing (Ludlow, 2021). The preparatory phase integrates cognitive learning and prepares the learner for simulation content. The orientation phase incorporates psychomotor learning by including orientation to the environment and hands-on practice. The prebriefing phase involves affective learning and includes expectations, psychological safety, fiction contracts, and mutual respect (Ludlow, 2021).

Research has compared student outcomes of prebriefing with expert modeling videos compared to standard prebriefing. Expert modeling videos depict a nurse demonstrating appropriate behaviors and/or skills in a simulated environment similar to the students'

experience. Studies show that expert modeling prebriefing produces higher clinical judgment, competency, and self-confidence than standard prebriefing (Brennan, 2022; Coram, 2016). The purpose of this pilot study was to evaluate clinical competence, satisfaction and confidence of prelicensure nursing students following video prebriefing in simulation. Faculty competency in the simulation was also evaluated.

Sample

A purposive sample consisted of 106 prelicensure nursing students enrolled in a junior-level women's health course. Institutional Review Board approval was obtained prior to beginning this study. Students were assigned to random groups (4-5 students per group) to participate in simulation on one of two scheduled days. Groups participating on day one were randomly assigned as the intervention cohort (n = 10) and on day two as the control cohort (n = 13). Five faculty facilitated the three simulation stations and were observed for facilitator competencies.

Method

A mid-semester simulation was designed to follow a family through the labor and delivery process beginning with outpatient presentation and progressing through newborn care. Throughout the simulation, students were expected to assess the patient, identify problems, hypothesize and prioritize needs, and intervene in a timely manner to ensure safe patient care. Student application of patient safety standards and professionalism were also evaluated.

Faculty recorded an expert modeling video welcoming students and briefly describing the scenario. An orientation to the room and equipment, and a demonstration of the nurse performing care in similar simulated situations (intrapartum and newborn care) was provided.

Simulation

Students assigned to the control group were given the standard prebrief only, which reviewed simulation objectives, time allotment, scenario overview, and ground rules. An orientation to the environment, equipment, and resources was provided. Students were

instructed to behave as if engaged in actual patient care. Faculty reassured participants that they were entering a safe learning environment. Participants were given the opportunity to ask questions and simulation roles were assigned. Students assigned to the intervention group were shown the modeling video prior to the start of the simulation along with the standard prebrief.

Students rotated through three 30-minute scenarios during the simulation. Simulation objectives were aligned with the Creighton Competency Evaluation Instrument (CCEI) categories: assessment, communication, clinical judgment, and patient safety. Three hours of clinical credit (at a 2:1 ratio) were earned for completing the 90-minute simulation.

Station: Communication. A prenatal record within the context of an outpatient clinic setting was provided. Students were expected to collaborate to recognize cues and analyze pertinent data to determine priority needs. The group was expected to effectively communicate the current patient situation, and proposed recommendations using a standardized format.

Station: Intrapartum Care. Groups continued to care for the Spanish-speaking patient during labor. Students were expected to effectively communicate with the simulated patient, family, and healthcare team using an interpreter (medical translation student). Clinical judgment and prioritization were demonstrated by identification of abnormal fetal heart rate pattern (prolonged deceleration) and taking evidence-based actions to intervene (repositioning, stop pitocin infusion, administer oxygen). Groups were expected to evaluate intervention effectiveness and adjust the plan of care as applicable.

Station: Newborn Care. Finally, the groups cared for the mother and newborn at one hour of age. Objectives of this station included obtaining newborn measurements and vital signs and administering intramuscular phytonadione safely. Students were expected to continue communicating, using the medical interpreter, with a standardized patient in the role of the mother.

Faculty facilitators debriefed students on their performance at the end of each station using the Plus/Delta model. Faculty provided feedback on simulation outcomes and group performance. Opportunities for student questions and clarification were provided.

Measurement of Student and Faculty Performance

Student groups were observed and rated for demonstration of competence using the CCEI during the intrapartum station. The CCEI contains 23 competency statements for faculty to evaluate student performance in simulation. There are four subcategories: assessment, communication, clinical judgment, and patient safety (Creighton University, n.d.). All applicable items are scored as zero or one. A score of zero indicates the student has not achieved the competency, a score of one indicates the student has achieved the competency. Items that pertained to documentation, interpreting lab results, reflection, and delegation were not evaluated in this study. The CCEI has demonstrated acceptable validity and reliability in various samples (Hayden et al., 2014). In this study, the inter-rater reliability (IRR) of the observers demonstrated perfect agreement (Cronbach's alpha = 1).

Following the simulation experience, participants completed the Student Satisfaction and Self-Confidence in Learning (SSSCL) scale. The SSSCL is a 13-item instrument designed to measure student satisfaction (five items) with the simulation activity and self-confidence in learning (eight items) using a five-point scale. Reliability was tested using Cronbach's alpha: satisfaction = 0.94; self-confidence = 0.87 (National League for Nursing [NLN], n.d.).

The Facilitator Competency Rubric evaluates the effectiveness of simulation facilitators (Leighton et al., 2022). The tool consists of five major constructs with subcomponents defining each construct based on Benner's novice to expert model (Leighton et al., 2022). There are 27 components divided among the constructs. A scoring range is provided for each section to identify faculty who need additional mentoring. For this study, preparation and evaluation constructs were not evaluated. The content validity index of this tool ranged from .75 to 1; items

below .80 were revised for clarity. Test-retest reliability and IRR was good to excellent (Leighton et al., 2022).

Results

The first question examined the difference in clinical competency between groups watching an expert modeling video and groups receiving standard prebriefing. Results showed no significant difference between video (M = 12.10, SD = 2.64) and non-video groups (M = 10.62, SD = 3.20), t = 1.186, p = .249. However, the effect size (Cohen's d = .499) indicates the magnitude of the group difference was moderate. The sum scores of the subscales were computed using independent t-tests. The results showed that participants in the video-viewing group had significantly higher communication scores (M = 3.40, SD = .84) than those in the control group (M = 2.31, SD = 1.11), t = 2.586, p = .017, with large effect size (Cohen's d = 1.088). No significant differences were found between the two groups in the assessment, clinical judgment, and patient safety subscales.

Second, groups were compared on their perceived satisfaction and self-confidence in learning. Reliability using Cronbach's alpha was used to examine the inter-item consistency for satisfaction and confidence. Results revealed very good reliability (Cronbach's alpha = .938 and .857). Mean scores for satisfaction and confidence indicate that overall confidence was significantly greater for participants who watched the video (M = 4.25, SD = .57) than participants who did not watch the video before simulation (M = 4.01, SD = .59), t = 2.095, p = .039. Two individual confidence items demonstrated higher scores for participants who watched the prebriefing video: "My instructors used helpful resources to teach the simulation," and "I know how to get help when I do not understand the concepts covered in this simulation." There was no significant difference in overall satisfaction and the individual items.

Lastly, faculty facilitators were observed for competencies related to prebriefing, facilitating, and debriefing. Overall, the faculty performed competently in all areas, but additional faculty mentoring was needed in prebriefing and debriefing. The three items with the strongest

performance were in the area of facilitation, and related to providing focus and guidance, and in providing performance feedback during debriefing. The three items with the lowest scores were also in facilitation and debriefing, and related to engaging participants and to identifying participant strengths and weaknesses.

Conclusions

The results of this study did not demonstrate a significant difference in clinical competence between the video and non-video groups, but the non-significant results may be due to the small sample size. However, the moderate effect size indicates that the impact of the intervention is meaningful. Future studies will aim to increase the sample size to improve the power of the results. Students who viewed the modeling prebrief video reported higher self-confidence than students who received standard prebriefing. This is significant because increased student confidence supports clinical decision making impacting patient care (Espinosa-Rivera et al., 2019). These students also demonstrated significantly higher communication scores than the control group reflecting application of modeled behaviors. A review of the modeling videos indicated that an increased focus was placed on communication over other key concepts (assessment, clinical judgment, and patient safety) prompting a need for future revision.

Faculty were noted to have lowest areas of competence when engaging students both during simulation facilitation and debriefing, and in identifying student strengths and weaknesses. Common areas for faculty development included: allowing students to reflect rather than “lecturing” during debriefing, intervening with students not engaged in simulation, and providing student-specific feedback. Further faculty development, in alignment with best practices, on debriefing techniques is needed to enhance the simulation experience for students.

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Highlights (max 85 characters each)

- Student self-confidence was increased by expert modeling video prebrief.
- There was no significant difference between groups in clinical competency.
- The modest sample size may have contributed to limited significance.

Abstract

Background

Literature reports that prebriefing with expert modeling can help increase student performance in simulation. Currently no structured prebriefing model or guidelines exist for simulation. The purpose of this study was to examine the effects of video prebriefing with expert modeling on prelicensure student nurses' clinical competency, self-confidence, and satisfaction with learning in simulation.

Methods

Expert modeling videos were shown to intervention groups prior to participating in a women's health simulation in addition to a standard prebriefing approach compared to groups receiving standard prebriefing only. Groups were evaluated for competency, self-confidence, and satisfaction using the Creighton Competency Evaluation Instrument and Student Satisfaction and Self-Confidence in Learning tools. Faculty competence was assessed using the Facilitator Competency Rubric.

Results

Students who received video prebriefing reported increased self-confidence when participating in simulation activities compared to those who received standard prebriefing alone. No significant difference existed in clinical competency between groups.

Conclusion

Small sample size likely contributed to the insignificant results. Moderate effect size indicates this study potentially influences practical outcomes as evidenced by student reports of increased self-confidence.

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