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High-fidelity Simulation and Clinical Judgment of Nursing Students in a Maternal-Newborn Course

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Original Research

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Abstract

Clinical judgment, one's ability to think like a nurse, is an essential skill for safe nursing practice. With the rise of simulation to replace clinical experiences, there is limited evidence regarding the effectiveness of simulation on the development of clinical judgment. This study explored differences in clinical judgment in maternal–newborn courses between undergraduate nursing students participating exclusively in simulation and those participating in hospital-based clinical experiences. Following completion of the clinical rotation, students participated in an evaluative maternal–newborn high-fidelity simulation experience that was recorded and evaluated using the Lasater's Clinical Judgment Rubric (2007). Lasater's Clinical Judgment Rubric scores between the simulation and clinical practice groups were compared using an independent sample *t*-test. There was no statistical difference in clinical judgment scores between the simulation and hospital-based clinical groups ($t = -1.056$, $P = .295$). Our findings suggest that simulation may be a comparable alternative to clinical experience in nursing education.

Keywords

simulation, high-fidelity simulation, clinical judgment, nursing education, maternal–newborn

Nursing programs across the United States are challenged with finding sufficient, appropriate opportunities to integrate clinical experiences with coursework as a result of the shift from hospital-based programs to those housed in colleges and universities (American Association of Colleges of Nursing, 2017; Benner et al., 2010; Institutes of Medicine [IOM], 2011; National League for Nursing, 2019). The availability of clinical experiences and faculty to teach in specialty areas such as pediatrics, maternal–newborn (obstetrics), and mental health is particularly scarce (Aebersold, 2018; Barra & Hernandez, 2019; Benner et al., 2010; IOM, 2011; National Council of State Boards of Nursing [NCSBN], 2016a; Shorten & Ruppel, 2017; Vermeulen et al., 2016). High-fidelity simulation may provide nursing students with alternative clinical experiences that are effective in promoting clinical judgment, offering a potential solution to the problem of limited opportunities in traditional clinical settings (Aebersold, 2018; Doolen et al., 2016; Harder, 2010; Jørgensen et al., 2018; Kim & Shin, 2016; NCSBN, 2016a; Smith & Barry, 2013).

Developing Clinical Judgment during Clinical Experiences

Clinical judgment refers to "the ways in which nurses come to understand the problems, issues, or concerns of clients/patients, to attend to salient information and to respond in concerned and involved ways" (Benner et al., 2009, p. 200). It includes the nurse's observation and interpretation of patient concerns, needs, or problems, and the subsequent conclusions and decisions to respond or act "like a nurse" (Tanner, 2006). Students demonstrate clinical judgment by integrating previous experiences, knowledge, and skills in order to implement nursing care in new or unfamiliar clinical situations. Effective clinical judgment typically results in positive patient outcomes, whereas poor clinical judgment may lead to inability to detect salient information, such as patient deterioration, and leads to poor patient outcomes such as maternal and neonatal mortality and serious morbidity (Benner et al., 2010; Benner et al., 2009; Fisher & King, 2013; Vermeulen et al., 2016).

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Little evidence is available on the impact simulation or traditional clinical experiences have on clinical judgment, particularly in specialty practice areas. Studies comparing simulation to traditional, acute care, hospital-based clinical experiences in the acquisition of clinical judgment have been reported with encouraging results (Barra & Hernandez, 2019; Hayden et al., 2014; Schlairet & Fenster, 2012; Shorten & Ruppel, 2017; Watson et al., 2012). Participation in high-fidelity simulation improves cognitive and clinical skills (Haddeland et al., 2018; Hayden et al., 2014; Lee & Oh, 2015). The seminal study by NCSBN reported that students participating in high-quality simulation experiences achieved clinical judgment and other end of program educational outcomes that were comparable to those of students whose clinical experiences were mainly traditional clinical hours. In the NCSBN study, up to half of clinical hours in traditional clinical settings were replaced with simulation (Hayden et al., 2014). The current study differs from the NCSBN study in that it specifically investigated if there was a difference in clinical judgment among nursing students participating solely in high-fidelity simulation and those who participate solely in hospital-based clinical experiences in a maternal–newborn setting.

Theoretical Framework

Tanner's Clinical Judgment Model (Tanner, 2006), which includes four dimensions of clinical judgment—noticing, interpreting, responding, and reflecting—was utilized as the framework for this study. Through these four dimensions, the nurse identifies the concern and intervenes to facilitate achievement of the goals set between the nurse and the patient. Each dimension of clinical judgment includes several characteristics.

Noticing is the "perceptual grasp of the situation at hand" (Tanner, 2006, p. 208). It evolves from the nurse's expectations of the situation based on her/his knowledge of the patient and the patient's patterns of response, clinical knowledge from experience, and knowledge from formal education.

Interpreting occurs when the nurse develops a sufficient understanding of a situation that enables her/him to integrate knowledge, experience, and values to decide on the appropriate course of action for that situation (responding). The patient's response to the intervention will either support or challenge the clinical judgment and subsequent intervention (Tanner, 2006).

Reflection occurs both during and after the situation and is a significant aspect of this model. Reflection during the situation (reflection-in-action) is the nurse's ability to read the patient's responses to interventions, and adapt future interventions based on the assessment. Reflection that occurs after the situation (reflection-on-action) adds to the nurse's experience and supplements the clinical knowledge base. Reflection requires a sense of responsibility on the part of the nurse; the ability and desire to connect the actions taken with the outcome and determine what occurred as a result of the nursing interventions implemented or actions taken. Reflection-on-action is often triggered by breakdown in clinical judgment and is critical for the development of clinical knowledge and improvement in clinical reasoning (Tanner, 2006). Reflection-on-action drives the nurse to review the situation in depth, including the nurse's response and desire to learn from the perceived mistakes (Tanner, 2006). Using the four aspects of this model, that is, noticing, responding, interpreting and reflecting, the nurse identifies the concern and intervenes to facilitate achievement of the goals set between the nurse and the patient.

Purpose

The purpose of this study was to explore the difference in clinical judgment between nursing students who participate exclusively in simulation and those who participate exclusively in acute care hospital-based clinical experiences in a maternal–newborn clinical course.

Methods

Design

A two-group, post-test study design was implemented. Following completion of the clinical or simulation experiences for a maternal–newborn clinical course, each student participated in an evaluative high-risk high-fidelity maternal–newborn simulation and subsequent debriefing. The Lasater Clinical Judgment Rubric (LCJR) (Lasater, 2007) was used to measure nursing students' clinical judgment following completion of simulation or hospital-based clinical experiences. The Principal Investigator (PI) is a nurse educator with extensive formal training and experience in the use of simulation. To minimize potential risk to student participants, the PI was not an employee of the nursing programs identified in recruitment and none of the students approached to participate were students of the PI.

Sample

Accredited professional nursing education (baccalaureate and associate degree) programs using both simulation and acute care hospital-based clinical placements to provide students with maternal–newborn clinical experiences were identified. Two nursing programs that met the inclusion and exclusion criteria agreed to allow recruitment of students. Letters of support were obtained from program administrators approving study recruitment. Institutional Research Board (IRB) approval from the University of North Dakota and each of the institutions with programs participating in the study was obtained. Students enrolled in the maternal–newborn clinical course were invited to participate in the study via an email from the PI, forwarded by the institution.

The PI met with potential participants to explain the study, eligibility, procedures, and requirements. A total sample of 71 students consented to participate in the study and completed the demographic survey, providing a response rate of 89.9%. Due to camera failure, nine of the evaluative simulations were not recorded, yielding a convenience sample of 62 students. This sample was deemed sufficient based on an assumed medium effect size of 0.5, and alpha of 0.05, and 80% power (Faul et al., 2007).

Setting

Students enrolled in the maternal–newborn clinical course as part of the accredited professional nursing programs provided consent and completed a demographic survey. Based on course registration, and prior to recruitment and consenting to participate in the study, clinical course faculty assigned students to clinical groups of 6–8 students. Each group of students participated in acute care, hospital-based or simulation experiences as scheduled by the clinical course team leader of the participating nursing program. Regardless of group assignment, participants were required to complete two clinical experiences at the assigned clinical site, either exclusively hospital-based or exclusively simulation. Each clinical experience was 6 to 8 hours in length.

Students completed similar preparation for the clinical or simulation experience, including previous simulation experiences, didactic maternal–newborn course material, orientation to the clinical and simulation sites, and specific information on the assigned mother–baby dyad (pre-brief). Postclinical debriefing occurred at the end of each clinical or simulation day. An ideal hospital-based patient care assignment allowed each student to provide care for a first time mother–newborn dyad following either vaginal or cesarean section birth. The mother–baby dyad was stable and without significant medical or psychosocial comorbidities. The student was expected to complete a full nursing assessment, identify nursing diagnoses and priorities for care, administer medications, perform patient teaching, and document using the electronic health record (EHR) under the observation of the instructor or staff nurse. The simulation based experiences mimicked the ideal hospital based experience. Simulations utilized high-fidelity manikins and clinical equipment (bed, IV pump, and academic EHR) and included review of a patient chart and case studies using an academic EHR; identification of nursing diagnoses and priorities for care; provision of physical care and teaching topics typical in the maternal–newborn clinical area to an assigned simulated mother–baby dyad.

Instrumentation

A standardized simulation scenario, retrieved from a simulation scenario bank (Murray, 2011) associated with a maternal–newborn nursing text, was used for the evaluative simulation experience. In this simulation, a woman, having given birth 1 to 2 hours prior, presents with signs of postpartum hemorrhage: a boggy fundus, significant lochia (blood, mucus, and uterine tissue from the vagina after giving birth), and complaints of severe cramping and abdominal pain. Postpartum hemorrhage remains a leading cause of maternal death and is one of the more common complications encountered in the maternal–newborn clinical area (Borovac-Pinheiro et al., 2018).

The Lasater Clinical Judgment Rubric (LCJR) (Lasater, 2007), which was developed based on Tanner's Clinical Judgment Model (Tanner, 2006), was used to measure nursing students' clinical judgment following completion of acute care hospital-based or simulation clinical experiences. The LCJR consists of subscales corresponding to the four dimensions—noticing, interpreting, responding, and reflecting—and quantifies the level of clinical judgment (Lasater, 2007). The rubric offers language to describe dimensions of clinical judgment and uses a Likert-type scale indicating level of clinical judgment from 1 to 4 (beginning, developing, accomplished, exemplary), in 11 items within the four dimensions. Items include characteristics such as recognizing deviations from expected patterns, information seeking, prioritizing findings, communicating clearly, performing in a confident manner, and demonstrating well-planned interventions. Table 1 lists the dimensions of the rubric and corresponding characteristics. The rubric uses universally understood language and sets standards that participants can comprehend. Scores on the LCJR range between 11 and 44 (Lasater, 2007). Clinical judgment for any given student was calculated using her/his composite (total) score on all four dimensions of the LCJR.

Validity and reliability of the LCJR have been established (Adamson et al., 2012; Adamson & Kardong-Edgren, 2012; Lasater, 2007; Strickland et al., 2017; Victor-Chmil & Larew, 2013). Students whose domain-specific knowledge was stronger demonstrated improved clinical judgment on the LCJR, thus supporting content validity (Adamson et al., 2012, p. 71). Comparison of groups on clinical judgment aspects (noticing, interpreting, responding, and reflecting) resulted in significant p-values ($< .05$) as well as effect size greater than 0.76 and associated z-scores of >78 (Adamson et al., 2012, p. 72), further supporting the LCJR's validity. Adamson and colleagues (2012) found faculty raters accurately and consistently identified the intended level of student performance using the LCJR (intraclass correlation, ICC = 0.889) and Strickland and colleagues (2017) reported a positive correlation between faculty evaluator and student scores using the LCJR.

The PI of this study was the sole rater of the final evaluative simulation recordings, consequently consistency by the single rater (intrarater reliability) was a key consideration. Several measures were implemented to minimize bias and improve intrarater reliability and validity. The PI was not employed by the institutions from which participants were recruited, was blinded to the study groups during the rating

Table 1. Dimensions of Lasater Clinical Judgment Rubric, Characteristics and Score Range.

Dimension	Characteristic	Score Range by Dimension
Effective noticing	Focused assessment Recognizing deviations from expected patterns Information seeking	3–12
Effective interpreting	Making sense of the data Prioritizing	2–8
Effective responding	Calm, confident manner Clear communication Well-planned interventions Skillful actions	4–16
Effective reflecting	Evaluation and self-analysis Commitment to improvement	2–8

process, and did not communicate evaluation ratings to the course instructors. All ratings were completed using audio and video recordings that included two camera angles for each recording of the simulation and audio recording of the debriefing. The PI (rater) viewed each student's 45–60 minute scenario recording, stopped, rewound, and reviewed recordings as needed to ensure all student actions were included in the evaluation rating. A test–retest method of evaluation was conducted by the PI to promote intrarater reliability. The PI rescored approximately 10 percent of previously viewed recordings and compared scores to ensure consistency. A 91% agreement between the two ratings was noted. Differences in subscores were evaluated; recordings were viewed repeatedly until differences were clarified. Scores were then corrected. This test–retest method of evaluation promotes intrarater reliability (Adamson, 2014, p. 158).

Data Collection

In the final evaluative, high-fidelity simulation, students provided care to manikins mimicking a postpartum woman and neonate in the initial postpartum period, one to two hours after birth. After receiving report on the mother/neonate dyad, students encountered an adult manikin lying flat in bed, with the baby manikin in the bassinet nearby. Students were expected to complete assessments; notice, interpret, and respond to the mother's boggy fundus, significant lochia (blood, mucus, and uterine tissue from the vagina after giving birth), and complaints of severe cramping and abdominal pain (signs of postpartum hemorrhage); cues from the neonate such as crying, circumoral cyanosis, and low temperature; and the mother's requests to begin breastfeeding.

Each student was an active participant in the role of the registered nurse during the simulation. Faculty acting as the voice of the patient had a script to follow with cues and prompts to ensure that each simulation experience was presented consistently. Debriefings, facilitated by faculty, included review of selected portions of the recording and prompts for students to reflect on actions taken. Evaluative simulation experiences, including debriefing, were audio and video recorded. Recordings were labeled with student code created at time of consent. Following the conclusion of the academic term, the PI evaluated all audio and video recordings and entered scores on the LCJR (Lasater, 2007).

Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 22. Demographic data were analyzed to describe the sample characteristics and compare these characteristics between the two study groups. The descriptive analysis included review of frequency of participant gender, age range, race/ethnicity, highest degree earned, current employment status, and program type. After all recordings were viewed and scored, the PI obtained clinical group designation, by code, for each participant. Clinical judgment scores were calculated. Difference in clinical judgment scores between the two groups was examined using independent samples *t*-test. Statistical inference was based on a two-tailed alpha of 0.05.

Results

Sample Characteristics

As displayed in Table 2, the sample ($n = 62$) was predominantly female (77.4%, $n = 48$), and White non-Hispanic (61.3%, $n = 38$). Twenty-three percent ($n = 14$) self-identified as Black/African American, 10% ($n = 6$) as Asian, 3 percent ($n = 2$) as Hispanic, and 3 percent as other ($n = 2$). Seventy-six percent of the participants ($n = 47$) were enrolled in an associate degree nursing program, and 24% ($n = 15$) were enrolled in a baccalaureate degree nursing program. The majority of participants (48%) were age 25–34 years.

Among the 62 students whose recordings were scored, 43.5% ($n = 27$) participated in simulation maternal–newborn clinical experiences and 56.5% ($n = 35$) participated in hospital-based maternal–newborn clinical experiences.

Table 2. Comparison of Demographic Information between Student Participant Groups.

Variable	Clinical Group: Hospital [*n* (%)]	Clinical Group: Simulation [*n* (%)]	Total [*N* (%)]	x^2	*p*
Program				4.302	*.038
Associate	30 (85.7)	17 (63)	47 (75.8)		
Baccalaureate	5 (14.3)	10 (37)	15 (24.2)		
Age in years				3.552	.314
18–24	10 (28.6)	12 (44.4)	22 (35.5)		
25–34	18 (51.4)	12 (44.4)	30 (48.4)		
35–44	4 (11.4)	3 (11.1)	7 (11.3)		
>44	3 (8.6)	0 (0)	3 (4.8)		
Gender				0.451	.291
Female	26 (74.3)	22 (81.5)	48 (77.4)		
Male	9 (25.7)	5 (18.5)	14 (22.6)		
Ethnicity				4.965	.291
White non-Hispanic	18 (51.4)	20 (74.1)	38 (61.3)		
Black	9 (25.7)	5 (18.5)	14 (22.6)		
Asian	4 (11.4)	2 (7.4)	6 (9.7)		
Hispanic	2 (5.7)	0 (0)	2 (3.2)		
Other	2 (5.7)	0 (0)	2 (3.2)		

(*) indicates significance at a two-tailed alpha of 0.05.

Table 3. Differences in Mean Scores on the Lasater Clinical Judgment Rubric (LCJR).

Variable	Mean LCJR Score	SD	Range	*t*	*p*
Hospital-based clinical experiences	30.29	6.72	17–41	−1.056	.295
Simulation clinical experiences	31.96	5.44	22–40		

$N = 62$ *$p < .05$.

The groups were statistically different in nursing education program type (baccalaureate or associate degree) ($x^2 = 4.302$, df = 1, $p = .038$). No statistically significant differences were found between the simulation and hospital-based clinical groups in other demographic data (age, gender, race/ethnicity, highest degree earned, grade in maternal–newborn didactic course, and current employment status).

Clinical Judgment

The LCJR scores ranged from 17 – 41 (Mean = 31.02, SD ±6.21). The mean LCJR score the hospital-based maternal–newborn clinical experience group was 30.29 ± 6.72, while the mean score for the simulation maternal–newborn clinical experience group was 31.963 ± 5.44. There was no statistically significant difference in clinical judgment between the two groups ($t = -1.056$, $p = .295$). Differences in mean LCJR scores are presented in Table 3.

Discussion

Academic institutions are tasked to provide high-quality clinical experiences for nursing students despite limited availability of qualified nursing faculty, increasing number of programs competing for the same clinical sites, and the amount of time clinical instructors are able to spend in direct supervision of students (Benner et al., 2010; Hayden et al., 2014; IOM, 2011; NCSBN, 2016a). High-fidelity simulation allows educators to replicate many patient situations. Simulation provides students with opportunities to practice and hone their cognitive, psychomotor, and critical thinking skills (Hayden et al., 2014; Jeffries & Rizzolo, 2007; Kim & Shin, 2016). As a result of the reduced access to hospital and other traditional clinical experiences, and the research supporting the use of simulation as a clinical learning experience, nursing education programs are integrating simulation into curricula (Jeffries et al., 2015).

In our study, clinical judgment scores for participants in the simulation maternal–newborn clinical experiences were

not statistically different from the scores for participants in the hospital-based maternal–newborn clinical experiences. These findings suggest that clinical judgment scores are comparable when students participate in simulation clinical experiences as compared to hospital-based clinical practice in the maternal–newborn clinical area. Other studies comparing simulation to hospital-based clinical experiences reported similar results for evaluations of clinical judgment (Barra & Hernandez, 2019; Hayden et al., 2014; Schlairet & Fenster, 2012; Victor, 2017; Watson et al., 2012). It should be noted that in these studies, simulation was used to replace a percentage of clinical hours with simulation.

Our study looked at full replacement of acute care, hospital-based clinical hours in this specialty area, and therefore contributes to the body of knowledge related to simulation as a clinical replacement. As noted above, many studies, including the NCSBN simulation study (Hayden et al., 2014), replaced a portion of the clinical hours with simulation. Clinical experiences for nursing students in the acute care, hospital-based maternal–newborn area are limited (Benner et al., 2010; IOM, 2011). The results of this study, replacing 100% of hospital-based maternal–newborn clinical with simulation, inform educators when making decisions regarding options for maternal–newborn clinical learning experiences.

In addition to the time spent in simulation, the quality of the clinical experiences must also be considered. This includes ensuring that experiences are supervised by qualified nurse educators, students have opportunities to meet course objectives and receive timely and specific feedback (Doolen et al. 2016; Harder, 2015; International Nursing Association for Clinical Simulation and Learning (INACSL) Board of Directors, 2016; NCSBN, 2016b; Smith & Barry, 2013). The INACSL Standards of Best Practice: Simulation^{SM} (INACSL Board of Directors, 2016) were evident in review of the simulations used in this study, including professional integrity of the participants; participant objectives; faculty members (facilitators) with training and experience in simulation; space, equipment and supplies to create a realistic environment that mirrors the clinical setting; faculty content experts to create and implement theory based simulations and debriefing. Utilizing evidence-based best practices in simulation programs ensures high-quality learning opportunities for students.

The results of this study provide further evidence that simulation may be an effective alternative to hospital-based clinical experiences in the maternal–newborn clinical area, if the simulation educational environment is comparable to the environment and experiences in this study. Results of this study will contribute to the best practices for nursing education concerning the use of simulation experiences for maternal–newborn and other specialty clinical areas.

Arranging clinical experiences in the maternal–newborn clinical area will continue to be a challenge. The perceived increased workload for staff when facilitating student experiences in the hospital-based clinical environment (Hathorn et al., 2009), litigious nature of environments such as intensive care and maternal–newborn units (Mahlmeister, 2008), the increasing numbers of men in nursing (Budden et al., 2013), and the reports of gender bias (Cudé & Winfrey, 2007) also warrant alternative clinical opportunities for maternal–newborn clinical learning. Educators are challenged with ensuring that students have an opportunity to meet specific maternal–newborn learning objectives, such as experiencing the entire birth process, caring for a woman in labor or in the immediate postpartum, and caring for and assessing a neonate (Barra & Hernandez, 2019; Sittner et al., 2013; Vermeulen et al., 2016). Simulation will allow for these learning opportunities to be available for every student.

This study adds to the growing body of knowledge about replacing clinical experiences with simulation for the maternal–newborn clinical area if the simulation educational environment is comparable to the environment and experiences in this study. However, there is a need for more research to identify best practices in nursing clinical education (Harder, 2015).

Clinical experiences continue to be an important component of nursing education and simulation may not be an appropriate replacement for every clinical experience (Harder, 2015). Student nurses must have clinical experiences working with individuals across the health–wellness continuum and developmental lifespan. Further research is needed to identify specific student outcomes best met with simulation learning experiences and those ideally met by interacting with individuals in the clinical setting.

The simulation educational environment is critical to the success of a simulation program (INACSL Board of Directors, 2016). The availability and cost of physical, human resources required to carry out high-fidelity simulations is significant. Further research into the level of fidelity necessary for specific learning outcome achievement will help nursing programs prioritize and develop their simulation programs while maintaining the quality of education.

Transfer of learning and competence demonstrated from simulation to the clinical practice has not been adequately documented (Foronda et al., 2013; Jørgensen et al., 2018). This concern is beginning to be addressed in the literature for nursing (Hansen & Bratt, 2015; Hayden et al., 2014) and medicine (McGaghie et al., 2010). Hayden and colleagues (2014) reported nurse manager ratings of study participants employed as new graduates. After 6 months of employment as a registered nurse, participants in the three groups continued to show no significant difference in clinical judgment ratings. Additional longitudinal research to measure differences between simulation and clinical experiences with regards to knowledge acquisition, clinical judgment, and transferability to practice is needed.

The literature is beginning to address the areas of debriefing as it relates to fostering clinical judgment in simulation. Clinical "post-conferences" and simulation debriefings are similar in concept, but there is little research comparing the

effectiveness. Research and recommendations for implementation of debriefing methods in the clinical setting are needed (Aebersold, 2018; Hayden et al., 2014).

Despite the increased use of simulation in nursing programs (Hayden, 2010; Jørgensen et al., 2018), recruitment was a challenge in this study. Despite extensive efforts to maximize the recruitment process, including meetings with nursing program administrators to explore program eligibility, only two nursing programs were identified as using both simulation and hospital-based clinical experiences in a maternal–newborn course in which students participated in either simulation or hospital-based clinical experiences but not both. This resulted in a small sample size.

Post hoc power analysis using the G*Power, a general power analysis program for statistical tests (Faul et al., 2007), indicated that based on our modest observed effect size (Cohen's d = .274); a sample size of at least 434 (equally divided between the two groups) was needed to detect a difference if it existed. However, such a small effect size may not be clinically significant to warrant replication of the study (i.e., the mean difference between the two groups was very trivial; 31.95 versus 30.29).

The nonrandom group assignment to the clinical experiences was another limitation of the study. However, with the exception of program type, the groups were similar in all demographic characteristics as previously discussed, and the sample as a whole was consistent with the general characteristics of students in prelicensure nursing programs.

Finally, the simulation programs participating in this study did not use a formal simulation framework to develop the simulation experiences for their students. The researcher compared the simulation program and experiences to the Standards of Best Practice: Simulation^{SM} (INACSL Board of Directors, 2016) and concluded they aligned with these best practices.

This study suggests that simulation, as described in this study, is an effective alternative to hospital-based clinical experiences in the maternal–newborn clinical area to promote clinical judgment. Best practices used in this study, including faculty with experience and training in simulation as a teaching strategy, adequate resources (human and physical) to support learners and create a realistic environment, and content experts to ensure simulations and debriefing is evidence-based, contribute to the strength of the results. This study supports the use of simulation for high-risk, low-frequency clinical situations or those experiences in the clinical area that are unpredictable, as often seen in the maternal–newborn clinical area. Careful consideration is needed to determine which clinical experiences are best completed with real patients in actual clinical settings and which are best replaced with simulation. The most significant finding in this study is that both clinical and simulation teaching strategies, when implemented in a structured manner, are effective means of achieving student outcomes related to clinical judgment.

Authors' Note

Carol A. Reid is also affiliated with Department of Nursing, Metropolitan State University, St. Paul, MN, USA.

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