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RESEARCH PAPER (ORIGINAL)
ARTIGO DE INVESTIGAÇÃO (ORIGINAL)

Use of the design and self-confidence scales in the assessment of maternal-child realistic simulation

Utilização de escalas de *design* e autoconfiança na avaliação da simulação realística materno-infantil

Utilización de escalas de diseño y autoconfianza en la evaluación de la simulación realista materno-infantil

Guilherme da Costa Brasil*; Laiane Medeiros Ribeiro**; Alessandra Mazzo***; Rodrigo Guimarães dos Santos Almeida****; José Carlos Amado Martins*****; Luciana Mara Monti Fonseca******; Casandra Genoveva Rosales Martins Ponce de Leon*******

Abstract

Background: The maternal-child simulation replaces or amplifies a real experience with supervision, being able to be applied in several levels of attention to health.
Objective: To evaluate the realistic maternal-child simulation through the Design and Self-confidence scales.
Methodology: Descriptive cross-sectional study with a quantitative approach performed with 47 students of the Nursing course submitted to realistic simulation. After the simulation and debriefing, they answered two validated instruments that evaluated student satisfaction and self-confidence and the design of the scenario. Data were analyzed through descriptive statistics and inferential statistics.
Results: The factorial analysis and the internal consistency analysis revealed good values (0.94 for the Satisfaction Scale, 0.92 for Design). The mean subscale scores for the elements of satisfaction and self-confidence ranged from 3.51 to 4.12 (from a possible score of 5); and the elements of the simulation design ranged from 3.91 to 4.51 (from a possible score of 5).
Conclusion: The Scales of Design and Self-confidence revealed good indexes both of the scenario design and student self-confidence and the results were similar to other studies.

Keywords: obstetric nursing; pediatric nursing; simulation; pediatrics; obstetrics; nursing assessment

Resumo

Enquadramento: A simulação materno-infantil substitui ou amplifica uma experiência real com supervisão, podendo ser aplicada em diversos níveis de atenção à saúde.
Objetivo: Avaliar a simulação realística materno-infantil por meio das escalas de *design* e autoconfiança.
Metodologia: Estudo transversal descritivo, com abordagem quantitativa, realizado com 47 alunos do curso de enfermagem submetidos à simulação realística. Após a simulação e o *debriefing*, responderam a 2 instrumentos validados que avaliavam a satisfação e autoconfiança dos estudantes e o *design* do cenário. Os dados foram analisados utilizando a estatística descritiva e estatística inferencial.
Resultados: A análise fatorial e a análise da consistência interna revelaram bons valores (0,94 para a escala de satisfação, 0,92 para a de *design*). As classificações médias de subescala para os elementos da satisfação e autoconfiança variaram de 3,51 a 4,12 (de uma pontuação possível de 5); e os elementos do desenho de simulação variaram de 3,91 a 4,51 (de uma pontuação possível de 5).
Conclusão: As escalas de *design* e autoconfiança revelaram bons índices para o desenho do cenário e para a autoconfiança do estudante, corroborando os resultados obtidos em outros estudos.

Palavras-chave: enfermagem obstétrica; enfermagem pediátrica; simulação; pediatria; obstetrícia; avaliação em enfermagem

Resumen

Marco contextual: La simulación materno-infantil sustituye o amplifica una experiencia real con supervisión, lo que hace que pueda aplicarse en diversos niveles de atención a la salud.
Objetivo: Evaluar la simulación realista materno-infantil por medio de las escalas de diseño y autoconfianza.
Metodología: Estudio transversal descriptivo, con enfoque cuantitativo, realizado con 47 alumnos de los estudios de enfermería sometidos a una simulación realista. Tras realizar la simulación y la sesión informativa, respondieron a 2 instrumentos validados que evaluaban la satisfacción y la autoconfianza de los estudiantes, así como el diseño del escenario. Los datos se analizaron utilizando la estadística descriptiva y la estadística inferencial.
Resultados: El análisis factorial y el análisis de la consistencia interna revelaron buenos valores (0,94 para la escala de satisfacción, 0,92 para la de diseño). Las clasificaciones medias de la subescala para los elementos de la satisfacción y la autoconfianza variaron de 3,51 a 4,12 (de una puntuación posible de 5); y los elementos del diseño de simulación variaron de 3,91 a 4,51 (de una puntuación posible de 5).
Conclusión: Las escalas de diseño y autoconfianza revelaron buenos índices para el diseño del escenario y para la autoconfianza del estudiante, lo que corrobora los resultados obtenidos en otros estudios.

Palabras clave: enfermería obstétrica; enfermería pediátrica; simulación; pediatría; obstetricia; evaluación en enfermería

* MSc., RN, Federal District University Center, 70390-045, Brazil. [guilhermecostabrasil@hotmail.com]. https://orcid.org/0000-0001-6878-7098. Contribution to the article: literature search, participation in trial and data collection, data analysis and discussion, statistical treatment and assessment, article revision. Address for correspondence: QR 204, conjunto 10, casa 15 – Samambaia North, Postal Code: 72.316-090, Brasília, Brazil.
**Ph.D., RN, Nursing Department, University of Brasília – Ceilândia Faculty, 71920-010, Brasília, Brazil [lainha@gmail.com]. https://orcid.org/0000-0002-5041-8283. Contribution to the article: data analysis and discussion, statistical treatment and assessment, article revision.
***Ph.D., RN, Nursing School of Ribeirão Preto, University of São Paulo, 14025-270, Ribeirão Preto, Brazil [amazzo@eerp.usp.br]. https://orcid.org/0000-0001-5074-8939. Contribution to the article: data analysis and discussion.
****Ph.D., RN, Nursing Department, Federal University of Mato Grosso do Sul, 79070-900, Mato Grosso do Sul, Brazil [rodrigoguimaraes@usp.br]. https://orcid.org/0000-0002-4984-3928. Contribution to the article: data analysis and discussion.
*****Ph.D., Coordinating Professor, Scientific-Pedagogical Unit of Medical-Surgical Nursing, Nursing School of Coimbra, 3046-851, Coimbra, Portugal [jmartins@esenfc.pt]. https://orcid.org/0000-0003-0910-8387. Contribution to the article: data analysis and discussion.
******Ph.D., RN, Maternal/Child and Public Health Nursing Department, Nursing School of Ribeirão Preto, University of São Paulo, 14025-270, Ribeirão Preto, Brazil [lumonti@eerp.usp.br]. https://orcid.org/0000-0002- 5831-8789. Contribution to the article: data analysis and discussion.
******* MSc., RN, Nursing Department, University of Brasília – Ceilândia Faculty, 71920-010, Brasília, Brazil [casandrapleon@gmail.com]. https://orcid.org/0000-0003-4378-9200. Contribution to the article: data analysis and discussion.

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Introduction

Simulation is an educational process whereby near-to-reality patient care scenarios are replicated. Through these simulations, the individual analyzes and reflects on his or her knowledge regarding safe practices. Employed as a technique rather than merely a technology, it replaces or amplifies a real experience with supervision, which evokes a real-world scenario in an interactive environment. It is a great learning tool, being able to be applied at several levels of the health system (Brandão, Collares, & Marin, 2014).

Today, simulations are viewed as a learning method that garners knowledge, besides being more satisfying and enjoyable than traditional instruction (Brandão et al., 2014).

Pediatric emergencies are rare events, not occurring often enough so that the resident or student gains the necessary competency and skills. An increasing number of educational programs based on simulations have been used, proving effective in increasing technical skills and team work (Happel, Lease, Nishisaki, & Braga, 2015). Healthcare environments for the pediatric patient include primary care and inpatient care. Pediatric patient care is complex and dynamic, since pediatrics encompasses the stages of development from infancy to adolescence, where each age group has its own specific and unique characteristics which should be considered in the course of care (Kushto-Reese, Mudd, Sloand, & Swoboda, 2015).

In maternal emergencies, the professionals responsible for care should be capable of providing assistance at the level of complexity of the situation (Shaw-Battista, Belew, Anderson, & Van Schaik, 2015). Most obstetricians and gynecologists gained their clinical experience at patients' sides (Kainer, 2014). Likewise, the events in the delivery room will often be unexpected and marked by significant time pressure and the simultaneous care of two patients (mother and child), a situation that demands excellent teamwork (Shaw-Battista et al., 2015). There cannot be an exclusion of care of the two groups (women and children), since this pairing, in different aspects of care, is inseparable. The mother-child simulation aims to further the preparation for assistance to mother and to child. The objective of this work was to evaluate the realistic maternal-child simulation through the design and self-confidence scales.

Background

Historically, health education was based on the conservative and traditional methodologies influenced by a system inspired by Cartesian-Newtonian thinking. This system compartmentalized learning, where knowledge was in specialized fields. This fragmentation caused a subdivision of higher learning into centers and departments, and of courses into periods and semesters. The active methodologies emerge as a methodological proposal that has as its principal objective the collective construction of knowledge (Costa, Medeiros, Martins, Menezes, & Araújo, 2015). Simulations are an active methodology that involves organizing, planning and technique.

In Europe, the United States and Canada, simulation centers are present in institutions of higher learning, where simulation methodology has been widely used. In these sites, the student or health professional goes through the simulated practice as part of the learning process, working through issues such as cognition, procedural aspects, and teamwork (Dunkin, 2015). In Brazil, there is an increasing tendency towards its implementation in health education, but the high cost, the structure, the acquisition of simulators and the contracting of trained personnel is a limiting factor. It is important that the academic healthcare field adopt simulations as a step in the development of personal performance, getting formative and summative feedback that can be observed in both the institutional practice labs and in the real-world setting (Costa et al., 2015).

The use of simulations in education is a factor in error reduction and the improvement of team development. In the acquisition of specific skills, the use of simulations generates a high level of satisfaction, not only among students, but also among faculty involved in the process (Brandão et al., 2014). It is important to identify the satisfaction and self-confidence levels of students in decision making in clinical situations, as well as determine if the scenarios are appropriate in the instruction.

An observational prospective study with a

non-probabilistic sample was conducted with 51 students. At the end of the simulation, those students answered questionnaires that measured student satisfaction and self-confidence in the learning, as well as providing an analysis of the scenario design. The students expressed satisfaction with the activities performed, as well as with the structuring of the scenarios, showing satisfaction with the low-fidelity manikins (71%) and satisfaction with the learning using high-fidelity manikins (60%; Rubbi, Ferri, Andreina, & Cremonini, 2016).

One study sought to train and assess the knowledge of an interdisciplinary obstetric team in the intervention of a post-partum hemorrhage. Knowledge, skills and confidence were measured before, immediately following, and after 9 months of simulated practice. The average knowledge index increased immediately after the practice from 70% to 77% but decreased after about 9 months of practice (72%, p = 0.386). The average score on basic skills grew after the practice from 43% to 51% and dipped to 49% after 9 months (p = 0.165). Self-confidence increased immediately after the practice and was largely maintained during the following 9 months (Nelissen et al., 2015).

Research Questions

What is the level of satisfaction and self-confidence of undergraduate nursing students in the maternal-child simulation?

Methodology

This was a transversal descriptive study with a quantitative approach. The study conducted to gather data was set at the Nursing Skills and Simulation Laboratories of the University of Brasília at Ceilândia.

The sample was composed of 47 students, where all were enrolled in the Integral Care for Mother and Child program. Data collection occurred in the 1st and 2nd semesters of 2016. In the 1st semester, 23 students participated, and in the 2nd, 24 students were involved, students of the same curricular year being enrolled in different semesters.

During the semester, the students experienced theory classes pertinent to the subject of woman and child health. These classes are associated with the issues they may experience during the simulation, as for example, the international guidelines for new-born resuscitation in the delivery room, intervention in cardiorespiratory arrest in children, clinical practices for women presenting pre-eclampsia, and the health department manuals pertaining to health of the woman and child, adjusting the nursing practice to each situation. The methodology of this discipline is based on simulation, where the student first has a theory lesson and then participates in a simulation based on the focus of the lesson. At the end of the semester, all students participate in a final simulation over all the semester's content, after being randomly grouped for the different scenarios. For the randomizing, student names were written on pieces of paper, which were then folded, in this manner drawing for the groups as well as assigning which topic scenario the group would participate in.

The inclusion criteria were: the student being continuously enrolled in the Integral Care for Mother and Child course of the Nursing Degree Program of the UnB/Ceilândia and having agreed to participate in the research by signing the Informed Consent Form. Students on medical leave or who had withdrawn from the program of study were excluded.

The cases of the simulated scenarios had as topics: a presentation of pre-eclampsia, newborn resuscitation, pneumonia in an infant, trauma-induced placental abruption, violence against women and family planning consultation. The students assigned to each group participated in the simulation, and the rest were confined to a room along with a student monitor; groups were called to participate in the simulated scenarios according to the drawing order, and once finished, there was no contact between those students who had completed the simulation and those that were waiting their turn. Student participation within the scenario depended on the type of scenario; in a consultation, the student consulted with an expecting mother or the infant; in a hospital scenario, the student would follow guidelines for clinical practice in a cardiorespiratory arrest situation or would provide care to a pregnant woman during labor.

At the conclusion of each case, a debriefing was held with all the students involved in the scenario, who then responded to two assessment instruments. The first instrument was the Student Satisfaction and Self-Confidence in Learning Scale (*Escala de Satisfação dos Estudantes e Autoconfiança na Aprendizagem*), a translation and adaptation of the assessment tool Student Satisfaction and Self-Confidence in Learning, created by the National League for Nursing (NLN) to measure the satisfaction and self-confidence of an individual gained by means of a high-fidelity simulation. This instrument is comprised of 13 items of the 5-point Likert scale and is divided into two dimensions (Satisfaction - 5 items and Self-Confidence - 8 items). The answer options are: 1- *Strongly disagree with the statement*, 2- *Disagree with the statement*; 3- *Undecided/neither disagree nor agree with the statement*, 4- *Agree with the statement*; 5- *Strongly agree with the statement*. The scale was translated and validated to the Portuguese language, and for the present study, was adapted to the maternal-child simulation (Almeida, Mazzo, Martins, Baptista, et al., 2015).

The second instrument was the Simulation Design Scale (*Escala de Design da Simulação*), also created by NLN, and has the purpose of evaluating the structuring of the scenarios. It is an instrument with 20 items, divided into two subscales: the first on the design of the simulation and the second on the importance of the item to the participant. These subscales are divided into five factors that evaluate: 1) The objectives and information; 2) The support; 3) Problem-solving; 4) The feedback and reflection; 5) The realism. The pattern of the 5-point Likert-type response allowed for a "not applicable" option when the statement did not pertain to the simulated activity performed. The answer options were: 1- *Strongly disagree with the statement*, 2- *Disagree with the statement*; 3- *Undecided/neither disagree nor agree with the statement*, 4- *Agree with the statement*; 5- *Strongly agree with the statement*. The scale was translated and validated to the Portuguese language (Almeida, Mazzo, Martins, Pedersoli, et al., 2015).

The database was initially compiled on an EXCEL sheet to log the variables. To guarantee the consistency of data, the data registry was conducted by two research assistants. The data was exported to the IBM SPSS Statistics software, version 23.0.

The sample was comprised of 47 students of the Nursing Degree Program of the University of Brasília - Ceilândia. The minimum age of the participants was 19 years and the maximum age was 32; 86% of the students were female. The students were enrolled in the Integral Care for Mother and Child course of the 1st and 2nd semesters of 2016. This course addresses, in theory and in practice, the health issues of the woman and child from primary care to inpatient care. Through this approach, students can hone their practice in the Care Skills and Simulation Laboratories of the university in nursing techniques and of care in those segments. The course focuses on embedding these topics through simulation scenarios, including situations that may be experienced in their practice. The students responded to two scales after the simulation: the Student Satisfaction and Self-Confidence in Learning Scale and the Simulation Design Scale.

The study adhered to the formal requirements found in the national and international norms regulating research involving human beings. It was approved by the Research Ethics Committee under number CAAE 55504716.7.0000.0030.

Results

Table 1 displays the answer scores for the Student Satisfaction and Self-Confidence in Learning Scale.

Table 1
Student Satisfaction and Self-Confidence in Learning Scale

Items (*N* = 47)	Mean*(*SD*†)
Satisfaction with the actual learning	
1. The teaching methods used in this simulation were helpful and effective.	4.06 (0.8)
2. The simulation provided me with a variety of teaching aids and activities to facilitate my learning of the mother-child curriculum.	4.02 (0.93)
3. I liked the way my professor taught through simulation.	3.93 (1.07)
4. The teaching aids in this simulation were motivating and helped me learn.	3.97 (0.91)
5. The way my professor taught through simulation was appropriate for the way I learn.	4.06 (0.93)
Self-confidence in the learning	
6. I am confident that I have mastered the simulation activity content that my professor introduced.	3.51 (0.89)
7. I am confident that this simulation includes the content necessary to master the mother-child curriculum.	3.97 (1.08)
8. I am confident that I am developing the skills and gaining the necessary knowledge from this simulation to carry out the necessary care in a clinical setting.	3.95 (0.98)
9. My professor used helpful resources to teach the simulation.	4.12 (0.89)
10. It is my responsibility as a student to learn what I need to through the simulation activity.	3.93 (1.13)
11. I know how to get help when I don't understand the concepts addressed in the simulation.	3.80 (0.95)
12. I know how to use simulation activities to learn skills.	3.74 (1.04)
13. It is the responsibility of the professor to tell me during the lesson what I need to learn regarding the issue developed in the simulation.	3.82 (1.05)

Note. *Likert 1-5 Scale: 1 = *Strongly disagree*, 5 = *Strongly agree*; *SD*† = Standard Deviation.

Descriptive statistics were used to examine the questionnaire subscale scores. Of the five satisfaction items, an agreement on all items was reached by more than 72%. Of the eight self-confidence in learning items, the agreement was above 63%, varying between the items. The average was given based on the score on the 1 to 5 scale. The average subscale scores for the elements of satisfaction and self-confidence varied from 3.51 to 4.12 (out of a possible 5 points). Table 2 displays the answer scores for the Simulation Design Scale.

Table 2
Simulation Design Scale, Item and Importance

Items *N* = 47	Item Mean*(*SD*†)	Importance Mean(*SD*)
Objective and information		
1. At the start of the simulation, enough information was provided to offer guidance and encouragement.	3.93 (1.31)	4.46 (0.91)
2. I understood clearly the goals and objectives of the simulation.	4 (1.01)	4.53 (0.76)
3. The simulation provided enough information, in a clear manner, for me to resolve the problem situation.	3.91 (0.96	4.40 (0.81)
4. I was provided enough information during the simulation.	4 (7.42)	4.59 (0.53)
5. The clues were appropriate and geared towards furthering my understanding.	4.23 (1.11)	4.51 (0.79)
Support		
6. Support was offered in a timely manner.	4.36 (0.75)	4.61 (0.56)
7. My need for help was acknowledged.	4.25 (1.08)	4.57 (0.61)
8. I felt supported by the professor during the simulation.	4.19 (1.0)	4.59 (0.64)
9. I was supported in the learning process.	4.34 (0.9)	4.65 (0.62)
Problem-solving		
10. Independent problem-solving was facilitated.	3.97 (0.97)	4.44 (0.76)
11. I was encouraged to explore all the possibilities of the simulation.	4.02 (1.12)	4.48 (0.61)
12. The simulation was designed for my specific skill and knowledge level.	4.17 (0.88)	4.17 (0.61)

13. The simulation offered me the opportunity to prioritize evaluations and nursing care.	4.38 (0.630	4.59 (0.57)
14. The simulation offered me the opportunity to establish objectives for patient aid.	4.46 (0.64)	4.59 (0.57)
Feedback/Reflection		
15. The feedback provided was constructive.	4.42 (0.93)	4.61 (0.56)
16. Feedback was provided in a timely manner.	4.40 (0.93)	4.59 (0.49)
17. The simulation allowed me to analyze my own behaviors and actions.	4.48 (0.91)	4.61 (0.52)
18. After the simulation, there was an opportunity to receive guidance/ feedback from the professor, in order to build knowledge toward the next level.	4.44 (1.0)	4.44 (0.53)
Realism		
19. The scenario resembled a real-life situation.	4.44 (0.7)	4.80 (0.60)
20. Factors, situations and variables from real life were embedded in the simulation scenario.	4.51 (0.54)	4.74 (0.60)

Note. * Likert 1-5 Scale: 1 = *Strongly disagree*, 5 = *Strongly agree*; *SD*† = Standard Deviation.

Descriptive statistics were used to examine the subscale scores on both parts of the questionnaire (item and the importance of each to the student). All the items of the Design scale had an agreement rate above 71%. The domains of problem-solving, feedback/reflection and realism achieved an agreement rate above 80%. Realism of the scenario reached an agreement rate above 87%. Ninety-seven point eight percent of the students agree that factors, situations, and variables of real life were incorporated into the simulation scenarios.

The average was given based on the score on the 1-to-5 scale. The average subscale scores for the elements of simulation design varied between 3.91 and 4.51 (out of a possible 5 points). On the section of evaluating the items, all achieved a degree of importance above 91%.

Discussion

The simulation can be used to support practice in stressful situations that might otherwise present a risk were it to be practiced on a patient. Simulated practice offers the opportunity to learn from mistakes without causing harm to the patient, as well as the acquisition of competencies and the development of clinical reasoning skills (Scholes et al., 2012).

The Student Satisfaction and Self-Confidence in Learning Scale aims to ascertain the student's current satisfaction with regard to his or her learning and self-confidence in the performance of the exercise tasks. The results of this research reflect the satisfaction of the students with the learning from the simulated exercise, as observed by the instrument responses.

In evaluating their satisfaction in learning, the average score was 4, where a score of 1 indicates that the students strongly disagree with the statement that they are satisfied with the learning from the simulation experience, and a score of 5 indicates that the students strongly agree with satisfaction in the process through the simulation experience. This result supports the findings of other research that utilized simulations as a teaching strategy and administered the instrument to measure satisfaction: 4.35 (Franklin, Burns, & Lee, 2014); 4.3 (Wilson & Klein, 2012) and 4.09 (Hurst, 2015).

Furthermore, the analysis of each item on the satisfaction instrument indicated a high degree of satisfaction in learning using simulations. Satisfaction with the simulation promotes knowledge retention, skill development, communication improvement and decision-making (Agha, Alhamrani, & Khan, 2015).

The results of satisfaction related to learning by means of simulations are fundamental, because satisfaction is important for a deeper engagement in the learning process. When students are satisfied, they find themselves more likely to actively participate in the learning process, which is an important part of simulations. The motivated student learns more easily, believing in his or her learning potential for a confident practice in the future (Baptista, Martins, Pereira, & Mazzo, 2014). Satisfaction creates a shared learning atmosphere where students are able to learn from each other during the simulation and offer valuable feedback in debriefing.

The second part of the instrument addresses self-confidence in the learning by means of simulations. In evaluating the self-confidence in this process, the average score was 3.85, where a score of 1 indicates that students strongly disagree that they are satisfied with the learning through the simulation experience and a score of 5 indicates that students agree they are satisfied with the experience of learning through simulation. In addition, analyzing each item individually, the students agree with all the statements regarding self-confidence in learning through the use of simulations. This result supports the findings of other research that utilized simulations as a teaching strategy and administered the instrument to measure self-confidence: 4.25 (Franklin et al., 2014); 4.11 (Wilson & Klein, 2012) and 3.95 (Hurst, 2015).

A study of 60 students measured self-confidence in the face of situations involving a critical patient. These students had theory classes and practical activities on intervening in situations such as obstructed airways, cardiac compressions, and defibrillator use. Comparing the pre- and post-test results, the global average saw an increase from 2.85 to 3.83 ($p < 0.05$). At the end of the study, the students suggested the addition of realistic simulations as a teaching strategy in other courses of the program (Muniandy, Nyein, & Felly, 2015).

The results of these studies are important, since in clinical scenarios it is expected that students will have the ability to make decisions and should be confident in order to solve problems. Nursing students in Iran participated in a study with the objective of measuring self-confidence in peripheral venous puncture in pediatric patients. Participating in the study were 45 students divided into a control group and an intervention group; findings revealed that after the simulated practice, the intervention group had a significant increase in self-confidence ($p = 0.03$; Valizadeh, Amini, Fathi-Azar, Ghiasvandian, & Akbarzadeh, 2013).

The Simulation Design Scale aims to determine if the scenario design was structured so that the student understood the objective and could tell if it was similar to a real situation. In this way, the objectives and information, support, problem-solving, feedback/reflection and realism were evaluated within the scenarios. The results of this research show that the design of the simulations was structured correctly and clearly. The aspects from briefing to debriefing reflected a comprehension and learning in line with the proposed objective. The results show that a well-structured scenario allows the student to gain the correct skills in the clinical practice.

In evaluating the design of the scenarios, the average score was 4.24. The high global scores indicate that the students clearly understood all five elements of design found in the simulated scenarios. This result matches other studies that administered the design scale as a means of evaluating the scenarios: 4.25 (Franklin et al., 2014); 4.11 (Wilson & Klein, 2012) and 3.95 (Hurst, 2015).

The scenario characteristic that received the highest score was realism, with a global average score of 4.47. The students felt that the realism of the scenario based on the simulation resembled a real-life situation ($M = 4.44$), and the elements, situations and variable of real life were incorporated into the simulation ($M = 4.51$). Another characteristic with high scores was feedback, with an average score of 4.43. This result indicates that, for the participants, the reflection period of the scenario was important. Thus, the student was able to analyze his or her own behavior and actions ($M = 4.48$), and after the simulation, had the opportunity to receive guidance from the professor, and thus build knowledge for another level ($M = 4.44$). Reflection is essential to learning, since it is an opportunity for the student to reflect; however, providing for reflection on the scenarios may provide additional insights regarding the condition of the patient and help in defining the goals to be established. The student, in the course of events, may become lost, or arrive at the wrong conclusion, in which case, the errors are not evident until the scenario is concluded, and the reflection occurs (Lin & Cheng, 2015).

The objectives and information of the simulation had high scores that support other studies ($M = 4.01$): 4.35 (Franklin, Burns, & Lee, 2014) and 4.13 (Wilson & Klein, 2012). Detailed and clear specific objectives are an essential component of simulations and should also match the knowledge and experience level of the participant. The scenario information should be provided before the simulation, and should contain information regarding the man-

ikins, the equipment and the supply of any materials.

Educators need to know and master new educational technologies and embed them in their teaching methods. Students prefer to work with practical experiences, which is why learning strategies should be connected more and more to practical teaching, simulations, and discussion group work (Shaw-Battista et al., 2015).

The key to an effective practice by the simulation team and participants includes the development of well-designed scenarios and cohesive clinical cases. The events require special attention on the role of each participant, and on the optimization of the fidelity in a timely manner, as well as a quality debriefing (Shaw-Battista et al., 2015).

The current study employed scenarios of low, medium and high-fidelity. In the low-fidelity scenarios, the manikins used provide a lower response to given commands, such as a rigid pelvis for an exam; in medium-fidelity scenarios, manikins are not responsive but can, for example, emit cardiac and pulmonary-type sounds; in scenarios of high-fidelity, a birthing and a pediatric manikin were used, which are physiologically sensitive to responses, emitting sounds, blinking eyes and presenting perilabial cyanosis. Properly thinking through the objectives and on what the scenario seeks to offer the student is essential to the teaching process. Learning environments have a significant influence on learning and on behavior changes, so that, if the teaching and training occur when and where the knowledge and skills will be used, it will facilitate the improvement of automatic learning transfer to the real-world clinical setting. The role of the educator is to provide an environment that simulates reality so that the student receives an appropriate response (Lin & Cheng, 2015).

The maternal-child scenarios require several options from simulators, which may be neonatal, pediatric, or obstetric. The features and resources of the simulator should be taken into consideration in the scenario preparation, since students need to know what to identify in each scenario and what to expect from each simulator. The inability to consider the features of the simulator may influence the scenario's relevance and degree of realism.

The study has as a limitation the number of students that participated in the research in a single nursing program. It is also limited by the absence of a comparison group that would strengthen the generalization of the results. It would be important to identify whether satisfaction and self-confidence diminish over time.

Conclusion

Realistic simulations supported the student experience in scenarios that could be found in the maternal-child practice. The design and self-confidence scales revealed good ratings, both in scenario design and in student self-confidence, as well as in the results which turned out similar to those of other studies.

The more basic scenarios, such as a prenatal consultation, as well as more complex scenarios, such as a trauma-induced placental abruption or resuscitation in the delivery room, resulted in high satisfaction and self-confidence ratings. This was the first study that used maternal-child scenarios in measuring participant self-confidence and satisfaction when faced with simulated scenarios, and the first that evaluated the design of that type of scenario from the student's perspective. This implies good satisfaction and self-confidence in the maternal-child learning.

This study should be replicated in the future to determine if students report similar responses in relation to their simulation experience, and furthermore, it should be applied to other disciplines that use simulations in their curriculum, to determine if the results show similarities.

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