Original Article

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☑ Knowledge translation and advances in health and nursing practices

Self-confidence and knowledge in leadership in critical care: simulation with the "blindfolded" technique

Autoconfiança e conhecimento na liderança em atendimento crítico: simulação com a técnica "olhos vendados"

Autoconfianza y conocimiento en el liderazgo en cuidados críticos: simulación con la técnica "ojos venados"

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ABSTRACT

Objective: To verify the contributions of using the "blindfolded" technique on nursing students' self-confidence and knowledge in critical patient care in simulated clinical scenarios. Method: A quasi-experimental study conducted with 25 nursing students from a Federal University in the inland of São Paulo between November and December 2021. The participants answered the "Self-confidence Scale" and the Checklist of CPR Knowledge, Skills and Attitudes, before and after the intervention. A descriptive analysis of the checklist was performed and the Wilcoxon test was used to evaluate the checklist and the "Self-confidence Scale".

Results: There was a mean of 4.04 additional correct answers in the sample analyzed, based on the difference in the number of correct answers between both moments. A total of 80% of the sample showed an increase in knowledge.

Conclusion: After the clinical simulation with the "blindfolded" technique, the students in leadership roles presented an increase in knowledge and self-confidence during the assistance provided in critical scenarios.

Keywords: Trust. Mentoring. Critical care.

RESUMO

Objetivo: Verificar as contribuições do uso da técnica de "olhos vendados" na autoconfiança e conhecimento de estudantes de enfermagem no atendimento ao paciente crítico em cenários clínicos simulados.

Método: Estudo quase-experimental com 25 estudantes do curso de enfermagem de uma Universidade Federal do interior de São Paulo entre novembro e dezembro de 2021. Os participantes responderam à Escala Self-confidence Scale e ao Checklist de Conhecimento, Habilidades e Atitudes em Reanimação Cardiorrespiratória, pré e pós-intervenção. Realizou-se a análise descritiva do checklist e o teste de Wilcoxon para avaliar o checklist e Self-confidence Scale.

Resultados: Média de 4,04 acertos adicionais na amostra analisada, através da diferença de acertos entre os dois momentos. Um total de 80% da amostra demonstrou um aumento no conhecimento.

Conclusão: Os estudantes em papéis de liderança após a simulação clínica com a técnica "olhos vendados", apresentaram um aumento de conhecimento e autoconfiança durante a assistência nos cenários críticos.

Palavras-chave: Confiança. Tutoria. Cuidados críticos.

RESUMEN

Objetivo: Verificar las contribuciones del uso de la técnica de "ojos vendados" en la autoconfianza y el conocimiento de los estudiantes de enfermería en el cuidado de pacientes críticos en escenarios clínicos simulados.

Método: Estudio cuasiexperimental con 25estudiantes de enfermería de una Universidad Federal del interior de São Paulo entre noviembre y diciembre de 2021. Los participantes respondieron a la "Escala de autoconfianza" y a la Lista de Comprobación de Conocimientos, Habilidades y Actitudes en RCP, antes y después de la intervención. Se realizó un análisis descriptivo de la lista de comprobación y una prueba de Wilcoxon para evaluar la lista de comprobación y la escala de autoconfianza.

Resultados: Media de 4,04 aciertos adicionales en la muestra analizada, a través de la diferencia de aciertos entre los dos momentos. El 80% de la muestra demostró un aumento de conocimientos.

Conclusión: Los estudiantes en funciones de liderazgo tras la simulación clínica con la técnica de "ojos vendados" mostraron un aumento de los conocimientos y de la confianza en sí mismos durante la asistencia en escenarios críticos.

Palabras clave: Confianza. Tutoría. Cuidados críticos.

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INTRODUCTION

Care to patients in critical situations is a major challenge in the process of training nurses. Therefore, it is necessary to transform nursing education and practice through innovative proposals for the implementation of educational strategies aimed at the practice environment[1]. The difficulty faced by HEIs (Higher Education Institutions) in finding sites for the development of students' clinical practice is recurrent, especially in medical fields that involve delivery of care to critically ill patients, which is also a limitation found in the theoretical approach to the topic[2].

In this context, clinical simulation is one of the methods used to develop skills and assess learners, being a teaching and learning strategy that replicates situations, events, environments or a clinical scenario[3]. It allows learners the opportunity to improve their skills and gain knowledge, develop attitudes, train, remember and replicate the most diverse interventions, as many times as necessary, in a controlled and safe environment, which minimizes the risk of bedside incidents, during patient instability[4,5].

The modalities used in clinical simulation include the "blindfolded" technique, which is developed in several international studies, using a conceptual framework to organize the management of an intervention and critical thinking of the learner in the role of leader in simulated scenarios of Cardiopulmonary Resuscitation (CPR), with emphasis on medical graduation[6,7,8].

When they cannot rely on visual cues in a cardiac arrest setting, students are required to develop highly attuned communication skills. This exercise emphasizes the importance of strong leadership skills in a team environment and is typically reserved for students in their final years of training. A study[9] claims that when the team leader's sense of vision is removed, the brain is forced to intensify other senses, which is also known as cross-modal plasticity. Brain plasticity in visually impaired individuals produces brain remapping, stimulating the association of non-activated visual areas with other perceptual areas, such as touch and hearing.

In view of the aforementioned, it is clear that in critical care environments, engaging in high levels of critical thinking requires students to have knowledge and self-confidence to gather all the necessary information and make a decision based on the information obtained[10].

The use of clinical simulation to acquire nursing skills provides an innovative educational strategy in the way of teaching and learning the art and science of nursing[11]. Thus, this type of training can add knowledge and self-confidence to the student, due to the fidelity of the scenarios and stimuli for the development of tuned cognitive and psychomotor skills. Self-confidence is a characteristic that often helps individuals achieve their goals and creates a positive self-image that supports student success in a series of experiences, reflects an individual's beliefs in their competences and abilities[12].

Therefore, this study hypothesized that clinical simulation with the "blindfolded" technique could contribute to increasing self-confidence and cognitive knowledge of nursing students. Thus the present study aimed to verify the contributions of the use of the "blindfolded" technique in the self-confidence and cognitive knowledge of nursing students in the care of critically ill patients in simulated clinical scenarios.

METHOD

A quasi-experimental study developed at a Federal University in the inland of São Paulo, following the approval of the Research Ethics Committee according to Opinion no.4,139,590. All participants signed the Free and Informed Consent Form. For the elaboration of the article, the assumptions of the Revised Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0) guide, available on the Equator web page, were followed.

Data were collected from students of an Undergraduate Nursing Course through a workshop with simulated scenarios on nursing care for critically-ill patients, disseminated through invitations sent by email and social media. The inclusion criteria were students enrolled in the 7th, 8th and 9th semesters of the Undergraduate Nursing Course who must participate in all phases and complete all research instruments, namely: Informed Consent Form, Biographical Characterization, Self-Confidence Scale (SCE) and Checklist of Knowledge, Skills and Attitudes in CPR in Adult Patients.

The simulated clinical scenarios were structured according to the Fabri guide[13] and the International Nursing Association for Clinical Simulation and Learning[14] and the clinical cases were based on the American Heart Association (AHA) Guidelines)[15]. Five scenarios were constructed that were identified as Scenario 1: Care to patient with Ventricular Fibrillation (VF) in a hospital environment; Scenario 2: Care to patient with Pulseless Ventricular Tachycardia (VT) in a hospital setting; Scenario 3: Care to patient with VF in the Emergency Care Unit (UPA) using the AED; Scenario 4: Care to patient in Asystole at home by the Mobile Emergency Care Service team and, finally, Scenario 5: Care to patient in case of Pulseless Electrical Activity (PEA) in post-trauma

hemorrhagic shock in a hospital environment. All scenarios were previously tested by five students invited for this purpose, who were not included in the sample.

The 25 students who accepted the invitation and agreed to participate in the study received electronic materials and references on the subject for a previous examination. Data collection took place on different days, in two stages. In the first stage, the participants completed two assessment instruments, namely the "Self-confidence Scale (SCS)"[16] to assess confidence and the Checklist of Knowledge, Skills and Attitudes in CPR in Adult Patients to assess the level of cognitive knowledge about the subject before the interventions, which was constructed by the authors. The participants were then trained through a synchronous online class on Basic Life Support (BLS) and Advanced Life Support (ALS) according to AHA guidelines[15].

The second stage was carried out in person at the Health Simulation Unit of the researchers' institution, in which five students formed a team. The referred activity was scheduled to take place 7 days after the previous step and included all participants. This stage aimed to train students in CPR skills and participate in simulated scenario**s**.

First, a skills training was carried out for about 1 hour and, later, the five students were instructed to participate in the simulated scenarios. Each scenario lasted approximately 45 minutes, which were distributed as follows: approximately five minutes for pre-briefing, five minutes for briefing, 15 minutes for the development of the simulated scenario and 20 minutes for debriefing. The pre-briefing comprised the explanation of the simulated scenario and the blindfolded method, the presentation of the learning objectives, whose purpose is to build an environment of safety and trust among the participants; the briefing contained essential information about the simulated scenario, the development of the scenario and structured debriefing according to the authors[17],which consisted of the final and reflective process involving all the simulated scenarios and which was conducted by a teacher in the role of facilitator.

Participants were randomly selected at the beginning of each scenario for playing the roles of leader and team members. They were identified with plates of different colors and roles (leader plate in green and team members plate in white). In each scenario, participants were randomly selected for the role of leader and the role of team member, so that all five members of the group had the opportunity to play both roles and so that in the end it was possible to evaluate all the 25 participants as leaders.

After the draw, the leader, blindfolded and with his back to the simulated scenario, was responsible for guiding the care using closed-loop communication. The other four students, after being identified by their names and guided on the action to be carried out, provided the care. They could only carry out explicit and clear orders given to them as long as they were identified by their names. If the leader asked for a specific task to be performed without identifying the member responsible for that action, that task was not completed. Thus, the leader was supposed to provide guidance on patient care until the learning objectives of each scenario were achieved.

To determine that the learning objectives were achieved, during each of the scenarios, two facilitators evaluated the leader's performance through a checklist, entitled "Student Assessment Checklist in the Simulated Scenarios". This checklist was built and validated by a group of experts who were selected using the "snowball technique"[18] and using the Delphi Technique[19] to validate the content and appearance of the checklist. In all, two rounds of the technique were performed, and the Content Validation Index (CVI)[20] > 0.8 was obtained. The final version of the Checklist has five dimensions, each with a specific number of essential items for CPR care. At the end of the five scenarios, the debriefing was carried out and the students completed the same instruments submitted in the pre-training context.

Research data were coded and double-entered into Excel spreadsheets and analyzed using IBM SPSS version 22 for Windows. For data analysis, a descriptive analysis was performed considering the Self-confidence Scale[16] and the Checklist of Knowledge, Skills and Attitudes in CPR in Adult Patients, in the pre- and post-simulation moments. In the Self-confidence Scale, the following scores were considered: Not Confident at all-one point; Somewhat Confident- two points; Confident – three points; Very Confident – four points; Extremely Confident – five points. Thus, the higher the individual's score, the greater the perception of their confidence. As for the Checklist of Knowledge, for each correct answer of the participant, a point was assigned, and the sum of these points was compared before and after participation in the clinical simulation.

In the descriptive analysis of the Checklist of Knowledge, Skills and Attitudes in CPR in Adult Patients and the Self-Confidence Scale[16], the minimum and maximum scores, quartiles (first, second and third), means and variance of pre and post simulation points were identified. A box-plot was created that accounted for the proportion of responses of

individuals before and after the simulation, specifically for the confidence scale, and a box-plot was also created that considered the percentage of times each of the five options of the scale was chosen in the 12 questions. Moreover, a paired score chart per individual was constructed for each analysis instrument, which clearly shows the total number of correct answers of the participants before and after the simulation was applied. This graph facilitates the understanding of the gain in knowledge and confidence of the individuals between the two moments of the research. In addition, a Wilcoxon signed rank test with continuity correction was performed to assess whether the midpoints of pre- and post-simulation scores were statistically different, both for the checklist of knowledge and for the Self-confidence Scale. The respective test, considered non-parametric, was performed in view of the non-normality of the distribution of points of these analysis instruments. Data was collected between November and December 2021.

RESULTS

The workshops with simulated scenarios on nursing care for patients in critical situations were attended by 25 nursing students. Of these, 22 (88%) students were women and 3 (12%) were men, and the age group of the participants was 20-34 years old. Asked about technical training in nursing, 24 (96%) said that they did not have such training, while 1 (4%) student reported having technical training in nursing. As for experience in the urgent and emergency area, 23 (92%) students reported having no experience and 2 (8%) said they had experience. Regarding experience in the critical care area, only 1 (4%) student reported having such experience, while 24 (96%) said they did not.

Regarding experience in training with the use of the clinical simulation method, 20 (80%) of the individuals enrolled did not have it, while 5 (20%) responded that they had such experience. Regarding participation in scientific events on nursing communication with critically-ill patients, only 5 (20%) undergraduates said they had participated, while 20 (80%) had not.

Regarding the method of assessing students' knowledge about CPR skills and attitudes, as well as their confidence, participants answered a questionnaire for assessment of knowledge and a Self-Confidence scale at two different moments in the research: the first moment was before they had any training and materials on the subject and the second moment was after the intervention. Figure 1, below, shows the simulated scenarios with blindfolded students as team leaders.

Figure 1 – Students in the role of blindfolded leaders during simulated scenarios. São Carlos, São Paulo, Brazil, 2022
Source: Research data.

Table 1 shows the descriptive analysis of the total score achieved by the participants in the study in the pre- and post-simulation moments in the checklist of knowledge. There was an evident increase in the descriptive parameters after the simulation was carried out, and only variance value decreased.

Descriptive analysis for the confidence scale is shown in Table 2. As in the checklist of knowledge, there was increase in questionnaire indicators. However, regarding variance, contrary to what occurred in the checklist, it was higher.

In Figure 2 that the box-plot of pre- and post-simulation correct answers shows a change in the pattern of points in the questionnaire of knowledge after the intervention.

Figure 3 shows a change in the paired pattern of points of individuals before and after the intervention performed. It can be seen that individuals who obtained the lowest points in the pre-simulation period showed the greatest gains in knowledge, while only five participants had a reduction in the points in the checklist of knowledge, with an average of two points less in the post-simulation moment. Considering the difference in pre-and post-simulation correct answers in the questionnaire about knowledge, there were 4.04 additional correct answers in the sample. Twenty participants increased their score, that is, 80% of the sample showed increase in knowledge.

Table 1 – Descriptive analysis of pre- and post-simulation correct answers – Checklist of Knowledge. São Carlos, São Paulo, Brazil, 2022

	Minimum	1st quartile	Median	Mean	3rd quartile	Maximum	Variance
Pre-intervention	27	32	36	34.88	38	42	19.8
Post-intervention	33	35	39	38.92	42	46	14.8

Source: Research data.

Table 2 – Descriptive analysis of pre and post-simulation correct answers–Confidence scale. São Carlos, São Paulo, Brazil, 2022

	Minimum	1st quartile	Median	Mean	3rd quartile	Maximum	Variance
Pre-intervention	12	23	27	26.16	30	39	45.14
Post-intervention	27	37	41	41.56	47	60	64.84

Source: Research data.

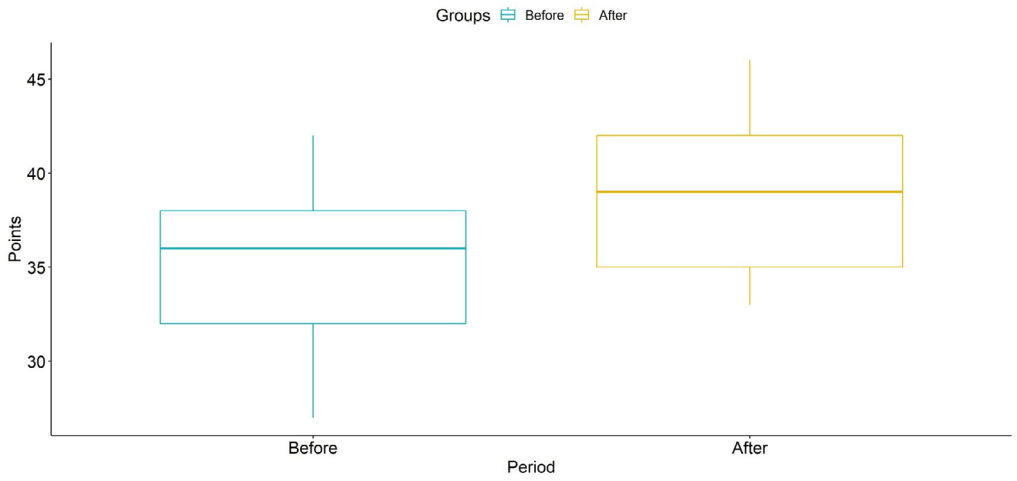

Figure 2 – Box-plot of pre and post-intervention correct answers – Checklist of knowledge. São Carlos, São Paulo, Brazil, 2022
Source: Research data.

Figure 4 shows a change of points of the individuals in a paired manner before and after simulation. No points were reduced in the comparison of pre-and post-simulation scores. The mean points gained was 15.4. The highest number of points was 28, and the lowest was 4 points.

Figure 5 shows the distribution of the proportions of individuals' responses in the confidence questionnaire. The proportion ranges from 0 to 100% and concerns the time before and after the simulation. The box-plot is subdivided for each of the five self-reported confidence options, showing that at the post-simulation moment there was a greater proportion of individuals who defined themselves as "confident" or "very confident", while there was a significant reduction in the number of people who marked the options "not confident at all" and "somewhat confident".

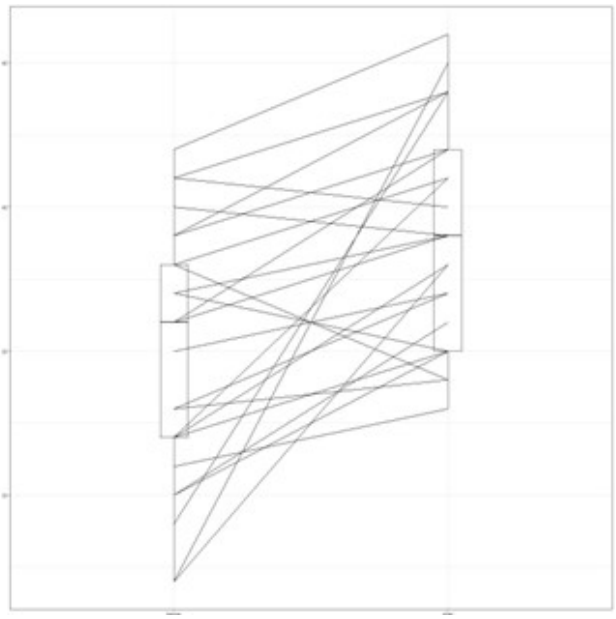

Figure 3 – Pre and post-intervention paired scores per individual – Checklist of knowledge São Carlos, São Paulo, Brazil, 2022
Source: Research data.

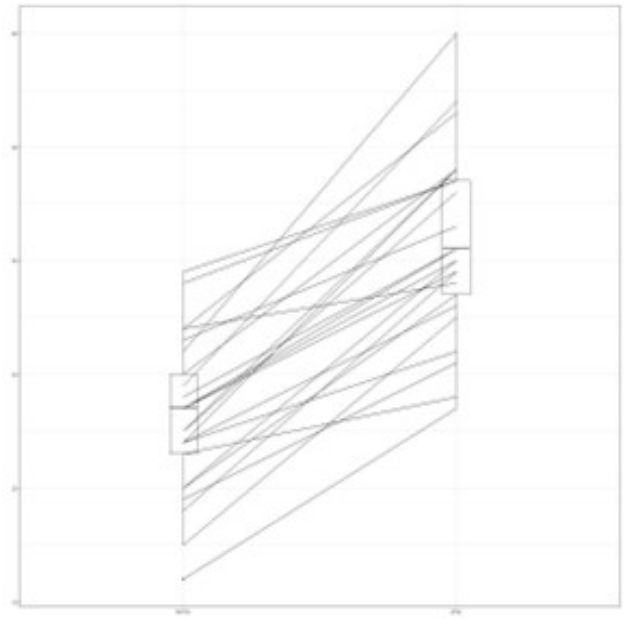

Figure 4 – Pre and post-intervention paired scores per individual – Confidence scale. São Carlos, São Paulo, Brazil, 2022
Source: Research data.

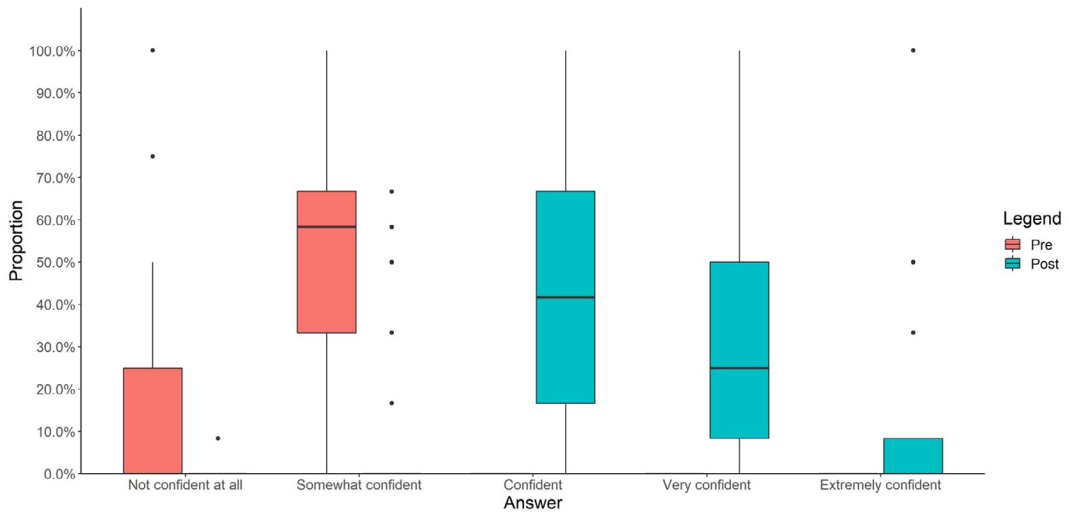

Figure 5 – Box-plot of pre and post-intervention total correct answers – Checklist of knowledge. São Carlos, São Paulo, Brazil, 2022
Source: Research data.

To verify the differences in points at different times of the research, both for the checklist of knowledge and for the confidence questionnaire, the Wilcoxon Signed Ranked Test with continuity correction was carried out, which made it possible to identify whether the medians of correct answers were different before and after the intervention. The results can be seen in Table 3, where the mean of correct answers after the simulation is significantly different from the mean of correct answers before the simulation, indicating that the individuals had a gain in knowledge and confidence between the two moments of the research.

Table 3 – Results of the Wilcoxon signed rank test with continuity correction at different times of the study. São Carlos, São Paulo, Brazil, 2022

Post-intervention correct answers	Statistical Value V	P value
Checklist of Knowledge (difference in pre and post-simulation correct answers)	31	<0.01
Self-confidenceScale (difference in pre and post-simulation correct answers)	294	<0.01

Source: Research data.

DISCUSSION

Critically ill patients demand care based on clinical reasoning and extra care from health professionals, in addition to advanced skills. Given this scenario, the process of training students should properly prepare them to work in complex care scenarios[21].

Most nurses did not receive adequate training to conduct quick and safe interventions in critical care. For these professionals to develop the necessary skills in the care of critically ill patients, methodologies are needed that offer opportunities for training and active participation of these health workers[22]. Health professionals must be constantly trained to be able to provide fast, effective and successful CPR care. The scenario of a CPR service requires professionals to perform simultaneous tasks, teamwork and effective communication, all of these points being facilitated by the intervention of a leader who aims to organize team members, delegate functions and facilitate the performance of tasks during a Cardiopulmonary Arrest (CPA)[23,24]. Corroborating the American Heart Association[15], the Brazilian Society of Cardiology[24] reinforces in its guidelines that leadership and communication are two fundamental pillars during teamwork.

In this study, participants participated in a simulation that used the "blindfolded" technique in five different scenarios. All simulated clinical cases progressed to CPA and all participants were evaluated for increased knowledge and self-confidence before and after being blindfolded leaders. For a satisfactory CPR, In order to perform satisfactory CPR, nurses must strictly observe the control of the patients' vital signs and hemodynamic parameters, emphasizing the importance of training to ensure a quick diagnosis and immediately start the appropriate maneuvers[22].

Authors[6] claim that simulation is an efficient method of training in critical situations, contributing to improvements in leadership, communication and team skills and their work together, in addition to increasing knowledge about Basic and Advanced Life Support. The results of this study showed an increase in the participants' knowledge of the technical and non-technical skills needed to attend a CPA. In addition to the increase in knowledge, the results show an increase in self-confidence between the pre- and post-simulated activity. A similar result found in the literature[25] in a simulated activity with thirty-two undergraduate nursing students showed a statistically significant increase in self-confidence ($p < 0.001$) in the answers to all questions of the Self-Confidence Scale compared before and after the CPR simulation in an out-of-hospital environment.

The results of a quasi-experimental survey[5] with 103 nurses showed that most nurses are not prepared to provide the first care to critically ill patients, which they claimed to have occurred during care practice. Self-confidence in care practice is essential for the exercise of health care, particularly for critically ill patients, who need more complex care[5,16].

The results presented show that the mean of correct answers after the simulation is significantly different from the mean of correct answers before the simulation. Therefore, individuals showed gains in knowledge and confidence comparing the two moments of the survey.

For some authors[26], the need for proposals to develop and assess the skills of nurses in emergencies is urgent. Studies using the "blindfolded" technique[7,27] are an innovative, low-cost and highly applicable method, which can be

used in different contexts and teaching areas. This technique allows the development of technical skills and especially the non-technical skills of nursing students, since it allows them to develop leadership, teamwork, communication, among other skills required of these future professionals. The "blindfolded" technique is an innovative modality in simulated scenarios, as it removes the visual stimulus from the participants, forcing them to develop the other senses, such as communication and qualified listening[6].

It is understood, therefore, that care to critically-ill patients is a great challenge for professional training, and if we really want to transform education and practice in nursing, it is necessary to believe in it and find innovative proposals to implement educational strategies targeted to the practice environment[1].

The small sample size is a limitation of this study, due to restrictions related to the pandemic imposed on university physical spaces. Another limitation is the small number of studies on the "blindfolded" technique, especially in nursing. Therefore, a deeper reflection comparing the evidence found and other studies already concluded was not possible.

CONCLUSION

The present study demonstrated that students in leadership roles after clinical simulation with the "blindfolded" technique had a significant increase in knowledge and self-confidence during care in critical scenarios. Thus, the use of this teaching-learning strategy enables students to perform cardiopulmonary resuscitation. The contribution of this study is to disseminate possibilities for implementing the "blindfolded" technique in teaching, research and assistance training in nursing, through the presentation of a method for the development of different skills during CPR care.

REFERENCES

1. Meyer G, Shatto B, Delicath T, Lancken S. Effect of curriculum revision on graduates transition to practice. Nurse Educ. 2017;42(3):127-32. doi: https://doi.org/10.1097/NNE.0000000000000325.
2. Morais Filho LA, Muniz DM, Marinho CSR, Bay Júnior OG, Valença CN, Martins QCS, et al. A look at the practice of risk classification: integrative review. Int Arch Med. 2017;10(99):1-10. doi: https://doi.org/10.3823/2369.
3. Tyerman J, Luctkar-Flude M, Graham L, Coffey S, Olsen-Lynch E. A systematic review of health care presimulation preparation and briefing effectiveness. Clin Simul Nurs. 2019;27:12-25. doi: https://doi.org/10.1016/j.ecns.2018.11.002.
4. Raman S, Labrague LJ, Arulappan J, Natarajan J, Amirtharaj A, Jacob D. Traditional clinical training combined with high-fidelity simulation-based activities improves clinical competency and knowledge among nursing students on a maternity nursing course. Nurs Forum. 2019;54(3):434-40. doi: https://doi.org/10.1111/nuf.12351.
5. Almeida RGS, Mazzo A, Martins JCA, Jorge BM, Souza Júnior VD, Mendes IAC. Self-confidence in the care of critically ill patients: before and after a simulated intervention. RevBrasEnferm. 2019;72(6):1618-23. doi: https://doi.org/10.1590/0034-7167-2018-0758.
6. Hughes PG, Hughes KE, Ahmed RA. Setup and execution of the blindfolded code training exercise. J Vis Exp. 2019;29(145). doi: https://doi.org/10.3791/59248.
7. Buyck M, Manzano S, Haddad K, Moncousin AC, Galetto-Lacour A, Blondon K, et al. Effects of blindfold on leadership in pediatric resuscitation simulation: a randomized trial. Front Pediatr. 2019;7:10. doi: https://doi.org/10.3389/fped.2019.00010.
8. Scicchitano E, Stark P, Koetter P, Michalak N, Zurca AD. Blindfolding improves communication in inexperienced residents undergoing ACLS training. J Grad Med Educ. 2021;13(1):123-7. doi: https://doi.org/10.4300/JGME-D-20-00620.1.
9. Hughes KE, Hughes PG, Ahmed RA . Setup and execution of the blindfolded code training exercise. J Vis Exp. 2019;(145):e59248. doi: https://doi.org/10.3791/59248.
10. Johnson KV, Scott AL, Franks L. Impact of standardized patients on first semester nursing students self-confidence, satisfaction, and communication in a simulated clinical case. SAGE Open Nurs. 2020;6:1-7. doi: https://doi.org/10.1177/2377960820930153.
11. Horntvedt MET, Nordsteien A, Fermann T, Severinsson E. Strategies for teaching evidence-based practice in nursing education: a thematic literature review. BMC Med Educ. 2018;18(1):172. doi: https://doi.org/10.1186/s12909-018-1278-z.
12. Park H, Cho H. Effects of a self-directed clinical practicum on self-confidence and satisfaction with clinical practicum among south korean nursing students: a mixed-methods study. Int J Environ Res Public Health. 2022;19(9):5231. doi: https://doi.org/10.3390/ijerph19095231.
13. Fabri RP, Mazzo A, Martins JCA, Fonseca AS, Pedersoli CE, Miranda FBG, et al. Construção de um roteiro teórico-prático para simulação clínica. Rev Esc Enferm USP. 2017;51:3218. doi: http://doi.org/10.1590/S1980-220X2016016403218.
14. INACSL Standards Committee. INACSL standards of best practice: Simulation℠ simulation design. Clin Simul Nurs. 2016;12:S5-S12. doi: http://doi.org/10.1016/j.ecns.2016.09.005.
15. American Heart Association. Destaques das diretrizes de RCP e ACE de 2020 da American Heart Association [Internet]. AHA: Dallas, TX; 2020 [cited 2022 Jun 15]. Available from: https://cpr.heart.org/-/media/CPR-Files/CPR-Guidelines-Files/Highlights/HghIghts_2020ECCGuidelines_Portuguese.pdf.
16. Martins JCA, Baptista RCN, Coutinho VRD, Mazzo A, Rodrigues MA, Mendes IAC. Self-confidence for emergency intervention: adaptation and cultural validation of the Self-confidence Scale in nursing students. Rev Latino Am Enfermagem. 2014;22(4):554-61. doi: https://doi.org/10.1590/0104-1169.3128.2451.
17. Coutinho VRD, Martins JCA, Pereira F. Structured debriefing in nursing simulation: students' perceptions. J Nurs Educ Pract. 2016;6(9):127-34. doi: http://doi.org/10.5430/jnep.v6n9p127.
18. Polit DF, Beck CT, Hungler BP. Fundamentos de pesquisa em Enfermagem: métodos avaliação e utilização. Porto Alegre: Artmed; 2011.

19. Scarparo AF, Laus AM, Azevedo ALCS, Freitas MRI, Gabriel CS, Chaves LDP. Reflexões sobre o uso da técnica delphi em pesquisas na enfermagem. Rev Rene. 2012 [cited 2022 Jun 15];13(1):242-51. Available from: http://www.periodicos.ufc.br/rene/article/view/3803/3000.
20. Oliveira SN, Prado ML, Kempfer SS. Utilização Use of simulations in nursing education: an integrative review. Rev Min Enferm. 2014;18(2):496-504. doi:https://doi.org/10.5935/1415-2762.20140036.
21. Linn AC, Caregnato RCA, Souza EN. Clinical simulation in nursing education in intensive therapy: an integrative review. Rev Bras Enferm. 2019;72(4):1061-70. doi: http://doi.org/10.1590/0034-7167-2018-0217.
22. Beccaria LM, Santos KF, Trombeta JC, Rodrigues AMS, Barbosa TP, Jacon JC. Conhecimento teórico da enfermagem sobre parada cardiorrespiratória e reanimação cardiocerebral em unidade de terapia intensiva. CuidArte Enferm. 2017 [cited 2022 Jun 15];11(1):51-8. Available from: http://www.webfipa.net/facfipa/ner/sumarios/cuidarte/2017v1/7%20Artigo%20Conhecimento%20Enfermagem%20Parada%20cardiorrespirat%C3%B3ria%20PCR.pdf.
23. Citolino Filho CM, Santos ES, Silva RCG, Nogueira LS. Factors affecting the quality of cardiopulmonary resuscitation in inpatient units: perception of nurses. Rev Esc Enferm USP. 2015;49(6):907-13. doi: https://doi.org/10.1590/S0080-623420150000600005.
24. Bernoche C, Timerman S, Polastri TF, Giannetti NS, Siqueira AWS, Piscopo A, et al. Atualização da diretriz de ressuscitação cardiopulmonar e cuidados de emergência da Sociedade Brasileira de Cardiologia – 2019. Arq Bras Cardiol. 2019;113(3):449-663. doi: https://doi.org/10.5935/abc.20190203.
25. Barbosa GS, Bias CGS, Agostinho LS, Oberg LMCQ, Lopes ROP, Sousa RMC. Effectiveness of simulation on nursing students' self-confidence for intervention in out-of-hospital cardiopulmonary resuscitation: a quasi-experimental study. Sci Med. 2019;29(1):e32694. doi: https://doi.org/10.15448/1980-6108.2019.1.32694.
26. Harding AD, Walker-Cillo GE, Duke A, Campos GJ, Stapleton SJ. A framework for creating and evaluating competencies for emergency nurses. J Emerg Nurs. 2013;39(3):252-64. doi: https://doi.org/10.1016/j.jen.2012.05.006.
27. Ahmed R, Hughes K, Hughes P. The blindfolded code training exercise. Clin Teach. 2018;15(2):120-5. doi: https://doi.org/10.1111/tct.12639.

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