

Effectiveness of co-debriefing to develop clinical skills in basic life support: randomized pilot study

Efetividade do co-debriefing para desenvolver competências clínicas em suporte básico de vida: estudo piloto randomizado

Eficacia del co-debriefing para desarrollo de habilidades clínicas en soporte vital básico: estudio piloto aleatorizado

Juliana da Silva Garcia Nascimento^a 

Kleiton Gonçalves do Nascimento^b 

Mateus Goulart Alves^c 

Fernanda Titareli Merizio Martins Braga^a 

Daniela da Silva Garcia Regino^d 

Maria Celia Barcellos Dalri^a 

How to cite this article:

Nascimento JS, Nascimento KG, Alves MG, Braga FTMM, Regino DSG, Dalri MCB. Effectiveness of co-debriefing to develop clinical skills in basic life support: randomized pilot study. Rev Gaúcha Enferm. 2022;43(spe):e20220032. doi: <https://doi.org/10.1590/1983-1447.2022.20220032.en>

ABSTRACT

Objective: To compare the effectiveness of co-debriefing with debriefing with a facilitator in the development of clinical competences in nursing students in the simulated care of cardiac arrest.

Method: Randomized pilot study, carried out at a university in Minas Gerais, Brazil, in August 2021, with 17 students, to compare debriefing with a facilitator (control n=8) with co-debriefing (intervention n=9). Pre- and post-test, Objective Structured Clinical Examination and scales were used to assess behavioral skills. Wilcoxon and Mann-Whitney nonparametric comparison tests were used for analysis.

Results: The intervention group performed better than the control for knowledge about basic life support (control=17.00±2.39 and intervention=19.22 ± 0.66, p=0.021) and psychomotor skills (control=8.12±0.13 and intervention=8.50 ± 0.001, p<0.001). There were no significant differences for behavioral skills.

Conclusion: Co-debriefing appears to be more effective than debriefing with a facilitator to develop clinical skills in basic life support in nursing.

Keywords: Simulation exercise. Cardiopulmonary resuscitation. Clinical competence. Comparative effectiveness research. Students, nursing.

RESUMO

Objetivo: Comparar a efetividade entre *co-debriefing* com *debriefing* com facilitador no desenvolvimento de competências clínicas em estudantes de enfermagem no atendimento simulado da parada cardiorrespiratória.

Método: Estudo-piloto randomizado, realizado em uma universidade de Minas Gerais, Brasil, em agosto de 2021 com 17 estudantes, para comparar o *debriefing* com um facilitador (controle n=8) e com o *co-debriefing* (intervenção n=9). Utilizaram-se pré e pós-teste, Exame Clínico Objetivo Estruturado e escalas para avaliar as habilidades comportamentais. Adotaram-se testes de comparação não paramétricos *Wilcoxon* e *Mann-whitney* para análise.

Resultados: O grupo intervenção obteve desempenho superior ao controle para o conhecimento sobre o suporte básico de vida (controle=17,00±2,39 e intervenção=19,22 ± 0,66, p=0,021) e habilidades psicomotoras (controle=8,12±0,13 e intervenção=8,50 ± 0,001, p<0,001). Não houve diferenças significativas para as habilidades comportamentais.

Conclusão: O *co-debriefing* parece ser mais efetivo do que o *debriefing* como um facilitador para desenvolver competências clínicas no suporte básico de vida em enfermagem.

Palavras-chave: Exercício de simulação. Reanimação cardiopulmonar. Competência clínica. Pesquisa comparativa da efetividade. Estudantes de enfermagem.

RESUMEN

Objetivo: Comparar la efectividad del *co-debriefing* con el *debriefing* con facilitador en el desarrollo de competencias clínicas en estudiantes de enfermería en el cuidado simulado de parada cardíaca.

Método: Estudio piloto aleatorizado, realizado en una universidad de Minas Gerais, Brasil, en agosto de 2021, con 17 estudiantes, para comparar el *debriefing* con un facilitador (control n=8) con el *co-debriefing* (intervención n=9). Se utilizaron pruebas previas y posteriores, examen clínico objetivo estructurado y escalas para evaluar las habilidades conductuales. Para el análisis se utilizaron las pruebas de comparación no paramétrica de *Wilcoxon* y *Mann-whitney*.

Resultados: El grupo intervención se desempeñó mejor que el control en conocimientos sobre soporte vital básico (control=17,00±2,39 e intervención=19,22 ± 0,66, p=0,021) y psicomotricidad (control=8, 12±0,13 e intervención=8,50 ± 0,001, p<0,001). No hubo diferencias significativas para las habilidades conductuales.

Conclusión: El *co-debriefing* parece ser más efectivo que el *debriefing* con un facilitador para desarrollar habilidades clínicas en soporte vital básico en enfermería.

Palabras clave: Ejercicio de simulación. Reanimación cardiopulmonar. Competencia clínica. Investigación de eficacia comparativa. Estudiantes de enfermería.

^a Universidade de São Paulo (USP), Escola de Enfermagem de Ribeirão Preto. Ribeirão Preto, São Paulo, Brasil.

^b Universidade Federal do Triângulo Mineiro (UFTRM). Uberaba, Minas Gerais, Brasil.

^c Faculdade Atenas (UniAtenas). Passos, Minas Gerais, Brasil.

^d Universidade Brasil (UB). Fernandópolis, São Paulo, Brasil.

■ INTRODUCTION

Nowadays, the theme of competence has been extensively discussed both in the sphere of work, research, and educational practice, and with regard to the construction of competences aimed at professional practice in nursing, the concept of clinical competence is inserted, linking it to these theoretical constructions⁽¹⁻²⁾.

Clinical competence comprises more than the possibility of decision making, as it includes the ability to combine formal knowledge and clinical experience, representing a process of cognitive, psychomotor and affective development, capable of evaluating, planning, implementing and evolving care, a complex terrain, which encompasses the human capacity to grow intellectually and know how to think, learn to learn and intervene in an innovative and ethical way under different operational conditions^(1,2).

It is about going beyond an accurate memorization of pertinent theories, since, in the several atypical situations of praxis, it is required to make relationships, interpretations, interpolations, inferences, inventions, complex mental operations whose orchestration is built according to their knowledge and their expertise as well as the vision of the situation⁽³⁾.

Among the existing pedagogical resources to develop clinical competences in undergraduate nursing students, clinical simulation stands out, a teaching and learning strategy capable of imitating real situations in a controlled and safe environment, consisting of three stages: preparation, characterized by instrumentalization of the learner with knowledge aimed at simulation; participation, configured by the execution of the clinical scenario; and the debriefing, a process of discussion/reflection on the lived experience, considered a fundamental component of the simulation by improving critical thinking and making learning more meaningful^(4,5).

In contrast to the need to improve clinical competences in nursing, and due to its potential for development in several learning topics, including those of a critical and/or emergency order, such as Cardiopulmonary Resuscitation (CPR), the teaching strategies usually adopted, they are still based on more classical approaches, such as training skills in the laboratory, which can often lead to a rapid decline in the skills acquired by learners⁽⁶⁾.

Although it is believed that the use of simulation based on a structured debriefing has the potential to develop clinical competences related to CPR, it is unclear whether or not there is a difference and impact on learning outcomes when adopting a debriefing with more than one facilitator – the co-debriefing, articulating different expertise during the discussion⁽⁷⁾.

Since the facilitator is an educator who conducts the debriefing in a simulation, when there is more than one of them promoting this moment of reflection, the co-debriefing is established, in a mutual work of discussion, which indicates the ability to enhance learning⁽⁷⁾. Knowing that the main intention of teaching CPR in nursing, in addition to the acquisition of knowledge, is the development of clinical competences and that debriefing is a learning mechanism capable of facilitating this objective, the action of determining the best practices for making it feasible can positive impact on high performance care for Cardiopulmonary Arrest (CPA) in future real practices and on increasing the survival rates of victims⁽⁴⁻⁶⁾.

In view of this scenario, the following question was asked: can the co-debriefing be considered more effective than debriefing conducted by a facilitator, to develop clinical competences on CPR in nursing? This study aimed to: compare the effectiveness between co-debriefing and debriefing with a facilitator in the development of clinical competences in nursing students in the simulated care of cardiorespiratory arrest. The hypothesis of the study was that co-debriefing is more effective to develop clinical competences in nursing students regarding simulated care to in-hospital CPA in adults, with Basic Life Support (BLS) than the debriefing with a facilitator.

■ METHOD

Type of study

This is a randomized, single-blind and parallel pilot study, performed according to the Consolidated Standards of Reporting Trials (CONSORT)⁽⁸⁾.

Location, study period and investigated variables

The research was developed at a university in the city of Uberaba, Minas Gerais, Brazil, in August 2021, in an undergraduate nursing course, specifically in a room at the general teaching hospital, linked to this university.

The intervention variable was the co-debriefing, defined as a process of discussion/reflection performed, generally, after the execution of the proposed simulated scenario with the presence of two facilitators⁽⁷⁾ and the control variable, the debriefing, which uses the verbal resource of only one expert to guarantee the exploration of the events that occurred during the simulation scenario⁽⁵⁾.

The analyzed outcome included the development of clinical competences – cognitive skills (knowledge), psychomotor skills (procedural) and affective skills (attitudes/feelings/behaviors), in undergraduate nursing students, about service, in a simulated environment, in an in-hospital CPA in adults, with BLS and use of the Automated External Defibrillator (AED).

Population, sample and selection criteria

The population consisted of undergraduate nursing students, following the criteria: age equal to or greater than 18 years, regularly enrolled in the last period of the undergraduate nursing course and vaccinated for Coronavirus (COVID-19). Students with signs and symptoms of flu syndrome, pregnant women, and those unable to perform CPR due to health problems were excluded.

A non-probabilistic convenience sample was adopted, recruited through a workshop based on the stages of clinical simulation and entitled: Cardiopulmonary Resuscitation with BLS in adults and use of AED in the in-hospital environment⁽⁹⁾.

The dissemination of the workshop, invitation and registration of participants were performed via electronic mail – researcher's e-mail for 15 days. The students filled out a Google Forms instrument, containing: an explanation of the research proposal, a form for characterizing the student's profile, a Free and Informed Consent Form (FICF) and a term for image authorization.

All 24 nursing students enrolled in the last graduation period registered for the workshop and chose a date for participating, previously scheduled by the researcher and duly blinded for the intervention to which they would be submitted. Four groups were formed, with six students each, randomized into blocks and through the random drawing technique on paper.

Three envelopes were given to a nurse who did not participate in the study. The first envelope stored the numbering corresponding to each block of participants (Group 1, Group 2, Group 3 and Group 4); the second envelope referred to the control group and the third to the intervention. This professional was instructed only to maintain the equivalence between the intervention and control groups and, in this way, did the drawing, allocating groups 2 and 3 in the control envelope and groups 1 and 4 in the intervention envelope, delivered sealed to the main researcher, thus guaranteeing the secrecy of allocation. The main researcher opened the envelopes only after the subject had formally entered the research, that is, after having met the eligibility criteria.

A Control Group (CG) was formed, consisted by 12 participants, submitted to debriefing with a facilitator and an

Intervention Group (IG), also with 12 participants, submitted to co-debriefing.

During the intervention, seven participants were lost, four in the CG and three in the IG due to the presence of signs and symptoms of flu syndrome and the development of the present study during the COVID-19 pandemic period, emphasizing that all biosafety protocols were fulfilled at the time of the face-to-face collection. Figure 1, below, illustrates the distribution of participants in the study protocol, according to the flowchart diagram of CONSORT (2010)⁽⁸⁾.

Forms, instruments and scenario used for data collection

(1) Characterization of the student's profile: composed of gender; age; participation in experience based on clinical simulation during graduation; participation in scientific events that addressed clinical simulation and publication of research on simulation;

(2) Pre and post-test: validated instrument, composed of 20 multiple-choice questions, with four alternatives each, from "A to D", one of which is incorrect, to assess knowledge (cognitive skills) about the in-hospital CPA care in adults with BLS and use of AED⁽¹⁰⁾;

(3) Objective Structured Clinical Examination – OSCE: validated instrument for the analysis of psychomotor skills and in CPA care, consisting of a checklist with 40 intervention criteria based on the links in the in-hospital survival chain of CPA care in adults with BLS and use of AED. Each criterion was evaluated as correct or incorrect, obtaining a total score of ten points⁽¹¹⁾;

(4) Student satisfaction and self-confidence in learning scale: validated scale, capable of assessing participant satisfaction and self-confidence in a clinical simulation. Consisted by 13 items, analyzed by a five-point Likert scale, divided into two dimensions – satisfaction, with five criteria and self-confidence in learning, with eight criteria. The closer the result to value one, the lower the satisfaction; the closer to five, the greater the satisfaction. In relation to trust, the closer to one, the lower the trust, and the closer to eight, the higher the trust⁽¹²⁾;

(5) Experience with debriefing scale: validated and adopted to evaluate nursing students' experience with debriefing. Consisted by 20 items analyzed by a five-point Likert scale, in which number one totally disagrees with the statement and number five totally agrees. This scale is divided into four domains: analyzing thoughts and feelings; learning and making connections; professor's ability to conduct the debriefing; appropriate guidance of professor. Values close to

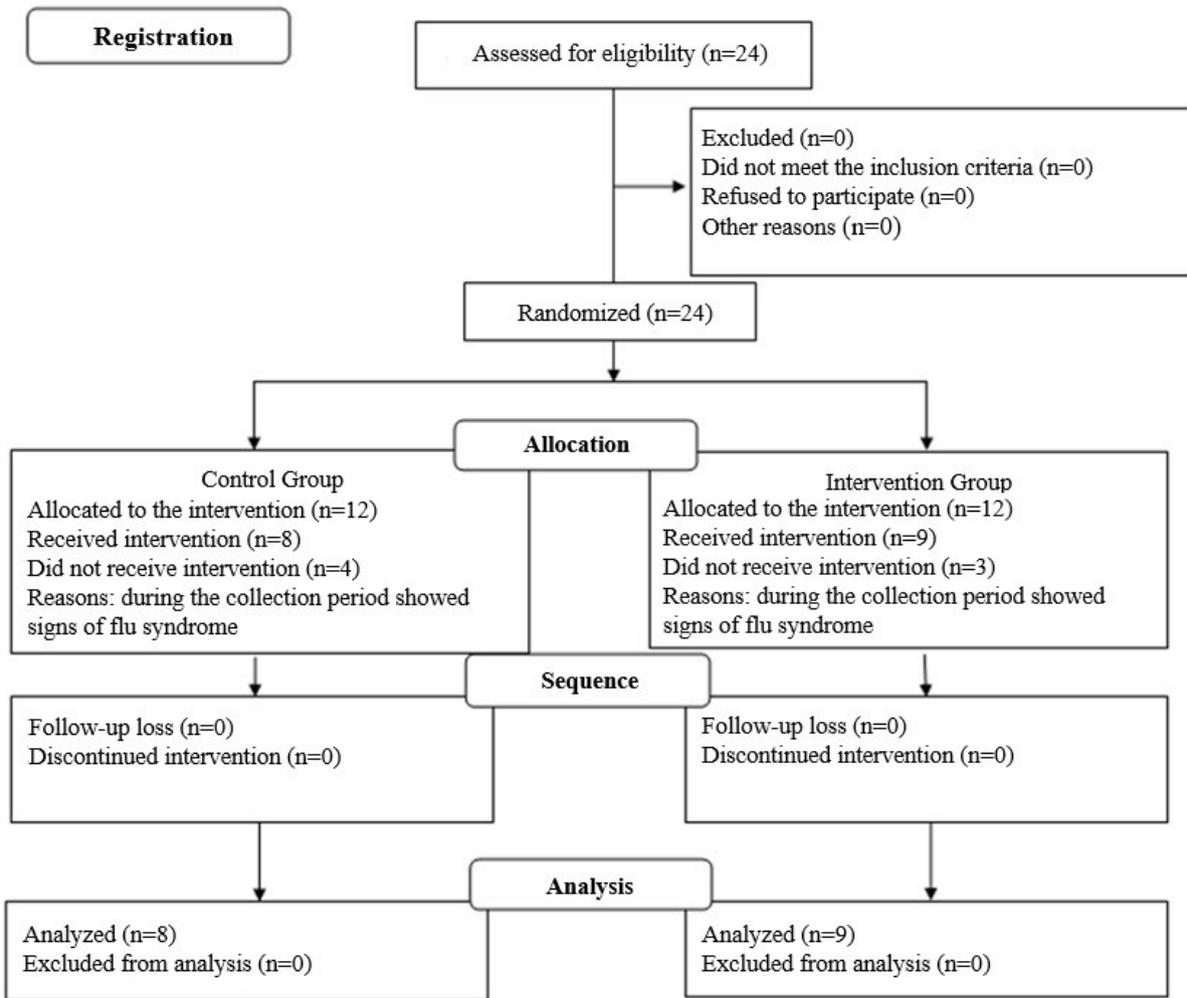


Figure 1 – Flowchart of distribution of participants according to intervention group and control group. Uberaba, Minas Gerais, Brazil, 2021
Source: CONSORT, 2010.

one reveal a bad experience with the debriefing and values close to five, a good experience⁽¹³⁾;

(6) Simulated scenario: validated construct and consisted by the elements: responsible for scenario planning; theme; learning objectives; theoretical-methodological references; target audience; number of participants; Inclusion criteria; clinical case; simulator type; developed competences; scenario fidelity; location; duration; equipment and materials; training of facilitators⁽¹⁴⁾. The following clinical case was addressed: “Mr. Alfredo is a 50-year-old patient, admitted to bed 203, of the medical clinic ward of a hospital, with a history of vomiting, chest pain, irradiation to the posterior thoracic region and medical diagnosis of Acute Myocardial Infarction (AMI). He was discharged three days ago from the Intensive Care Unit (ICU) and has been in the ward for a day. Conscious and oriented, with spontaneous breathing

and stable vital signs. The nurse on duty visits Mr. Alfredo for clinical evaluation, and talks to him: “Good morning Mr. Alfredo, how are you? He will answer (facilitator will voice Mr. Alfredo), and the scene will continue, depending on the clinical assessment of the participant involved⁽¹⁴⁾;

(7) Script of the clinical simulation preparation stage: built for the present research and validated in content, in order to plan and execute the pre-simulation and pre-briefing/ briefing performed in the proposed clinical simulation⁽¹⁵⁾;

(8) Script of debriefing with a facilitator: developed and validated in content for the present study, aiming to plan and execute the debriefing with a single facilitator⁽¹⁶⁾;

(9) Script of the co-debriefing: elaborated and validated in content for the present research, supporting the planning and execution of the debriefing carried out with more than one facilitator⁽¹⁷⁾.

Data collection

To conduct the pilot study, the workshop consisted of two phases and nine stages, presented in Chart 1 below.

Chart 2, below, presents the differences in the protocol for execution of the oral debriefing technique with a facilitator (CG) and the co-debriefing (IG).

Phases and stages	Activity and period
Non face-to-face phase	
Stage 1: Planning, dissemination and registration	The three stages of the clinical simulation were planned: preparation, participation and debriefing. The dissemination and registration were made via e-mail, sending the schedule and registration form with a deadline of 15 days for the student to return.
Stage 2: Consent and characterization of the participant	Made available through electronic submission of a Google Forms-type instrument within a period of 15 days prior to the execution of the workshop, containing: the explanation about the research, the FICF*, Term for authorization to capture the image and voice and a questionnaire to characterize the participants' profile.
Stage 3: Pre-simulation.	Based on a validated script ⁽¹³⁾ , which describes the study materials made available to participants in a period of 15 days, prior to the execution of the clinical scenario, by e-mail.
Face-to-face phase: in August 2021.	
Stage 4: Presentation and pre-test	Welcomed in classroom, the students, divided into groups, were introduced to the facilitators and answered the pre-test ⁽¹⁰⁾ .
Stage 5: Skills training	A skills training was performed for the BLS using the AED [§] , using the Little Anne QCPR mannequin and a feedback device, based on an application via Bluetooth, for smartphone. After this stage, a coffee break was offered with a 15-minute interval.
Stage 6: Pre-briefing/briefing	Explanation of the participants regarding the environment and proposed simulation scenario ⁽¹⁴⁾ .
Stage 7: First execution of the scenario	Development of the proposed scenario lasting approximately 10 minutes. This moment represented the first scene, performed before the debriefing, duly filmed for later evaluation by the main researcher, through the OSCE ^{**} .
Stage 8: Debriefing	After the scenario execution phase, similar for both groups, the participants sat in a circle. The CG ⁺⁺ was submitted to the oral debriefing guided by a facilitator ⁽¹⁴⁾ and the IG ⁺⁺ to the co-debriefing ⁽¹⁵⁾ lasting approximately 20 minutes. The debriefing techniques used were detailed in Chart 2.
Stage 9 – Second execution of the scenario	The same scenario ⁽¹⁴⁾ was performed again, in order to compare the psychomotor skills related to CPA [†] care, before and after the debriefing, and the necessary final feedbacks were given to the learners. After this stage, the students completed the post-test ⁽¹⁰⁾ , the satisfaction and self-confidence in learning scale ⁽¹²⁾ and the experience with debriefing scale ⁽¹³⁾ , ending the workshop. It is important to highlight that: (1) retention of skill was not evaluated over time; (2) the scenario was filmed before and after the debriefing so that the main researcher could compare the psychomotor skills, adopting the OSCE ^{**} ; (3) due to its extension, the OSCE ^{**} ⁽¹¹⁾ was not filled out concomitantly with the execution of the simulated scenario, but later, through the filming, established before and after the debriefing.

Chart 1 – Presentation of the phases and stages used to data collection from the clinical simulation workshop of in-hospital cardiac arrest care in adults with basic life support. Uberaba, Minas Gerais, Brazil, 2021

Source: Research data, 2021.

*Free and Informed Consent Form; †Cardiopulmonary Resuscitation; ‡Cardiopulmonary arrest; §Basic Life Support; ¶Automated External Defibrillator; **Objective Structured Clinical Examination; ††Control Group; †††Intervention Group

Control Group	Intervention Group
<p>(1) Technique: oral debriefing guided by a facilitator⁽⁵⁾ (2) Location: classroom; (3) facilitator: expert 1 (expert in CPR[*] and trained to perform clinical simulation); (4) Debriefing method: G.A.S[†] debriefing; (5) Time: until reaching the learning objectives; (6) Procedure: After the first scenario execution: the participants sat in a circle and the facilitator made the questions: G: Gather – Gathering information and calming feelings: “How are you feeling after the experience?” A: Analyze – Analyze the experience and articulate it to the theoretical framework: “describe how did you cared for Mr. Alfredo”, “What are the positive points in this service?”, “What points need improvement?” S: Summarize – Summarize the experience and articulate it to the learning objectives: “What caught your attention in this experience?”, “What do you take from this experience to your professional life?” After the debriefing, the proposed scene was performed again.</p>	<p>(1) Technique: co-debriefing⁽⁷⁾ (2) Location: classroom; (3) Facilitators: Expert 1 and Expert 2 (both are CPR[*] experts and trained to perform clinical simulation); (4) Debriefing method: G.A.S[†] debriefing; (5) Time: until reaching the learning objectives; (6) Procedure: Pre-debriefing: prior meeting between facilitators to plan the debriefing. It was adopted the co-debriefing type to “divide and conquer”, in which the co-debriefing stages are divided according to the expertise of the facilitators⁽⁵⁾. Expert 1 assumed the “G” and “S” phases of the G.A.S[†] debriefing and expert 2, the “A” phase. Debriefing: After the first scenario: the participants sat in a circle and the facilitators made the questions: 1st facilitator: G: Gather – Gather information and calm feelings: “How are you feeling after the experience?” 2nd facilitator: A: Analyze – Facilitator 2 wrote down all the points to be discussed. Analyze the experience and articulate it to the reference: “Describe how did you cared for Mr. Alfredo”, “What are the positive points in this service?”, “What are the points in which you need to improve?” 1st facilitator: S – Summarize: Summarize the experience, and articulate it to the learning objectives: “What caught your attention in this experience?”, “What do you take from this experience to your professional life?” After the debriefing, the proposed scene was performed again. Post-debriefing: the facilitators met after the clinical simulation to organize their perceptions and improve their actions.</p>

Chart 2 – Presentation of the procedure for planning and execution of debriefing techniques adopted for the control group and intervention group. Uberaba, Minas Gerais, Brazil, 2021

Source: Research data, 2021.

*Cardiopulmonary resuscitation; †Gather-Analyze-Summarize

Data analysis

For data analysis and data organization, a spreadsheet was created in the Microsoft Excel[®] 2013 software, with double typing, performed by two researchers, independently. Data were processed and analyzed using the Statistical Package for the Social Sciences (SPSS) (IBM[®] SPSS) 25 software for Windows.

The categorical sociodemographic characteristics were presented in absolute and relative frequencies, and the quantitative variables, exposed by measures of centrality and dispersion.

The normality of the distribution of variables was verified by the Shapiro-Wilk test ($p=0.001$), obtaining as outcome the rejection of the symmetrical position of the data. Thus, to assess the students' performance regarding knowledge and psychomotor skills, intragroup, before and after the

intervention, the Wilcoxon test was adopted, and for the analysis of independent samples, comparing the means obtained by the CG and IG, the Mann-Whitney test. To compare GC and IG regarding the variables satisfaction, self-confidence and experience with the debriefing techniques adopted, the Mann-Whitney test was also used. The significance level adopted for the analyzes was 0.05.

Ethical aspects

This study was approved by the Ethics Committee of the School of Nursing of Ribeirão Preto complied with Resolution 466/2012 under number CAAE 3,826,306. The FICF was signed by the participant. The study is registered under the code RBR-4kzzcr3 on the specific platform for Clinical Trials Registration, using the website <https://www.clinicaltrials.gov/>.

RESULTS

It was obtained a sample of 17 undergraduate nursing students, all female and with a mean age of 23 ± 3.8 years. Most participants, 10 (59%), did not participate, during graduation, in clinical simulation-based experiences, but went to scientific events, such as conferences and symposia, which addressed this theme. No student conducted scientific research on the simulation.

Regarding knowledge, in the pre- and post-test, the IG, submitted to the co-debriefing, obtained better cognitive performance in 11 (55%) questions, being: (1) main measures that enable the first link of the in-hospital called "early recognition and prevention; (2) the actions that involve the stage of "activating the emergency medical service" in CPR; (3) the correct way to assess pulse and breathing in suspected CPA; (4) the best action to be taken by two nurses when admitting a victim in CPA to the emergency room of a hospital; (5) the correct location to place the rescuer's hands on the chest of a victim in CPA; (6) airway permeability during CPR in the absence of suspected neck injury; (7) proper handling of the bag-valve-mask by the rescuer in CPR; (8) the immediate action upon the arrival of the AED at the CPA location; (9) heart rhythms in CPA that do not require shock; (10) the heart rhythms that require defibrillation; (11) the procedure necessary for the return of spontaneous circulation after the use of AED.

Next, Table 1 presents the comparison regarding the development of knowledge about BLS intragroup, and between the control and intervention groups.

The knowledge of undergraduate nursing students of in-hospital CPA care in adults with BLS increased in both groups analyzed, with statistically significant results (CG=0.011 and IG=0.007). However, the intergroup assessment revealed a mean of correct answers in the intervention group, submitted to the co-debriefing, higher than the control group, with $p=0.021$.

Regarding the development of psychomotor skills to care for CPA with BLS, evaluated through the OSCE, the intervention group, submitted to the co-debriefing, stood out in the improvement of ten criteria: (1) testing the victim's responsiveness and using Personal Protective Equipment (PPE); (2) requesting help from the medical professional; (3) assessment of the victim's breathing; (4) simultaneous assessment of pulse and breathing; (5) removal of the pillow during CPA; (6) performing External Thoracic Compression (ETC) in the correct location; (7) adherence of the AED pads in the correct location on the victim's chest; (8) ensuring that all rescuers are away from the victim during defibrillation, (9) interruption of oxygen flow during defibrillation, and (10) assessment of the patient's pulse when shock is not indicated by the AED.

Table 2 shows the comparison regarding the development of psychomotor skills for in-hospital cardiac arrest care in adults, with basic life support, in undergraduate nursing students, considering intragroup and intergroup analysis and based on the OSCE total score, consisting of ten points.

The mean obtained regarding the procedural skill of the undergraduate nursing student to care for CPA with BLS increased in both groups analyzed, with statistically significant

Table 1 – Analysis of intragroup and intergroup comparisons regarding the development of knowledge of undergraduate nursing students about in-hospital CPA care in adults, with basic life support, based on the mean of correct answers obtained in the 20 questions that composed the pre- and post-test adopted ($n=17$). Uberaba, Minas Gerais, Brazil, 2021

	Intragroup Groups assessment*			Intergroup assessment†	
	Mean of correct answers		p-value	Mean of correct answers	p-value
	Pre-test	Post-test			
Control-Group oral debriefing with a facilitator	12.63 ± 3.54	17.00 ± 2.39	$p=0.011$	17.00 ± 2.39	$p=0.021$
Intervention Group Co-debriefing	12.33 ± 2.44	19.22 ± 0.66	$p=0.007$	19.22 ± 0.66	

Source: Research data, 2021.

*Wilcoxon test; †Mann-Whitney test; ‡Mean

Table 2 – Presentation of intra-group and inter-group comparisons regarding the development of psychomotor skills related to the care for in-hospital cardiac arrest in adults, with basic life support, in undergraduate nursing students, based on the analysis of the average of points obtained in the Objective Structured Clinical Examination (n=17). Uberaba, Minas Gerais, Brazil, 2021

	Intra-group Groups assessment*			Inter-group assessment†	
	Mean value of points obtained in the OSCE*		p-value	Mean value of points obtained in the OSCE†	p-value
	OSCE before debriefing	OSCE after debriefing			
Control Group Debriefing with a facilitator (N=8)	7.06± 0.11	8.12±0.13	p=0.008	8.12 ± 0.13	p<0.001
Intervention Group Co-debriefing (N=9)	6.55±1.21	8.50±0.00	p=0.006	8.50 ± 0.001	

Source: Research data, 2021.
*Wilcoxon Test; †Mann-Whitney Test; ‡Mean

results (CG=0.008 and IG=0.006), however, the intervention group, submitted to the co-debriefing, was higher than the control group, with p<0.001.

The undergraduate nursing student’s satisfaction regarding the clinical simulation was similar and well assessed in both groups (CG and IG). Despite the two debriefing techniques tested making the students self-confident, the group submitted to the co-debriefing stood out in most of the assessed criteria, namely: (1) confidence in the inclusion of all the contents necessary for the simulation, to develop knowledge about the BLS; (2) confidence in obtaining useful resources to teach the simulation by the facilitator; (3) confidence in how to get help in the face of doubts about the concepts addressed in the simulation; (4) confidence in how to use simulation activities to learn BLS skills and (5) confidence in the professor’s responsibility to teach what it takes to learn in the simulation.

Both groups demonstrated a good experience with the debriefing. The co-debriefing stood out on two criteria: (1) the facilitator’s reinforcement about the aspects of the health team’s behavior during the BLS and (2) the usefulness of the co-debriefing to ease the simulation experience process by the student.

The analysis of the comparison between groups regarding satisfaction and self-confidence obtained through clinical simulation and experience with debriefing resulted, regarding satisfaction, in a value of p=1.00; for self-confidence, a value of p=0.12 and for experience with debriefing, a value of p=0.29.

The outcomes identified in the present study revealed that co-debriefing had a positive and similar effect to debriefing with a facilitator in the development of satisfaction and self-confidence in the clinical simulation performed and obtaining a satisfactory experience with the debriefing in the face of both discussion techniques adopted.

DISCUSSION

As these are fundamental actions for the maintenance of life, the identification of CPA and its care with the BLS, it is essential that the nursing student acquire the necessary clinical competences to establish the proper handling of this emergency condition, even during graduation⁽⁶⁾.

Despite the existing scientific evidence is still insufficient to determine the most effective debriefing techniques in teaching and learning in nursing, it can be stated that this process of discussion/reflection is capable of developing and improving the cognitive, psychomotor and behavioral skills of the learner^(5,6).

This study makes nursing unprecedented by presenting the effectiveness of two debriefing techniques, in the scope of in-hospital CPA care in adults, with BLS and use of AED, to develop the triad of cognitive (knowledge), psychomotor (procedural) and affective (attitudes/behavior/feelings) skills in undergraduate nursing students, and to advance in the perspective of a broader assessment of clinical simulation in nursing, with a view of improving clinical competences.

The potential of co-debriefing was compared with other debriefing techniques – interprofessional with a facilitator and teledebriefing in only one study, American, of the quasi-experimental type, which included nine medical students, 110 nursing students and 16 physical therapy students, and did not identify significant differences for the desired learning outcomes between debriefing with a facilitator and co-debriefing⁽¹⁸⁾.

Besides being scarce, research that explores co-debriefing approaches, in a fragmented way, the assessment of the necessary skills for professional work in nursing, generally disregarding the development of clinical competences and the articulation of knowledge, psychomotor skills and attitudes of learners^(7,18).

A Spanish study described the benefits obtained in the adoption of co-debriefing and highlighted that the interaction of two experts during the discussion can lead to a more consistent learning of the participants, suggesting the association of a content expert with an expert in simulation, given the breadth of skills that the health area requires, which makes it a challenge to find a facilitator who simultaneously masters the content and practice of simulation, a condition that supports the union of two facilitators⁽¹⁹⁾.

This may explain the positive outcomes for knowledge identified in the present study, that is, the psychomotor and affective skills of nursing students submitted to the co-debriefing, since both facilitators were experts in the proposed content and also dominated the planning and execution of clinical simulation for nursing.

Appropriating the same justification, regarding the importance of obtaining experienced facilitators to perform the clinical simulation and debriefing, a study conducted in Canada described a conceptual structure on the three stages that a facilitator goes through to become skilled in debriefing – discovery, growth and maturity⁽²⁰⁾.

In the discovery stage, the facilitator aims basic debriefing knowledge and may experience difficulties in conversation. He/she moves into the growth stage when, with the knowledge of the debriefing, has less difficulty conducting, but may still feel overwhelmed and challenged in managing the needs of students. Finally, the maturity stage comprises facilitators with more than ten years of experience in simulation sessions, capable of intuitively conducting the discussion and balancing the priorities of the student and instructor⁽²⁰⁾.

To ease the progression of the facilitator from one stage of debriefing to the next one, it is necessary to map their experiences during the three stages, in addition to combining

the continuous practice of debriefing with the development strategies of the faculty⁽²⁰⁾.

The art of debriefing becomes more challenging when two or more educators must together facilitate this process of discussion, in an organized and coordinated way, to enhance learning. As the impulse to incorporate simulation-based health education continues to grow, the need for faculty development in the area of co-debriefing becomes essential⁽⁷⁾, as well as the existence of a pedagogical pathway that enables the execution of this type of debriefing.

The results from the present investigation, therefore, allow to give this research a translational character, as it presents the co-debriefing and its potentiality for the development of clinical competences in nursing, allowing professors in this scope and clinical simulation facilitators to use this debriefing technique in practice, in an appropriate way, resulting in teaching and learning based on experiences, which bring the nursing student closer to reality and develop judgment and clinical reasoning, in addition to promoting safe care supported by evidence-based practice.

The debriefing proved to be a critical component in the teaching and learning process, and the co-debriefing, an opportunity to reduce the significant demand of tasks for the facilitators during the discussion and add different experiences, enhancing the development of clinical competences⁽⁷⁾, however, it is necessary to carefully examine the outcomes of the present research, as it is a pilot study, suggesting the development of randomized clinical studies with greater sampling power, intended to compare the effectiveness of co-debriefing with traditional debriefing, with a facilitator, to develop clinical CPR competences and advance beyond the assessment of skills regarding their impact on patient outcomes in the face of more conclusive outcomes.

The findings evidenced here imply the need to determine the choice of best practices for debriefing in the clinical simulation of CPR in nursing, in addition to foster the adoption of a debriefing performed by more than one facilitator, since they present benefits and potentialities for the process of teaching and learning in nursing, as well as easy adaptation to other educational themes and professional health realities, appropriating a deeper perspective for the assessment of students, when considering the context of the development of clinical competences.

■ CONCLUSION

The co-debriefing appears to be more effective than debriefing with a facilitator to develop clinical competences,

aimed at the care for in-hospital cardiopulmonary arrest in adults, with basic life support and use of an automated external defibrillator, especially regarding cognitive and psychomotor skills of nursing students.

Limitations were considered the lack of blinding of clinical simulation experts and the statistical professional for data analysis, in addition to the lack of scientific studies on co-debriefing to discuss agreements and divergences with other research, published in national and international journals, especially in the scope of nursing.

The contributions of this study are mainly based on the use of validated scripts to plan and conduct the proposed debriefing techniques, presentation of the existing differences in conducting co-debriefing and traditional debriefing, and also in demonstrating the potentiality of combining different expertise during the debriefing, findings that provide subsidies for performing a randomized clinical trial with a greater number of participants.

■ REFERENCES

- Bradshaw A. Special issue clinical competence [editorial]. *J Clin Nurs*. 2000 [cited 2021 Aug 12];9(3):319-20. Available from: <https://onlinelibrary.wiley.com/doi/epdf/10.1046/j.1365-2702.2000.00427.x>.
- Benner P, Tanner C, Chesla C. *Expertise in nursing practice. caring, clinical judgment an ethics*. New York: Springer Publishing Company; 1995.
- Perrenoud P. *Pedagogia diferenciada: das intenções à ação*. Porto Alegre: Artes Médicas Sul; 2000.
- 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>.
- Brown DK, Wong AH, Ahmed RA. Evaluation of simulation debriefing methods with interprofessional learning. *J Interprof Care*. 2018;19:1-3. doi: <https://doi.org/10.1080/13561820.2018.1500451>.
- Berger C, Brinkrolf P, Ertmer C, Becker J, Friederichs H, Wenk M, et al. Combination of problem-based learning with high-fidelity simulation in CPR training improves short and long-term CPR skills: a randomised single blinded trial. *BMC Med Educ*. 2019;19(1):180. doi: <https://doi.org/10.1186/s12909-019-1626-7>.
- Cheng A, Palaganas J, Eppich W, Rudolph J, Robinson T, Grant V. Co-debriefing for simulation-based education: a primer for facilitators. *Simul Healthc*. 2015;10(2):69-75. doi: <https://doi.org/10.1097/SIH.0000000000000077>.
- Schulz KF, Altman DG, Moher D; CONSORT Group. CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. *BMJ*. 2010;340:c332. doi: <https://doi.org/10.1136/bmj.c332>.
- Canhota C. Qual a importância do estudo piloto? In: Silva EE, coordenadora. *Investigação passo a passo: perguntas e respostas para investigação clínica* [Internet]. Lisboa: APMCG; 2008 [cited 2021 Aug 12]. p. 69-72. Available from: <https://apmgf.pt/apmgfbackoffice/files/Investiga%C3%A7%C3%A3o%20Passo%20a%20Passo.pdf>.
- Alves MG, Pereira VOS, Batista DFG, Cordeiro ALPC, Nascimento JSG, Dalri MCB. Construction and validation of a questionnaire for cardiopulmonary resuscitation knowledge assessment. *Cogitare Enferm*. 2019;24:e64560. doi: <https://doi.org/10.5380/ce.v24i0.64560>.
- Alves MG, Carvalho MTM, Nascimento JSG, Oliveira JLG, Cyrillo RMZ, Braga FTMM, Fonseca LMM, et al. Construction and validation of Objective Structured Clinical Examination (OSCE) on cardiopulmonary resuscitation. *Rev Min Enferm*. 2019;23:e-1257. doi: <https://doi.org/10.5935/1415-2762.20190105>.
- Almeida RGS, Mazzo A, Martins JCA, Baptista RCN, Girão FB, Mendes IAC. Validation to Portuguese of the scale of student satisfaction and self-confidence in learning. *Rev Latinoam Enferm*. 2015;23(6):1007-13. doi: <https://doi.org/10.1590/0104-1169.0472.2643>.
- Almeida RGS, Mazzo A, Martins JCA, Coutinho VRD, Jorge BM, Mendes IAC. Validation to Portuguese of the debriefing experience scale. *Rev Bras Enferm*. 2016;69(4):658-64. doi: <https://doi.org/10.1590/0034-7167.2016690413i>.
- Alves MG. *Objetos contemporâneos de aprendizagem para ensino-aprendizagem da ressuscitação cardiopulmonar [dissertação]*. São Paulo: Universidade de São Paulo. [Internet]. 2018 [cited 2021 Aug 12]. Available from: <https://www.teses.usp.br/teses/disponiveis/22/22132/tde-31072018-105443/publico/MATEUSGOULARTALVES.pdf>.
- Nascimento JSG, Nascimento KG, Regino DSG, Alves MG, Oliveira JLG, Dalri MCB. Clinical simulation: construction and validation of script for Basic Life Support in adults. *Rev Enferm UFSM*. 2021;11:1-19. doi: <https://doi.org/10.5902/2179769254578>.
- Nascimento JSG, Nascimento KG, Regino DSG, Alves MG, Oliveira JLG, Dalri MCB. Debriefing: development and validation of a script for the simulation of basic life support. *Cogitare Enferm*. 2021;26:e79537. doi: <https://doi.org/10.5380/ce.v26i0.79537>.
- Nascimento JSG, Pires FC, Regino DSG, Nascimento KG, Siqueira TV, Dalri MCB. Development and validation of a co-debriefing script for basic life support simulation. *Rev Enferm Cent -Oeste Min*. 2021;11:e4085. doi: <https://doi.org/10.19175/recom.v11i0.4085>.
- Guido-Sanz F, Díaz DA, Anderson M, Gonzalez L, Houston A. Role transition and communication in graduate education: the process. *Clin Simul Nurs*. 2019;26:11-7. doi: <https://doi.org/10.1016/j.ecns.2018.10.013>.
- Maestre JM, Rojo E, Piedra L, Moral I, Simon R. El experto en contenidos como instructor colaborador en el debriefing. *Rev Latinoam Simul Clín*. 2019 [cited 2021 Aug 12];1(1):37-44. Available from: <https://www.medigraphic.com/pdfs/simulacion/rsc-2019/rsc191g.pdf>.
- Cheng A, Eppich W, Kolbe M, Meguerdichian M, Bajaj K, Grant V. A conceptual framework for the development of debriefing skills. *Simul Healthc*. 2020;15(1):55-60. doi: <https://doi.org/10.1097/SIH.0000000000000398>.

■ **Authorship contribution:**

Conceptualization: Juliana da Silva Garcia Nascimento, Maria Celia Barcellos Dalri.

Investigation: Juliana da Silva Garcia Nascimento, Kleiton Gonçalves do Nascimento, Mateus Goulart Alves, Daniela da Silva Garcia Regino.

Methodology: Juliana da Silva Garcia Nascimento, Kleiton Gonçalves do Nascimento, Maria Celia Barcellos Dalri, Fernanda Titareli Merizio Martins Braga.

Supervision: Maria Celia Barcellos Dalri, Fernanda Titareli Merizio Martins Braga.

Writing-original draft: Juliana da Silva Garcia Nascimento.

Writing-review & editing: Juliana da Silva Garcia Nascimento, Maria Celia Barcellos Dalri, Fernanda Titareli Merizio Martins Braga.

The authors declare that there is no conflict of interest.

■ **Corresponding author:**

Juliana da Silva Garcia Nascimento

E-mail: mestradounesp28@yahoo.com.br

Received: 03.29.2022

Approved: 05.16.2022

Associate editor:

João Lucas Campos de Oliveira

Editor-in-chief:

Maria da Graça Oliveira Crossetti