

ESTRATÉGIAS DE ENSINO E APRENDIZAGEM DA RESSUSCITAÇÃO CARDIOPULMONAR NEONATAL PARA ENFERMAGEM: REVISÃO INTEGRATIVA DA LITERATURA

TEACHING AND LEARNING STRATEGIES FOR NEONATAL CARDIOPULMONARY RESUSCITATION FOR NURSING: INTEGRATIVE LITERATURE REVIEW

ESTRATEGIAS DE ENSEÑANZA Y APRENDIZAJE PARA REANIMACIÓN CARDIOPULMONAR NEONATAL PARA ENFERMERÍA: REVISIÓN INTEGRATIVA DE LITERATURA

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RESUMO

Objetivo: Analisar evidências científicas sobre as estratégias de ensino e aprendizagem quanto à ressuscitação cardiopulmonar neonatal utilizadas na atualidade para a enfermagem. **Método:** Revisão integrativa realizada, nas bases de dados National Library of Medicine, no National Institutes of Health, na Cumulative Index to Nursing and Allied Health Literature, na Latin-American and Caribbean System on Health Sciences Information, Embase, por meio do aplicativo *Rayyan*. **Resultados:** Identificaram-se 244 estudos e selecionaram-se 21. Elaboraram-se as categorias: principais estratégias de ensino e aprendizagem sobre ressuscitação cardiopulmonar neonatal; efetividade das estratégias de ensino e aprendizagem e lacunas no processo de ensino e aprendizagem. As principais estratégias foram: programa *Helping Babies Breathe*; simulação em laboratório, simulação *in situ*; e associação de estratégias. Todas se apresentaram efetivas, para o processo de ensino e aprendizagem, e a lacuna identificada foi a dificuldade em reter o conhecimento adquirido. **Conclusão:** As estratégias são na maioria inovadoras e efetivas para o processo de ensino e aprendizagem da ressuscitação cardiopulmonar neonatal.

Descritores: Reanimação Cardiopulmonar. Recém-nascido. Educação em Enfermagem.

ABSTRACT

Objective: To analyze scientific evidence on teaching and learning strategies regarding neonatal cardiopulmonary resuscitation currently used for nursing. **Method:** Integrative review conducted at the National Library of Medicine databases, National Institutes of Health, Cumulative Index to Nursing and Allied Health Literature, Latin American and Caribbean System on Health Sciences Information, and Embase, using *Rayyan* application. **Results:** 244 studies were identified and 21 were selected. The following categories were elaborated: main teaching and learning strategies on neonatal cardiopulmonary resuscitation; effectiveness of teaching and learning strategies; and gaps in the teaching and learning process. The main strategies were: *Helping Babies Breathe* program; laboratory simulation, *in situ* simulation; and strategy association. All categories were effective for the teaching and learning process and the identified gap was the difficulty retaining the acquired knowledge. **Conclusion:** The applied strategies are mostly innovative and effective for the teaching and learning process of neonatal cardiopulmonary resuscitation.

Descriptors: Cardiopulmonary Resuscitation; Infant, Newborn; Nursing Education.

RESUMEN

Objetivo: Analizar la evidencia científica sobre estrategias de enseñanza y aprendizaje con respecto a la reanimación cardiopulmonar neonatal que se utiliza actualmente en enfermería. **Método:** Revisión integradora realizada en las bases de datos de la Biblioteca Nacional de Medicina, los Institutos Nacionales de Salud, el Índice Acumulativo de Literatura de Enfermería y Salud Aliada, el Sistema Latinoamericano y del Caribe de Información en Ciencias de la Salud, Embase, a través de la aplicación *Rayyan*. **Resultados:** Se identificaron 244 estudios y se seleccionaron 21. Se elaboraron las siguientes categorías: principales estrategias de enseñanza y aprendizaje sobre reanimación cardiopulmonar neonatal; efectividad de las estrategias de enseñanza y aprendizaje; y lagunas en el proceso de enseñanza y aprendizaje. Las estrategias principales fueron: programa *Ayudando a los Bebés a Respirar*; simulación de laboratorio, simulación *in situ*; y asociación de estrategias. Todos fueron efectivos para el proceso de enseñanza y aprendizaje y la brecha identificada fue la dificultad para retener el conocimiento adquirido. **Conclusión:** Las estrategias son, en su mayoría, innovadoras y efectivas para el proceso de enseñanza y aprendizaje de la reanimación cardiopulmonar neonatal.

Descritores: Reanimación Cardiopulmonar; Recién Nacido; Educación en Enfermería.

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INTRODUCTION

In the global scenario, three million newborn babies die per year and 99% of these deaths occur in developing countries and with few resources⁽¹⁾. In Brazil, every year, there are three million births and a number of annual deaths of approximately 25,608 neonates, characterized mostly by preventable causes⁽²⁾.

In this scenario, the American Heart Association (AHA), considered the largest American volunteer organization dedicated to combating cardiovascular diseases and used as the main theoretical reference for the neonatal cardiopulmonary resuscitation (N-CPR), endorses the need to improve this clinical teaching to increase the survival of this population⁽¹⁾.

To fulfill this objective, the literature points out the importance of investment from international and national teaching and health institutions regarding the process of learning the N-CPR, and that the safe and efficient care of a N-CPA starts in educational practice. However, there is a rate of non-adherence to protocols, for this service, from 16% to 55%, in healthcare environments and an exacerbated adherence to the exclusively traditional learning strategies, which allows for emphasizing the need for motivation, by means of innovative pedagogical strategies that develop clinical competence and promote the follow-up of guidelines⁽¹⁻²⁾.

Although the nurse is usually the first professional to identify a N-CPR^(1,3) and the growing emphasis, in recent decades, about the need to optimize the strategies for teaching and learning of this theme, for nursing, the pedagogical possibilities used by teachers, educational and health institutions are not always accompanied by statistically significant results for the effectiveness of the N-CPR⁽³⁾. There is also the lack of well-delineated randomized experimental studies, with the intention of comparing the effectiveness of strategies and mechanisms for teaching the N-CPR, aiming to subsidize the evidence-based practice, and literature review researches deepening about the theme⁽³⁾.

This fragility concerning the exploitation of existing knowledge, associated with the importance of identifying and understanding the forms adopted to mediate the acquisition of cognitive, motor and affective abilities for nursing professionals and students for N-CPR, instigates the accomplishment of an integrative literature review (ILR) proposing to undertake a mapping of

the current teaching strategies in this field and to contribute to the science of nursing and neonatal care, offering a solid educational framework for determining the best educational practices affecting positively a N-CPR of excellence. Thus, the objective of this research was to analyze the scientific evidence on strategies for teaching and learning the N-CPR currently used for nursing.

METHOD

This is an ILR on currently adopted strategies for teaching and learning N-CPR for nursing. This type of research allows for the analysis of relevant studies, support for decision-making, improved professional practice, as well as the recognition and exploitation of the proposed theme⁽⁴⁾.

For the preparation of this review, the following steps were fulfilled: determining the guiding question, definition of sampling, with the respective inclusion and exclusion criteria, categorization of studies, analysis of the studies included, interpretation of results and reproduction of the review⁽⁴⁾.

The research guiding question, developed by means of the PICO strategy, was based on the identification of the acronym "P", referring to the population and configured in this review as nursing professionals and students. The acronym "I" indicates the proposed intervention, in this context, represented by the implementation of strategies for teaching and learning of the N-CPR, and the acronym "O" considers the desired outcome, in this case, determined by the learning of the N-CPR⁽⁴⁾. In this way, the following question emerged: what are the current scientific evidence in the literature on strategies for teaching and learning of the N-CPR for nursing?

The selection of the studies occurred from April to June 2019, through three phases. Phase 1 consisted of seeking studies on the databases PubMed®, EMBASE, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and LILACS. The inclusion criteria were: primary article, published in the past five years, since the publication of the latest guideline occurred in 2015⁽¹⁾, in English, Portuguese and Spanish, related to the teaching of the N-CPR for nursing professionals and students. Studies related to the CPR in extremely preterm infants, palliative care, pediatric care, obstetric emergencies and N-CPR for lay people were excluded.

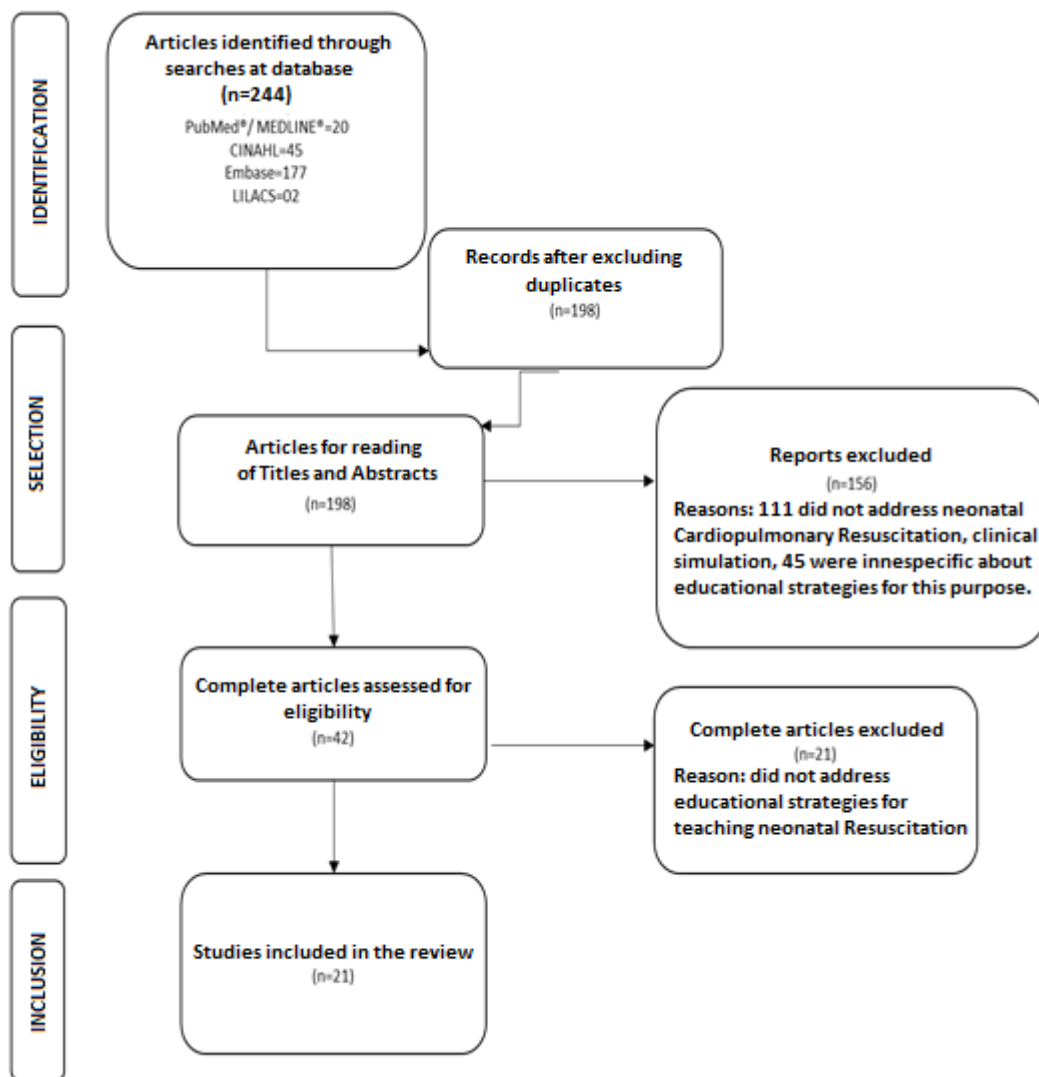
At PubMed® database, the descriptors were identified through Medical Subjects Headings (MeSH), with the following search strategy: Resuscitation OR "Cardio Pulmonary Resuscitation" OR "Cardiac Life Support" OR cpr AND "Infant, Newborn" OR newborn* OR Neonat* AND education* OR learning OR teaching AND nurs*. At EMBASE database, the search occurred through words, in all fields, characterizing the strategy: "resuscitation"/exp OR resuscitation OR "cardiac life support" OR cpr AND newborn* OR neonat* AND education* OR "learning"/exp OR learning OR "teaching"/exp OR teaching AND nurs*. At CINAHL, the descriptors were identified in titles, with the strategy: Resuscitation OR "Cardiac Life Support" OR cpr AND "Infant, Newborn" OR newborn* OR Neonat* AND education* OR learning OR teaching AND nurs*. At LILACS, the search occurred through words, with the strategy: (reanimacao OR Resuscitation) and (Recém-Nascid\$) OR (recém AND nascid\$) OR Neonat\$ and (educação OR ensino OR gradua\$) AND (enfermagem OR enfermeir\$).

Phase two covered the evaluation of titles and abstracts of the studies by two independent researchers. The 244 articles were exported to the platform Rayyan, technology that streamlines the screening, with high level of accuracy for the selection of studies⁽⁵⁾. The 14 studies that showed

a divergence were directed to a third researcher. Phase three corresponded to the full reading of articles and the decision of the final sample. An already validated instrument was used for collection and organization of the findings⁽⁶⁾, which comprised: the study number, title, journal title, year of publication, objectives, methods, results and conclusion, also classifying the level of evidence of studies. Finally, the results were analyzed and categorized⁽⁴⁾, in three main themes, considering the information and descriptions of the selected sample most frequent and relevant to the theme, which stood out regarding intentionality of the guiding question of this study, namely: (1) the main strategies for teaching and learning of N-CPR, explaining the scenario currently adopted for this purpose; (2) the effectiveness of the strategies of teaching and learning of N-CPR, allowing for identifying pedagogical mechanisms more efficient to drive the choice of nursing professionals and students and (3) gaps of the process of teaching and learning of the strategy used for N-CPR, for reflection on the weaknesses and difficulties involved in this context.

Figure 1 shows the selection of studies according to the recommendations of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)⁽⁷⁾.

Figure 1 - Flowchart of the process of identification, selection and inclusion of studies prepared from the PRISMA recommendation. Ribeirão Preto (SP), Brazil, 2019. CINAHL: *Cumulative Index to Nursing and Allied Health Literature*.



RESULTS AND DISCUSSION

The final sample of this research included 21 studies, characterized on Frame 1, as follows:

Figure 2- characterization of the studies regarding intentionality, methodological design, main results and outcomes.

Author/Year	Title of the study	Objective	Method	Results/conclusion	LE
(Brito et al, 2017) ⁽⁸⁾	Neonatal Resuscitation Program Rolling Refresher: Maintaining Chest Compression Proficiency Through the Use of Simulation-Based Education	To analyze <i>in situ</i> simulations	Experimental, randomized study with 25 nurses.	The scores for confidence and N-CPR skills were statistically significant.	2

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Author/ Year	Title of the study	Objective	Method	Results/conclusion	LE
(Kasinea et al, 2018) ⁽¹⁾	Translating continuing professional development education to nursing practice in Rwanda: Enhancing maternal and newborn health	To explore the HBB course	Descriptive, qualitative study conducted in Rwanda.	The nurses' confidence about N-CPR was statistically significant.	6
(Malmström et a, 2017) ⁽²⁾	Simulation-based team training improved the self-assessed ability of physicians, nurses and midwives to perform neonatal resuscitation	To evaluate Team Simulation for N-CPR	Quasi-experimental study in Sweden, which evaluated a simulation-based team training.	Communication, leadership, confidence and technical skills were evaluated, with improvement identified in all.	3
(Perlman et al, 2016) ⁽³⁾	Designing and Implementing the Helping Babies Breathe Program in Tanzania	To describe HBB	Descriptive study on the approach of the HBB program.	The program led to a reduction in neonatal mortality.	6
(Rovamo et al, 2015) ⁽⁹⁾	Effect of a simulation-based workshop on multidisciplinary teamwork of newborn emergencies: an intervention study	To evaluate the impact of N-CPR simulation	Experimental randomized study with 99 subjects in Finland.	There were no statistically significant differences between the groups.	2
(Saeidi et al, 2017) ⁽¹⁰⁾	Comparison of Effect of Simulation-based Neonatal Resuscitation Education and Traditional Education on Knowledge of Nursing Students	To compare the effectiveness of N-CPR simulation	Experimental study conducted at the Nursing School in Iran with 80 nurses.	The average score of the students submitted to the simulation was significantly higher.	2
(Shee et a, 2018) ⁽¹¹⁾	Impact of the neoresus training on nonpediatric-trained medical and nursing staff in the emergency department: Experience from two sites in regional Australia	To determine if NeoResus is effective for N-CPR	Descriptive study conducted with 45 professionals from Australian hospitals.	N-CPR scenarios improved confidence.	6
(Vail et al, 2017) ⁽¹²⁾	Care of the mother-infant dyad: a novel approach to conducting and evaluating neonatal resuscitation simulation training in Bihar, India	To assess the impact of the "PRONTO" program	Cross-sectional, quantitative study that evaluated 658 nurses from Bihar, India.	PRONTO training was able to develop neonatal CPR skills.	6
(Wilson et al, 2017) ⁽¹³⁾	Helping Babies Breathe implementation in Zanzibar, Tanzania	To evaluate the effectiveness of the HBB program	Mixed methods, held in Tanzania, with 33 participants from 24 health facilities.	N-CPR knowledge and skills scores improved significantly.	6
Reed et al, 2017) ⁽¹⁴⁾	Interdisciplinary onsite team-based simulation training in the neonatal intensive care unit.	To report a N-CPR	Experience report, conducted at a neonatal ICU, with 500 employees.	Inclusion of the activation of the blue code team. The training proved to be appropriate.	6
(Umar et al, 2018) ⁽¹⁵⁾	Evaluation of the Cognitive Effect of Newborn Resuscitation Training on Health-care Workers in Selected States in Northern Nigeria	To assess the impact of a N-CPR course	Quasi-experimental study with 293 health professionals who participated in a N-CPR training in Nigeria.	They showed improvements in post-test scores, concluding that CPR training improved knowledge.	3

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Author/ Year	Title of the study	Objective	Method	Results/conclusion	LE
(Charafeddi ne et al, 2016) ⁽¹⁶⁾	Strategic assessment of implementation of neonatal resuscitation training at a national level	To report a CPR Program	Descriptive study on a CPR training program at 32 hospitals in Beirut.	The scores were significantly higher regarding knowledge after training.	6
(Cordova et al, 2018) ⁽¹⁷⁾	Effect of low-cost interventions on the retention of knowledge and skills following Helping Babies Breathe training	To evaluate the impact of the HBB N-CPR program	Quasi-experimental study using HBB in Cajamarca, Peru.	There were no significant differences between the immediate evaluations and after six months.	3
(Ashish et al, 2017) ⁽¹⁸⁾	Evaluation of Helping Babies Breathe Quality Improvement Cycle (HBB-QIC) on retention of neonatal resuscitation skills six months after training in Nepal	To assess the impact of HBB for N-CPR	Quasi-experimental study evaluating the impact of HBB.	Knowledge and skill scores were higher after training.	3
(Vail et al, 2018) ⁽¹⁹⁾	The power of practice: simulation training improving the quality of neonatal resuscitation skills in Bihar, India	To evaluate the "PRONTO" training	A mixed method study that assessed the impact of N-CPR training for 1,342 nurses in Bihar, India.	The proposed training had a positive impact on the development and quality of CPR skills.	6
(Bull et al, 2015) ⁽²⁰⁾	Midwifery students receiving the newborn at birth: A pilot study of the impact of structured training in neonatal resuscitation	To report a N-CPR Training	Quasi-experimental study, conducted with a single group of six nursing students in Australia.	The group's knowledge increased. Students felt more prepared for N-CPR.	3
(Carolan-Olah et al, 2016) ⁽²¹⁾	Development and evaluation of a simulation exercise to prepare midwifery students for neonatal resuscitation	To evaluate a CPR-N Simulation	Descriptive research on the development of a N-CPR simulation for 36 nursing students.	The simulation resulted in improved student confidence and increased knowledge of N-CPR.	6
(Carolan-Olah et al, 2018) ⁽²²⁾	Communicating out loud: Midwifery students' experiences of a simulation exercise for neonatal resuscitation	To evaluate simulation scenarios for CPR-N	Descriptive, qualitative study with two simulation scenarios to prepare students for N-CPR.	Students indicated that their confidence and knowledge about neonatal CPR improved.	6
(León et al, 2015) ⁽²³⁾	Comparison of participative educative strategy versus traditional educative strategy	To assess clinical skills for CPR	Quasi-experimental study with doctors and nurses.	There were no differences between the groups in the clinical skills assessment category.	6
(Drake et al, 2019) ⁽²⁴⁾	Structured on-the-job training to improve retention of newborn resuscitation skills: a national cohort Helping Babies Breathe study in Tanzania	To evaluate the effectiveness of N-CPR training	Quasi-experimental study on the implantation of HBB in Tanzania.	Scores for skill increased in both groups.	3

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Author/ Year	Title of the study	Objective	Method	Results/conclusion	LE
(Seto et al, 2017) ⁽²⁵⁾	Breaking Down the Objective Structured Clinical Examination: An Evaluation of the Helping Babies Breathe OSCEs	To evaluate the effectiveness of OSCE in HBB	Quasi-experimental study conducted with doctors and nurses (70) in Honduras.	Post-test scores were higher for all evaluations.	3

LE: level of evidence; N-CPR: neonatal cardiopulmonary resuscitation; HBB: *Helping Babies Breathe*; CPR: cardiopulmonary resuscitation; UTI: intensive care unit; OSCE: Objective Structured Clinical Examination.

Figure 3 - Delimitation of the educational strategies identified in the studies and evaluation of their effectiveness and gaps in the teaching and learning process of N-CPR.

Educational strategy for teaching and learning of N-CPR	Strategy effectiveness and teaching and learning gaps	Studies that used this strategy
HBB Program	Significant results for improved N-CPR confidence, knowledge and skills. Significant decrease in neonatal mortality in countries where it was applied. Gap for teaching and learning process: Difficulty retaining long-term knowledge after applying this strategy.	Kasinea et al. ⁽²⁾ , Perlman et al. ⁽³⁾ , Wilson et al. ⁽¹³⁾ , Cordova et al. ⁽¹⁷⁾ , Ashish et al. ⁽¹⁸⁾ , Drake et al. ⁽²⁴⁾ e Seto et al. ⁽²⁵⁾
Skills laboratory simulation	Significant results that show improved confidence, knowledge, skills, leadership and teamwork. Gap for teaching and learning process: Difficulty retaining long-term knowledge after applying this strategy	Malmström et al. ⁽²⁾ , Rovamo et al. ⁽⁹⁾ , Saeidi et al. ⁽¹⁸⁾ , Reed et al. ⁽¹⁴⁾ , Carolan-Olah et al. ⁽²¹⁾ , Carolan-Olah et al. ⁽²²⁾
<i>In situ</i> simulation	Statistically significant results regarding the improvement of knowledge and skills for N-CPR. Gap for teaching and learning process: Difficulty retaining long-term knowledge after applying this strategy.	Brito et al. ⁽⁸⁾ , Vail et al. ⁽¹⁹⁾
Association of strategies such as: online learning platform; classroom courses; skills laboratory simulation; <i>in situ</i> simulation; workshops; lectures; skills training and peer assessment	Statistically significant results for improved CPR-N confidence, knowledge and skills. Gap for the teaching and learning process: not identified.	Shee et al. ⁽¹¹⁾ , Umar et al. ⁽¹⁵⁾ , Charafeddine et al. ⁽¹⁶⁾ , Bull et al. ⁽²⁰⁾ , León et al. ⁽²³⁾

N-CPR: neonatal cardiopulmonary resuscitation; HBB: *Helping Babies Breathe*.

The studies that comprised the sample of this research are, in their entirety, international and from the last five years, the majority from 2017, which demonstrates the relevance of the topic. A large part of the researches were classified with low level of evidence (level 6), since they were descriptive articles, which reported the approach of educational strategy for N-CPR^(3,11-14,16-19,21-22). In a smaller number, there were quasi-experimental studies^(2,15-18,20,24-25) and

randomized experimental studies^(8,9,10), but only an experimental study⁽¹⁰⁾ showed a statistically significant result regarding the effectiveness of the educational strategy chosen for the teaching of the N-CPR. It can justify the need to explore this issue, through development of more well-delineated experimental studies, presenting conclusive outcomes and subsidizing the best teaching practices for the teaching and learning process of the neonatal CPR⁽¹⁰⁾.

Although the adoption of appropriate teaching strategies for learning N-CPR are not responsible solely for the quality of this process and the transformation of archaic educational mechanisms and disconnected from the needs of nursing students and professionals, investing in knowledge and exploration of new possibilities can cause a reflection on the part of educational and health institutions in relation to their practices, and generate changes, allowing for the development of new pedagogical concepts that affect neonatal care⁽¹²⁻¹⁴⁾.

Three categories regarding the results emerged: (1) main strategies for teaching and learning of N-CPR; (2) The effectiveness of strategies for teaching and learning of N-CPR; and (3) gaps in the teaching and learning process about the strategy used for N-CPR.

Among the strategies of teaching and learning of N-CPR identified in the present study, there stood out the simulation performed in the laboratory of skills at educational institutions^(2,9,14,18,21-22) or *in situ*^(8,19).

Innovative approaches to nursing education suggest that the use of simulation can cause greater acquisition of knowledge, confidence and skills, without compromising the patient safety, however, despite the results favorable to the adherence to this strategy, more analyses are necessary to evaluate its effectiveness for the neonatal context⁽²⁵⁾.

To perform *in situ* simulation, that is, the simulated experience, at the workplace of nursing professionals, the PRONTO method was mostly adopted^(12,19). This method is an educational approach to the *in-situ* teaching of the N-CPR that addresses the team learning⁽¹⁹⁾.

A cross-sectional study with a quantitative approach, performed with 658 nurses in Bihar, India, assessed the impact of an *in-situ* simulation for neonatal resuscitation, based on the PRONTO method, identifying that the process of teaching and learning carried out by means of this method was able to develop the essential skills for professionals regarding CPR⁽¹⁹⁾.

The Simulation, among the teaching strategies for neonatal CPR, is a potential tool for learning, currently explored, that may mean the articulation of theory and practice and approach students and nursing professionals to the most realistic scenarios, which cause the critical thinking, reflection, team work, representing, in this way, an effective means for developing clinical competence regarding the N-CPR⁽¹⁰⁾.

The HBB course^(2,3,13,17-18,24-25) also stood out, the first module of a program called Helping Babies Survive, introduced in more than 80 countries, setting up an evidence-based educational strategy⁽³⁶⁾. Most published articles, in countries with few resources, referred to the HBB program, which aims to teach the initial steps of neonatal resuscitation⁽¹⁷⁾.

This teaching strategy for the N-CPR has been gaining space in the world context and demonstrating effectiveness for the learning of nursing professionals, especially in contexts in which the human and materials resources are scarce^(13,24-25).

Despite the importance of teaching strategies identified for the N-CPR, the nursing learning process is complex and is not only linked to selected pedagogical mechanisms⁽²¹⁻²²⁾ or their execution. The learning of professionals and students is also influenced by the environment, the quality of the mediator or teacher, material and human resources available, effectiveness and quality of educational planning, evaluative methods proposed, motivation and involvement of participants, among others^(17,22-23).

The effectiveness of the strategies of teaching and learning of N-CPR was presented as a category in this study and, in general, all the strategies for teaching and learning identified showed to be effective, aiming at improving knowledge, skills, confidence, leadership and teamwork for neonatal resuscitation, but studies with more conclusive outcomes^(11,15-16,20,23) reveal the importance of associating the teaching strategies to maximize learning. Corroborating this statement, a cross-sectional study of quantitative approach on neonatal resuscitation used as a teaching and learning strategy the articulation of an online platform for learning, a classroom course and simulated scenarios. It showed statistically significant results for the development of knowledge, skills and attitudes in N-CPR, by the association of various teaching strategies^(20,23).

The educational strategies, described in this ILR, revealed as the main gap or weakness to the teaching of the N-CPR the difficulty of nursing professionals and students to keep the knowledge, in the long term, after using most of the strategies identified^(2-3,9,13-14,17-22,24-25).

In the teaching process for the neonatal emergency, with emphasis on N-CPR, it is not appropriate to consider that only the strategy used to this end will be able to cause retention of

knowledge and skills in nursing, since it is important to identify the prior knowledge of the individual and anchor it to the new knowledge, so that the retention of what has been learned occurs in long term⁽²³⁾. Nevertheless, the present study identified that the articulation of varied strategies for teaching and learning of N-CPR can minimize this difficulty regarding the retention of knowledge, skills or attitudes for the care with N-CPR, indicating as a viable alternative^(11,15-16,20,23).

CONCLUSION

The studies identified in this literature review are of an international nature, current and, in most part, with low level of evidence, which instigates the need for scientific deepening and execution of well-delineated experimental, randomized studies in this aspect.

Three categories were drawn up: main strategies for teaching and learning of N-CPR; effectiveness of teaching and learning strategies of N-CPR; and gaps in the process of teaching and learning of the strategy used for N-CPR. Some of the strategies of teaching and learning of N-CPR identified include the HBB program, the simulation performed in the skills laboratory, *in-situ* simulation and the association of various teaching strategies, highlighting the simulation, performed in the skills laboratory or *in situ* as the strategies most used for the teaching of the N-CPR. All the strategies proved to be effective concerning the improvement of knowledge, skills, confidence, leadership and teamwork.

The main gap identified, regarding the implementation of the pedagogical strategies, was the difficulty to retain knowledge, which can be improved with the association of varied teaching and learning strategies to maximize the cognitive ability of individuals.

The main limitation of this study is the lack of clarity regarding the methodology adopted by the studies and details of the educational strategy adopted, which hindered its assessment.

This study contributes to the teaching, research and assistance, within the framework of the neonatal cardiopulmonary resuscitation, by identifying the most current strategies for teaching and learning adopted in this context, characterizing its effectiveness and gaps, delimiting a framework of evidence-based knowledge for nursing.

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