ORIGINAL

Nursing team skills in infant basic life support: an experimental study

Habilidades da equipe de enfermagem em suporte básico de vida em lactentes: estudo experimental
Nursing team skills in infant basic life support: an experimental study
Habilidades del equipo de enfermería en el soporte básico de vida en lactantes: estudio experimental

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ABSTRACT

Objective: To compare the effectiveness of two programs of permanent education for the acquisition of psychomotor skills related to infant cardiopulmonary resuscitation, comparing the traditional basic life support teaching method with the use of a video for self-education with a manikin. **Methods:** Controlled trial with members from the nursing team, randomized in a control group (traditional training) and an intervention group (self-taught). A checklist was used to evaluate infant cardiopulmonary resuscitation skills. A pre-test was applied, immediately followed by training and a 15-day follow up, when the skills were reevaluated (post-test). **Results:** 41 nursing technicians and 11 nurses participated. In the post test, there was a significant difference between the intervention (12.61 $\pm$ 2.09) and control groups (14.65 $\pm$ 2.01) (p=0.001). The score of both groups improved after 15 days. **Conclusion:** Professionals who participated in the traditional training (control group) and received feedback about their performance had better results in regard to their skills in infant cardiopulmonary resuscitation.
Descriptors: Nursing Team. Cardiopulmonary Resuscitation. Pediatric Nursing. Inservice Training. Infant.

RESUMO

Objetivo: comparar a efetividade de dois programas de educação permanente para aquisição de habilidades psicomotoras relacionadas à ressuscitação cardiopulmonar em lactentes, a partir da utilização do método tradicional de ensino de suporte básico de vida, comparado ao método com utilização de vídeo com treino autodidata em manequim. **Métodos:** ensaio controlado com membros da equipe de enfermagem, randomizados em grupo controle (treino tradicional) e intervenção (treino autodidata). Para averiguar as habilidades no atendimento de ressuscitação cardiopulmonar em lactentes, aplicou-se um *checklist*. Foi aplicado pré-teste, seguido de treinamento imediato, *follow-up* de 15 dias, com reaplicação da avaliação de habilidades (pós-teste). **Resultados:** participaram 41 técnicos de enfermagem e 11 enfermeiros. No pós-teste, houve diferença significativa do grupo intervenção (12,61 $\pm$ 2,09) em relação ao grupo controle (14,65 $\pm$ 2,01) (p=0,001). Em ambos os grupos houve aumento nas pontuações após 15 dias. **Conclusão:** os profissionais que participaram do treino tradicional (grupo controle) e que receberam *feedback* sobre seu desempenho obtiveram melhores resultados para habilidades relacionadas à ressuscitação cardiopulmonar em lactentes.
Descritores: Equipe de Enfermagem. Reanimação Cardiopulmonar. Enfermagem Pediátrica. Capitação em Serviço. Lactente.

RESUMÉN

Objetivo: comparar la efectividad de dos programas de educación permanente para adquisición de habilidades psicomotoras relacionadas con la reanimación cardiopulmonar en lactantes, a partir de la utilización del método tradicional de enseñanza de soporte básico de vida, comparada al método con utilización de video con entrenamiento autodidacta en un maniquí. **Métodos:** ensayo controlado con miembros del equipo de enfermería, aleatorizados en grupo control (capacitación tradicional) e intervención (capacitación autodidacta). Para verificar las habilidades en el cuidado de la reanimación cardiopulmonar en lactantes, se aplicó un *checklist*. Se aplicó un pre-test, seguido de un entrenamiento inmediato, seguimiento a los 15 días, con nueva aplicación de la evaluación de habilidades (post-test). **Resultados:** participaron 41 técnicos de enfermería y 11 enfermeros. En el post-test, hubo diferencia significativa entre el grupo intervención (12,61 + 2,09) en relación al grupo control (14,65 + 2,01) (p=0,001). En ambos grupos hubo un aumento en las puntuaciones después de 15 días. **Conclusión:** los profesionales que participaron del entrenamiento tradicional (grupo control) y que recibieron retroalimentación sobre su desempeño obtuvieron mejores resultados en las habilidades relacionadas con la reanimación cardiopulmonar en lactantes.
Descriptores: Equipo de Enfermería. Reanimación Cardiopulmonar. Enfermería Pediátrica. Capacitación en Servicio. Lactante.

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INTRODUCTION

The health professional must constantly seek professional improvement to provide qualified health care. Permanent Education (PE) is used in institutions as it is necessary for the teams to be trained. It consists in technical-practical training, aiming to promote skills, technologies, and procedures, as well as to update the health workers.[1-3]

PE is beneficial as it allows for common care related issues to be in line with professional standards and work processes.[4] In nursing, the PE is an activity that should be part of the practice of the nurses, focusing on professional development to solve problems, which would lead to improvement in the profiles of the professional, the team, and the institution, in regard to health care.[5,6]

To consider the PE in the teaching model of organizations is to understand that training programs should be reflective and provide nursing workers not only with knowledge, but also with a critical look, capable of recognizing the vulnerabilities of the services and aiming to provide better responses to those being cared for.[4] In this context of new teaching methods, the PE strategy is also seen relevant and necessary to improve skills and attitudes and change conduct in nursing, especially when the topic being discussed in infant cardiopulmonary resuscitation (CPR).[7]

Cardiopulmonary arrest (CPA) is the simultaneous absence of three variables: conscience, pulse, and breathing.[8] The provision of a better response to this emergency is associated with the training of all health professionals, since maintaining the life and the quality of life of the patient depends on the ability of the team to apply PCR maneuvers as early as possible, in an efficient and organized manner. Therefore, standardized conducts help in the adoption of a single language between workers, so these maneuvers can be carried out efficiently.[9,10]

In hospital units, infant CPR is not as frequent as adult CPR. However, if all teams are trained for systematized intervention during these emergencies, these victims will be able to reach better results.[9,10] Research has shown the importance of training the nursing team in infant CPR to guarantee quality assistance.[7,11]

Regarding PCR, the nursing team must receive specific training in their workplace, since they are the main responsible actors for this task. These should be based on reality to change the practice of assistance and improve academic training, favoring the improvement of professionals and the attention offered to the patients.[12-14]

Infant reanimation can be improved through the PE by inserting new teaching methodologies, such as simulation and feedback. There should be investigations about including simulation and feedback in the training of nursing professionals, since both favor the development of competences in these health team workers.[15-17]

As a result, the objective of this research is to compare the effectiveness of two programs of PE for the acquisition of psychomotor skills for infant CPR, comparing the traditional basic life support (BLS) teaching method with the use of a video for self-teaching with a manikin.

METHOD

Experimental study with a randomized trial carried out with members of the nursing team (technicians and nurses) from August to September 2017 in the wards of a teaching hospital certified by the Ministries of Education and Health. This hospital provides several types of care, from the outpatient clinic level to high complexity care. It is entirely devoted by the attention of patients in the Single Health System (SUS) of a city in the Zona da Mata region of Minas Gerais.

The study included 52 nurses and nursing technicians from the following sectors of the hospital: Normal Labor Center; Pediatrics Ward, Hospitalization Unit II; Intermediate Unit; and Neonate Intensive Care Unit. Workers on duty in the morning, afternoon, and night shifts, as well as.

At first, all sectors from the hospital ward destined to care for infants were selected. Then, the monthly scale for workers, provided by the nursing coordination to estimate the number of participants, was used. There was no sample calculation, since all members of the nursing team who provided care for infants in the wards of the institution were invited.

Were considered eligible nurses and nursing technicians who had more than three months experience and worked in infant nursing care. Collaborators that were transferred between health care wards in the period of data collection.

After the sample was determined, the researcher invited the members of the nursing team individually. From 21 August to 31 August 2017, participants were invited, received explanations and signed the Free and Informed Consent Form (FICF). Then, the software random.org was used for simple randomization (it assigns the participants indicated randomly using numbers, generating two study groups). Participants were distributed in two groups: control (members of this group watched a video on infant CPR maneuvers and received additional BLS training with feedback provided throughout) and intervention (members of this group watched a video on infant CPR maneuvers and underwent self-taught training with no feedback given about their performance before the post-test).

The data collection of the control group followed the steps: workers went through a pre-test of their psychomotor skills for infant PCR attention using the Baby Anne manikin (Laerdal®) for an Objective Structured Clinical Examination (OSCE) skill test, which was applied by the researchers before the training. Then, in the same day, the participants watched a video (cognitive content) about infant CPR maneuvers and went through a practical training in these maneuvers that was similar to traditional BLS course training. The workers trained and received verbal feedback about their performance from a BLS professor during their entire training.

Figure 1 - Flowchart of the study. Juiz de Fora, MG, Brazil, 2017.
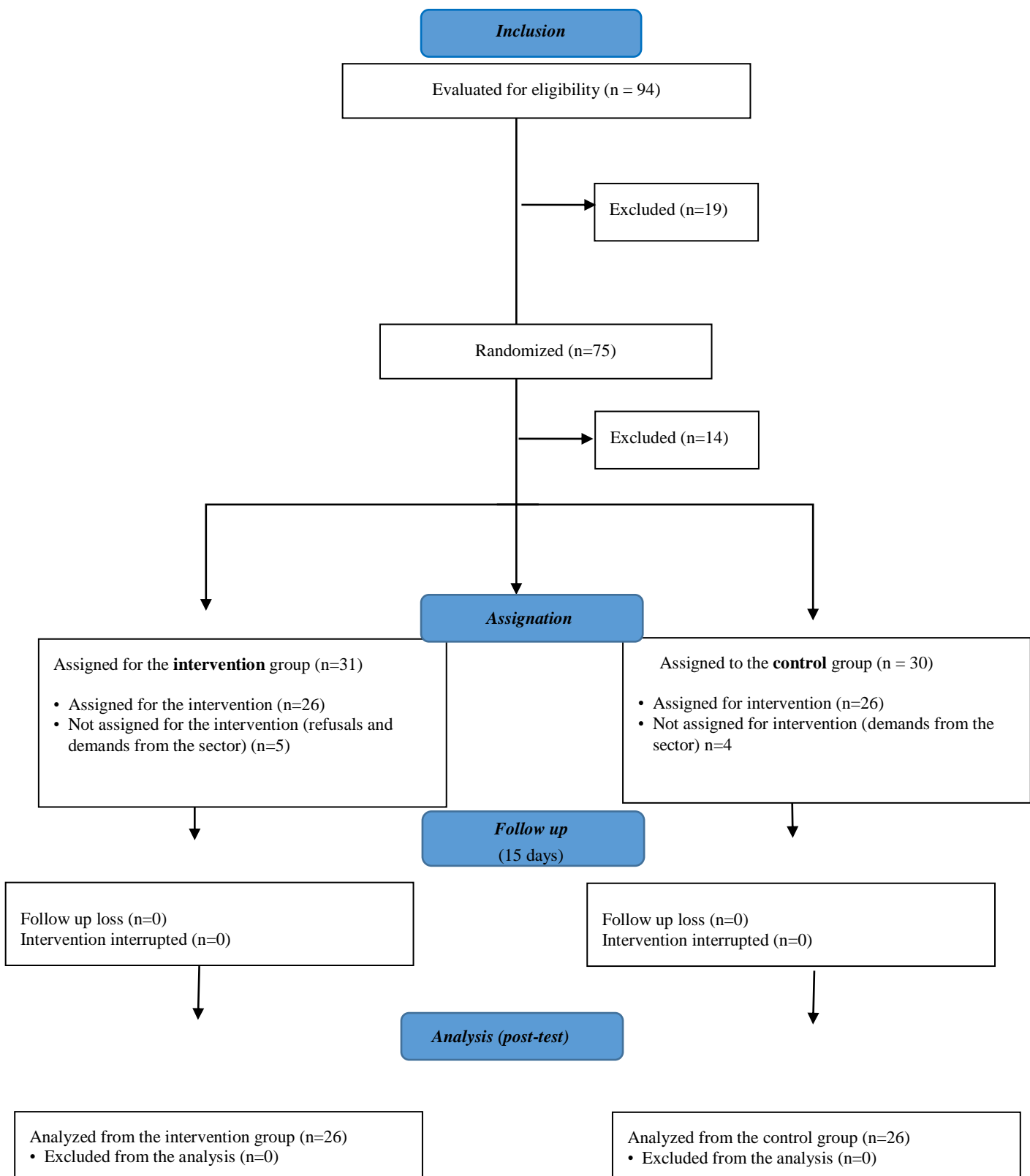
The pre-test, in the control group, lasted for a mean of 43 minutes and took place in September 02 and 03, 2017, in the morning, afternoon, and night shifts. After 15 days, the researchers reevaluated the workers using the post-test, which as an OSCE skill test identical to the pre-test. The professionals received, once again, feedback about their performance. The mean time of the post-test was 27 minutes, and it took place on September 17 and 18, 2017, in the morning, afternoon, and night shifts.

Data collection in the intervention group took place as follows: workers carried out a pre-test to evaluate their psychomotor skills for infant PCR in the Baby Anne manikin (Laerdal®) using an OSCE skill test. Then, in the same day, the participants watched a video (cognitive content) about infant CPR maneuvers. After the video, the participants of this group attempted to self-teach the CPR maneuvers using Baby Anne (Laerdal®). This group did not receive feedback about their performance during the pre-test. This stage lasted for a mean of 21 minutes and took place on September 02 and 03, 2017, in the morning, afternoon, and night shifts. After 15 days, the workers were reevaluated using an OSCE skill test, the post-test. After the post-test, they received feedback from an instructor about their performance in care. The mean time of the post-test was 25 minutes, and it took place on September 17 and 18, 2017, in the morning, afternoon, and night shifts.

The video used for training had been recorded by professors of the BLS discipline and lasted 10 minutes. There, the skills for performing infant CPR were demonstrated in the Baby Anne manikin

(Laerdal®), according with instructions from the *American Heart Association* (AHA).[8].

The instrument used in both groups, for the pre- and post-tests, aimed to verify the outcome: skills to apply CPR to infants. It was a checklist elaborated by the researchers, with 23 items based on the AHA norms.[8] Each item in the checklist had a statement about a task to be performed. It was evaluated as "did it" (1 point) and "did not do it" (0 points). The score was based on the number of tasks carried out correctly, and the higher it was, the better the performance.

The checklist was applied by three researchers in both moments of data collection. These participants did not know to which group the participants belonged. This instrument also had items for the sociodemographic characterization of the participants (age, gender, ethnicity, profession, time since graduation, schooling) and was applied in the pre-test.

Descriptive statistics were used to present demographic results. Inferential statistics were used, and the baselines of intervention and control groups were compared in regard to their score in regard to the pre-test psychomotor skills, as to ascertain whether there were differences in the skill of the groups. To that effect, the paired t-test was applied for dependent measures, to analyze the means of right answers within the groups themselves. The *t* test for independent variables was adopted to verify the means of right answers between the groups (control and interventions).

Then, the post-test scores of the groups were compared. $P < 0.05$ was considered to be significant and the overall effect for each test was verified. Data were analyzed using the software Statistical Package for the Social Sciences (*SPSS*) version 21.

This research followed all ethical and legal requirements and the FICF was planned according with Research Ethics Committee from the National Council of Health.[18] Data collection only took place after approval from the Research Ethics Committee for Investigations with Human Beings under substantiated opinion No. 2.148.308, identification CAAE 68549417.6.0000.5103. The research was also registered in the Brazilian Register of Clinical Trials (RBR-4MYWTR). Furthermore, the recommendations from the *Consolidated Standards of Reporting Trials* (CONSORT)[19] were used to randomize, follow up, and analyze data.

RESULTS

52 workers from the nursing team participated in this investigation, most female. Regarding sociodemographic data, Table 1 characterizes the participants according with their age, gender, skin color, schooling, time since graduation, and profession. Their age varied from 21 to 57 years old, with a mean of 34.5±9.3 years. The time since graduation varied from 0.6 (8 months) to 34 years, with a mean of 9.4±7.2 years.

Data regarding the mean of right answers, both in the pre-test and in the post-test, in the performance of the evaluated tasks, is presented in Table 2.

In the pre-test (baseline), although the intervention group had a higher mean of correct answers than the control group, there was no statistical significance. In the post-test, the control group increased its mean of right answers in regard to the intervention group (p=0.001). It was found that, in both groups, there was a higher number of right answers in the post-test than in the pre-test. The comparison between the groups also showed that the control group had more correct answers than the intervention group (p<0.001).

DISCUSSION

In this study, the mean results of both groups increased, although the mean of right answers was higher in the control group. The results were relevant in regard to the PE methodology used, suggesting that both training measures adopted were effective to educate the nursing team in regard to infant BLS skills.

Moreover, this investigation made it clear how important it is to use active learning methodologies during PE training to favor the apprehension and fixation of knowledge in the nursing team. This fact was corroborated by scientific evidences that addressed PE as an ally in the acquisition of knowledge, as long as it is inserted in the context of professional practice.[4,20]

In the training of nursing professionals, traditional education has its place. However, when one mentions skills, new tools must be adopted, such as simulation and feedback. Practical training directed at assistance, which may provide pleasant, reflective, and significant learning, may lead to better performance.[15,21]

Currently, PE is seen as essential to develop professional competence, contributing to improve the outcomes of the patients during care. Training the skills of nursing professionals with the aid of active education strategies contributes for professionals to reflect on their own skills and limitations as they respond to the health demands of the population.[15,22]

Literature shows promising results in those who learn CPR with manikins,[11,15] corroborating the positive results of this research. When workers are allowed to learn within their own work setting, adopting strategies that are proper to that context, better results can be achieved. Acting in a safe/controlled environment with characteristics of the professional practice setting may lead the collaborator to seek to improve what he has [4,22-24]

The performance of participants (from both groups) in the pre-test was low in regard to the stages evaluated in the clinical simulation of infant PCR. This is related to the fact that skills that are not trained nor practiced often, and do not receive training evaluations, such as feedbacks, may be affected. Evidences show that, if feedback and regular training in BLS are not adopted, the team may eventually have doubt as they carry out infant CPR.[17,25]

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Table 1 - Sociodemographic characterization of the nursing team that participated in the study. Juiz de Fora, MG, Brazil, 2017.

Sociodemographic data	Materials validated	(%)
Gender		
Female	50	96.1
Male	2	3.9
Age (years)		
≤ 40	40	76.9
> 40	12	23.1
Skin color		
Answer	24	46.2
Black	12	23
Pardo (light-brown skin)	16	30.8
Profession		
Nursing technician	41	78.8
Nurse	11	21.2
Time since graduation (years)		
Up to 13	41	78.8
14 |- 27	10	19.3
28 |- 34	1	1.9
Total	**52**	**100**

Source: Elaborated by the authors (2021).

Table 2 - Analysis of the performance of control and intervention groups in the pre- and post-test. Juiz de Fora, MG, Brazil, 2017.

Group	Pre-test Mean (SD)	Post-test Mean (SD)	p-value*
Contro	9.1 (2.9)	14.6 (2.0)	<0.001
Intervention	10.0 (1.4)	12.6 (2.0)	<0.001
p-value**	0.225	0.001	

Captions: SD: standard deviation; * t-test for independent variables; ** Paired t-test

In the post-test the participants of both groups had higher mean results, showing that the teaching strategies adopted had satisfactory results in the PE, showing that the use of different tools to train the workers improved their performance of psychomotor skills for infant PCR.

A better performance may arise from the teaching strategies adopted, since the training in manikins, associated with educational feedback, may contribute for the acquisition of knowledge.[26-28] Moreover, since these are health workers, self-teaching and the location where training was done are sensible options, which may have favored the improvement in their performance at the time of the reevaluation.[17,27]

The control group, which underwent traditional training in the presence of an instructor, received feedback at the end of the first training session. Having followed the steps according with Pendleton model, as they received feedback[29], may have stimulated reflection and recognition of the improvement necessary, as well as security about

what is already consolidated, contributing to improve the score of participants. Using feedback in the training of skills for infant CPR can be considered an essential component for BLS learning.[22,25,30]

Enabling the professionals to reflect on their skills may motivate learning. Furthermore, practical training under supervision may have allowed the team of participants to better memorize their knowledge, which may have positive repercussions on their performance and on safety, considering the fact that CPR maneuvers executed in infants have a positive impact on the survival of victims.[17,31]

The feedback is an essential stage of learning, as it gives to the professionals being trained information about their performance. It is important to recognize and reflect on the execution of tasks, especially from the perspective of strengths and weaknesses, which may lead the professional to seek better results.[27]

The mean score of right answers in the intervention group increased in the post-test as compared to the pre-test, showing how effective the self-teaching training was. A study showed that nurses who underwent self-teaching training, when compared to a group that underwent traditional training, had a better performance as they were reevaluated in regard to pediatric BLS skills.[30] Therefore, it is possible to adopt self-teaching training as a tool for the PE plans of the nursing team.

As the means presented by the control and intervention groups are presented, it was found that both groups had a higher mean. However, the results of the control group were superior to those of the intervention group, showing how important it is to train the team to reach qualified assistance, using skill training with feedback as a more effective teaching instrument.

It can be stated that the PE should be carried out periodically in the workplace so that knowledge is improved, thus ensuring that the health team can provide a better professional practice.[14] Therefore, it is highly important to invest in the qualification of health professionals using methodologies that can provoke changes and consolidate good practices. The dissemination and strengthening of knowledge should be an activity inherent to health services, and, thus, it should be critical, reflective, committed, and resolutive .[4]

Limitations of this research include the demands of the sectors, assistance complications, and the resistance of some professionals to the training. Furthermore, the feedback from the instructor was not individualized, which may have impacted on the learning of a group when compared to the other. It should be mentioned that the participants were not paired according with age and time of service, which may have influenced the results.

Regarding the impact of this study for nursing, it stands out that the ability of performing effective CPR maneuvers in infants essentially depends on the frequent training of the team, which may lead the professional to feel safe as they carry out this activity. Furthermore, this study used different teaching methods focused on the professionals, thus favoring the acquisition of knowledge for the task at hand.

CONCLUSION

In this research, workers who participated in traditional training and received feedback about their performance had better results in regard to infant CPR skills. However, both PE programs led to the acquisition of psychomotor skills for infant PCR. In the post-test, the score of the control group was higher, which may have resulted from the fact that this group received feedback, a tool that should be adopted in the teaching of skills.

Comparing the mean of right answers in the groups, both showed higher scores in the post-test, showing that both PE programs can be appropriate to train CPR in infants. The theoretical-practical training about infant PCR and PCR maneuvers contributed for the professionals to acquire new abilities, in addition to providing guidance for them to deal with this clinical emergency in the future.

REFERENCES

1. Carvalho WMES, Teodoro MDA. Health professionals' education: the experience of the School for the improvement of the Unified Health System in the Federal District of Brazil. Ciênc. Saúde Colet. [Internet]. 2019;24(6):2193-201. doi: https://doi.org/10.1590/1413-81232018246.08452019

2. Lemos CLS. Educação Permanente em Saúde no Brasil: educação ou gerenciamento permanente? Ciênc. Saúde Colet. [Internet]. 2016;21(3):913-22. doi: https://doi.org/10.1590/1413-81232015213.08182015

3. Ministério da Saúde (BR). Portaria n° 278, de 27 de fevereiro de 2014. Institui diretrizes para implementação da Política de Educação Permanente em Saúde, no âmbito do Ministério da Saúde (MS). Brasília: Ministério da Saúde; 2014. [cited 2021 May 04]. Available from: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2014/prt0278_27_02_2014.html

4. Campos KFC, Sena RR, Silva KL. Permanent professional education in healthcare services. Esc Anna Nery. 2017;21(4):e20160317. doi: https://doi.org/10.1590/2177-9465-ean-2016-0317

5. Fagundes NC, Rangel AGC, Carneiro TM, Castro LMC, Gomes BS. Continuing professional development in health for working nurses. Rev Enferm UERJ. 2016;24(1):e11349. doi: https://doi.org/10.12957/reuerj.2016.11349

6. Ribeiro IL, Medeiros Júnior A. Graduação em saúde: uma reflexão sobre ensino-aprendizado. Trab Educ Saúde. 2016;14(1):33-53. doi: https://doi.org/10.1590/1981-7746-sip00099

7. Melo KAS, Silva TC, Andrade JMF, Ribeiro JF, Bandeira LF, Silva MJM. Reanimação Neonatal. Ver. Enferm. Atual In Derme. [Internet]. 2021; 95 (34). Doi: https://doi.org/10.31011/reaid-2021-v.95-n.34-art.974

8. American Heart Association. Destaques das Diretrizes de RCP e ACE. Chicago, Illinois: AHA; 2020.

[cited 2021 May 04]. Available from: https://cpr.heart.org/-/media/cpr-files/cpr-guidelines-files/highlights/hghlghts_2020eccguidelines_portuguese.pdf

9. Moura JG, Brito MPS, Rocha GOS, Moura LTR. The knowledge and acting of a nursing team from a sector of cardiorespiratory arrest urgent care. Rev. Pesqui. (Univ. Fed. Estado Rio J., Online) [Internet]. 2019;11(3):634-40. doi: http://dx.doi.org/10.9789/2175-5361.2019.v11i3.634-640

10. Rosengarten L., Ban, S. Basic life support for the child and infant. British Journal of Nursing [Internet]. 2019; 28(17), 1118-22. https://doi.org/10.12968/bjon.2019.28.17.1118

11. Balian S, McGovern SK, Abella BS, Blewer AL, Leary M. Feasibility of an augmented cardiopulmonary resuscitation training system for health care providers. Heliyon. 2019;5(8):e02205. doi: https://doi.org/10.1016/j.heliyon.2019.e02205

12. Silva LAA, Pinno C, Schmidt SMS, Noal HC, Gomes IEM, Signor E. A educação permanente no processo de trabalho de Enfermagem. Rev. enferm. Cent.-Oeste Min. [Internet]. 2016;6(3):2349-61. doi: http://dx.doi.org/10.19175/recom.v6i3.1027

13. Moraes CLK, Paula GMA, Silva JR, Rodrigues MCL. Desafios enfrentados pela equipe de Enfermagem na reanimação cardiorrespiratória em uma unidade de emergência hospitalar. Rev Eletrônica Estácio Saúde. 2016;5(1):90-9. Available from: http://revistaadmmade.estacio.br/index.php/saudesantacatarina/article/viewFile/2231/1056

14. Oliveira JA, Spagnol CA, Camargos AT, Matos SS, Silva SF, Oliveira JM. Educação permanente em enfermagem no centro de tratamento intensivo. Rev Enferm UFPE on line. 2020;14:e244644. doi: https://doi.org/10.5205/1981-8963.2020.244644
15. Smereka J, Szarpak L, Czekajlo M, Abelson A, Zwolinski P, Plusa T, et al. The TrueCPR device in the process of teaching cardiopulmonary resuscitation: a randomized simulation trial. Medicine (Baltimore). 2019;98(27):e15995. doi: http://dx.doi.org/10.1097/MD.0000000000015995

16. Montes LG, Rodrigues CIS, Azevedo GR. Assessment of feedback for the teaching of nursing practice. Rev Bras Enferm. 2019;72(3):663-70. doi: https://doi.org/10.1590/0034-7167-2018-0539

17. Tobase L, Peres HHC, Tomazini EAS, Teodoro SV, Ramos MB, Polastri TF. Basic life support: evaluation of learning using simulation and immediate feedback devices. Rev Lat Am Enfermagem. 2017;25:e2942. doi: https://doi.org/10.1590/1518-8345.1957.2942

18. Ministério da Saúde (BR). Resolução n° 466, de 12 de dezembro de 2012. Brasília: Ministério da Saúde; 2012. [cited 2021 May 04]. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html

19. Moher D, Hopewell S, Schulz KF, Montori V, Gøtzsche PC, Devereaux PJ, et al. CONSORT 2010 Explanation and Elaboration: updated guidelines for reporting parallel group randomised trials. BMJ. 2010;340:c869. doi: https://doi.org/10.1136/bmj.c869

20. Ferreira L, Barbosa JSA, Esposti CDD, Cruz MM. Permanent Health Education in primary care: an integrative review of literature. Saúde Debate. 2019;43(120):223-39. doi: https://doi.org/10.1590/0103-1104201912017

21. Le Flore JL, Thomas PE. Educational changes to support advanced practice nursing education. J Perinat Neonatal Nurs. 2016;30(3):187-90. doi: https://doi.org/10.1097/JPN.0000000000000201

22. Burgess A, Van Diggele C, Roberts C, Mellis C. Feedback in the clinical setting. BMC Med Educ. 2020;20:460. doi: https://doi.org/10.1186/s12909-020-02280-5

23. Martins JCA. Aprendizagem e desenvolvimento em contexto de prática simulada. Rev. Enf. Ref [Internet]. 2017;4(12):155-62. doi: http://dx.doi.org/10.12707/RIV16074

24. Mesquita HCT, Santana BS, Magro MCS. Effect of realistic simulation combined to theory on self-confidence and satisfaction of nursing professionals. Esc Anna Nery. 2019;23(1):e20180270. doi: https://doi.org/10.1590/2177-9465-ean-2018-0270

25. Moura JG, Brito MPS, Rocha GOS, Moura LTR. The Knowledge and Acting of a Nursing Team from a Sector of Cardiorespiratory Arrest Urgent Care. Rev. Pesqui. (Univ. Fed. Estado Rio J., Online). [Internet]. 2019;11(3):634-40. doi: http://dx.doi.org/10.9789/2175-5361.2019.v11i3.634-640

26. Kornegay JG, Kraut A, Manthey D, Omron R, Caretta-Weyer H, Kuhn G, et al. Feedback in medical education: a critical appraisal. AEM Educ Train. 2017;1(2):98-109. doi: https://doi.org/10.1002/aet2.10024

27. Jug R, Jiang XS, Bean SM. Giving and Receiving Effective Feedback: A Review Article and How-To Guide. Arch Pathol Lab Med. 2019;143(2):244-50. doi: https://doi.org/10.5858/arpa.2018-0058-RA

28. Montes LG, Rodrigues CIS, Azevedo GR. Assessment of feedback for the teaching of nursing practice. Rev Bras Enferm. 2019;72(3):663-70. doi: http://dx.doi.org/10.1590/0034-7167-2018-0539

29. Sarkany D, Deitte L. Providing feedback: practical skills and strategies. Acad Radiol. 2017;24(6):740-6. doi: https://doi.org/10.1016/j.acra.2016.11.023

30. Vestergaard LD, Løfgren B, Jessen CL, Petersen CB, Wolff A, Nielsen HV, et al. A comparasion of pediatric basic life support self-led and instructor-led training among nurses. Eur J Emerg Med. 2017;24(1):60-6. doi: https://doi.org/10.1097/MEJ.0000000000000294

31. Augusto JB, Santos MB, Faria D, Alves P, Roque D, Morais J, et al. Real-Time Visual Feedback Device Improves Quality of Chest Compressions: A Manikin Study. Bull Emerg Trauma. 2020;8(3):135-41. doi: https://doi.org/10.30476/beat.2020.83080

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