CIÊNCIAS DA VIDA E DA SAÚDE
LIFE AND HEALTH SCIENCES
CIENCIAS DE LA VIDA Y LA SALUD

millenium 65

Millenium, 2(16), 65-72.

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PERCEÇÃO DOS ENFERMEIROS SOBRE PRÁTICA SIMULADA EM SUPORTE BÁSICO DE VIDA NA PRÁTICA CLÍNICA
NURSES' PERCEPTION OF SIMULATION-BASED BASIC LIFE SUPPORT TRAINING IN CLINICAL PRACTICE
PERCEPCIÓN DE LOS ENFERMEROS SOBRE LA PRÁCTICA SIMULADA EN SOPORTE VITAL BÁSICO EN LA PRÁCTICA CLÍNICA

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RECEIVED: 25th April, 2021
ACCEPTED: 30th July, 2021

Rente, M., Costa, M., Pontes, M., Príncipe, F., & Mota, L. (2021).
Nurses' perception of simulation-based basic life support training in clinical practice. *Millenium, 2*(16), 65-72.
DOI: https://doi.org/10.29352/mill0216.24482

RESUMO

Introdução: A prática simulada em suporte básico de vida permite aos enfermeiros desenvolver as suas capacidades para intervir num contexto de emergência, solidificando procedimentos e garantindo a segurança na prática.
Objetivo: Compreender a perceção dos enfermeiros sobre prática simulada em suporte básico de vida na prática clínica.
Métodos: Estudo quantitativo, descritivo e correlacional. Os participantes foram 612 enfermeiros de diferentes instituições de saúde em Portugal. Os dados foram adquiridos através de questionário *online* e analisados com recurso ao *Statistical Package for the Social Sciences* (versão 21) com estatística descritiva e inferencial, de acordo com a natureza das variáveis.
Resultados: O estudo demonstra que os participantes têm uma perceção positiva das competências desenvolvidas na sua prática clínica, com valores médios de 4.56±0.71 na compreensão do algoritmo de suporte básico de vida, bem como 4.52±0.76 por considerarem um excelente contributo para a prática clínica e 4.51±0.74 numa melhor capacidade de avaliação das vítimas.
Conclusão: A prática simulada é uma ferramenta essencial na formação inicial e contínua dos enfermeiros. A promoção de um plano de prática simulada adequado em suporte básico de vida para enfermeiros apresenta um impacto positivo na prestação de cuidados, indo de encontro às reais necessidades do doente em paragem cardiorrespiratória.

Palavras-chave: simulação; reanimação cardiopulmonar; enfermeiros

ABSTRACT

Introduction: Simulation-based basic life support training allows nurses to develop their skills to intervene in an emergency context, solidifying procedures and ensuring safety in practice.
Objetive: Understand nurses' perception of simulation-based basic life support trainings in clinical practice.
Methods: Quantitative, descriptive, and correlational study. Participants were 612 nurses from different health institutions in Portugal. The data was collected through an online questionnaire, and analyzed using the Statistical Package for the Social Sciences (version 21) with descriptive and inferential statistics, according to the nature of the variables.
Results: The study demonstrates that the participants have a positive perception of the developed skills on their clinical practice, with mean values of 4.56±0.71 for understanding the basic life support algorithm, as well as 4.52±0.76 for considering it an excellent contribution to clinical practice and 4.51±0.74 for improved capacity to assess victims.
Conclusion: Simulation-based training is an essential tool in the initial and continuing education of nurses. The promotion of an adequate simulation-based training plan in basic life support for nurses has a positive impact on care provision, meeting the real needs of the patient in cardiorespiratory arrest.

Keywords: simulation technique; cardiopulmonary resuscitation; nurses

RESUMEN

Introducción: La práctica simulada en soporte vital básico permite a los enfermeros desarrollar sus capacidades para intervenir en contexto de emergencia, solidificando procedimientos y garantizando la seguridad en la práctica.
Objetivo: Comprender la percepción de los enfermeros sobre la práctica simulada en soporte vital básico en la práctica clínica.
Métodos: Estudio cuantitativo, descriptivo y correlacional. Los participantes fueron 612 enfermeros de diferentes instituciones de salud en Portugal. Los datos se obtuvieron mediante un cuestionario en línea y fueron analizados utilizando el Statistical Package for the Social Sciences (versión 21) con estadística descriptiva e inferencial, según la naturaleza de las variables.
Resultados: El estudio demuestra que los participantes tienen una percepción positiva de las competencias desarrolladas en su práctica clínica, con valores promedio de 4.56±0.71 en la comprensión del algoritmo de soporte vital básico, así como 4.52±0.76 por considerar una excelente contribución a la práctica clínica y 4.51±0.74 en una mejor capacidad para evaluar a la víctima.
Conclusión: La práctica simulada es una herramienta esencial en la formación inicial y continua del enfermero. La promoción de un adecuado plan de práctica simulada en soporte vital básico para enfermeros tiene un impacto positivo en la prestación de cuidados, dirigidos a las necesidades reales del paciente en parada cardiorrespiratoria.

Palabras clave: simulación; reanimación cardiopulmonar; enfermeros

INTRODUCTION

Cardiorespiratory arrest is one of the leading causes of death worldwide, with a global incidence of about 20 thousand people per day (Portuguese Cardiology Foundation, n.d.). Basic life support increases the probability of survival when initiated in the first moments after cardiorespiratory arrest; it comprises two actions: chest compressions and ventilation (Smith, 2017).

Recognizing and responding to a cardiorespiratory arrest situation is an event of great stress and anxiety for all nurses, requiring effective performance of cardiopulmonary resuscitation and response prioritization (Sok, Kim, Lee, & Cho, 2020).
Sudden events are present in nurses' daily life and these professionals must be ready to act and implement life-saving interventions. Simulation-based basic life support training provides an effective and safe environment for nurses to learn and practice the clinical skills necessary in emergencies (Morton, 2017).
Nurses are able to develop their capabilities to intervene in emergencies through simulation-based basic life support, solidifying procedures and ensuring practice safety. The simulation effects on nursing practice include greater knowledge of clinical competence, communication and clinical decision making skills, problem solving, and critical thinking (Kim & Choi, 2019).
This investigation study aims to understand nurses' perception of simulation-based basic life support training on the clinical practice of nurses, to emphasize its importance in skills acquisition.

1. THEORETICAL FRAMEWORK

In Portugal, every year, around 10 thousand people are victims of cardiorespiratory arrest Portuguese Cardiology Foundation, n.d.).
This epidemiological transition, to global phenomenon, must be considered in nurses' training programs for victim assistance in emergencies. Team performance may be improved by simulation-based basic life support trainings, executed in a safe environment (Armstrong, Peckler, Pilkinton, McQuade, & Rogan, 2021), in which the participants can learn from their mistakes.
The main goals of basic life support are cardiorespiratory arrest prevention and survival improvement after cardiopulmonary resuscitation. Survival chance after sudden cardiorespiratory arrest can be doubled or tripled if cardiopulmonary resuscitation is started quickly. For each minute of delay at the start of cardiopulmonary resuscitation maneuvers, the chances of survival decrease between 7 to 10% (Herbers & Heaser, 2016).
The priorities of cardiopulmonary resuscitation are defined by time and sequence of resuscitator responses, which are the immediate start of chest compressions, immediate defibrillation, and minimization of chest compressions interruptions (Chu & Robilotto, 2018). Resuscitation success and its neurological outcome depend on the efficient and successive implementation of these actions, so simulation-based basic life support training demonstrates positive results in nurses' clinical practice (Buléon et al., 2016).
Thus, even in institutions that have an in-hospital emergency team, all health professionals should have basic life support training to be able to act in situations of peri-arrest and cardiorespiratory arrest until the arrival of a defibrillator and/or specialized team (Vincelette, Quiroz-Martinez, Fortin, & Lavoie, 2018). Nurses are, most of the time, the first to respond to medical emergencies, so they should be confident to act and provide the required care when facing cardiorespiratory arrests; simulation-based basic life support training contributes positively to the development of these skills (Herbers & Heaser, 2016).
The basic life support course lasts four hours (European Resuscitation Council, n.d.). Regarding the recertification time, there is no consensus, however the interval of one year between training in basic life support is not enough for your quality execution by nurses (Everett-Thomas et al., 2016).
Simulation-based training increases the acquisition/consolidation of skills compared with traditional courses. Simulation-based training can be of low, medium, or high fidelity. Low-fidelity simulation is developed using role playing/case studies; medium-fidelity simulation involves realistic scenarios with simple mannequins; high-fidelity simulation uses realistic scenarios in situ or within simulation centers, using computer-controlled mannequins (Chu & Robilotto, 2018).
Compared with traditional trainings, high-fidelity simulation allows professionals to practice and apply skills in basic life support situations and to learn in a safe environment. Thus, frequent simulations improve basic life support skills (Halm & Crespo, 2018).
Simulation-based training in situ are a quick and efficient way of applying theoretical knowledge and developing muscle memory; it is also a great teamwork opportunity. Moreover, basic life support simulations significantly improve response time and increase the confidence of professionals (Herbers & Heaser, 2016).
The adequate performance of a basic life support team relies on technical and non-technical skills; non-technical skills are leadership, teamwork, proper task management, and interpersonal communication. Highly effective teams are associated with coordinated functions of leadership and clarity of responsibilities when dealing with cardiorespiratory arrests (Armstrong et al., 2021).
Teamwork is crucial and its development in simulation-based training is necessary for the effective evaluation of patients, due to increased specialization and complexity of care, risks associated with treatment options, and the need to ensure patient safety (Armstrong et al., 2021).
Effective resuscitation requires a coordinated response from several professionals. The quality of teamwork can affect results. Identifying an efficient procedure for in-hospital response to emergencies involves at least four teamwork functions: shared mental models, clarity of roles, communication, and workload management (Armstrong, et al., 2021).
Basic life support simulation with debriefing has positive effects on the way nurses control emotions, as well as performance and cognitive skills; moreover, it is an excellent pedagogical tool because due to being practical and objective, allowing the

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identification and understanding of the problems in implementing techniques and the proper training of professionals in emergencies. Continuous training in basic life support, carried out through simulation-debriefing, is an effective way to acquire adequate and long-lasting knowledge. The achieved satisfaction level is high since this learning method corresponds to professionals' expectations and it is similar to real clinical practice (Fraga-Sampedro, 2018).
The debriefing session after the practice ensures that professionals learn from the experience and value their participation in basic life support (Herbers & Heaser, 2016).

2. METHODS

This is a quantitative, descriptive, and correlational study.

2.1 Sample

The target population was Portuguese nurses; the sample was non-probabilistic and by convenience. The participants were 612 nurses who develop their practice in clinical health care contexts and accepted to participate in the study. Nurses who exercised their practice exclusively in the field of teaching were excluded from the study.

2.2 Data collection instruments and procedures

Data collection was carried out using the online questionnaire, available during June 2020.
The data collection instrument consists of two parts: Part 1 — sociodemographic characterization; and Part 2 — perception of simulation-based skills of basic life support. For socio-demographic characterization, the following characteristics were used: sex, age, educational qualifications, job category, area of specialization, years of experience, training in basic life support, the date of the last training in basic life support, the last training in basic life support attended–whether it was a formal training course in basic life support and if it was simulation-based. The second part of the questionnaire consists of 13 items, operationalized on a Likert-like scale that varies between semantic fields (1 — totally disagree; 2 — disagree; 3 — neither disagree / nor agree; 4 – agree; 5 — totally agree). The internal consistency value (Cronbach's Alpha) was 0.94.
Participation in the study was voluntary with guaranteed anonymity; the participants could withdraw from the study without any prejudice. The study was approved by the Ethics Committee (Protocol 08/2020).

2.3 Statiscal analysis

For statistical analysis, descriptive and inferential statistics were used with the statistical Package for the Social Sciences Program version 21. All questions were answered by the participants. Data normality was verified with the Shapiro-Wilk test. The perception of simulation-based skills of basic life support were correlated with the categorical variables using the Pearson correlation coefficient. The significance level was set at $p < 0.05$.

3. RESULTS

Regarding the sociodemographic characteristics of the 612 participants (Table 1), we found that they were on average 39.9±9.8 years old — the youngest was 22 and the oldest was 64 years old. Most of them were female (79.7%) The overall qualification degree was licensed; Medical-surgical Nursing was the most frequent specialization. They had an average of 16.3±10.1 years of professional experience, ranging from 0 to 44 years.
Most participants of the study work in Urgency and Emergency sectors.

Table 1 – Sociodemographic characterization of nurses.

Variable	N	%
Qualifications		
Bachelor	2	0.3
Licensed	479	78.3
Master	127	20.8
PhD	4	0.7
Professional Category		
Nurse	373	60.9
Specialist Nurse	231	37.7
Nurse Manager	8	1.3
Nursing Specialties		
Medical-Surgical	109	17.8
Rehabilitation nursing	44	7.2
Community health nursing	40	6.5
Psychiatric nursing	15	2.5
Pediatric nursing	31	5.1
Obstetrical nursing	22	3.6

Most nurses claim to have basic life support training (98.2%), and on average the last training occurred 3.4±3.48 years ago (ranging from 0 to 30 years ago).
Regarding the last basic life support training, 90.8% of the nurses reported that it was a formal course and 97.7% of them were simulation-based.
Regarding the acquired skills in simulation-based training, the participants presented higher mean values of understanding the basic life support algorithm and considering it an excellent contribution to clinical practice — mainly in better evaluating the victim (Table 2).

Table 2 – Descriptive statistics of simulation-based skills.

Simulation-based skills	Minimum	Maximum	Mean	Standard deviation
Contribution of regular basic life support skills training on my clinical practice	1	5	4.52	0.76
Understanding of the basic life support algorithm	1	5	4.56	0.71
Knowledge of the European Resuscitation Council guidelines	1	5	4.23	0.96
Capacity of assessing victims	1	5	4.51	0.74
Improvement of my technical and non-technical skills	1	5	4.48	0.76
Teamwork	1	5	4.27	0.85
Self-confidence	1	5	4.11	0.96
Positive feedback after simulation-based training	1	5	4.31	0.82
Realism of basic life support activities	1	5	4.06	0.91
Realism of clinical cases	1	5	4.08	0.89
Realism of simulation-based training	1	5	4.03	0.92
Realism of stress level	1	5	3.04	1.07
Relevance of simulation-based basic life support practical courses	1	5	3.97	0.97

The lower mean value is related to the simulation realism of the stress level, which are higher in clinical practice than in basic life support trainings.
The Pearson correlation (*r*) verified that the different variables present a significant and negative correlation with age and professional experience (Table 3).

Table 3 – Correlation matrix of the variables with age and professional experience.

Simulation-based skills		Age	Professional experience
Contribution of regular basic life support skills training on my clinical practice	*r*	-.183**	-.159**
Understanding of the basic life support algorithm	*r*	-.200**	-.175**
Knowledge of the European Resuscitation Council guidelines	*r*	-.197**	-.177**
Capacity of assessing victims	*r*	-.130**	-.110**
Improvement of my technical and non-technical skills	*r*	-.165**	-.143**
Teamwork	*r*	-.165**	-.153**
Self-confidence	*r*	-.174**	-.163**
Positive feedback after simulation-based training	*r*	-.216**	-.196**
Realism of basic life support activities	*r*	-.092*	-.075
Realism of clinical cases	*r*	-.139**	-.121**
Realism of simulation-based training	*r*	-.135**	-.119**
Realism of stress level	*r*	.055	.043
Relevance of simulation-based basic life support practical courses	*r*	-.119**	-.121**

* Significant correlation for $p = 0.05$.
** Significant correlation for $p < 0.001$.

We found that as the age and professional experience of the participant's increases, they recognize less impact of simulation-based basic life support trainings in their clinical practice in the different variables evaluated. Age and experience did not correlate with realism of stress level in simulation-based training.

4. DISCUSSION

Data analysis of knowledge and skills acquired in simulation-based basic life support training show that recurring training contributes to the clinical practice of nurses (Colquitt, Walker, & Haney, 2019; Whitmore et al., 2019).

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We found with the assessment of the data that simulation-based training of basic life support promotes better capacity of assessing victims, with high mean values that are corroborated by the evidence (Halm & Crespo, 2018) and improves technical and non-technical skills (Kim & Choi, 2019; Więch et al., 2019).

We noticed from the analysis of the collected data that simulation-based training encourages teamwork, as evidenced in the studies by Colquitt et al. (2019) and Halm & Crespo (2018), which increases nurses' self-confidence in non-technical skills, such as interpersonal communication (Kim & Choi, 2019; Morton, 2017).

In the data analysis, we can also verify that nurses gave positive feedback after receiving simulation-based basic life support training, as evidenced by Kim, & Choy (2019), since the activities and clinical cases of simulation-based basic life support were realistic, as in the studies by Halm & Crespo (2018) and Whitmore et al., (2019).

Although nurses' answers do not present high mean levels regarding the level of stress, the evidence argues that simulation-based training decreases stress levels experienced by nurses in real contexts (Sok et al., 2020).

From the data analysis, it appears that the simulation-based courses have a greater impact on clinical practice of nurses than conventional trainings, as corroborated by other studies (Halm & Crespo, 2018; Kim & Choi, 2019).

Since cardiorespiratory arrest is a sudden event that requires priority response and cardiopulmonary resuscitation, the simulation-based basic life support training allows nurses to develop skills to intervene in emergencies, with a high analyzed mean value. The acquired and consolidated skills contribute not only to teamwork, but also help team members to focus on the care priorities during cardiopulmonary resuscitation and situation management (Colquitt et al., 2019; Halm & Crespo, 2018; Whitmore et al., 2019).

Regarding basic life support, simulation-based training increases performance effectiveness and develops critical thinking and decision-making skills, which promote confidence in clinical nursing practice, attesting the mean values obtained, increasing nurses' satisfaction and competence (Halm & Crespo, 2018; Kim & Choi, 2019; Whitmore et al., 2019).

However, the statistical analysis showed that as the age of participants and professional experience increase, professionals recognize less impact of simulation-based trainings on their skills. So, the simulation-based models of basic life support training should be rethought to better develop skills throughout the entire professional cycle of nurses.

Basic life support training with simulation improves nurses' competence and performance times in resuscitation situations, proving with evidence, which promotes the reduction of complications during provision of care, as well as the difficulties experienced in sudden events (Fraga-Sampedro, 2018; Whitmore et al., 2019). Therefore, it is important to include Good Training Guides when planning simulation-based courses.

Nurses reported that the acquisition/consolidation of basic life support skills was significantly positive in simulation-based trainings, with high mean values, compared with conventional trainings. Frequent simulation-based training improves skills and prevents their degradation (Halm & Crespo, 2018).

High fidelity simulation-based training with advanced software and realistic scenarios provides clinical realism to basic life support formation, which promotes the understanding and involvement of nurses (Everett-Thomas et al., 2016; Halm & Crespo, 2018; Whitmore et al., 2019).

Basic life support simulations do not replace real experience, but it is of higher fidelity compared with other training methods (Fraga-Sampedro, 2018).

Analyzing the knowledge and skills acquired by nurses in simulation-based basic life support trainings, we found that they positively perceive the benefit for clinical practice.

CONCLUSION

Simulation-based learning is an essential tool in the initial and continuous training of nurses, crucial to maintain and train basic life support skills. The training situations should be as realistic as possible, in a pedagogical and safe environment.

The representation of clinical reality and stress environments are fundamental in the context of cardiorespiratory arrest. In situations of cardiopulmonary resuscitation, the simulated training appears as one of the most promising pedagogical options, since it overcomes the difficulties in adequately training nurses to act under stress in sudden events. It is an effective improvement in safety, efficacy, and nursing care in basic life support to critical patients. To ensure the efficiency of training, it is necessary to develop clinical cases that can transport the trainee to a reality similar to sudden events, whether in incidents, difficulties, or stress.

Simulation-based trainings should be implemented unequivocally, whether in initial or continuous trainings, because they provide active and systematic learning experiences, enhancing the development of technical and non-technical skills, such as interpersonal communication and teamwork. Allowing nurses to demonstrate their knowledge, skills, attitudes, and behaviors in a safe environment.

Simulations create an integrated vision that facilitates the balance between the adequate provision of care, the fulfillment of basic life support, and the correct execution of the maneuvers.

Adequate simulation-based training in basic life support for nurses has a positive impact on the provision of care that meets the real needs of patients suffering from cardiorespiratory arrest.
Nurses should rely on these practices to answer questions regarding cardiorespiratory arrest. In nursing, research is indispensable to allow the acquisition of skills that contribute, not only to improve people's quality of life, but also to recognize and appreciate the nursing profession. In future studies, it is important to analyze the impact of planning of basic life support trainings, using good training guides to develop nurses' clinical skills.

ACKNOWLEDGEMENTS

We thank all participants who dedicated themselves to this study and the translators for their work.

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