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Construction and Validation of Simulated Basic Life Support Scenarios in Primary Care

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Abstract

In Primary Care, the practice and mastery of Basic Life Support are indispensable in responding to urgencies and emergencies. This study aimed to build and validate two simulated Basic Life Support (BLS) clinical scenarios of medium fidelity in the context of Primary Care. This was a descriptive study for the construction and validation of the content. The scenarios were elaborated following seven criteria: prior knowledge of the student; learning objectives; theoretical foundation of the activity; preparation of the scenario; development of the scenario; debriefing; and evaluation. The following scenarios were constructed: Cardiorespiratory arrest in adult patients in Primary Care and Foreign-Body Airway Obstruction in adult patients in Primary Care. To validate them, medical experts or nurses with experience in clinical simulations and BLS, and possessing at least a master's degree, were selected to judge according to the Content Validation Index (CVI). Most of the judges were between 35 and 45 years old, comprised of nurses, with teaching experience in the area of simulations and BLS. The scenarios obtained, in all items, a CVI between 85.7% and 100%. The construction and validation of clinical simulation scenarios emphasizing BLS and Primary Care, based on criteria previously addressed in the literature, bring greater reliability to the scenarios themselves. In addition, they allow the possibility of its reapplication by other professionals, aids, teachers, or scholars who develop activities in the clinical simulation area, thus, saving time with construction which would be based on a pre-established and validated scenario model.

Key words: Primary Health Care. Cardiopulmonary resuscitation. Simulation Training. Validation Study.

INTRODUCTION

Public health systems, which value the universality of access, as is the case with the Unified Health System (SUS), have their essence based on the idea that health is everyone's right. In Brazil, the Federal Constitution and Law No. 8080, of September 19, 1990, state that it is the State's obligation to provide for the full exercise of this right[1]. In this context, in 2003, the National Emergency Care Policy emerged as an attempt to improve and guide the dialogue between the levels of complexity of the Unified System in order to reduce the effects of the gaps found in the regions of the country[2].

In Brazil, the need to ensure the law of

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universal access to the health system is a significant challenge for management and public health policy makers[3]. The disparate reality in the provision of health services, especially regarding emergencies, in Brazilian territory, requires enthusiasm and innovation related to the organization of this system. With this in view, the Ministry of Health reformed the National Emergency Care Policy, establishing the Urgency and Emergency Care Network in SUS[4].

The Urgency and Emergency Care Network, considering the country's epidemiological and demographic profile, acts as a complex network that serves different clinical conditions through its components, arranged in an integrated and synergistic way[4]. Therefore, it establishes the following components: Health Promotion, Prevention and Surveillance; Primary Health Care; Mobile Emergency Care Service (SAMU 192) and its Emergency Medical Regulation Centers; Stabilization Room; SUS National Health Force; Emergency Care Units (UPA 24h); and a set of 24-hour emergency, Hospital, and Home Care services[5]. Primary Health Care aims to provide first assistance to crises and emergencies, until the transfer or referral to other points of care, expanding access, strengthening bonds, as well as being responsible for the care of SUS users[4].

Therefore, according to the National Primary Care Policy, which serves as the preferred gateway to SUS[5], the training of professionals in terms of crises and emergencies is essential. It is important to highlight the Basic Health Unit (BHU), the main physical structure of Primary Care, as an eligible place for pre-hospital care that requires Basic Life Support (BLS). In order to carry out these initial consultations, the observation room is an ideal alternative as an environment of the BHU destined to these cases[5].

In order to improve in the desired training for Primary Care professionals, clinical simulations emerge as an active learning method that makes it possible to experience a real event from a representative and controlled scenario in order to learn, train, and evaluate situations[6]. In the area of health, this method is a relevant contribution to the training of professionals, given that it acts at critical points for meeting crises/emergencies in general, such as the reduction of errors, increasing self-confidence, decision-making, psychomotor and cognitive diligence, in addition to expanding skills and abilities[7,8].

Regarding the representative scenario in the context of crises/emergencies, this circumstance may have varying fidelity, that is, the degree of similarity with the real event[7]. Thus, the clinical simulation scenario is an opportune instrument for meaningful learning, given that it needs a serious and emblematic background for its construction, which includes the elements that will compose the scene, the proposal of the health situation, as well as the purposes and the expectations of figurative reality.

When it comes to the construction of a simulation scenario, it is essential that this process is systematized, which is still the subject of many scientific studies today. The primary intention is that well-planned clinical scenarios can closely mimic reality to the learner, providing them with the previously described experiences[9].

Likewise, the validation of these simulated scenarios comprises an important mechanism for judging their learning objective, as well as the other items related to them[9]. In the practical context, both in universities and in health services, the training of students, doctors, residents, and other health professionals requires the planning and evaluation of the teaching and learning

strategies used in the training processes.

In this perspective, when considering clinical simulations as a potential strategy for training to cope with situations that require the use of competences and skills related to BLS, it is essential to make use of well-structured and validated scenarios by specialists. This validation can contribute to ensuring that the learning objectives can be achieved and that the experience is significant. Thus, the study aimed to build and validate, in terms of content, two medium-fidelity clinical simulation scenarios of BLS medical care in the context of Primary Care.

METHODOLOGY

This was a descriptive study, of construction and content validation, of two clinical simulation scenarios with an emphasis on BLS for adults. It is worth noting that the results of this study are part of the research entitled "Cognitive performance, satisfaction and self-confidence of medical students from clinical simulation", developed in the Postgraduate Program in Teaching, Working and Innovation in Medicine at the Federal University of Rio Grande do Norte. The stages of the study were carried out between the months of February and March 2020.

All ethical aspects set out in Resolution No. 466/2012 of the National Health Council of the Ministry of Health were considered. The project was submitted to and approved by the Research Ethics Committee (CEP) of the Federal University of Rio Grande do Norte under the Opinion No. 3.673.949 and CAAE 23719719.6.0000.5537.

Scenario development

Initially, to direct the construction of the scenarios, an initial study was carried out of the BLS guidelines of the American Heart Association (AHA) and the Brazilian Society of Cardiology[10,11,12], considering the period from 2015 to 2019. Two simulation scenarios were built: Cardiorespiratory arrest (CRA) in adult patients in Primary Care, and Foreign-Body Airway Obstruction (FBAO) in adult patients in Primary Care.

Subsequently, after reading the theoretical frameworks, the scenarios were structured. The scenarios were designed according to the criteria of Fabri and collaborators[13], which take into account the following aspects: a) previous knowledge of the student; b) learning objective; c) theoretical foundation of the activity; d) preparation of the scenario; e) development of the scenario; f) debriefing; and g) evaluation.

To fill out in this information, the reports and memories of users' characteristics who attended the BHU were sought, as well as the structural issues of the health system in the region of the authors. To proceed with the construction of the learning objectives, Bloom[14] taxonomy and the SMART[15] structure were used. After the initial construction, a careful reading of the various elements of the scenario was carried out. At the end, the judges were selected to receive an invitation to validate the content.

Selection of judges

For the selection of judges, the literature points out as a recommendation, six to twenty specialists. Initially, a list of judges was drafted - by the researcher - based on their network. Initially, a total of 20 judges

were listed based upon the following criteria: being a doctor or a nurse; having experience in the area of clinical simulation and experience with BLS; and having, at least, master's degree in the area of health. Judges who did not respond to emails sent and/or those who partially responded to scenarios were excluded.

Data collection instruments

After this procedure, the judges were invited, via e-mail, to participate in the validation process. They had 15 days to evaluate the two scenarios. Each judge received, in their e-mail, two instruments: a document containing the scenario and the scale of agreement, and an instrument of sociodemographic characterization.

A sociodemographic characterization tool elaborated by the authors was created using the following variables: name; age; sex; academic training; highest degree; professional category; professional activity (current) and time of exercise; experience in clinical simulation (if so, how long); experience in the BLS area (teaching and or assistance) and if so, how long. For this characterization, simple descriptive statistics (relative and absolute frequencies) were used.

Validation

For validation, the Content Validation Index (CVI)[16] was used, which uses a Likert-type scale with scores from one to four: 1 - I totally disagree; 2 - partially disagree; 3 - partially agree; 4 - I totally agree, where scores of three and four were considered representative. For this validation, the CVI score was calculated by adding the agreements that were marked by "3" or "4" by the specialists.

In addition, items with values of one and two were revised when the item's CVI was inferred from that adopted in the study. The CVI was calculated as follows: CVI = number of responses with a three or four / total number of responses. A CVI greater than or equal to 0.80 was considered minimally acceptable16. Due to the degree of agreement adopted, there was no need for a second round of evaluation.

Data analysis

The data were analyzed, and the responses were organized in an Excel® spreadsheet. A sociodemographic analysis of the instrument was carried out containing the scenario and the agreement scale.

RESULTS

Tables 1 and 2 show the validated scenarios. Here, the participants' previous experiences, the learning objectives (primary and secondary), the duration of the scenario, the resources, the preparation of the scenario, the development, the debriefing, and the evaluation are described.

Validation of simulated scenarios

Among the 20 invited judges, seven returned the scenario validation instruments. Most of the judges (71.4%) were between 35 and 45 years old, were in the professional category of Nursing (85.7%), had a doctorate as a maximum degree (57.1%), worked

as a professor (42.9%), with professional experience of up to 14 years (85.8%), had experience in the simulation area (85.7%) for five to eight years (57.1%), and had over 13 years (42.9%) of experience with BLS (100%). The sociodemographic characterization is described, below, in Table 1.

The CVI is described for each item in each scenario in table 2. For the CVI calculation, the responses "partially agree" and "totally agree" that the evaluators indicated for each item were considered.

Table 1 – Cardiorespiratory arrest in adult patients in Primary Care. Caicó (RN), Brazil, 2020.

Item	Cardiorespiratory arrest scenario in adult patients in Primary Care
1. Previous experience of the participant	Scenario developed for simulated acting of medical care. The previous experiences of CRA patient care of each participant will be discussed in the briefing.
2. Primary learning objectives	Experiencing a CRA situation in adult patients within the scope of Primary Health Care. Secondary learning objectives Identify the patient in CRA; Perform high-quality chest compressions; Use the principles of biosafety; Work as a team; Coordinate the interprofessional work of assisting the CRA; Plan and execute activities at appropriate times from the BLS survival chain.
3. Duration of the scenario	The average duration will be 30 minutes.
4. Human resources	A medical professor with experience in BLS and experience in clinical simulations; A laboratory technician; A student.
5. Scenario preparation	Proposed theme: "Cardiorespiratory arrest in adult patients in the context of PHC" Medical diagnosis of the simulated patient: adult CRA
Scenario fidelity:	medium-fidelity
Clinical case:	Today is Friday, a day of attending the unscheduled/emergency consultations at the Family Health Center (FHC) Nova Conquista. You are the doctor of health team 1. You work in a team with a nurse, nursing technician, community health workers, dentist, and oral health technician. You are attending at your office and the community health agents are in a reserved environment waiting for the next appointments together with the patients. The FHC is full, and it is early in the morning. A community health agent calls Mr. José to be seen. He is a 77-year-old man, with an emergency consultation, who is hypertensive, with vital signs measured and who was feeling bad with so many people in one environment. While you wait, Mr. José falls to the ground, found unconscious.
Physical exam:	General: unconscious patient. Respiratory system: patient with abnormal, agonized breathing. Airways without obstruction, without falling back of the tongue. Cardiovascular system: No pulse. BP: 150x100 mmHg (prior to CRA).
Conduct:	the patient must be evaluated and treated according to the BLS protocol. Script for student/patient training (simulated patient): You are a 77-year-old patient, named José, and are at the FHC Nova Conquista for medical care. You are married, born and raised in Caicó, retired rural worker, you have three children, and went alone to the FHC. While waiting to be seen at the doctor's office, you will report that you are having a sudden discomfort, that you are not feeling well with the full FHC, holding your hand to your chest, and will fall to the floor.
Characterization of the actor:	The student/patient will be characterized with clothing normally used in Family Health Centers by elderly patients, with dress pants, short-sleeved shirt, and sandals. Make-up will be used to simulate aging. The nursing technician will be available at the FHC if the student needs it, as well as the Automatic External Defibrillator (AED) and the bag-mask device. The nursing technician has no previous experience in BLS and, if requested help, should mention the lack of knowledge in performing cardiopulmonary resuscitation maneuvers.

Item	Cardiorespiratory arrest scenario in adult patients in Primary Care

Material resources:
- A dress pants;
- A short-sleeved shirt with buttons;
- A pair of sandals;
- A low-fidelity CRA simulator;
- Bag valve mask device;
- Oropharyngeal airway;
- A cell phone;
- Chairs;
- Doctor's office table;
- Make-up.

Physical space: the premises of the Clinical Skills Laboratory of the Multicampi School of Medical Sciences of Rio Grande do Norte.

6. Scenario development
Evolution of the clinical case in the waiting room and management of patients in cardiac arrest according to the BLS proposed by the American Heart Association[10,11].

7. *Debriefing*
Debriefing will be carried out in a structured manner according to Coutinho[17]. The three phases proposed are reaction, analysis, and synthesis:
1. Initially, the health team will describe the scenario used;
2. The scenario participants will talk about their feelings and their reactions to what happened in the simulation;3. Os aspectos positivos que ocorreram na simulação serão potencializados;
3. The positive aspects that occurred in the simulation will be enhanced;
4. The analysis and reflection of the aspects experienced in the simulation to be improved will be carried out;
5. The possibilities of applying the content in professional practice will be discussed.

8. Assessment
- Knowledge assessment;
- Self-confidence assessment for emergency action proposed by Martins et al.18;
- Student Satisfaction Scale and self-confidence in learning proposed by Almeida et al.19;
- Skills assessment.

9.

CONDUCT	YES	PARTIALLY	NO
Checks site security			
Touch the shoulders			
Calls out loud			
Checks the carotid or femoral pulse in a maximum of ten seconds			
Exposes the chest			
Evaluates breathing			
Call or ask them to call 192 (or local emergency service)			
Order Automatic External Defibrillator (AED)[1]			
[1]Jump to * as soon as the AED is available			
Leans on the patient			
Does not bend the elbow			
Maintains three support points on the floor			
Places their hands on the lower half of the sternum (hypotenar region of the interlaced hand, intermamillary space or three fingers above the xiphoid appendix)			

CONDUCT	YES	PARTIALLY	NO
Does 30 compressions			
Compresses at a minimum depth of five centimeters and a maximum depth of six centimeters			
Opens the airways head-tilt-chin-lift or with a Guedel pattern airway			
Applies two one-second breaths and chest elevation			
Applies chest compressions at a frequency of 100 to 120/min			
Maintains compressions/ ventilations for two minutes or five cycles			
Minimizes interruptions in chest compressions to less than ten seconds			
Turns on the AED *			
Positions the AED paddles on the chest *			
Connects the AED cable *			
Checks if everyone is away for the rhythm analysis *			
Checks that everyone is away before delivering the shock *			
Applies the shock *			
Restarts chest compressions after shock *			
Prompts ECG to be performed after CRA			
Requests body temperature check			
Keeps the temperature between 32º and 36ºC			
Corrects hypotension (systolic blood pressure less than 90 mmHg, mean arterial pressure less than 65 mmHg)			
Corrige a hipotensão (pressão arterial sistólica menor que 90 mmHg, pressão arterial média inferior a 65 mmHg)			

Table 2 – Foreign-Body Airway Obstruction in Adult Patients in Primary Care. Caicó (RN), Brazil, 2020.

Item	Scenario Airway obstruction by a foreign body in adult patients in primary care
	1. Previous experience of the participant Scenario developed for acting in simulation of medical care. The previous experiences of patient care in FBAO of each participant will be discussed in the briefing. **2. Primary learning objectives** Experiencing a situation of airway obstruction by a foreign body in adults within the scope of Primary Health Care. **Secondary learning objectives** Identify the adult with an obstructed airway by a foreign body; Encourage vigorous coughing in adults with obstruction of the airways by a foreign body; Perform the Heimlich maneuver effectively; Plan and execute activities at appropriate times starting from the BLS. **3. Scenario Duration** The average duration will be 30 minutes. **4. Human Resources** A medical professor with experience in BLS and experience in clinical simulation; A laboratory technician; A student. **5. Scenario preparation** **Proposed theme:** "Foreign-body airway obstruction in adult patients in the context of PHC" Medical diagnosis of the simulated patient: airway obstruction by a foreign body in an adult **Scenario fidelity:** medium-fidelity **Clinical case:** Today is Wednesday, home-visit day for patients of health team 2 of the FHC Nova Conquista. You are the doctor of health team 2. You work in a team with a nurse, nursing technician, community health workers, dentist, and oral health technician. You are taking care of Madalena, 90 years old, at the home of her son Marcos, 67 years old. It is early in the morning and Marcos is having breakfast. While you are checking Madalena's blood pressure, Leandro, Marcos' son, notices that he is choking on his food, puts his hands on his neck and asks him for help. **Physical exam:** **Phase 1** General: conscious patient. He speaks with difficulty. Universal distress signs. Respiratory system: RS - bilateral vesicular murmur. Airway with an obstruction. Patient coughs when asked. **Level 2** General: conscious patient. Patient with difficulty breathing and does not speak. Respiratory system: RS - bilateral vesicular murmur. Airway with an obstruction. Patient with silent cough. **Conduct:** the patient must be evaluated and treated according to the BLS protocol. **Script for student/patient training (simulated patient):** You are a 67-year-old patient, called Marcos, and you are at your mother's house during the home visit of the health team of the FHC Nova Conquista. You are married, born and raised in Caicó, retired and have four children. While you are having your breakfast, you will choke on the food and gesture to your son Leandro that you are choking. **Characterization of the actor:** the student/patient will be characterized with clothing normally used in the home environment by adult male patients, such as shorts and shirt. Make-up will be used to simulate aging. The nursing technician will be available during the visit if the student needs it. The nursing technician has no previous experience in BLS and, if requested help, should mention the lack of knowledge in performing relief maneuvers for patients with airway obstruction.

Item	Scenario Airway obstruction by a foreign body in adult patients in primary care

Material resources:
- A pair of shorts;
- A short sleeve t-shirt or shirt;
- A pair of sandals;
- A table;
- Three chairs;
- A plate;
- Cutlery;
- A bread;
- A glass of water;
- An apple;
- Make-up.

Physical space: the premises of the Clinical Skills Laboratory of the Multicampi School of Medical Sciences of Rio Grande do Norte.

6. Scenario development
Evolution of the clinical case at home and management of an adult with an airway obstruction by a foreign body according to the BLS proposed by the American Heart Association[10,11].

7. *Debriefing*
Debriefing will be carried out in a structured manner according to Coutinho[17]. The three phases proposed are reaction, analysis, and synthesis:
1. Initially, the health team will describe the scenario used;
2. The scenario participants will talk about their feelings and their reactions to what happened in the simulation;
3. The positive aspects that occurred in the simulation will be highlighted;
4. The analysis and reflection of the aspects experienced in the simulation to be improved will be carried out;
5. The possibilities of applying the content in professional practice will be discussed.

8. Assessment
- Knowledge assessment;
- Self-confidence assessment for emergency action proposed by Martins *et al.*[18];
- Student Satisfaction Scale and self-confidence in learning proposed by Almeida *et al.*[19].
- Skills assessment.

9.

CONDUCT	YES	PARTIALLY	NO
Checks site security			
Evaluates the ability to cough			
Evaluates respiratory difficulty			
Evaluates patient responsiveness			
Evaluates stridor			
Positions behind the patient			
Place one hand closed on the upper abdomen between the navel and the rib cage			
Place the other hand on the closed fist			
Pulls both hands inwards and upwards			
Observes whether the object has been expelled			
Observes if the victim breathes			
Repeat the maneuver up to five times in a row			

Table 1 – Sociodemographic characterization of the evaluators (n = 7). Caicó (RN), Brazil, 2020.

Variable	n (%)
Age range	
24 - 34 years	1 (14.3)
35 - 45 years	5 (71.4)
46 - 54 years	1 (14.3)
Academic education	
Nursing	6 (85.7)
Medicine	1 (14.3)
Highest degree	
Master's degree	3 (42.9)
Doctorate degree	4 (57.1)
Professional performance	
Assistant nurse	1 (14.3)
Professor	3 (42.9)
Assistant nurse and professor	2 (28.6)
Physician's assistance and professor	1 (14.3)
Time of professional experience	
1 - 7 years	3 (42.9)
8 - 14 years	3 (42.9)
Over 14 years	1 (14.3)
Simulation experience	
Yes	6 (85.7)
No	1 (14.3)
Time of simulation experience	
1 - 4 years	1 (14.3)
5 - 8 years	4 (57.1)
> 8 years	1 (14.3)
Time of BLS experience	
Yes	7 (100.0)
No	-
Time of BLS experience	
1 - 4 years	2 (28.6)
5 - 8 years	1 (14.3)
9 - 13 years	1 (14.3)
> 13 years	3 (42.9)

Table 2 – Content Validity Index (%) by scenario among the experts (N = 7). Caicó (RN), Brazil, 2020.

Itens*	CRA Scenario					FBAO Scenario				
	1	2	3	4	IVC (%)	1	2	3	4	IVC (%)
Previous experience of the participant		1	1	5	85.7		1	1	5	85.7
Learning objectives			3	4	100			1	6	100
Scenario Duration		1		6	85.7		1		6	85.7
Human Resources		1	2	4	85.7		1	1	5	85.7
Scenario Preparation	1		2	4	85.7		1	1	5	85.7
Scenario Development			2	5	100				7	100
Debriefing			1	6	100			1	6	100
Assessment			1	6	100			1	6	100
Check list			3	4	100			2	5	100

*As proposed by Fabri *et al.*[13].

DISCUSSION

Two scenarios of adult BLS clinical simulations in the context of Primary Care were constructed and validated. It is worth noting that the construction of a simulation scenario is an activity that is difficult to execute, with few references in the literature regarding specific criteria or scripts for the development of the scenarios[9].

In this study, the framework that the authors use in their daily activities in a simulation center in the Northeast of Brazil was adopted. The criteria of Fabri *et al.*[13] identified seven significant items (prior knowledge of the learner, learning objectives, theoretical foundation, scenario preparation, scenario development, debriefing, and evaluation) that served as a roadmap for building a clinical simulation scenario.

The importance of the Fabri *et al.*[13] criteria lies in the fact that it works with meaningful learning, especially in the learner's prior knowledge, as well as for being in accordance with the guidelines of the International Nursing Association for Clinical Simulation and Learning[20] concerning the construction of a clinical simulation, which considers the construction of objectives, preparation, and the need for pilot testing of the scenario, evaluation, and debriefing. Other elements are clear and succinct pre-briefing, determination of participants' prior knowledge or level of experience, adequate fidelity simulators for the simulation, active learning methodologies, and support materials for the simulation participants[20].

Content validation is performed by a group of specialists and based on criteria such as education and professional training16. Training in both areas, clinical simulations and BLS were some of the criteria used by the authors in the search and eligibility of the judges. This last finding is similar to that of other construction and/or validation studies of simulation scenarios with a stage of validation by experts[9,21,22,23,24].

The content validation process requires

the choice of quantitative or qualitative procedures. Among the first ones that can be mentioned are the percentage of agreement, the Kappa coefficient, and the CVI[16]. In this study, the CVI was used and, in both scenarios, in all items, it was possible to obtain CVIs higher than the minimum desirable score. This finding also followed previous studies published in the literature[9,21,22,23,24].

Regarding the participants' previous experience, in both scenarios, there was only partial disagreement. In the item, the insertion of an orientation on how the professors should work at the briefing and the choice of pedagogical practices was suggested. The suggestion was not incorporated into the scenario as this recommendation should be at the discretion of professors and their pedagogical planning, and by obtaining an 85.7% CVI.

However, it is important to highlight that the briefing must be carried out before the start of a simulation in order to provide the preparatory information to the participants in the simulation session. The presentation of the scenario and its possibilities can facilitate the understanding of the learning objectives in the execution and safety of the scenario[20,25]. Studies have also pointed out their contribution in reducing anxiety and improving the learner's performance and self-confidence[20,25,26].

As for the learning objectives, both scenarios achieved a CVI of 100%. For the construction of a clinical simulation scenario, elements such as the learning objectives and the results must be started so that the objectives lead to the results[20]. Learning objectives must be based on Bloom's Taxonomy and the acronym S.M.A.R.T., that is, they must be specific, measurable, achievable, realistic, and tangible at the appropriate time[25]. Bloom's taxonomy provides guidelines for developing and leveling objectives for expected learning outcomes. In it, the objectives can be of an affective, cognitive, and psychomotor nature[14].

The results, on the other hand, must be constructed based on the Kirkpatrick model, which presents four levels of evaluation: reaction, that is, the participants' satisfaction with the simulation; learning, that is, the measurement of knowledge, skills and attitudes added with the simulation; behavior, that is, the change in behavior of the participants resulting from the simulation; results, that is, what was gained in terms of improvement with quality and safety as well as the return on investment with the simulation[20].

As for the duration of the scenarios, it is important that the facilitator takes into account the learning objectives. In the scenarios presented in this study, the suggested time was 30 minutes to complete all the steps. In this regard, the literature recommends that the session is not extensive, and it is recommended to double or triple the scenario time in the debriefing session. That is, if the scenario was executed in ten minutes, it is important that the debriefing lasts between 20 and 30 minutes[19]. In the study, only one of the evaluators indicated a partial disagreement in the allocation of time.

As for human resources, it is important to foresee who and how they will be able to assist in the execution of the scenario. In some laboratories and or simulation centers, especially in the Brazilian context, it is still common to encounter professors who do not have any training in clinical simulations. Therefore, it is necessary to count on the specialized technical support to control and program the simulators and/or to support the educator in methodological issues of structuring, assembly, and execution of

simulated scenarios. In BLS scenarios, the use of simulators is essential. However, one can also choose to hybridize the scenarios with actors - to stage initial situations of crises and emergencies - and simulators - for the execution of procedures related to the planned situations. When making the choice to use actors, it is important that they are trained in advance. In this item, the CVI was 85.7% in both scenarios.

In the items referring to development, debriefing, evaluation, and checklist, in both scenarios, the CVI was 100%. Regarding these steps, it is important that the facilitators foresee all questions regarding the conduction of the scenario and its outcomes, guiding questions for debriefing based upon the adopted theoretical framework, the instruments and types of evaluation (scales, perception of the students and the facilitator, skills assessment, feedback, etc.), as well as the skills and abilities that need to be improved and/or that have been developed by the learner.

Although, in the constructed and validated scenarios, a theoretical framework for debriefing has been suggested, there are several models of conducting this stage of a simulated clinical experience in the literature. It is important that the facilitator knows the various methods and models and makes use of what they deem most relevant and appropriate to their practice and learning objectives.

The limitations of this study, with regards to the sample, were the limited number of judges and the uneven distribution among their areas of training (Nursing and Medicine). However, the minimum number of judges recommended by the literature adopted in the study was considered. In Brazil, there is still a shortage of medical and health professionals trained in clinical simulations. Moreover, as there is a scarce number of publications involving the validation of simulation scenarios for Primary Care, it was difficult to compare them with similar studies. In relation to the CRA scenario, one limitation presented was not continuing with the post-resuscitation care, which usually occurs in clinical practice.

CONCLUSION

In this work, two adult BLS simulation scenarios were constructed and validated in the context of Primary Care. The construction of the scenarios followed the criteria of Fabri *et al.*[13] and the validation was based on the CVI. Seven judges, with extensive experience in the areas of clinical simulation and BLS, participated in the validation process. This brought greater reliability to the scenarios themselves and will allow the possibility of their reapplication by other professionals, facilitators, professors, or scholars who develop activities in the clinical simulation area, saving their time on construction based upon this pre-established and validated scenario model.

The authors suggest the development of further studies on the construction and validation of scenarios related to Primary Care. In addition, it is expected that the products resulting from this study - the scenarios - can contribute to the education of students and the training of health professionals to work at this level of health care.

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