

Nursing care in airway obstruction due to foreign body: scope review

Assistência de enfermagem na obstrução das vias respiratórias por corpo estranho:
revisão de escopo

Asistencia de enfermería en la obstrucción de las vías respiratorias por un cuerpo
extraño: revisión del alcance

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Abstract

Objective: to identify nursing care in airway obstruction by foreign bodies in adult patients in the prehospital setting. **Method:** scoping review prepared in accordance with the Joanna Briggs Institute; used the population, concept, and context strategy to define the guiding question. The study was identified through the CAPES portal, in the following databases: MEDLINE, LILACS, BDENF, SCOPUS, EMBASE, WOS, and IBECS. **Results:** they were summarized into categories, namely: the definition of airway obstruction by foreign bodies and clinical signs, the role of family members in airway obstruction by foreign bodies and nursing care for adult patients with airway obstruction by foreign bodies. **Conclusion:** It was possible to identify that nurses act in the identification of choking, performing airway clearance maneuvers, providing guidance to adults regarding the causes of choking, prevention, until the case is resolved.

Descriptors: Nurses; Gagging; Adult.

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Resumo

Objetivo: identificar a assistência de enfermagem na obstrução das vias aéreas por corpos estranhos em pacientes adultos no contexto pré-hospitalar. **Método:** revisão de escopo elaborada conforme o Instituto Joanna Briggs; utilizou a estratégia população, Conceito e Contexto para definição da pergunta norteadora. A identificação do estudo ocorreu por meio do portal da CAPES, nas bases de dados: MEDLINE, LILACS, BDENF, SCOPUS, EMBASE, WOS e IBECS. **Resultados:** foram sumarizados em categorias, sendo elas: a definição de obstrução das vias respiratórias por corpos estranhos e os sinais clínicos, o papel dos familiares na obstrução das vias aéreas por corpos estranhos e a assistência de enfermagem ao paciente adulto com obstrução de vias aéreas por corpo estranho. **Conclusão:** foi possível identificar que os enfermeiros atuam na identificação do engasgo, realização das manobras de desobstrução, orientações aos adultos a respeito das causas do engasgo, prevenção, até a resolução do caso.

Descriptores: Enfermeiros; Engasgo; Adulto.

Resumen

Objetivo: identificar la asistencia de enfermería en la obstrucción de las vías respiratorias por cuerpos extraños en pacientes adultos en el contexto prehospitalario. **Método:** revisión de alcance elaborada según el Instituto Joanna Briggs; se utilizó la estrategia población, concepto y contexto para definir la pregunta orientadora. La identificación del estudio se realizó a través del portal de CAPES, en las bases de datos: MEDLINE, LILACS, BDENF, SCOPUS, EMBASE, WOS e IBECS. **Resultados:** se resumieron en categorías, a saber: la definición de obstrucción de las vías respiratorias por cuerpos extraños y los signos clínicos, el papel de los familiares en la obstrucción de las vías respiratorias por cuerpos extraños y la asistencia de enfermería al paciente adulto con obstrucción de las vías respiratorias por cuerpos extraños. **Conclusión:** se pudo identificar que los enfermeros actúan desde la identificación del atragantamiento, la realización de maniobras de desobstrucción, la orientación a los adultos sobre las causas del atragantamiento y cómo prevenirlo, hasta la resolución del caso.

Descriptores: Enfermeros; Atragantamiento; Adulto.

INTRODUCTION

Choking, commonly called as suffocation, is characterized by the inability to breathe, either completely or partially, due to obstruction of the airways. This blockage can be caused by food or other objects that, instead of following their normal path to the pharynx, end up being restricted in the trachea, blocking the passage of air.¹

Airway obstruction by foreign bodies is an emergency that, if not reversed

quickly, can lead to a deficiency in the supply of oxygen that is necessary for the body to function, resulting in hypoxia and the death of the individual shortly. The consequences of the obstruction are variable and depend on the size of the artifact that was ingested, and can be classified as partial choking, where even with the obstruction, oxygen still enters, or total choking in which no oxygen enters.²

Choking is common in adults, caused by poor chewing, rapid food ingestion, foreign objects, and anatomical problems. It is important to be aware of



warning signs such as persistent coughing, wheezing, sudden shortness of breath, hoarseness, and purple lips and fingernails. In adults, the victim may also be seen with their hands on their neck, muffled sounds, and fainting.²

The most appropriate approach to reverse airway obstruction is the Heimlich maneuver. There are adaptations for each age group (baby, child, and adult). In general, the maneuver involves interlacing the hands and applying pressure to the victim's diaphragm to trigger the cough reflex and expel the object.³

Nursing staff are essential in all areas of healthcare, and this is no different when it comes to managing airway obstruction. They need to be knowledgeable about the epidemiology of OVACE, its causes, and its consequences for people's health. They must also work to promote health by providing guidance to the entire population on how to avoid choking and how to respond to such situations. They also need to intervene safely and efficiently to reverse choking.⁴

Therefore, the present study is justified by the importance of developing research that fosters the topic addressed and contributes to the academic community's understanding. This is a fairly common situation today, causing significant harm to the population's health. It requires everyone's awareness of how to respond to

choking situations and minimize their consequences. Furthermore, there is a lack of studies on nursing care for adults with OVAC. Therefore, this study aims to identify nursing care for airway obstruction caused by foreign bodies in adult patients in the prehospital setting.

METHODOLOGY

Type of Study

This is a scoping review prepared in accordance with the Joanna Briggs Institute (JBI) and the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) checklist for reporting scoping reviews.⁵

Delimitation of the guiding question

To better categorize the study, the Population, Concept, and Context (PCC) strategy, described in Table 1, was used to define the guiding question. Thus, the guiding question of this study was What are the nursing interventions for identifying and managing airway obstruction due to foreign bodies in adult patients in the prehospital setting?

Based on the guiding question, the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) were defined to classify the study and facilitate bibliographic research. The following



DeCS were used: "Nursing", "airway obstruction", "choking", "first aid", "adults", "pre-hospital care" and "foreign bodies". These were the MESH used: "Nurse", "Nursing", "Airway obstruction",

"gagging", "Choking", "adult" and "first aid".

Table 1- Subject descriptors located in DeCS and MeSH for the components of the research question according to the PCC strategy.

| STRATEGY ITEMS | COMPONENTS | DESCRIPTORS (DeCS and MESH) |
|----------------|--------------------|--|
| Population | Nurses | Nursing; Nurse |
| Concept | Airway Obstruction | Choking; foreign bodies; airway obstruction/gagging; airway obstruction; Choking; adult. |
| Context | Pre-Hospital Care | First aid/First Aid. <i>Prehospital care</i> |

Source: Prepared by the author, 2024.

Establishment of inclusion and exclusion criteria

The inclusion criteria were full-text studies, articles in Portuguese, English, and Spanish. The exclusion criteria were: studies that were not appropriate to the topic, such as studies that did not involve nursing professionals or did not focus on adult patients (e.g., studies on children or neonates), and articles that addressed other respiratory emergencies without an emphasis on foreign body obstruction in the prehospital setting. These same criteria were used for the gray literature search.

Data source and search strategy

The studies were identified through the journal portal of the Coordination for the Improvement of Higher Education Personnel (CAPES), in the following databases: National Library of Medicine (MEDLINE/PUBMED), Latin American and Caribbean Literature in Health Sciences (LILACS), Nursing Library (BDENF), SCOPUS, Web of Science (WOS), Cochrane Library, Embase and Spanish Bibliographic Index in Health Sciences (IBECS), in March 2024.

The search strategy was adjusted for each database. This information is described in Table 2.



Table 2- Database search strategy. Crato-CE, Brazil, 2024

| DATABASE | SEARCH STRATEGY |
|----------|---|
| MEDLINE | <i>(Airway Obstruction OR Gagging AND Adult AND Prehospital care)</i> |
| LILACS | <i>(Airway Obstruction OR Gagging AND Adult)</i> |
| BDENF | <i>(First aid AND Choking AND Nursing) / (Airway Obstruction AND Foreign Bodies AND First Aid).</i> |
| SCOPUS | <i>KEY ("nursing") AND TITLE-ABS-KEY ("gagging" OR "choking" OR "airway obstruction") AND KEY ("first aid")</i> |
| EMBASE | <i>('nursing'/exp OR 'nurse') AND ('gagging'/exp OR 'choking' OR 'airway obstruction'/exp) AND 'first aid'/exp</i> |
| WOS | <i>TS=("nursing" OR "nurse") AND TS=("gagging" OR "choking" OR "airway obstruction")</i> |
| IBECS | <i>(Airway Obstruction AND Foreign Bodies AND First Aid).</i> |

Source: Prepared by the author, 2024

In the National Library of Medicine database, the search strategy used a combination of four descriptors (Airway Obstruction OR Gagging AND Adult AND Prehospital care), resulting in 10 studies. Using the filters - Full text, language: English, Portuguese, and Spanish, only two met the study objective. In the Latin American and Caribbean Literature in Health Sciences database, the strategy used (Airway Obstruction OR Gagging AND

Adult) resulted in 85 studies that met the inclusion and exclusion criteria. Twenty-eight articles were selected for full-text reading, of which only one met the proposed objective.

In the Nursing Library, two search strategies were used. Initially, three controlled descriptors were used (First Aid AND Choking AND Nursing). However, only five studies were found. With the application of the filters, none met the study



objective. It was necessary to expand the search to identify more studies. Therefore, four controlled descriptors were used, in which the following strategy was employed (Airway Obstruction AND Foreign Bodies AND First Aid). Forty-seven studies were found. After applying the inclusion and exclusion criteria, 36 studies were selected for full reading. None of these studies presented nursing interventions for adult choking victims. In the Spanish Bibliographic Index in Health Sciences database, the following strategy was used: (Airway Obstruction AND Foreign Bodies AND First Aid), where 58 studies were found. With the application of the filters, none met the study objective.

In SCOPUS, the following search strategy was used: ("nursing") AND TITLE-ABS-KEY ("gagging" OR "choking" OR "airway obstruction") AND KEY ("first aid"), which found 20

studies, of which only two met the study objective. Through Embase, the same search strategy was used: ('nursing'/exp OR 'nurse') AND ('gagging'/exp OR 'choking' OR 'airway obstruction'/exp) AND 'first aid'/ex, identifying 20 studies; after applying the filters, none met the study objective. Finally, in Web of Science (WOS), the following search strategy was used ("nursing" OR "nurse") AND ("gagging" OR "choking" OR "airway

obstruction"), 169 studies were identified, but only one met the established criteria.

The Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) instrument was used to organize the process of searching and selecting studies, as shown in Figure 1.



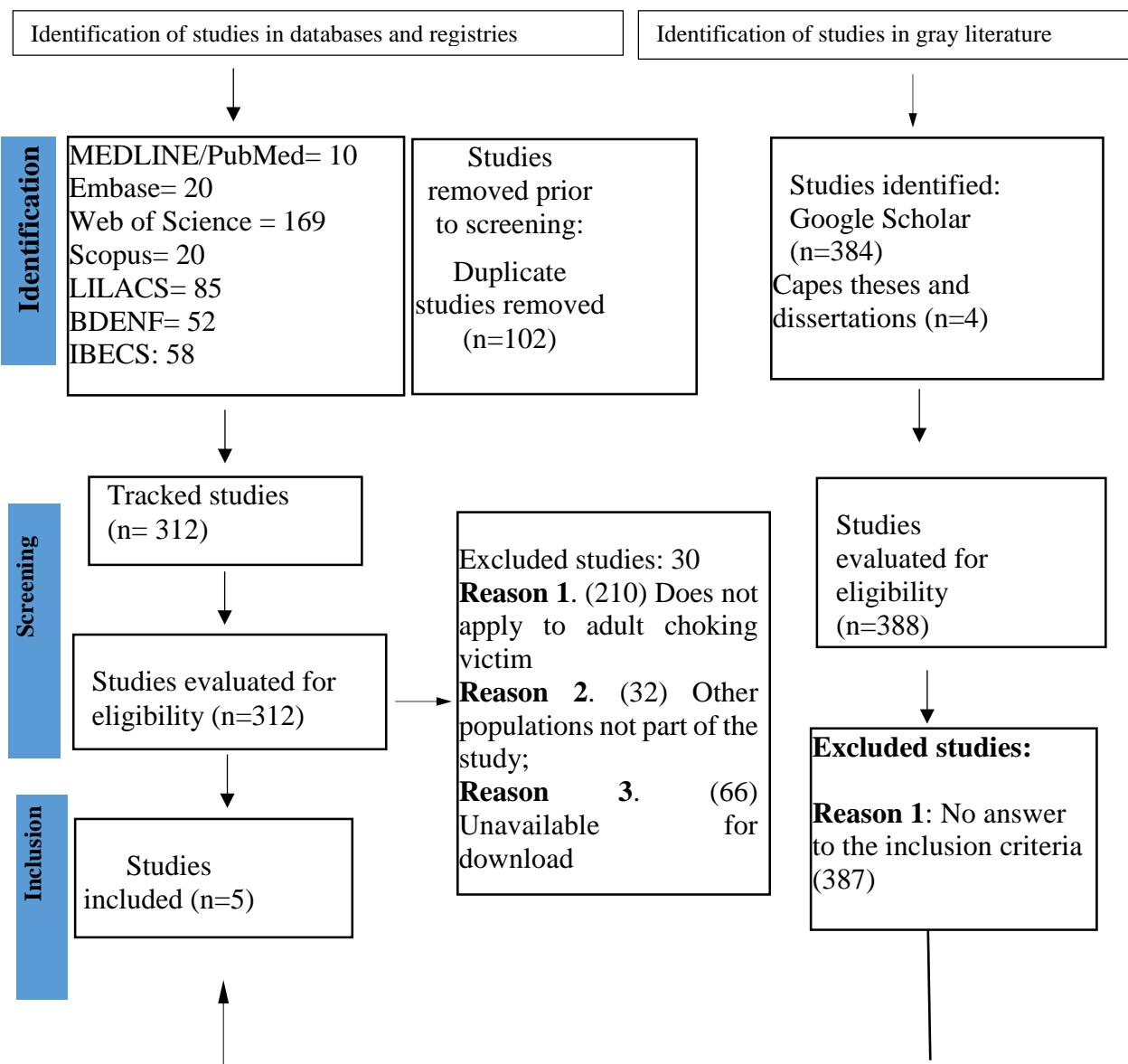


Figure 1– Flowchart of the article search and selection process through cross-referencing. Crato, Ceará, 2024
Source: Prepared by the author.



The review concluded with five studies included, all of which met the objective of the guiding question. Thus, the research continued with data synthesis, presentation of results, interpretation, and critical and descriptive discussion, to ensure that important aspects of the study were not overlooked.

RESULTS

The present sample consisted of five studies addressing airway obstruction by foreign bodies in adults. Regarding the countries of publication of the included studies, Brazil (4) prevailed, followed by California (1).

The sample results were interpreted critically, in conjunction with studies related to the topic described, presented in table 3.



Table 3- Categorization of Studies included in the review. Crato/CE, 2024.

| Studies | Title | Author | Objective | Method | Results | Year/Country | Database/Journal | NE |
|---------|--|-------------------------------|--|----------------------|---|------------------|--------------------------------------|----|
| E1 | Urgent and emergency situations: knowledge of primary care nurses | Santos EB et al. ⁸ | To describe the knowledge of nurses in basic health units regarding urgent/emergency situations - airway obstruction and cardiorespiratory arrest. | Exploratory research | The professionals discussed that nursing actions in managing choking include calling emergency medical services, performing the Heimlich maneuver until the object is released or until the patient becomes unresponsive. | 2021/ Brazil | BDENF/ Scientific Journal of Nursing | 4 |
| E2 | Nurses' role in pre-hospital care in the mobile emergency care service (SAMU): a bibliographic review. | Mendes, Aline. | Understanding nurses' actions in the advanced health unit in the mobile APH. | Review Study | The nurse performs the following interventions: patient stabilization, providing nursing care of greater technical complexity and making immediate decisions. | 2018/ Brazil | CAPES/ Thesis Repository | 4 |
| E3 | Abdominal Thrust Maneuver | A et al. | Indications and contraindications for the abdominal thrust maneuver and | Case study | The nursing professional must perform the Heimlich maneuver and other techniques, such as circumferential | 2023/ California | PUBMED/StatPearls | 4 |

| | | | | | | | | |
|----|---|---|---|----------------------|---|--------------|--|----|
| | | | describes how to perform it safely | | (horizontal) abdominal thrust, chair thrust and automatic upward thrust. | | | |
| E4 | First aid booklet on airway obstruction by foreign bodies. | Santos; Leite; Pinheiro. ⁶ | Provide guidance on first aid care related to airway obstruction caused by a foreign body. | Methodological Study | The nursing team should try to calm the victim, encourage coughing, assess whether the object has been expelled, if not, perform the Heimlich maneuver and if the patient becomes unresponsive, perform cardiopulmonary resuscitation protocol. | 2021/ Brazil | LILACS/CCTA Sector Library | 2c |
| E5 | Realistic simulation and simulated first aid scenarios: experience report | Lohmann P, Marchese C, Castro M. ⁹ | Report the experience of teaching and learning First Aid, in simulated scenarios, for students of health courses. | Experience Report | When providing first aid and pre-hospital care, nurses must have skills, experience and scientific knowledge. | 2024/ Brazil | SCOPUS/ Integrative Approaches in Health Sciences and Human Behavior | 4 |

Source: Prepared by the author

The results were summarized into three categories: the definition of airway obstruction by foreign bodies and clinical signs, the role of family members in airway obstruction by foreign bodies and nursing care for adult patients with OVACE.

Category 1 - Definition of airway obstruction by foreign bodies and clinical signs

The findings of this study reaffirmed that airway obstruction, the partial or total occlusion of the airways intensified by the presence of foreign bodies, is a very common emergency in the current era and has a high mortality rate. It is a serious and potentially fatal incident common to all age groups.⁶

OVACE is manifested through respiratory discomfort, persistent cough, asphyxiation, depending on the type of obstruction, mild or severe, individuals are able to communicate with people around them, cough and breathe, while in other more severe cases the patient is unable to breathe in ambient air, is unable to communicate or emits incomprehensible sounds.⁶

The main causes of choking in adults are poorly chewed food, eating while talking, eating abruptly, wearing dentures, gastroesophageal reflux, placing smaller pieces in the mouth, among others.

Therefore, it is necessary to identify the reasons that caused the airway obstruction in order to act directly on the problem and avoid potential complications.⁷

Category 2- The role of family members in airway obstruction by foreign bodies

Airway obstruction by foreign bodies is an emergency that can occur in any setting, whether in-hospital or out-of-hospital. Therefore, it is important to have a considerable number of personnel prepared to deal with this situation quickly and efficiently. Knowledge of first aid promotes greater prevention and safety.⁷

According to scientific evidence, family members are important in the event of choking, as they need to be aware of the victim's clinical signs and therefore call the mobile emergency service (SAMU) as quickly as possible. Furthermore, like professionals, family members are capable of performing the unblocking maneuver as long as they have the skills to do so.⁶

Initially, family members must remain calm and try to calm the victim, identify the clinical signs of choking, and call for professional help. However, while waiting for help, family members must continue to assist the victim by performing the Heimlich maneuver. Therefore, families must be interested in learning about first



aid, as emergencies like these occur in different ways, and family members are the first line of help in intervening in these illnesses.

Category 3 - Nursing care for adult patients with OVACE

Nursing professionals work from the identification of choking to post-choking care; therefore, nurses need to have confidence and emotional control to manage the situation. In a choking emergency, nursing professionals are required to remove family members from the scene, calm them, analyze the scene, and verify whether the person's airway is truly obstructed. Based on clinical signs, individuals may be choking, wheezing or coughing fiercely, or unable to speak or breathe.

After investigating the scene, have someone call an ambulance or emergency medical service (SAMU). If you are alone, try to help the person first. Try to reassure the person who is choking, tell them you will help them, stand behind the person, place your hands above the navel and below the ribs, and perform strong inward and upward thrusts, known as the "reverse J" movement. Repeat this movement until the food or object is expelled; then, call for help. Even if the obstruction is removed, it

is essential to monitor the person until professional help arrives.⁶

If the victim's consciousness decreases, they should be laid on a hard surface and perform intense, rhythmic chest compressions in the same way as for victims of cardiorespiratory arrest. This movement must be repeated until the food or object is expelled. In all cases of OVACE in which the victim has fainted, once they begin breathing again, it is necessary to take them to an Emergency Care Unit (UPA) so that the consequences of asphyxiation can be assessed.

Studies report that, for professionals to be successful in performing the maneuver, they need to have skills, experience and be endowed with scientific knowledge. Therefore, it is noted that training and qualifications are indispensable in the training process of health professionals, as they provide the possibility of improving knowledge and skills and thus acting in emergencies, such as choking, in a safe and effective manner.⁹

DISCUSSION

The integration of the analyzed studies allowed us to observe the dimension that airway obstruction can have on the life of an adult, since OVACE, if not treated in a timely manner, will result in oxygen deficiency. Furthermore, it provided knowledge of the role of family members



and the care of nursing professionals in this scenario in a pre-hospital environment.

Learning about OVACE is essential for the community as a whole, as emergencies are becoming increasingly common. Knowledge of first aid involves the ability to act appropriately in emergencies. When more people have this knowledge, the overall safety of the community increases and complications resulting from inappropriate behavior and attitudes are reduced. Knowledge of OVACE management does not necessarily require knowing the protocol, but knowing the signs a victim displays, calming the victim, instigating coughing, and calling the emergency mobile service can all contribute to saving that victim.

Nursing care in pre-hospital care is essential for reversing choking. Nurses act to identify the emergency, which is a witnessed or exposed episode with signs of coughing or suffocation. In this case, the nurse will assess the degree of obstruction, which can be classified as mild or severe. In addition, the nurse operates in monitoring, support, health education and referral.¹¹

A patient classified as having mild obstruction can communicate with the rescuer, while a victim with severe obstruction may be unable to breathe or present with noisy breathing, and may be conscious or unconscious. The management of these patients will depend on the degree

of impairment. If the patient has mild obstruction, supportive care should be provided, attempting to calm the victim, encouraging severe coughing, monitoring the patient, offering supplemental oxygen, monitoring the progress of the case, and if the patient progresses, changing the management for a patient with severe obstruction.¹⁰

The patient with severe obstruction requires the Heimlich maneuver until the object is expelled or until the patient becomes unresponsive. If the patient becomes unresponsive, perform abdominal thrusts and consider immediate transport; however, basic obstruction clearance maneuvers should be maintained.¹²

Nurses play an important role as health facilitators and educators; by doing so, they promote well-being and mitigate the occurrence of emergencies. Through health education, nurses help increase the population's knowledge about preventive care, treatments, besides how to respond to numerous health conditions that may develop.¹¹

The limitations of this study include the small number of full-text samples available on the subject, considering that different search terms were used. However, the final sample contained fewer studies than met the study's objective. Although airway obstruction by foreign bodies is common across all age groups, there are few



or no studies in the literature addressing nursing care for adult patients with OVACE. The studies available in full are limited to infants and children. This makes this study innovative and contributes significantly to the appropriate and quality management of adult patients who suffer from choking.

FINAL CONSIDERATIONS

In view of the above, it was possible to identify nursing care for victims of airway obstruction by foreign bodies in adults in a pre-hospital care setting, where nurses operate from the identification of the OVACE, performing the necessary maneuvers for unblocking, guiding adults regarding the causes of choking and how to prevent it, until the resolution of the case.

The importance of health education for nursing professionals was also highlighted, as they act as learning mediators and are indispensable in resolving these emergency cases. One limitation of this study was the scarcity of studies on nursing care in OVACE for adult patients. This highlights the urgent need for further studies on the topic and, thus, disseminating scientific evidence to the entire population, given that choking is a recurring emergency today and is common in all age groups.

Finally, limitations related to available technological resources and the training of facilitators to conduct simulations can influence the fidelity of the scenario and the experience of participants.

Future studies aim to expand the sample, validate the scenario with experts, and explore the impact of using advanced technologies, such as virtual reality and hybrid simulations, in teaching respiratory emergencies.

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