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RESEARCH

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Educational video for families about choking prevention and management in newborns: development, validity, and assessment[a]

Vídeo educativo para familiares sobre prevenção e manejo do engasgo em recém-nascidos: elaboração, validação e avaliação

Video educativo para familiares sobre prevención y manejo del atragantamiento en recién nacidos: elaboración, validación y evaluación

Nátale Gabriele Ferreira Nunes[1]
Fernanda Garcia Bezerra Góes[1]
Liliane Faria da Silva[2]
Aline Cerqueira Santos Santana da Silva[1]
Maithê de Carvalho e Lemos Goulart[1]
Leticia de Assis Santos[1]

1. Universidade Federal Fluminense. Rio das Ostras, RJ, Brasil.

2. Universidade Federal Fluminense. Niterói, RJ, Brasil.

Corresponding author:
Nátale Gabriele Ferreira Nunes.
E-mail: nataleferreiraa@gmail.com

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Abstract

Objective: to develop, validate, and assess an educational video for families on choking prevention and management in newborns. **Method:** this is an methodological study conducted from November 2023 to January 2025 in seven stages: (1) topic selection; (2) theoretical study; (3) educational video development using animation; (4) validity by 20 experts; (5) adjustments after validity; (6) assessment by 32 individuals from the target audience; and (7) final adjustments after assessment. An adapted instrument was used to assess functionality, usability, efficiency, audiovisual technique, environment, and procedure using a Likert scale. Data were analyzed using the Concordance index, considering values ≥ 70% as valid. **Results:** the video, lasting 10 minutes and 56 seconds, presents choking prevention and management in newborns through the story of a family. It was validated by experts, achieving a Concordance index of 98%, and was satisfactorily assessed by the target audience, with 99% agreement. **Conclusion and implications for practice:** the educational video was developed, validated, and assessed with excellent indices, proving to be an effective educational tool for its intended purpose and contributing to the teaching-learning process on choking prevention and management in newborns. It is available free of charge for health education for family members.

Keywords: Airway Obstruction; Educational Technology; Family; Gagging; Infant, Newborn.

Resumo

Objetivos: elaborar, validar e avaliar um vídeo educativo para familiares sobre prevenção e manejo do engasgo em recém-nascidos. **Método:** estudo metodológico, realizado de novembro de 2023 a janeiro de 2025, em sete etapas: (1) busca dos temas; (2) estudo teórico; (3) elaboração do vídeo educativo com desenho animado; (4) validação com 20 *experts*; (5): adequação após validação; (6) avaliação com 32 indivíduos do público-alvo; e (7) adequação final após avaliação. Utilizou-se um instrumento adaptado para avaliar funcionalidade, usabilidade, eficiência, técnica audiovisual, ambiente e procedimento em escala Likert. Os dados foram analisados pelo Índice de Concordância, considerando válidos valores ≥ 70%. **Resultados:** o vídeo, com duração de 10 minutos e 56 segundos, aborda a prevenção e manejo do engasgo em recém-nascidos mediante a história de uma família. Foi considerado válido pelos *experts*, com Índice de Concordância de 98%, e avaliado satisfatoriamente pelo público-alvo, com concordância de 99%. **Conclusão e implicações para a prática:** o vídeo educativo foi elaborado, validado e avaliado com excelentes índices, sendo uma ferramenta educacional adequada ao seu propósito, contribuindo para o processo de ensino-aprendizagem sobre a prevenção e manejo do engasgo em recém-nascidos. Encontra-se disponível em acesso livre e gratuito para a educação em saúde junto aos familiares.

Palavras-chave: Engasgo; Família; Obstrução das Vias Respiratórias; Recém-Nascido; Tecnologia Educacional.

Resumen

Objetivos: elaborar, validar y evaluar un video educativo para familias sobre la prevención y el manejo del atragantamiento en recién nacidos. **Método:** estudio metodológico, realizado de noviembre de 2023 a enero de 2025, en siete etapas: (1) búsqueda de los temas; (2) estudio teórico; (3) elaboración del video educativo con animación; (4) validación con 20 expertos; (5) ajustes después de la validación; (6) evaluación con 32 individuos del público objetivo; y (7) ajustes finales después de la evaluación. Se utilizó un instrumento adaptado para evaluar la funcionalidad, usabilidad, eficiencia, técnica audiovisual, ambiente y procedimiento mediante una escala de Likert. Los datos fueron analizados mediante el Índice de Concordancia, considerando válidos los valores ≥ 70%. **Resultados:** el video, con una duración de 10 minutos y 56 segundos, aborda la prevención y el manejo del atragantamiento en recién nacidos. Fue validado por los expertos, con un Índice de Concordancia del 98%, y evaluado satisfactoriamente por el público objetivo, con un 99% de concordancia. **Conclusión e implicaciones para la práctica:** el video educativo fue elaborado, validado y evaluado con excelentes índices, siendo una herramienta educativa adecuada para su propósito y contribuyendo al proceso de enseñanza-aprendizaje de los familiares de recién nacidos. Está disponible de forma gratuita para educación sanitaria para los miembros de la familia.

Palabras-clave: Atragantamiento; Familia; Obstrucción de las Vías Aéreas; Recién Nacido; Tecnología Educacional.

INTRODUCTION

Foreign body aspiration, also known as foreign body airway obstruction or choking, represents a serious public health problem, especially in the context of neonatal morbidity and mortality. This condition can be classified as partial or total airway obstruction. In partial obstruction, symptoms include restlessness, coughing, crying, and tachypnea. In total obstruction, individuals do not cough or cry, but may present clinical signs of cyanosis of the lips and hypotonia, indicating the severity of the situation.[1-4] In newborns, liquids, especially milk, are the main culprits of choking, since babies in this age group do not yet have complete control of rhythmic coordination, facilitating the entry of liquid into the airways. The high incidence of this problem may be related to factors such as lack of teeth, difficulty swallowing, frequent regurgitation, failure to adequately close the larynx, and immaturity in reacting to risk situations.[4,5]

Globally, choking is recognized as one of the main preventable causes of childhood morbidity and mortality, with an estimated prevalence of 10% to 20%, and is the leading cause of accidental deaths in children under six years of age.[6] In the United States, 5% to 7% of all deaths related to unintentional injuries in childhood occur in children under one year of age, with choking being the fifth leading cause of accidental death in this group.[7] In Brazil, this event is responsible for the third place on the list of injuries with death among children, being the cause of death in 7% of the pediatric age group under four years of age.[8] Given this scenario, early identification and agile and assertive intervention are crucial to minimize possible sequels or fatal outcomes.[5,9]

Considering that choking is a common emergency among newborns, with a high risk of morbidity and mortality,[10] it is essential to implement measures to guide family caregivers. These individuals often lack adequate knowledge about the various risk factors present in babies' daily lives and the necessary actions to take in the face of adversity, including the correct course of action in cases of choking.[11,12] In this context, healthcare professionals, especially nurses, play a central role in implementing educational initiatives. This practice is intrinsic to nursing, positioning nurses as essential agents in promoting health education.[13-15]

Among the different health education strategies, the use of educational technologies stands out for facilitating the teaching-learning process with the families of newborns.[16-18] Educational technologies are products that emerge from materialized processes, from experience or research, and act as tools capable of mediating educational practices, including in the health field, and are aimed at different target audiences. In this regard, educational videos represent a practical and easily accessible strategy, combining attractive visual content to simplify the sharing of information and promotion of health educational activities for the population.[19,20] Furthermore, videos can help reduce families' anxiety levels when faced with risk situations, allowing them to learn information more calmly and at their own pace.[21-25]

Choking, especially in newborns, is an emergency that requires specific approaches, including the fact that there are different approaches for choking on liquids and solids.[26] Lack of knowledge about these differences and appropriate approaches can increase the risk of morbidity and mortality, making it essential to share clear, accurate, and reliable guidance with family members in an accessible and visually appealing format. Thus, the study's guiding question was defined as: how to develop, validate, and assess an educational video for family members of newborns on choking prevention and management in newborns?

Despite the importance of preventing and managing choking in newborns for child health safety and promotion, there is a lack of specific educational resources aimed at family members. A study that reviewed the methodologies used by nursing professionals in the production of educational videos found no evidence of the use of animation-style videos on this topic, either nationally or internationally.[27] Thus, the relevance of the topic, the lack of accessible and engaging educational materials for families, and the knowledge gap in the area reinforce the justification for the research. Therefore, the study aimed to develop, validate, and assess an educational video for family members on preventing and managing choking in newborns.

METHOD

This is a methodological study developed based on the adaptation of educational video development stages,[28] which were: (1) search for topics; (2) theoretical study; (3) educational video development with animation; (4) educational video validity by experts; (5) educational video adaptation after validity; (6) educational video assessment by the target audience; and (7) final adaptation after assessment. The study was carried out from November 2023 to December 2024, with stages 1, 2, and 3 occurring between November 2023 and October 2024, and stages 4, 5, 6, and 7 between November and December 2024.

The first stage of the study consisted of a topic search, conducted through a narrative literature review, aiming at identifying scientific evidence on choking prevention and management in newborns to develop the theoretical basis for educational technology. The narrative review was chosen for its flexibility, allowing for the integration of a wide range of sources, in addition to scientific articles, and with less stringent eligibility criteria.[29]

The search was conducted in November 2023, using two information resources: Coordination for the Improvement of Higher Education Personnel Journal Portal, through the Federated Academic Community, through a simple search, and Google Scholar, through a free search. Furthermore, an additional search was conducted on the internet, visiting the websites of official institutions such as the *Sociedade Brasileira de Pediatria* (SBP), the *Sociedade de Pediatria de São Paulo* (SPSP), the Ministry of Health (MoH), and the American Heart Association (AHA).

To guide the search, the following keywords were used: "choking in newborns"; "airway obstruction in newborns and/or babies"; "newborn," "choking"; "airway obstruction"; and "educational technology." Full-text materials from the last ten years that addressed the topic in question were selected. Experience reports, letters, editorials, duplicates, and studies unrelated to the research scope were excluded. Based on eligibility criteria, the most current scientific evidence and official recommendations on choking prevention and management in newborns were considered.

In the second stage, a theoretical study was conducted based on the scientific evidence identified in stage 1, aiming to define and scientifically support the educational video development. During this phase, relevant information on the topic was selected and incorporated into the educational technology informational content.

In the third stage, the pre-recording script was developed based on the research conducted, following criteria of clarity, accessibility, didactics, attractiveness, and scientific relevance. The script was structured using a five-column model (scene, text, speech, lettering, and scene description),[30] which allowed for meticulous detailing in the educational video design. After five rounds of adjustments between the authors, the final version of the script was defined. Subsequently, a videographer specializing in animated videos was hired to create, edit, and add sound to the images. A professional created an animatic, a preliminary version of the video composed of sketches of images arranged in sequence, with some movements that simulate the final animation dynamics. This initial version was submitted to the researchers for review and approved before the audiovisual production began.

The fourth and sixth stages, respectively, focused on expert validity of the educational video and its assessment by the target audience, both conducted using Google Forms®. Experts included were healthcare professionals with expertise in neonatology and/or pediatrics and/or experience in educational practices related to the study topic. Expert selection also followed Fehring's adapted criteria,[31] including those who achieved at least five points, considering a doctoral degree (4 points), a master's degree (3 points), publication in an indexed journal on the topic (2 points), specialization in the area (2 points), clinical practice in the area for at least five years (2 points), and participation in a scientific event on the topic in the last two years (1 point). The score was confirmed by consulting the CVs on the *Lattes* Platform on the *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) website. The exclusion criterion was the exclusive exercise of administrative activities.

The target audience included pregnant women, postpartum women, and family caregivers of newborns over the age of 18 who had internet access. Pregnant women, postpartum women, and family members who had physical and/or mental limitations to watch the video and/or respond to the online form and/or were illiterate were excluded.

Participants were selected for convenience using a non-probabilistic consecutive method, using the snowball sampling technique,[32] due to the need for access to specific participant profiles for both experts and the target audience. Thus, for experts, invitations were sent via WhatsApp® to potential participants who were part of the researchers' contact network. From the initial five professionals, others were nominated and invited to join the study.

The target audience included followers of the authors' outreach project Instagram® page, pregnant women from a maternity hospital in Oriximiná, Pará, where the lead author completed her supervised internship, and other contacts from the research team. Individuals with actual or potential experience caring for newborns, such as mothers, fathers, grandparents, aunts and uncles, and other family members, were invited to participate, which justified the inclusion of participants with diverse backgrounds and professional experiences.

The Google Forms® link, accessed by experts and the target audience, included information about the project, the Informed Consent Form (ICF), available for download by participants, the link to access the educational video, and the electronic form for data collection. Prospective participants were approached via WhatsApp® or Instagram® to participate in the validity or assessment process of the educational video. No lists were used that would allow third parties to identify or view their contact information. An average of 30 minutes was allocated to analyze the video and complete the form.

Although there is no specific number of participants for studies of this nature, a minimum of nine participants is suggested for both experts and the target audience,[33] with the sample consisting of 20 experts and 32 individuals from the target audience. None of the participants had any type of employment relationship with the researchers, which reduced the possibility of bias in the sample composition. The final number of participants was determined by those who completed the form by the end of the data collection period in each phase, allowing for the inclusion of all those who expressed interest in watching and assessing the video. Since the sample was convenience-based and the educational video was dynamic and engaging, all participants responded promptly to the material, without refusals or delays, which significantly facilitated the data collection process.

The data collection instruments consisted of two parts: the first consisted of closed-ended questions to characterize participants; and the second included questions directed to the purpose of the study, which was to analyze the educational video, as well as an open field for participants' comments and suggestions. The variables characterizing experts included gender, age, field of expertise, education, qualifications, and length of professional experience, published research on the topic, and participation in a scientific event on the topic in the last two years. For the target audience, variables included sex, age, education, qualifications, degree of kinship with the newborn, and state of residence.

In relation to video validity, the first version was sent to experts, along with a form adapted from the tool used in another study on educational video validity,[28] adjusted to the topic of this study. Thus, experts assessed the video based on the criteria of functionality, usability, efficiency, audiovisual technique, environment, and procedure. In the assessment stage with the target audience, the updated version of the video was sent, and the same instrument was used, with the same assessment and measurement criteria for each element. All items were assessed using the Likert scale, which assigns scores between 1 and 4, according to the following values: inadequate (1); partially inadequate (2); partially adequate (3); and adequate (4).[28]

A quantitative analysis of each item in the instruments used for validity and assessment was performed, based on the Likert scale, by calculating the Concordance Index (CI). This index is obtained by adding the responses classified as 3 and 4 (partially adequate and adequate), and then dividing by the total number

of responses. Items that achieved a score equal to or greater than 0.70 (70%) were considered valid.[33]

In the fifth stage, adjustments were made to the video based on experts' assessment. This stage considered both the quantitative analysis, using the CI (responses rated 3 (partially adequate) and 4 (adequate), and the qualitative analysis of the suggestions and criticisms presented. Qualitative contributions were individually examined for frequency, relevance, clarity, and feasibility of implementation. All items and suggestions were carefully reviewed, and, when necessary, the content was revised, and suggested adjustments were incorporated into the educational technology, always in agreement with the study team. In cases of disagreement among participants, the most relevant and consistent suggestions with the study's objective were selected, taking into account an in-depth study of the scientific literature on the topic and the technical and financial feasibility.

In the seventh and final stage, an analysis was carried out again of the need to adapt the educational video based on the target audience's assessment and, based on the calculation of the CI, for possible adaptations in a similar way to the fifth stage.

The study was approved by the *Universidade Federal Fluminense* Research Ethics Committee on February 6, 2024, under Opinion 6,637,972 and Certificate of Presentation of Ethical Consideration 76804623.4.0000.5243. Moreover, the ICF was made available in full to participants.

RESULTS

The first stage was a literature search to support the development of a new health education technology. This included a study of postpartum women's knowledge of first aid for airway obstruction in newborns,[4] as well as the *Serviço de Atendimento Móvel de Urgência* (SAMU) Manual of São Paulo, which addresses the role of laypeople in first aid.[34] A booklet on choking management in children under one year old, developed by the *Universidade de São Paulo*, was also used.[35] Additionally, materials from the SBP, SPSP, MoH and AHA were used, being fundamental for the creation of the educational video.[1,2,26,36]

The second stage allowed for the study of relevant information on the topic to integrate into the educational video content. The topics chosen were: strategies to prevent and manage choking in newborns, both with liquids and solids; guidelines on when and how to ask for help; how to distinguish between partial and complete choking; and practices to avoid during the occurrence of different types of choking.

In the third stage, a script for creating the animated video was developed based on the theoretical study from the previous stage. The script was structured into five columns, as scene, text, speech cue, lettering, and scene description, to guide the professional responsible for production. For this stage, the animatic (Figure 1) was created, providing a visual preview of the educational video, including the characters and their movements, the sequence of scenes, and

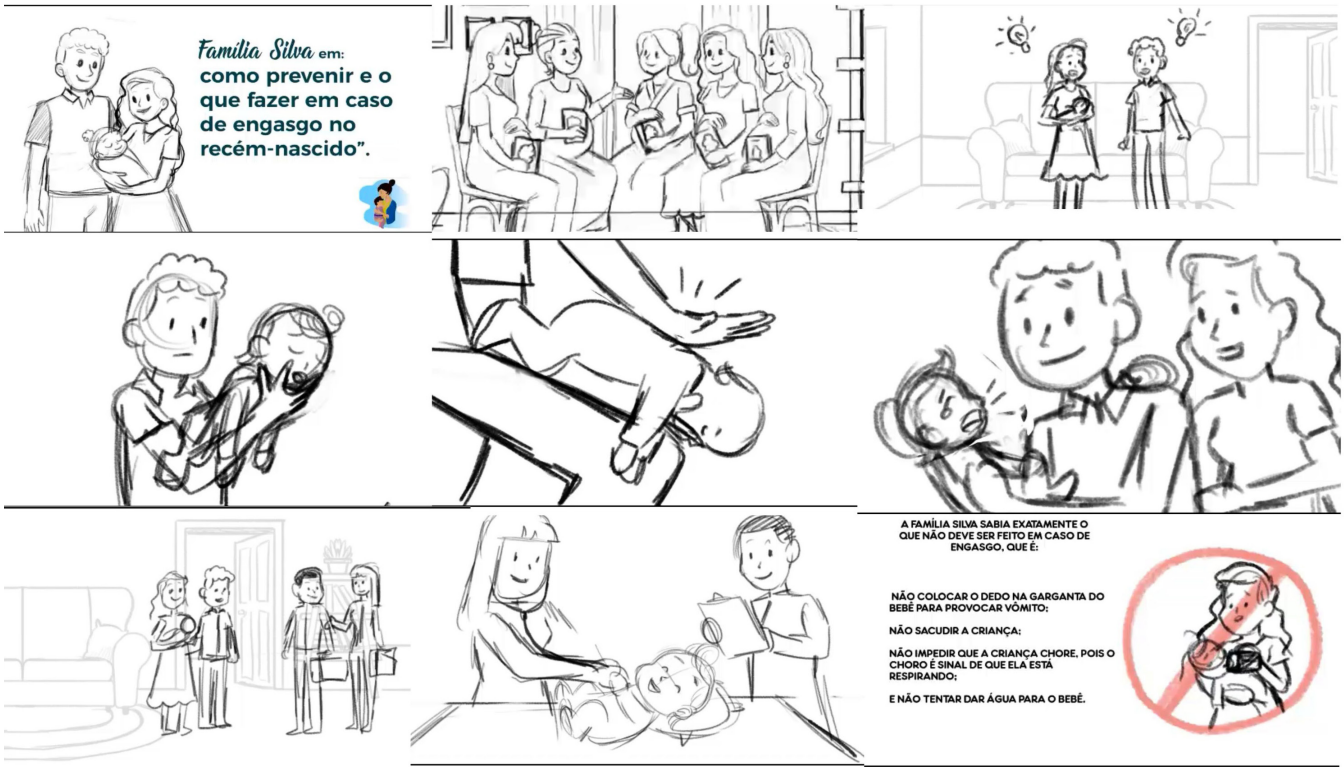

Figure 1. Scenes from the animatic for previewing the video. Rio das Ostras, Brazil, 2025.
Legend: The Silva family in: how to prevent and what to do in case of choking of a newborn; The Silva family knew exactly what not to do in case of choking, which is: do not put your finger down the baby's throat to induce vomiting; do not shake the head; do not stop the children from crying, as crying is a sign that they are breathing; and do not try to give water to babies.

the distribution of text throughout the video, among other important aspects for developing the educational technology.

At this stage, the video scenes sought to reflect the daily life of a family with a newborn at home. The story of a fictional family, "The Silva Family," was told from prenatal care to their daily routine at home. The video used common settings, such as a living room and bedroom in a residence, as well as the office of a Basic Health Unit, with the narration provided by the first author.

The video content was divided into two key moments related to newborn choking: the first addressing choking caused by breast milk and the second by a solid object. Choking maneuvers were performed by newborns' parents, respectively, in a choking emergency situation, with appropriate measures being presented in each situation. Furthermore, the differences between partial and total choking, what to do and what not to do in each situation, as well as preventive measures were presented.

After the animatic was approved, the video was produced to appeal to viewers. The creator added color to the settings, objects, and characters, creating drawings based on each scene's description, and also included animations to enhance the narrative. The illustrations were created in Illustrator 29.5 and Photoshop 26.5. Scene composition was done in Premiere 25.2.2. Audio editing according to the scenes was done in Audition 25.2. And animations were created in After Effects 25.2.1, all Adobe software. Narration was performed by the first author using a voice recorder.

In the fourth stage, the video was validated by experts. Participants included 19 nurses (95%) and one physician (5%), all female, aged between 26 and 71. Concerning professional qualifications, 40% (n=8) held a doctoral degree; 35% (n=7) held a specialist degree; and 25% (n=5) held a master's degrees. Furthermore, 15 of these were specialists in their respective areas of interest, while the remainder held various specializations, including occupational health nursing, intensive care, emergency care, aesthetics, and hospital auditing, with 5% (n=1) for each specialization. All participants had experience validating educational instruments and/or technologies. Regarding professional experience, 80% (n=16) had five years or more of experience in the field.

The educational video validity by experts was satisfactory, since the overall CI reached 0.98 (98%), and all assessment items presented a CI equal to or greater than 0.90 (90.0%) (Table 1). Thus, the video was validated by experts, exceeding the minimum value of 0.70 (70%), indicating strong agreement among the evaluators in all the assessed criteria.

In the fifth stage, we sought to adjust the educational video based on experts' suggestions. Although assessment was satisfactory, several contributions were proposed (Chart 1) to make the material even more comprehensive and effective for its target audience. The acceptance or rejection of each proposal was based on the recommendation's relevance to the technology's objectives, the available scientific basis, the clarity of the proposal, and the technical and financial feasibility of implementation. Suggestions that promoted improvements in comprehension, visual fidelity, or accessibility were prioritized and incorporated. Those that deviated from the video's scope or were not supported by current evidence were justifiably not implemented.

Thus, the changes implemented based on validity with experts included adjustments to the language used to make it clearer and more accessible to the target audience, with grammatical corrections in the narrated text, as well as improvements to the video's dynamics through a slight acceleration of narration. Minor scene transition errors were also corrected, and images were added to make certain emergency behaviors more understandable. Therefore, Chart 1 details the qualitative analysis performed by experts, including aspects that were addressed, as well as those that were not, and the corresponding justifications.

In the sixth stage, related to the assessment carried out by the target audience, 32 people between the ages of 19 and 71 participated. Among them, 87.5% (n=28) were female and 12.5% (n=4) were male. The family distribution was as follows: 43.8% (n=14) were mothers (pregnant or postpartum); 34.4% (n=11) were uncles/aunts; 9.4% (n=3) were cousins; 6.3% (n=2) were grandparents; 3.1% (n=1) were parents; and 3.1% (n=1) were paternal great-grandparents. Concerning education, 65.5% (n=20) had higher education; 28.1% (n=9) had high school education; and 9.4% (n=3) had elementary education.

Regarding professional activity, 12.5% (n=4) were nurses; 12.5% (n=4) were housewives; 9.4% (n=3) were educators; 6.3% (n=2) were nursing technicians; 6.3% (n=2) were financial analysts; 6.3% (n=2) were self-employed; 6.3% (n=2) were students; 3.1% (n=1) were administrators; 3.1% (n=1) were lawyers; 3.1% (n=1) were agricultural workers; 3.1% (n=1) were architects; 3.1% (n=1) were administrative assistants; 3.1% (n=1) were tax assistants; 3.1% (n=1) were receptionists; 3.1% (n=1) were retired; 3.1% (n=1) were dentists; 3.1% (n=1) were physiotherapists; 3.1% (n=1) were physicians; 3.1% (n=1) were military personnel; and 3.1% (n=1) were nutritionists.

Of the items assessed by the target audience, only one obtained a CI lower than 1 (100%), item 5, about the environment presented in the "reflecting on families' daily lives" video, which obtained a CI of 0.96 (96%). Therefore, the overall CI reached the value of 0.99%, showing that the assessment was highly satisfactory (Table 2). Thus, material acceptance by the target audience and its applicability as a comprehensible and accessible educational tool were evidenced.

In the assessment conducted by the target audience, positive aspects of the video stood out, such as clarity and didactic presentation of information throughout. Three mothers reported the video's importance given the insecurity generated by the arrival of a newborn and the spread of fake news on social media. However, there were no suggestions for adjustments.

In the research, the video presented three previous versions obtained from the analyses carried out among the authors, until the final version, lasting 10 minutes and 56 seconds, after experts' analysis (Figure 2). Furthermore, the final version of the educational video incorporated the most recent updates from

Table 1. Experts' assessment (n=20) regarding functionality, usability, efficiency, audiovisual technique, environment, and procedure. Rio das Ostras, RJ, Brazil, 2025.

Item	Inadequate/partially inadequate	Adequate/partially adequate	Item CI
FUNCTIONALITY			
1.0 Is the video an appropriate tool for its intended purpose?	0	20	1
1.1 Does the video enable positive results to be generated in the teaching-learning process of preventing and managing choking in newborns?	0	20	1
USABILITY			
2.0 Is the video easy to use?	0	20	1
2.1 Is it easy to learn the theoretical concepts used and their applications in the video?	0	20	1
2.2 Does the video allow customers/users to easily apply the concepts covered in everyday life?	1	19	0.95
EFFICIENCY			
3.0 Is the duration (video length) adequate for the user to learn the content?	2	18	0.90
3.1 Is the scene length consistent with the proposed video length?	1	19	0.95
AUDIOVISUAL TECHNIQUE			
4.0 Is the video image quality adequate for viewing the scenes?	0	20	1
4.1 Are the narrator's tone and voice appropriate?	1	19	0.95
4.2 Is the video narration used effectively and understandably by the target audience?	1	19	0.95
4.3 Is it possible to return to previous scenes whenever desired?	0	20	1
ENVIRONMENT			
5.0 Does the video reflect families' daily lives?	1	19	0.95
5.1 Did the environment reproduced in animation not interfere with the accuracy of choking prevention and management in newborns?	0	20	1
PROCEDURE			
6.0 Are the objectives of the educational video clear and well-structured?	0	20	1
6.1 Were the functionality and techniques for preventing and managing choking in newborns explained correctly?	0	20	1
6.2 Was the purpose of preventing and managing choking in full-term newborns presented?	0	20	1
6.3 Are the objectives related to preventing and managing choking in newborns clear and accurate?	0	20	1
6.4 Was the step-by-step process for preventing and managing choking in newborns presented?	0	20	1
6.5 Were the procedural stages identified and appropriate?	0	20	1
OVERALL CI: 0.98			

Note: CI - Concordance Index.

Chart 1. Summary of the qualitative analysis of the changes proposed by experts. Rio das Ostras, RJ, Brazil, 2025.

Experts' suggestions	Modification met	Justification
[...] in the first scene of the video that shows a "floppy body," the baby's movements are strange and don't demonstrate the situation adequately.	Yes	The newborn's expression was modified in order to facilitate understanding for the target audience and make the animation more in line with reality.
[...] I suggest that the nurse in the video move her mouth while speaking, as this makes it seem like it's just a static illustration.	Yes	The healthcare professional's lip movements were altered to make the video more interactive, engaging, and engaging with the viewer.
[...] in the video, when she talks about choking on liquids, the baby appears to be smiling.	Yes	The newborn's expression was modified to make the images and scenes more appropriate and relevant to the emergency.
[...] the narration is slow; you could consider reducing the video's length, perhaps speeding up the narration slightly. The content is quite clear, with a well-structured explanation and excellent diction, but the current pace seems a bit slow, which could make it difficult to maintain the target audience's interest.	Yes	Although the topic involves several specificities and requires adequate synthesis to present the key points clearly, to avoid distractions and disinterest from the target audience, a slight change was made to the video speed, resulting in a shorter running time.
[...] you could consider reducing the video's length, perhaps speeding up the narration slightly.	Yes	The video was sped up slightly to make it more dynamic.
[...] the transition from screen 7:11 to 7:12 is overlapping, with the family appearing behind the speech bubble. Also in this part, when it says that cardiopulmonary resuscitation is needed, the choking maneuvers continue to appear in the thought bubble. I think it would be interesting to show the nurse performing compressions on the baby in the thought bubble to avoid confusion.	Yes	Scene error adjusted with the responsible professional, as well as added scene of the healthcare professional performing compressions on the thought bubble.
[...] I think it's important to explain cardiopulmonary resuscitation maneuvers.	No	This topic was not included in the video to avoid making it too long.
[...] I think the technique of displaying the letters interferes with the audio and reading! I suggest removing the animation on the letters.	No	The animation was maintained to make the video more engaging, as leaving the letters still would have made the video monotonous.
[...] it doesn't mention the appropriate time to perform the maneuvers.	No	The literature suggests that the maneuver can be performed as many times as necessary.
[...] the video is long; I suggest removing the introduction and focusing more on the choking maneuvers.	No	Removing these initial scenes would have decontextualized the video and fragmented the storytelling. Furthermore, this introduction allows families to feel represented.
[...] if you turn the baby over onto her back, apply compressions, and she still doesn't choke? Add it to the video.	No	Throughout the video, the video covers the step-by-step process of how to expel a newborn's breath and, if this fails, call emergency services or the fire department.

Table 2. Target audience's (n=32) assessment regarding functionality, usability, efficiency, audiovisual technique, environment, and procedure. Rio das Ostras, RJ, Brazil, 2025.

Item	Inadequate/ partially inadequate	Adequate/ partially adequate	Item CI
FUNCTIONALITY			
1.0 Is the video an appropriate tool for its intended purpose?	0	32	1
1.1 Does the video enable positive results to be generated in the teaching-learning process of preventing and managing choking in newborns?	0	32	1
USABILITY			
2.0 Is the video easy to use?	0	32	1
2.1 Is it easy to learn the theoretical concepts used and their applications in the video?	0	32	1
2.2 Does the video allow customers/users to easily apply the concepts covered in everyday life?	0	32	1
EFFICIENCY			
3.0 Is the duration (video length) adequate for the user to learn the content?	0	32	1
3.1 Is the scene length consistent with the proposed video length?	0	32	1
AUDIOVISUAL TECHNIQUE			
4.0 Is the video image quality adequate for watching the scenes?	0	32	1
4.1 Is the narrator's tone and voice appropriate?	0	32	1
4.2 Is the video narration used efficiently and understandably by the target audience?	0	32	1
4.3 Is it possible to return to previous scenes whenever desired?	0	32	1
ENVIRONMENT			
5.0 Does the video reflect families' daily lives?	1	31	0.96
5.1 Did the environment reproduced in animation not interfere with the accuracy of choking prevention and management in newborns?	0	32	1
PROCEDURE			
6.0 Are the objectives of the educational video clear and well-structured?	0	32	1
6.1 Were the functionality and techniques for preventing and managing newborn choking correctly explained?	0	32	1
6.2 Were the purposes of preventing and managing newborn choking presented?	0	32	1
6.3 Are the objectives related to preventing and managing newborn choking clear and accurate?	0	32	1
6.4 Was the step-by-step presentation related to preventing and managing newborn choking presented?	0	32	1
6.5 Were the procedural stages identified and appropriate?	0	32	1
OVERALL CI: 0.99			

Note: CI - Concordance Index.

Figure 2. Mosaic of scenes from the educational video. Rio das Ostras, RJ, Brazil, 2025.
Legend: The Silva family in: how to prevent and what to do in case of choking of a newborn; between the shoulder blades; The Silva family knew exactly what not to do in case of choking, which is: do not put your finger down the baby's throat to induce vomiting; do not shake the head; do not stop the children from crying, as crying is a sign that they are breathing; and do not try to give water to babies

the SPSP, including the differentiation of conduct in cases of choking on liquids, as recommended in 2024. If new guidelines are released by institutions such as the AHA or the SBP, the video content will be reassessed for future updates.

The video is available on YouTube®, accessible via QR Code, and on social media and the website of "*Do Parto ao Domicílio*" project, with the aim of reaching a larger audience through the links: www.dopartoaodomicilio.com.br and https://youtu.be/pBAXz8wbEm4?si=9iVhrk_sPyTfjFRl. The technology is designed to be used by both family members at home and healthcare professionals, including nurses, in clinical practice at different levels of healthcare. Its purpose is to provide guidance and encourage family care, focusing on preventing and managing health risks for newborns.

DISCUSSION

The educational health video on prevention and management of choking in newborns was developed, validated and assessed satisfactorily. The assessment items reached high levels in relation to established criteria, exceeding the minimum number of evaluators for assessment and validity.[33]

The current study is relevant, especially considering that, although there are several studies on educational health technologies for choking, such as applications, online courses, 3D animations and websites, there was still no development of technologies in video format focused on choking in newborns for family members.[37] Thus, this work is original and innovative both in terms of format and complex topic, aiming to fill this knowledge

gap, with the objective of popularizing essential information and appropriate practices related to this serious public health problem.

The audiovisual format has great reach through digital platforms such as YouTube®,[38] where the video in this study is hosted. This platform was chosen for its broad accessibility, convenience, and immediate, free, and continuous provision of information, strengthening health literacy.[39] This way, the video will be available, offering family members quick and practical access to specific information, regardless of time or place.

A study conducted in the United States of America found that most pregnant women chose to use animated videos to receive guidance on prematurity, demonstrating greater effectiveness, especially among those with a lower level of education. Furthermore, the videos proved to be a more attractive educational method, providing greater engagement among study participants regarding prenatal education on premature birth.[40] Similarly, research in the Netherlands on young adults' preferences in the development of a new digital intervention on alcohol consumption during depression treatment observed participants' preference for educational videos and illustrations of animated figures to complement the guidelines in text format, supporting the contribution of this tool as a support and information network.[41]

At the national level, research on educational technologies for insulin therapy, home bathing of full-term newborns, and patient education during the perioperative period of robotic surgeries[25,28,42] has shown great potential, but has been limited to expert validity. This aspect distinguishes the present study, which adopts a more comprehensive methodological approach, including the target audience in the assessment process.

For studies like this to achieve more effective results, it is necessary to assess the technology with the interest group, in order to adjust it to the needs indicated by viewers.[43] Therefore, expert validity alone is not sufficient to guarantee the effectiveness of a health technology, which is one of the distinguishing features of this study, which meets all stages of the process. In this regard, a study of an educational video on first aid for choking in schools yielded similar results, with satisfactory assessments from both experts and the target audience, with CIs of 97% and 99%, respectively.[30] Despite the positive assessments, both studies required adjustments to make the educational materials more appropriate for family health education.

In the current study, expert validity revealed that the lowest CI was for item 3.0, "Is the duration (video time) adequate for the user to learn the content?", which scored 90% (CI: 0.90). This result suggests that some experts disagreed with the video's length, considering it too long. However, the video met the literature's specifications, which indicate that the ideal length for an educational technology should not exceed 10 to 15 minutes.[22] Still, considering that the target audience tends to maintain greater attention in narratives of up to 11 minutes, experts' suggestion was accepted.[44,45] As a measure of adequacy, the video was slightly accelerated, with the aim of increasing audience retention until the end.

An assessment with the target audience revealed that item 5.0, "Does the video reflect families' daily lives?", had the lowest CI, reaching 96% (CI=0.96), while the other items reached 100%. Despite this, the item received an excellent rating. It is noteworthy that the study carefully sought to develop illustrations that reflect newborn caregivers' daily lives, based on evidence that demonstrates the effectiveness of illustrations in capturing attention and improving health education.[19,46]

It is worth noting that the use of elaborate language and excessive technical terms can hinder the understanding of educational materials, leading to errors during the implementation of health practices. The use of simple and accessible language, combined with self-explanatory images, can improve the effectiveness of educational technologies.[47] Therefore, in this study, a clear and objective approach was chosen, appropriate to the target audience, ensuring the effectiveness of the educational material.

CONCLUSION AND IMPLICATIONS FOR PRACTICE

The educational video proved to be valid in terms of functionality, usability, efficiency, audiovisual technique, environment and procedure, in addition to being well accepted by the target audience. It is a promising tool for health education of family members on choking management in newborns. It is freely available and can be used in educational activities with family members. It is recommended that future studies investigate its implementation in different contexts and assess its longitudinal effectiveness.

The study has some limitations that are worth highlighting. First, the difficulty in accessing individuals outside the initial network of contacts restricted participant diversity and representativeness. The dependence on the Internet to access and assess the video is another significant limitation, as it may have excluded participants with poor or no connections. In addition, a possible response bias may have influenced the assessments, since participants, aware of the study objective, tend to assess the video more positively than in a more natural context without external influences.

These limitations indicate areas for improvement in future studies, such as strategies to reach a more diverse and representative sample through partnerships with health facilities, as well as developing strategies to reach families with limited internet access, such as supervised viewing in collective settings, such as waiting rooms in health facilities, rooming-in, or provision on institutional devices.

Implications for healthcare and nursing practice are significant, especially with regard to empowering newborn caregivers. One important aspect is that the video reaches not only the immediate target audience, but the entire family, involving anyone who may act as a caregiver. This reach is positive, since in emergencies, such as a newborn choking, initial care is often not provided by healthcare professionals. In addition, the educational video can also strengthen the clinical practice of healthcare professionals, especially nurses, as it is a tool applicable in daily nursing practice and can be used at different levels of healthcare.

The use of audiovisual formats is promising as they can facilitate learning for family members by combining visual,

narrative and audio elements that promote information retention, audience engagement and memorization of procedures to be carried out in emergency situations. This accessible and dynamic language helps to reduce anxiety and increase self-confidence among caregivers.

Video validity by experts guarantees information technical and scientific accuracy, ensuring the content's fidelity to current recommendations on managing choking in newborns. Assessment by the target audience allows us to verify the video's applicability in everyday life, demonstrating its comprehension and acceptance. This double validity increases the educational technology's credibility, enhancing its future impact on family health education, aiming to promote health and reduce infant morbidity and mortality.

By providing clear and accessible guidance, educational videos have the potential to be a valuable tool in preventing and managing choking. They aim to be an enlightening resource for laypeople, providing clear information that allows families to acquire the necessary knowledge and act confidently to provide first aid. By incorporating audiovisual resources, such as videos, into educational practices, nurses can optimize the effectiveness of guidance, providing more dynamic and lasting learning that can be easily accessed in times of need.

The use of educational technologies in health can encourage nursing professionals to adopt innovative practices in their pedagogical approaches, becoming more effective in providing health education in an accessible and efficient manner. Thus, the tool promotes health literacy among those directly involved in newborn care, contributing to the reduction of morbidity and mortality in this population.

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DATA AVAILABILITY RESEARCH

The contents underlying the research text are included in the article.

CONFLICTS OF INTEREST

None.

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AUTHOR'S CONTRIBUTIONS

Study design. Nátale Gabriele Ferreira Nunes. Fernanda Garcia Bezerra Góes.

Data acquisition. Nátale Gabriele Ferreira Nunes. Fernanda Garcia Bezerra Góes.

Data analysis and interpretation of results. Nátale Gabriele Ferreira Nunes. Fernanda Garcia Bezerra Góes. Liliane Faria da Silva. Aline Cerqueira Santos Santana da Silva. Maithê de Carvalho e Lemos Goulart. Leticia de Assis Santos.

Manuscript writing and critical review. Nátale Gabriele Ferreira Nunes. Fernanda Garcia Bezerra Góes. Liliane Faria da Silva. Aline Cerqueira Santos Santana da Silva. Maithê de Carvalho e Lemos Goulart. Leticia de Assis Santos.

Approval of the final version of the article. Nátale Gabriele Ferreira Nunes. Fernanda Garcia Bezerra Góes. Liliane Faria da Silva. Aline Cerqueira Santos Santana da Silva. Maithê de Carvalho e Lemos Goulart. Leticia de Assis Santos.

Responsibility for all aspects of the content and integrity of the published article. Nátale Gabriele Ferreira Nunes. Fernanda Garcia Bezerra Góes. Liliane Faria da Silva. Aline Cerqueira Santos Santana da Silva. Maithê de Carvalho e Lemos Goulart. Leticia de Assis Santos.

ASSOCIATED EDITOR

Aline Okido

SCIENTIFIC EDITOR

Marcelle Miranda da Silva

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