

Vaccination in childhood: health education video for parents and guardians

Vacinação na infância: vídeo para educação em saúde para pais e responsáveis

Vacunación en la infancia: vídeo para la educación en salud de padres y tutores



Viviane Nogueira Borges Trajano^a

Paola Cristina de Castro^b

Silvia Matumoto^c

Tauani Zampieri Fermino^c

Luciana Mara Monti Fonseca^c

Gloria Lúcia Alves Figueiredo^d

Angelina Lettiere-Viana^c

How to cite this article:

Trajano VNB, Castro PC, Matumoto S, Fermino TZ, Fonseca LMM, Figueiredo GLA, et al. Vaccination in childhood: health education video for parents and guardians. Rev Gaúcha Enferm. 2024;45(spe1):e20240009. <https://doi.org/10.1590/1983-1447.2024.20240009.en>

ABSTRACT

Objective: To develop, validate, and evaluate an educational video on childhood vaccination for parents and guardians.

Method: Methodological study in three phases. Pre-production included: script, storyboard, recruitment and validation by experts. During production, the video was created and validated by experts and the target audience. In post-production, the video was edited. The experts consisted of 20 health workers, professors and researchers (child health, immunization, health education and video production). The target audience consisted of 11 parents and guardians. Instruments were used for experts and the target audience and submitted to Content Validity Index analysis, with a minimum parameter of 0.80 for validity and evaluation.

Results: The video, lasting 4 minutes and 25 seconds, was considered validated by experts and evaluated by parents and guardians, with an Overall Content Validity Index of 0.99 and 1.00, respectively. All validation and evaluation items obtained indexes equal to or greater than 0.95.

Conclusion: The educational video developed was considered validated by experts and evaluated by the target audience, serving as a tool to encourage parents and guardians to promote child health and reduce vaccine-preventable diseases.

Descriptors: Vaccination. Child welfare. Health education. Audiovisual aids

RESUMO

Objetivo: Construir, validar e avaliar um vídeo educativo sobre a vacinação na infância para pais e responsáveis.

Método: Estudo metodológico em três fases. Na pré-produção realizou-se: roteiro, *storyboard*, recrutamento e validação pelos *experts*. Na produção, realizou-se: o vídeo e a validação pelos *experts* e pelo público-alvo. Na pós-produção realizou-se a edição do vídeo. Os *experts* foram 20 trabalhadores da saúde, docentes e pesquisadores (saúde da criança, imunização, educação em saúde e produção de vídeo). O público-alvo foram 11 pais e responsáveis. Foram utilizados instrumentos para os *experts* e para o público-alvo e submetidos à análise de Índice de Validade de Conteúdo, considerado de no mínimo 0,80, como parâmetro para validade e avaliação.

Resultados: O vídeo, com duração de 4 minutos e 25 segundos, foi considerado validado pelos *experts* e avaliado pelos pais e responsáveis, com Índice de Validade de Conteúdo Geral de 0,99 e 1,00, respectivamente. Todos os itens de validação e avaliação obtiveram índices iguais ou maiores a 0,95.

Conclusão: O vídeo educativo desenvolvido foi considerado validado pelos *experts* e avaliado pelo público-alvo, podendo ser uma ferramenta para o incentivo aos pais e responsáveis na promoção de saúde infantil e na redução de doenças imunopreveníveis.

Descritores: Vacinação. Proteção da criança. Educação em saúde. Recursos audiovisuais

RESUMEN

Objetivo: Construir, validar y evaluar un video educativo sobre vacunación infantil para padres y tutores.

Método: Estudio metodológico en tres fases. La preproducción incluyó: guion, *storyboard*, reclutamiento y validación por expertos. Durante la producción se creó el video y validó por expertos y por el público objetivo. En postproducción, el video fue editado. Los expertos fueron 20 trabajadores sanitarios, profesores e investigadores (salud infantil, inmunización, educación sanitaria y producción de videos). El público objetivo fueron 11 padres y tutores. Se utilizaron instrumentos para expertos y público objetivo y se sometieron a análisis del Índice de Validez de Contenido, considerado al menos 0,80, como parámetro de validez y evaluación.

Resultados: El video, de 4 minutos y 25 segundos de duración, fue considerado validado por expertos y evaluado por padres y tutores, con un Índice de Validez General de Contenido de 0,99 y 1,00, respectivamente. Todos los ítems de validación y evaluación obtuvieron índices iguales o superiores a 0,95.

Conclusión: El video educativo desarrollado fue considerado validado por expertos y evaluado por el público objetivo, y puede ser una herramienta para alentar a los padres y tutores a promover la salud infantil y reducir las enfermedades prevenibles mediante vacunas.

Descriptores: Vacunación. Protección a la infancia. Educación en salud. Recursos audiovisuales

^a Prefeitura Municipal de Franca, Franca, São Paulo, Brasil.

^b Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto, Programa de Pós-Graduação Enfermagem em Saúde Pública, Ribeirão Preto, São Paulo, Brasil.

^c Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto, Departamento Materno-Infantil e Saúde Pública, Ribeirão Preto, São Paulo, Brasil.

^d Pesquisador autônomo, Franca, São Paulo, Brasil.

INTRODUCTION

Commitment to vaccinating children is important because, in addition to providing individual protection, it controls vaccine-preventable diseases and strengthens collective immunity, preventing the spread of serious diseases that can lead to sequelae in individuals, or even to death, especially in children up to one year old⁽¹⁾. However, in recent decades, there has been hesitancy and refusal to vaccinate, mainly by parents/guardians of children. Furthermore, in this context, anti-vaccine movements have had an impact on the actions of parents/guardians, and such actions have an impact on vaccination coverage posing risks to the growth and development of children^(2,3).

The factors associated with non-adherence to immunization, as evidenced in the literature, are: lack of parental knowledge, fake news, religious issues, parental occupation, number of children, fear of contracting a disease, and lack of trust in the vaccine^(4,5). However, studies show that greater access to the media, especially the internet, the provision of targeted services and personalized information about the vaccine increase the intention of parents/guardians to vaccinate children and reduce vaccine hesitancy^(4,6).

Regarding the teaching-learning process, Educational Technologies (ET) are technological resources that can strengthen and enhance the process of access to knowledge. Among the resources available in the health area and nursing, are educational videos for the community/target audience designed to raise awareness, minimize doubts, contribute to decision-making in lifestyle and promote autonomy and self-care in health⁽⁷⁻⁹⁾.

Therefore, the use of ET is presented as a didactic resource, since it provides information, aims to guide and raise awareness among the target audience, and has the power to encourage processes of change in thought and behavior, becoming an important tool for promoting vaccination, which is the focus of this study⁽¹⁰⁾. Additionally, the use of ET to promote access to information about vaccination indirectly contributes to achieving the Sustainable Development Goals (SDG), specifically Goal 3: Good Health and Well-Being, with the potential of improving vaccination coverage rates among the population^(11,12).

In this context, the ET produced by the Ministry of Health (MH) in Brazil, such as institutional campaigns that using television media and the web (folders and blogs), along with printed posters, are considered a source of information⁽⁸⁾. However, most videos found online about vaccination are specific to certain campaigns and have not been validated by experts or evaluated by the target audience. Moreover, considering the anti-vaccine movements; low vaccination

coverage; and fake news surrounding the field of immunization, it is assumed that developing an educational resource could help provide parents/guardians with information about the importance of vaccination.

In the literature review conducted for this study, five studies with videos on vaccination themes were found. One video about a clinical simulation scenario for preventing immunization errors⁽¹³⁾, two about Human Papilloma Virus (HPV) in adolescents^(14,15), one about pneumococcal vaccination in adults and children⁽¹⁶⁾ and, finally, one about vaccination in childhood⁽¹⁾. Among those related to vaccination in childhood, none of the videos were focused health education for parents/guardians.

Therefore, given the transformations in people's lifestyles, resulting from the determinants of the health-disease process, which impact health situations, such as vaccine hesitancy and refusal, mainly due to parental lack of knowledge, and with ET as a resource for accessing knowledge, it is necessary to disseminate this knowledge to strengthen actions that impact the reduction of vaccine-preventable diseases. Therefore, the objective of this study was to develop, validate and evaluate an educational video about vaccination in childhood for parents and guardians.

METHOD

Methodological study of technology production (educational video), consisting of three phases: pre-production, production and post-production⁽¹⁷⁾. The study was conducted from November 2022 to November 2023.

The pre-production phase consisted of seven stages: literature review; story development; script construction; storyboard creation; selection of content and appearance experts for storyboard validation; selection of necessary instruments for storyboard validation; and finally, validation by the experts.

In the literature review stage, the Manual of Epidemiological Surveillance of Adverse Events Following Vaccination⁽¹⁸⁾ and the Technical Standard of the Immunization Program⁽¹⁹⁾ were adopted to select the content relevant to the video story. Next, the script was prepared, considering simple language for the target audience. For storyboard creation, images were selected that represented the message to be conveyed. The storyboard consisted of the story, script, and figures, which were inserted into a five-page Microsoft Word document with ten scenes, resembling a comic book, to get an idea of the layout, dialogues, plot, and animation that would be necessary for the video development^(17,20).

For selecting content and appearance experts for storyboard validation, the inclusion criteria were: health workers

(with at least one of the following conditions: experience in vaccination rooms, health unit workers, or management in epidemiological surveillance); professors and researchers (in at least one of the following areas: child health, immunization, health education, and video production). The criterion for loss was non-responses to the email invitation after three attempts made biweekly.

The non-probabilistic intentional sampling technique was used to select the experts. Thus, 42 experts, health workers, professors, and researchers from public universities and technical nursing courses were invited. The health professionals were nursing technicians, nurses and/or physicians from the Municipal Health Department of Franca, State of São Paulo. To select the professors and researchers, the public universities and technical nursing schools websites, in the State of São Paulo were consulted, as well as the Lattes Platform of the Directory of the National Council for Scientific and Technological Development (*Conselho Nacional de Desenvolvimento Científico e Tecnológico* – CNPq), to verify the relevance of the inclusion criteria.

Of the 42 invited (health workers and professors and researchers), 27 were invited by email and 15 were invited in person. Of these, 20 agreed to participate, with five responding by email and 15 in person. There were no refusals to the personal approach, and the people who did not respond to the invitation email (n=22) were considered losses from the study. The email invitations contained a link to Google Forms platform, through which the experts had access to a copy of the Informed Consent Form (ICF) and a participation acceptance icon. Afterwards, they had access to the storyboard and the validation instrument to analyze and comment on each item. For those who responded in person, the researcher contacted them by phone to schedule data collection and, after their acceptance, they were instructed to read and sign the ICF and submit a copy of the ICF, the storyboard and the validation instrument, in printed form. The invitation and response period for the storyboard validation stage was from August to September 2023.

The instrument⁽²¹⁾ used was adapted for storyboard validation and consisted of 14 items grouped into three dimensions: objectives; structure and presentation; and relevance. Eight questions were removed during adaptation, one from the objectives dimension, five from the structure and presentation dimension (focused on booklets production) and two from the relevance dimension. The objectives refer to the purposes intended to achieve with the technology; the structure and presentation refer to the way of presenting the guidelines, which includes general organization, structure, presentation strategy, coherence and formatting; and the relevance dimension refers to the characteristics that assess

the technological significance. The items were arranged on a Likert scale: 1 totally adequate, 2 adequate, 3 partially adequate and 4 inadequate. Additionally, some questions were included to participant characterization such as: age, gender, area of training, time since training, working experience, degree and area of title.

The production phase consisted of the construction of the video; selection of content and appearance experts and the target audience for validation and evaluation, respectively; selection of the instruments necessary for validation and evaluation; and, finally, validation by the experts and evaluation by the target audience⁽¹⁷⁾. In this phase, a research was made of companies that provide video production and voiceover services. The video development process by the company was monitored by the researchers. The programs used to create the animated video were Adobe Photoshop (image creation/editing) and Adobe After Effects (animation/video editing).

After the video was created, validation was performed by the experts. The same criteria used in the pre-production phase were used to select the content experts. Twenty experts were invited, seventeen of whom were healthcare professionals and three were professors and researchers from public universities or technical nursing courses. Of these, 19 experts had participated in the storyboard validation phase. Of the 20 invited participants, six were invited via email and 14 in person, and all agreed to participate in the study. There were no refusals, exclusions, or losses of participants. Invitations followed the same recommendations already described in the pre-production phase, both by email and in person. The invitation and response period for the video validation stage was from October to November 2023.

The instrument⁽²¹⁾ used for video validation was the same as in the pre-production phase. In this stage, more items from the instrument were used, with the adaptation replacing the word booklet with video. There were 22 items grouped into the same dimensions described above. In addition to the validation instrument, some characterization questions about the participants were included, such as: age; gender; city; state; profession; undergraduate education; year of completion; academic degree; specialization; year of completion of specialization; whether the research developed was related to the topic of childhood vaccination; whether the participant works with users and parents of children needing vaccination; whether the participant works in the teaching-learning process; where they work; and work experience.

Once the expert validation process and video adjustments were completed, the content and appearance of the video were evaluated by the target audience. The target audience was selected by the researcher in the waiting room of a health

unit located in the city of Franca, waiting for parents and guardians for children vaccination. The inclusion criteria were: community members over 18 years old who had children or were caregivers/guardians of children. The exclusion criteria were: adolescent parents/guardians, people who had some degree of deafness or blindness, since the video did not have the resources to serve this population. Thus, people who met the established requirements were invited to participate in this research. Eleven people were invited, and all agreed to participate. There were no refusals or exclusions of participants. These participants were provided with a physical instrument through which they could evaluate and comment on each item, in addition to the video presentation on the researcher's phone and a copy of the ICF. The invitation and response period for the video evaluation stage was in October 2023.

The instrument⁽²¹⁾ used for the video evaluation was the same as in the pre-production phase, adapted for this phase, and contained seven items grouped into the same dimensions described above. In the adaptation, 15 questions were removed: three from the objectives dimension, nine from the structure and presentation dimension, and three from the relevance dimension. Since this instrument was for experts, and easier questions were preferred for the target audience. In this sense, the language was also adapted without losing meaning. In addition to the evaluation instrument, characterization questions about the participants were included, such as: age, gender, city, state, and education level.

In post-production, video editing and finalization were carried out⁽¹⁷⁾. During editing, adjustments were made to the scenes and audio, correcting images, texts, and animations in the video as suggested by the expert participants of this study. Finally, the revised and edited video was made available on open access platforms.

The data from the instruments used for validation and evaluation were organized into electronic spreadsheets in Microsoft Excel, with double entry, and exported to statistical software IBM® SPSS® Statistics version 25 and R i386 v.3.4.0 and were analyzed using descriptive statistics by percentage, frequency and mean. Additionally, the data were analyzed by calculating the Content Validity Index (CVI), which measures the percentage of agreement of the responses according to the items related to the content being studied⁽²²⁾. This calculation was made by dividing the number of participants who rated each item as adequate (1 totally adequate and 2 adequate) by the total number of participants (evaluation per item), resulting in the proportion of experts who deemed the item validated and the target audience. To calculate the overall CVI of the instrument, the sum of all CVI calculated

separately was divided by the number of items. An agreement rate of at least 0.80 was considered a parameter for validity and evaluation of the material⁽²²⁾.

The study was developed in compliance with the recommendations established by Resolution 466/2012 of the National Health Council. The project was approved by the Municipal Health Department and the Research Ethics Committee with Certificate of Presentation of Ethical Appreciation (CAAE) 67819222,0,0000,5393 and opinion no. 6,111,056.

■ RESULTS

For the development of the educational video, a storyboard titled "The importance of vaccination in young children" was created. The scenes addressed the following topics: the importance of the National Immunization Program (*Programa Nacional de Imunização – PNI*), examples of vaccines available to the population, the age at which vaccination begins, the location where vaccination takes place, the importance of attending the scheduled vaccination date and presenting the vaccination card on the day of vaccination, the main routes of vaccine administration in children, possible reactions, doubts regarding vaccination, fake news and, finally, the health benefits for children when vaccinations are up to date.

The 20 experts who participated in the storyboard validation stage had a minimum age of 26 and a maximum of 65 years, with an average of 48 years, and 18 individuals declared themselves to be female (90%). In terms of training, eleven were nurses (55%), eight were nursing technicians (40%) and one was a physician (5%). Regarding years of experience, the minimum was one year, the maximum was 44 years, and the average was 15 years. The minimum working time was six months, the maximum was 44 years, and the average was 22 years. Regarding postgraduate studies, *lato sensu* and *stricto sensu*, 10 people (50%) did not have a postgraduate degree, six had a specialization (30%) and four had a master's degree (20%). Among the 10 who had postgraduate degrees at the time of data collection, the most cited areas were public health and health promotion (comprising 20% of the expert sample), along with specializations in the areas of occupational nursing, occupational medicine, health sciences, intensive care, emergency care, and neonatology.

The content and appearance of the storyboard were considered validated by the experts, with an overall CVI of 0.96. All items were validated with an average higher than 0.80, as shown in Table 1.

Table 1 – Content validity index by experts (n=20), for the storyboard, according to objectives, structure and presentation, and relevance. Franca, São Paulo, Brazil, 2023.

Items evaluated by experts – storyboard		CVI*
1.Objective		
1.1 Is the information/content in line with the daily needs of the target audience?		1.00
1.2 Is the information/content important for the quality of life of the target audience?		0.95
Does it invite and/or instigate a change in behavior and attitude?		1.00
1.4 Can it circulate in the scientific community of the area?		0.95
2.Structure and Presentation		
2.1 Is it appropriate for the target audience?		1.00
2.2 Are the messages presented in a clear and objective manner?		0.90
2.3 Is the information presented scientifically correct?		0.95
2.4 Is the material appropriate for the sociocultural level of the target audience?		0.95
2.5 Is there a logical sequence of the proposed content?		1.00
2.6 Is the information well structured in terms of agreement and spelling?		0.95
2.7 Does the writing style correspond to the level of knowledge of the target audience?		0.95
3.Relevance		
3.1 Does it propose the construction of knowledge?		1.00
3.2 Does it address the topics that the target audience needs to know?		0.95
3.3 Is it suitable for use by a healthcare professional with the target audience?		0.95
OCVI†		0.96

Source: author's database, 2023

*Content Validation Index (CVI). †Overall Content Validation Index (OCVI).

The experts made suggestions that included: 1) adding information on vaccine reactions and how to act after such reaction; 2) making it clear that diseases are returning due to low vaccination coverage; and 3) informing about fake news related to vaccination. All suggestions were accepted, except two, about the information on the PNI being vague and the production of a video about the vaccination campaign, since these suggestions were not in the scope of the research and would exceed the time of the video. There was

no second round of validation after the suggestions were incorporated into the storyboard.

The animated video titled "The Importance of Childhood Vaccination" is 4 minutes and 25 seconds long. The video was produced from August to October 2023. The video begins with a nurse in a vaccination room introducing herself and explaining the topic of the video. Soon after, information is provided about the availability of vaccines by the Unified Health System (*Sistema Único de Saúde – SUS*), through

the PNI; about the effectiveness and quality of vaccines; availability for all ages; and the protection against diseases that vaccines offer. The video also addresses the return of some diseases due to low vaccination coverage, caused by parents/guardians failing to keep vaccinations up to date and also by fake news.

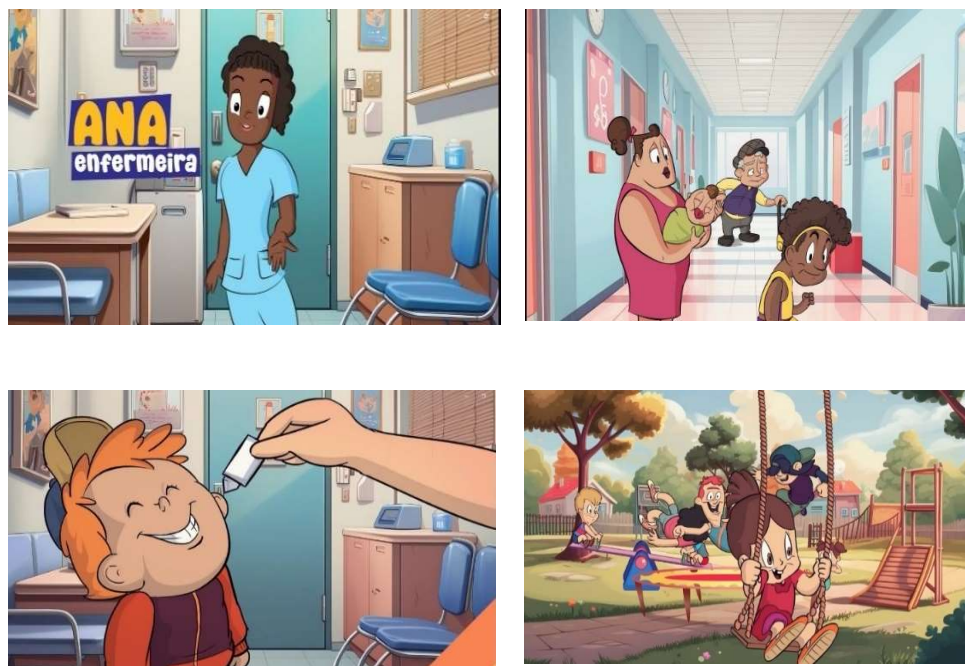
In the following scenes, the nurse informs that vaccination begins at the maternity ward with the Hepatitis B vaccine and that vaccinations are administered according to the age of each child, with the next vaccinations scheduled at the health unit closest to their residence. Furthermore, as the scenes continue, there is information about scheduling on the vaccination card, following the vaccination schedule. In this scene, a QR-CODE was included with access to the vaccination schedule of the State of São Paulo for consultation, in case the audience wants to know more about the vaccines included in the schedule. Afterwards, a scene began about the need to have the vaccination card on hand on the day of vaccination, the routes of the vaccine administration and the attention, in case the child presents any type of reaction, the most common being fever or pain and, if this happens, it is important to seek assistance at the nearest health unit.

It is informed that if there are any doubts about any fake news, the vaccination team will be attentive to clarify such doubts. The last scene of the video reinforces the importance

of vaccination for the child's health and the need for parents/guardians pay attention on their vaccination cards. Some scenes from the video can be seen in Figure 1.

After the video was produced, validation was performed with 20 experts, with a minimum age of 26 old and a maximum of 65 years old, and an average of 48 years old. Regarding the gender identity, 18 people declared to be female (90%). All were from the state of São Paulo and the city of Franca. Regarding training, 10 were nurses (50%), eight were nursing technicians (40%), one was a nursing assistant (5%), and one was a physician (5%). Regarding the time since graduation, the minimum was one year, the maximum was 44 years, and the average was 22 years. The minimum work experience was six months, the maximum was 44 years, and the average was 17 years. In the lato sensu and stricto sensu education, ten had no specialization (50%), six had specialization (30%), and four had a master's degree (20%). Of those who had specialization and master's degrees, none focused on childhood vaccination. Regarding their work in healthcare, seven worked directly with children and parents/guardians of children (35%) and thirteen with the general public (65%). The participants' workplaces were: seven in health units (35%); nine in Epidemiological Surveillance (45%); one in the Health Department (5%); and three were professors (15%).

Figure 1 – Scenes from the video “The importance of vaccination in young children”. Franca, São Paulo, Brazil, 2023.



Source: excerpt from the video, 2023

The video content and appearance were considered validated by the experts, with an Overall CVI of 0.99. All items were validated with an average greater than 0.80, as shown in Table 2.

The experts made suggestions on the scene about scheduling, as it presented incorrect information. It was modified, since scheduling is done by the vaccination room team. In

some scenes, the language used was still too technical for the target audience. In addition, they suggested that information should be provided incisively about vaccine protection and that vaccination campaigns have shown low adherence. Regarding the suggestions about scheduling and language, they were accepted and modified. The other suggestions were not accepted, since the content was already addressed

Table 2 – Content validity index by experts (n=20), for the video, according to objectives, structure and presentation, and relevance. Franca, São Paulo, Brazil, 2023.

Items evaluated by experts – educational video		CVI*
1. Objectives		
1.1 Is the information in line with the needs of transmitting to parents of children about the importance of vaccination in childhood?		1.00
1.2 Is the information important for raising awareness among parents and guardians about children vaccination?		1.00
1.3 Does the video encourage behavior change?		1.00
1.4 Does the video clarify doubts about the topic?		1.00
1.5 O Does the video favor learning and understanding about the importance of vaccination in childhood?		1.00
1.6 Is the video's duration appropriate for achieving its objectives?		1.00
2. Structure and presentation		
2.1 Is the video appropriate for parents and guardians of children?		1.00
2.2 Are the messages presented clearly and objectively?		1.00
2.3 Is the information presented scientifically correct?		0.95
2.4 Is the material appropriate to the sociocultural level of the target audience?		1.00
2.5 Is there a logical sequence of the proposed content?		1.00
2.6 Are the images presented relevant to capture attention?		1.00
2.7 Is the vocabulary/language used accessible to parents and guardians of children?		0.95
2.8 Is the content presented necessary?		1.00
2.9 Does the use of animations help in learning the topic?		1.00
2.10 Does the use of real images and simulation help in learning the topic?		1.00

Table 2 – Cont.

Items evaluated by experts – educational video		CVI*
3. Relevance		
3.1 Does the video propose the knowledge construction?		1.00
3.2 Does the video address important topics about vaccination for the knowledge of parents and guardians of children?		1.00
3.3 Is the video suitable for encouraging childhood vaccination?		1.00
3.4 Does the video stimulate interest in promoting self-care?		1.00
3.5 Is the video easy to use in Healthcare units?		1.00
3.6 Is it easy to learn the concepts used and their applications?		1.00
OCVI†		0.99

Source: author's database, 2023

*Content Validity Index (CVI). †Overall Content Validity Index (OCVI).

in the video, but was not presented incisively. There was no second round of validation after suggestions were incorporated into the video, since the content and appearance of the video would still be evaluated by the target audience.

Finally, the content and appearance were evaluated by the target audience. Eleven people participated in the video evaluation, all parents of children. The maximum age of the participants was 44 years, minimum age was 20 years, and average age was 30 years. Regarding gender, nine participants were female (82%). Regarding educational level, three did not complete high school (27%), two completed high school (18%), five have completed higher education and one has incomplete higher education (9%). Regarding the overall evaluation of the video, one person rated the video as Good (9%), two people rated the video as Very Good (18%) and eight people rated the video as Excellent (72%). All participants would recommend the video for use as an educational video.

The content and appearance of the video were considered well evaluated by the target audience, with an Overall CVI of 1.00. All items were validated with an average higher than 0.80, as shown in Table 3.

The suggestion proposed by the target audience was to increase the dissemination. This suggestion was accepted

and the video is being offered to those responsible for the Municipal Health Department of the city of Franca, São Paulo, to be shared in waiting rooms of health units and on the municipality's website.

The final version of the video is available at the following links: <https://encurtador.com.br/eVW69> and <https://youtu.be/WSgiGPx7QBM>.

DISCUSSION

The construction, validation and evaluation of ET, such as educational videos, presents as a favorable tool for the teaching-learning process related to nursing care. The use of this technology integrated with health education actions contributes to the construction of knowledge among the population, contributes in acquiring new skills, reinforces existing ones, and promotes engagement with learning and practice⁽²³⁾. Thus, such resources may contribute to health professionals in caring for children along with their parents/guardians.

The content and appearance of the animated video created was considered validated and evaluated by experts and the target audience, lending credibility to the developed

Table 3 – Content validity index in the video evaluation by the target audience (n=11), according to objectives, structure and presentation and relevance. Franca, São Paulo, Brazil, 2023.

Items evaluated by parents – video		CVI*
1. Objective		
1.1 Does the video clarify doubts about the topic?		1.00
1.2 Is the video duration adequate to convey the information?		1.00
2. Structure and Presentation		
2.1 Is the video narration easy to understand?		1.00
2.2 Did you find the sequence of the video comprehensible?		1.00
2.3 Did the use of images facilitate your learning?		1.00
3. Relevance		
3.1 Does the video stimulate your interest in carrying out the necessary vaccinations to the children under your responsibility?		1.00
3.2 Do you think the video addresses important topics about children vaccination?		1.00
OCVI†		1.00

Source: author's database, 2023

*Content Validity Index (CVI). †Overall Content Validity Index (OCVI).

product. The validation process in the development of a technology is important, as it allows us to infer legitimacy and reliability by considering that the researcher achieved his/her educational objectives⁽²⁴⁾.

Regarding the number of experts in the validation process, qualification in the field and experience are essential elements⁽²⁴⁾. Theoretical references for instrument validation processes have been used in technology validation studies and guide a number of six to 20 experts⁽²⁵⁾. Therefore, this study sought the participation of a number of participants within the recommended range to enable material analysis. The smaller number of target audience can be explained by the time spent by the researcher at the unit for data collection.

In this study, most of the experts were from the nursing team – nursing technicians, nurses – who had qualification in the study area and care practice. Nursing is directly linked to the vaccination room and plays a fundamental role in ensuring the processes related to immunization. Their role is to manage the vaccination room, organize the dispensing

of materials and supplies, to conserve immunobiologicals, and manage the conduct of the nursing team⁽²⁶⁾.

Additionally, nurses constantly work with health education, sharing knowledge regarding health, disease prevention, and therapeutic care with individuals, family members, and companions. It can be said that their role in creating ET and using it in practice for health education contributes to the development and enrichment of the knowledge provided through these technologies⁽¹⁰⁾.

Furthermore, it is important to allow evaluation by representatives of the target audience⁽²⁵⁾, as was done in the present study. The participation of parents/guardians in encouraging the care provided to children is extremely important, and health education is a way to assist in this care. Thus, ET play a fundamental role, by providing information that can promote self-awareness and the awareness of the environment in which they are inserted, helping them to understand the importance actions and how they influence

the health context, potentially altering their environment through their own attitude⁽²³⁾.

In the development of the study, visual animation resources were used to make the information available in an attractive way to the public⁽²⁷⁾. In the content and appearance validation, the experts and target audience approved the logical sequence of ideas and the clarity of the theme; however, only the experts provided suggestions for adjustments that contributed to better adapting it to the reality of the target audience and the educational intent of the video. These adjustments were made before the evaluation of the video for the target audience, and this stage was extremely important to ensure that the presented material was suitable for evaluation.

When reality is brought to screens in some way, it creates a way to capture the audience's attention until the end, encouraging interest in the subject⁽²⁶⁾. The creation of ET, by using innovations, technological advances and pertinent and significant topics to promote health education, conveys safety and understanding, attracting the population's attention⁽⁹⁾.

Health education, through educational videos, can be an important tool for the development of human autonomy in the health-disease process. It is a tool that encourages and stimulates individuals to adopt healthy lifestyle habits, correctly use available health services, and take conscious attitudes of responsibility for their own health. It enables the person to understand the information received, presenting critical thinking related to the learning process⁽²⁸⁾.

Regarding the video appearance, being animated, with characters of children and parents/guardians, it can be inviting for children to watch it and this aspect is a differential, since it can indirectly promote health education for children. The video is short, which meets the recommendations for video production, since long videos may not capture the viewer's attention. Thus, short scenes and changes in shots and scenarios can make the video less tiring and attract the attention of parents/guardians and children⁽²⁹⁾.

The video presents the importance of care related to immunization, focused on encouraging parents/guardians to commit to this care practice. Another highlight of the video is the alert about the spread of fake news. The dissemination of fake news leads to misinformation among the population. This term is known for the propagation and creation of false information, created to harm or manipulate something or someone. This news is largely transmitted through easy communication channels such as the internet, causing a rapid dissemination of the content, with the intention to change the reality⁽³⁰⁾. Given the above, the impacts that fake news causes on vaccination cannot be overlooked, leading individuals to be susceptible to serious diseases as that they refuse to get vaccinated considering this type of news⁽³⁰⁾.

On the other hand, there are individuals who seek correct information from reliable sources, considering that health-care professionals have a higher level of knowledge on the subject. Thus, it is clear that there is a need for engagement of healthcare professionals, especially nurses, who coordinate and provide immunization assistance, to engage in efforts to reduce vaccine hesitancy by demystifying fake news. It is extremely important to the nursing team to be involved in the topic and seek to updates so they can convey accurate information, clarify doubts, reinforce the benefits of immunization, and ensure the commitment of public vaccination programs and parents/caregivers⁽⁸⁾.

A study conducted in South Korea showed that parents' reluctance to vaccinate their children against Covid-19 was related to the lack of knowledge of parents/guardians, especially about the results of vaccination. Therefore, they conducted a randomized study to evaluate the effect of providing information. The control group received no information, one group was informed about the safety and efficacy of the vaccine and another about the impact of Covid-19 on children's health. Among 359,110 participants, parents' intention to vaccinate their children was significantly higher in the two groups that received information. The study did not use ET to provide health education and used informed exposure. However, the results support the idea that access to information increases parents' intention to vaccinate children and reduces vaccine hesitancy⁽⁶⁾. Thus, ET, such as videos, can be a tool for accessing information based on scientific evidence and building knowledge among the population.

Finally, some limitations of this study can be considered, such as the geographical validation and evaluation being limited to the state of São Paulo, which may not include the plurality of the Brazilian population. Another limitation refers to the production of the video, in Portuguese, without subtitles in other languages, which limits access to immigrants from other countries living in Brazil. Furthermore, the video does not have subtitles, audio description or interpreter of Brazilian Sign Language, which restricts the audience that could benefit from this resource. Future research proposals include evaluating the effectiveness of the video in educational actions aimed at parents/guardians.

The video contributes to the production of health-related technologies and the construction of knowledge among the population, serving as a health education tool to encourage parents/guardians to care for and promote children's health through vaccination and the reduction of vaccine-preventable diseases in primary care. Furthermore, the video can be used in a intersectoral manner in health and education, with a view to promoting comprehensive care.

■ FINAL CONSIDERATIONS

The video was developed, validated and evaluated by experts and the target audience, providing an innovative characteristic, as it is aimed at parents/guardians of children. The validation process lends credibility to the developed product, ensuring that the information contained within is accurate and based on scientific evidence, aligned with educational standards, inspiring trust and promoting learning in a clear and simple manner.

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■ Acknowledgments:

To the Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil, CAPES*) – Funding Code 001.

■ Authorship contribution:

Conceptualization: Viviane Nogueira Borges Trajano, Angelina Lettiere-Viana.

Data curation: Viviane Nogueira Borges Trajano, Angelina Lettiere-Viana.

Formal analysis: Viviane Nogueira Borges Trajano, Paola Cristina de Castro, Angelina Lettiere-Viana.

Investigation: Viviane Nogueira Borges Trajano,

Methodology: Viviane Nogueira Borges Trajano, Paola Cristina de Castro, Silvia Matumoto, Luciana Mara Monti Fonseca, Gloria Lúcia Alves Figueiredo, Angelina Lettiere-Viana.

Project administration: Viviane Nogueira Borges Trajano, Angelina Lettiere-Viana.

Supervision: Angelina Lettiere-Viana

Validation: Viviane Nogueira Borges Trajano, Paola Cristina de Castro, Silvia Matumoto, Tauani Zampieri Fermino, Luciana Mara Monti Fonseca, Gloria Lúcia Alves Figueiredo, Angelina Lettiere-Viana.

Writing-original draft: Viviane Nogueira Borges Trajano, Paola Cristina de Castro, Silvia Matumoto, Tauani Zampieri Fermino, Luciana Mara Monti Fonseca, Gloria Lúcia Alves Figueiredo, Angelina Lettiere-Viana.

Writing-review & editing: Viviane Nogueira Borges Trajano, Paola Cristina de Castro, Silvia Matumoto, Tauani Zampieri Fermino, Luciana Mara Monti Fonseca, Gloria Lúcia Alves Figueiredo, Angelina Lettiere-Viana.

The authors declare that there is no conflict of interest.

■ Corresponding author:

Viviane Nogueira Borges Trajano

E-mail: vivibnogueira@yahoo.com.br

Associate editor:

Raíssa Passos dos Santos

Editor-in-chief:

João Lucas Campos de Oliveira

Received: 01.24.2024

Approved: 05.14.2024

