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Construction and validation of an educational video for patients in the perioperative period of robotic surgery

Construção e validação de vídeo educativo para pacientes no perioperatório de cirurgia robótica

Construcción y validación de vídeo educativo para pacientes en el perioperatorio de cirugía robótica

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ABSTRACT

Objectives: to build and validate educational technology, of the video type, aimed at teaching about the perioperative period of robotic surgery. **Methods:** methodological development study, following the integrative review phases: pre-production, production, post-production, and validation. The video was evaluated for content and appearance by 14 judges. Content validity (CVI) and appearance (AVI) and agreement (CI) indices were calculated, and the exact binomial test was applied, considering p>0.05 and a proportion of 0.80 of agreement. **Results:** the video included 13 themes, with a duration of seven minutes and 33 seconds. The items of the three dimensions evaluated presented excellent CVI, ranging between 0.86 and 1.00 (p>0.05), with a total CVI of 0.95, VAT of 0.94 and CI equal to 61.5%. **Conclusions:** the video included 13 themes, with a duration of seven minutes and 33 seconds. The items of the three dimensions evaluated presented excellent CVI, ranging between 0.86 and 1.00 (p>0.05), with a total CVI of 0.95, VAT of 0.94 and CI equal to 61.5%.

Descriptors: Instructional Film and Video; Preoperative Period; Robotics; Nursing; Validation Study.

RESUMO

Objetivos: construir e validar tecnologia educacional, do tipo vídeo, direcionada para o ensino acerca do perioperatório de cirurgia robótica. **Métodos:** estudo de desenvolvimento metodológico, seguindo as fases de revisão integrativa: pré-produção, produção, pós-produção e validação. O vídeo foi avaliado quanto ao conteúdo e aparência por 14 juízes. Calcularam-se os índices de validade de conteúdo (IVC) e aparência (IVA), concordância (IC), e aplicou-se o teste exato de binomial, considerando *p*>0,05 e a proporção de 0,80 de concordância. **Resultados:** o vídeo contemplou 13 temáticas, com tempo de duração de sete minutos e 33 segundos. Os itens das três dimensões avaliadas apresentaram IVCs excelentes, variando entre 0,86 e 1,00 (p>0,05), com IVC total de 0,95, IVA de 0,94 e IC igual a 61,5%. **Conclusões:** construiu-se ferramenta tecnológica, do tipo vídeo educativo, para o ensino sobre o perioperatório de cirurgia robótica. O material foi fundamentado no conhecimento científico e considerado válido pelos juízes especialistas.

Descritores: Filme e Vídeo Educativo; Período Pré-operatório; Robótica; Enfermagem; Estudo de Validação.

RESUMEN

Objetivos: construir y validar tecnología educacional, del tipo vídeo, dirigida para la enseñanza acerca del perioperatorio de cirugía robótica. **Métodos:** estudio de desarrollo metodológico, siguiendo las fases de revisión integrativa: preproducción, producción, postproducción y validación. El vídeo fue evaluado cuanto al contenido y apariencia por 14 jueces. Calculados índices de validez de contenido (IVC) y apariencia (IVA), concordancia (IC), y aplicado test exacto de binomial, considerando *p*>0,05 y proporción de 0,80 de concordancia. **Resultados:** el vídeo contempló 13 temáticas, con tiempo de duración de siete minutos y 33 segundos. Los ítems de las tres dimensiones evaluadas presentaron IVCs excelentes, variando entre 0,86 y 1,00 (p>0,05), con IVC total de 0,95, IVA de 0,94 e IC igual a 61,5%. **Conclusiones:** construido herramienta tecnológica, del tipo vídeo educativo, para la enseñanza sobre el perioperatorio de cirugía robótica. El material fue fundamentado en el conocimiento científico y considerado válido por los jueces especialistas.

Descriptores: Película y Video Educativos; Periodo Preoperatorio; Robótica; Enfermería; Estudio de Validación.

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INTRODUCTION

The video included 13 themes, with a duration of seven minutes and 33 seconds. The items of the three dimensions evaluated presented excellent CVI, ranging between 0.86 and 1.00 ($p>0.05$), with a total CVI of 0.95, VAT of 0.94 and CI equal to 61.5%[1].

Brazil is the Latin American country that most performed RS[2]. From now on, the presence of health professionals is imperative, especially nurses, in the face of the transformations experienced by the world, since, as an integral part of the surgical team and protagonist of care, they have the duty and responsibilities towards the patient[3]. Thus, they must be prepared to correctly use equipment, instruments, and tools, as well as be able to resolve misfortunes that arise during robotic computer-assisted surgical procedures.

In this context, educational technologies of the video type stand out, as an audio-visual strategy, of an informative nature, which will positively impact the assistance to nurses in preoperative teaching programs, to reduce the level of anxiety, stress and fear of patients[4]. In this way, such technology will influence the best preparation for the surgical confrontation of such high complexity.

The didactic resource, such as video, is used by nurses as an innovative audiovisual educational strategy. It covers knowledge about the surgical process, with simple language, attractive layout and thematic based on information about the surgical treatment in question. It aims to clarify doubts and intensify understanding, in order to enable self-sufficiency of knowledge and reduce possible risks to health due to lack of instruction[5].

Considering this context, this study is relevant due to the contribution of the inclusion of educational materials in the care practice of nurses and other professionals, as well as the dynamization of care regarding the health education of patients undergoing RS. For this purpose, one must know the tools and devices; and make images used to provide information to the patient about what will happen at each stage of the surgical experience.

Few studies were observed on the effects of using the educational video to complement the improvement of anxiety, fear and patient satisfaction, and the use of this resource as a modern education tool is considerable, in contrast to the traditional methods used by doctors for education of patients in the perioperative[6].

OBJECTIVES

To build and validate educational technology, of the video type, aimed at teaching about the perioperative period of robotic surgery.

METHODS

Ethical aspects

The research obtained a favorable opinion from the Research Ethics Committee of the University of Fortaleza (COÉTICA/UNIFOR), as established by Resolution No. 466/12, associated with Resolution No. 510/16, as it is a study conducted in an online environment.

Study design and period

Methodological development study, based on the following phases: 1) Integrative literature review for the bibliographic survey; 2) Construction of the initial script; 3) Validation; and 4) Elaboration of the final script (video). The study followed the SQUIRE 2.0 guidelines for improving standards of quality, safety and value of the study's health care and methodology for publications[7]. The process of validating video-type educational technology was used as a theoretical framework for scientific basis, based on the construction of knowledge and transmission to the public, using research or experiences, through teaching and learning[8]. This study was conducted from August 2020 to May 2021.

Population or sample; inclusion and exclusion criteria

To edit the video, a team of specialist professionals was used, composed of an instructional designer, responsible for adapting the script and voice-over of the videos; a grammar reviewer, in charge of reviewing the script and videos; and an audio and video production company, in charge of the production of the videos.

In the content and appearance validation phase, the judges were selected by searching the Lattes Platform and using the "snowball" technique. The judges were specialists in the field of nursing; and the technical specialists, in the area of design and advertising. To determine the inclusion in the sample of judges, the criteria adapted from the Fehring Specialist Classification System[9] were adopted: having studies/scientific works on the subject, participating in research groups/projects on the subject and/or evaluation boards, act in the area. For professionals in the field of design and advertising, qualifications, professional experience, research, and knowledge on the topic of construction and validation of assistive/educational technology were considered.

In total, 40 nursing judges were invited, but only 14 participated in the study. Regarding the technical judges, 20 were summoned, but only 10 responded.

Study protocol

In the construction of the evidence-based video, a search was carried out in the literature for the scientific basis of the thematic subjects of the video. The integrative review started with the question: "What information is relevant for a video intended for patients in the perioperative period of RS?" For the important information in the context of the video production, the Descriptors in Health Sciences (DeCS) and Medical Subject Heading (MeSH): Preoperative/Preoperative and Information/Information and Robotics/Robotics were used. In the search strategy, the Boolean operator AND was used.

Data collection took place between August and October 2020, in the Cochrane, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science Direct (Science Direct), SciVerse Scopus (Scopus), Publisher Medline (PubMed) databases., Bibliographic Index *Español en Ciências de la Salud* (IBECS). Primary studies, dissertations or theses that contemplated the guiding question, timeless, in English, Portuguese or Spanish were included. Editorials and letters to the editor were excluded.

The video production process followed three steps proposed by Kindem and Musburger[10] and Comparato[11]: a) pre-production (synopsis or storyline, script, script and storyboard); b) production; and c) post-production. In pre-production, 13 domains identified by the literature review were explored. For the elaboration of the script, we sought the help of an educational video producer, due to the peculiarity of the technical and specific language of the communication area. This professional elaborated it with communication through non-printed media, with short sentences and primarily in the active voice, in order to determine not only speech, but also images, gestures and body expressions.

In the production stage, scenes, recordings with graphic elements and cartoons were developed. The video was conceived through the partnership of the Nucleus of Educational Technologies (NTE), from UNIFOR, with the Professional Master's in Technology and Innovation in Nursing (MPTIE).

This was followed by validation of content and appearance by selected judges. An instrument was created in Google Forms, with the documents: invitation letter, Free and Informed Consent Term, access link to the educational video and content and appearance validation instruments. A period of ten days was granted for the return of the data collection material. For those who did not meet the deadline, a new contact was made, clarifying the importance of participation and evaluation, as well as granting an additional five days. After this period, the form was closed, and responses were no longer received.

Nursing judges rated the video for purpose, structure, presentation, and relevance. After the analysis of the experts/judges, suggestions, corrections and/or recommendations that they deemed necessary were added.

Analysis of results and statistics

The collected data were stored and organized in Microsoft Excel, version 11.0, and later processed in the statistical program Statistical Package for the Social Sciences (SPSS), version 23.0. Descriptive statistics were used to analyze the social and professional variables of the content and technical judges: measures of central tendency and dispersion for quantitative variables; and absolute and relative frequency for categorical ones. Data normality was demonstrated by the Shapiro-Wilk test, and the distribution was considered normal when $p > 0.05$.

In the video validation, the content validity index (CVI) was calculated, used in the content validation analysis, by the average of the answers with grades "3" and "4" selected by the judges. The CVI of the items (CVIi) equal to or greater than 0.78 and a total CVI equal to or greater than 0.90 was considered excellent[12]. The same parameters were used to calculate the appearance validity (AVI) and agreement (CI) indices. Furthermore, the exact test of binomial distribution was performed, indicated for small samples, with a significance level of 5% ($p > 0.05$), since the null hypothesis is agreement and a proportion of 0.80 of agreement[13] to estimate the statistical reliability of the CVI, VAT and CI.

In the qualitative analysis of the video, the comments and suggestions in each block were organized and analyzed. The descriptions of the speeches of the content judges were represented by the letter J, followed by the numbering from 1 to 14; and, for the technical judges, the letters used were JTI, followed by the numbering from 1 to 10.

RESULTS

The 13 themes identified in the 17 articles that made up the integrative review enabled the selection of the video content and the subsequent elaboration of the following items: understanding of CR (definition and safety), nutritional education, surgery time, preoperative evaluation, free and informed consent and dissemination of images, referral to surgical center/preventive measures for COVID-19, medications for sedation/anesthesia and postoperative pain, positioning, pneumoperitoneum, early mobilization/thrombophylaxis and return to routine activities, hospitalization period, care general/intestinal functions/drain/probe and dressing and emotional support/outpatient follow-up.

Thus, a video of seven minutes and 33 seconds was developed, which has the presence of a figure that characterizes the nurse as the main character and narrates the video scenes with general perioperative information. The educational video was titled "Nursing in robotic surgery: perioperative support guidelines for coping with surgery" (Figure 1).

Figure 1 – Educational video interface

The content of the educational video was validated by 14 nurse judges from four regions of Brazil: five (35.7%) from Fortaleza, two (14.3%) from São Paulo, four (28.6%) from Rio de Janeiro. Janeiro, two (14.3%) from Brasília and one (7.1%) from Porto Alegre. Thirteen (92.3%) were female, with a prevalence in the age group of 31 to 40 years (6; 42.9%). It was found that the majority were specialists (9; 64.3%), six (42.9%) participated in research groups, and 11 (78.6%) worked in care; four (28.6%) reported having teaching experience, and four (28.6%) had 11 to 15 years of professional experience. Furthermore, it was observed that the time of experience working in robotic surgery ranged from one to ten years, with a mean of 3.2 years (SD = 2.5 years).

In the content validation by the judges (Table 1), the educational video was evaluated in terms of objectives, structure, presentation, and relevance. The items of the three dimensions evaluated presented excellent CVI, ranging between 0.86 and 1.00 ($p > 0.05$), with tCVI = 0.95.

As for the suggestions related to the content, some judges were concerned with the use of technical terms in the video, which motivated them to request a replacement or clarify them to make the video more understandable to patients. J2 and J14 advised withdrawal of the statement about the use of paracetamol.

In the validation of appearance (Table 2), the educational video was analyzed regarding the concept of the idea, dramatic construction, rhythm, characters, visual style, functionality, usability, and efficiency. The domains presented CVI above 0.78, with a minimum of 0.88 (Usability) and a maximum of 1.00 (Idea Concept and Characters). It is noteworthy that the Rhythm domain presented an item with a CVI equal to 0.64 (Is the rhythm tiring?), but there was significant disagreement regarding its valuation ($p \leq 0.05$). In the end, VAT was equal to 0.94.

The technical judges (designers and advertisers) came from the city of Fortaleza (10; 100%); five (50%), male; in the age group from 31 to 40 years (6; 60%). The others were aged between 41 and 50 years (3; 30%) and between 51 and 60 years (1; 10%). Among the judges, two (20%) had six to ten years' professional experience; three (30%), from 11 to 15 years old; two (20%), from 16 to 20 years old; and three (30%) were over 20 years old. Also, seven (70%) judges had previous experience with video construction.

Table 1 – Video content validation by judges

Items	CVI	*p* value
1 Objectives	0.92	
1.1 The text is compatible with the target audience, to meet the needs of patients.	0.86	0.648
1.2 Video information is patient-appropriate in the preoperative period of robotic surgery.	0.93	0.357
1.3 Causes change in behavior and attitudes.	0.93	0.357
1.4 The content is motivating and encourages you to continue browsing the video.	0.86	0.448
1.5 The content answers questions, clarifies patients about practices and information regarding the preoperative period of robotic surgery.	0.93	0.357
1.6 The video is relevant to the scientific environment in the area that addresses the preoperative period of robotic surgeries.	1.00	0.104
2 Structure and presentation	0.92	
2.1 Video-type educational technology is appropriate for teaching patients in the preoperative period of robotic surgery.	1.00	0.103
2.2 The information grouped in the video is scientifically correct.	0.86	0.648
2.3 The material is appropriate to the sociocultural level of the patients.	0.86	0.648
2.4 The video script textually informs the reader about what the viewer will see and hear in the video.	1.00	0.103
2.5 The font size and color of titles, subtitles and text are adequate.	0.86	0.648
2.6 The storyline proposed in the video translates the domains related to information for patients in the preoperative period of robotic surgery.	0.93	0.357
2.7 The information addressed to the object of interest is sufficient and adequate.	0.93	0.357
2.8 The illustrations (figures and photos) are relevant to the content of the material and elucidate the content.	0.93	0.357
2.9 The quantities of illustrations (figures and photos) are clear, convey ease of understanding and are suitable for the content of the educational material.	0.93	0.357
2.10 Total video display time is adequate.	0.93	0.357
3 Relevance	1.00	
3.1 The educational video proposes to patients to acquire knowledge that helps to maintain favorable and supportive attitudes achieved in the preoperative period of robotic surgery.	1.00	0.103
3.2 The material contained in the educational video addresses the issues necessary to inform patients about the care provided in the robotic surgery phases.	1.00	0.103
3.3 The material is suitable for use by patients.	1.00	0.103
tCVI	0.95	-

f – absolute frequency; % – percentage; CVI – content validity index; p-value – binomial test (comparison between the answers "strongly agree/agree" and "partially disagree"); tCVI – total content validity index.

Table 2 – Appearance validation of educational video by content judges

Items	iAVI	*p* value
1 Idea concept	1.00	
1.1 Is the script suitable for the purpose it proposes, which is to inform patients in the preoperative period of robotic surgery?	1.00	0.103
1.2 Does the idea help learning?	1.00	0.103
1.3 Is the idea accessible?	1.00	0.103
1.4 Is the script attractive?	1.00	0.103
2 Dramatic construction: opening, conflict, development, climax and ending	0.94	
2.1 Does the starting point of the script have an impact?	0.93	0.357
2.2 As the script develops, does interest grow?	1.00	0.103
2. 3 Is the number of scenes sufficient?	0.93	0.357
2.4 Is the duration enough?	0.93	0.357
2.5 Does the script have a pleasant presentation?	0.93	0.357
3 Rhythm: evolution of scene types	0.89	
3.1 Is there increasing attention, with a dramatic upward curve?	1.00	0.103
3.2 Is the pace tiring?	0.64	0.047
3.3 Is there dynamism in the environments?	0.93	0.357
3.4 Is the presentation of the scenes adequate?	1.00	0.103

To be continued

Table 2 (concluded)

Items	iAVI	*p* value
4 Characters: motivation, credibility, interaction	1.00	
4.1 Is the character profile original?	1.00	0.103
4.2 Are the character's values/credibility consistent?	1.00	0.103
5 Visual style: aesthetics	0.93	
5.1 Are there many scenario/environment repetitions?	0.86	0.648
5.2 Are the images adequate?	0.93	0.103
5.3 Is the overall structure creative?	1.00	0.103
6 Functionality	0.96	
6.1 Does the video propose to increase patient confidence in the preoperative period of robotic surgery?	0.93	0.357
6.2 Is the video capable of generating positive results in what it proposes to do?	1.00	0.103
7 Usability	0.88	
7.1 Is it easy for the patient to learn the concepts used and their guidelines?	0.93	0.357
7.2 Does it allow the patient to have control of the guidelines presented?	0.93	0.357
7.3 Does it provide information clearly?	0.86	0.648
7.4 Does it provide complete information?	0.93	0.357
7.5 Does it provide information without being tiring?	0.79	0.352
8 Efficiency	0.96	
8.1 Is the proposed time adequate for the user to learn the content?	1.00	0.103
8.2 Is the proposed time adequate for the user to feel more confident in the preoperative period?	0.93	0.357
8.3 Is the number of scenes consistent with the time proposed for the video?	1.00	0.103
8.4 Does the number of characterizations of the character meet the proposed objective?	1.00	0.103
8.5 Is the character's speech used efficiently and understandably to the clientele?	0.86	0.648
8.6 Does the content of interest (preoperative information for robotic surgery) have a direct relationship with the target audience?	1.00	0.103
tAVI	0.94	-

iAVI – item appearance validity index; p-value – binomial test (comparison of Categories 1 and 2); tAVI – total appearance validity index.

Table 3 – Technical validation of the educational video by the technical judges

Items	Adequate		dAI (%)	*p* value
	Partially *f* (%)	Totally *f* (%)		
1 Concept of the idea				
1.1 Is the script suitable for the purpose it proposes, which is to inform patients in the preoperative period about robotic surgery?	01 (10)	03 (30)	57.5	0.001
1.2 Does the idea help learning?	02 (20)	05 (50)		0.180
1.3 Is the idea accessible?	03 (30)	04 (40)		0.180
1.4 Is the script attractive?	02 (20)	03 (30)		0.010
2 Dramatic construction: opening, conflict, development, climax and ending				
2.1 Does the starting point of the script have an impact?	03 (30)	04 (40)		0.180
2.2 As the script develops, does interest grow?	01 (10)	03 (30)		0.001
2.3 Is the number of scenes sufficient?	03 (30)	02 (20)	54.0	0.010
2.4 Is the duration sufficient?	03 (30)	02 (20)		0.010
2.5 Does the script have a pleasant presentation?	02 (20)	04 (40)		0.001
3 Rhythm: evolution of scene types				
3.1 Is the pace tiring?	04 (40)	04 (40)		0.456
3.2 Is there dynamism in the environments?	03 (30)	02 (20)	63.6	0.010
3.3 Is the presentation of the scenes adequate?	03 (30)	03 (30)		0.050
4 Characters: motivation, credibility, interaction				
4.1 Is the character profile original?	04 (40)	04 (40)		0.456
4.2 Are the character's values/credibility consistent?	04 (40)	04 (40)	80.0	0.456
5 Visual style: aesthetics				
5.1 Are there many scenario/environment repetitions?	03 (30)	04 (40)		0.180
5.2 Are the images adequate?	06 (60)	02 (20)	70.0	0.456
5.3 Is the overall structure creative?	05 (50)	01 (10)		0.001
6 Usability				
6.1 Is it easy for the patient to learn the concepts used and their information?	02 (20)	03 (30)		0.010
6.2 Does it allow the patient to have control over the information presented?	02 (20)	04 (40)		0.050
6.3 Does it provide information clearly?	02 (20)	04 (40)	58.8	0.050
6.4 Does it provide complete information?	02 (20)	05 (50)		0.180
6.5 Does it provide information without being tiring?	02 (20)	03 (30)		0.010
7 Efficiency				
7.1 Is the time proposed in the video adequate?	02 (20)	02 (20)		0.001
7.2 Is the number of scenes consistent with the time proposed for the video?	03 (30)	03 (30)	46.7	0.050
7.3 Is the character's speech used efficiently and understandably to the clientele?	01 (10)	03 (30)		0.001
tAI (± SD)			61.5 ± 10.9	

f – absolute frequency; % – percentage; dAI – domain agreement index; p-value – binomial test (comparison of Categories 1 and 2); TAI – total agreement index; SD – standard deviation.

In the validation of the educational video by the technicians (Table 3), the CIs varied between 46.7% (efficiency) and 80% (characters), with the tCI equal to 61.5% (SD =10.9). However, it was found that the valuation of most items was significantly discordant between the judges ($p \leq 0.05$).

The recommendations were about decreasing the duration of the video; inclusion of more scenarios; dynamism and movement of the main character for greater attractiveness; replacement of technical terms to facilitate the understanding of the target audience; video accessibility for people with visual and hearing impairments; and presentation of more real images.

In the end, we obtained an educational video considered valid in terms of content, appearance, idea, dramatic construction, rhythm, characters, visual style, usability, and efficiency. The final version of the video "Nursing in robotic surgery: perioperative support guidelines for surgical coping" was completed in seven minutes and 36 seconds, including credits, so it remained within the time allotted for the educational character videos. Finally, it was made available for free on YouTube, through the link https://youtu.be/pCbI6lbkjnU.

DISCUSSION

In the process of health education, nurses can rely on information resources that aim to facilitate communication and understanding of participants. Technologies in health and nursing present evident advances in terms of care, aiming at the direct improvement of the provision of care to the patient and their relatives. Among other purposes, technologies can facilitate understanding of certain events and more quickly promote change for patients[14].

Grounded care, together with video-type educational technology, positively favors the reduction of stress and anxiety levels resulting from fear of anesthesia, pain, and death, related to the robotics surgical process. Nurses have holistic care for the patient, integrating the teaching-learning process into the experiences they will experience in the RS[15]. In the present study, we sought to develop an educational video, produced with relevant content and information, adapting the language to the target audience, and meeting the demands of easy understanding and minimum duration, as recommended by studies on the elaboration of educational materials in health.

Among the various types of videos available on the internet, those with a duration of less than ten minutes and with an aesthetic (design) similar to that of cartoons stand out in terms of quantity[16]. It is suggested that a video should not exceed 15 minutes, which could make it tiring and induce viewer dispersion[17-19].

It is noteworthy that an effective way of working on affectivity is through virtual characters, capable of reacting to the user in an appropriate way. Thus, we opted for the presence of an illustration that characterized the "nurse" as the main character, as the presence of the human figure has a positive effect on interactive experiences[16]. Also, the choice of this character was due to the nurse's prominence in the patient's admission process, who is responsible for planning nursing care, in addition to the latest information about the surgical intervention that will occur[17].

For the development of the educational tool, in the elaboration phase, the use of different programs was required to optimize the construction, with characteristics focused on the proposed theme. Adobe Premiere, Adobe Photoshop, Adobe Audition and Animaker were used, which are software tools, an intelligent video and text editor that provides the development of simple videos with animations, emission of sounds and audio description of texts[20]. These types of professional programs contribute to editing recordings that turn into sophisticated videos and movies, editing images, colors, lighting, audio editing, sound design and creating animations (such as characters, sets and objects)[21].

In the validation process, there was a concern to recruit professionals with mastery of the subject area of video, in order to ensure rigor in the evaluation process. Developing educational material that is attractive, motivating and contributes to knowledge requires the contribution of professionals who are committed to delivering material containing correct, relevant and visually attractive information, in order to develop critical thinking[22]. Therefore, the search for qualified professionals to evaluate the technological material was judicious.

The professional becomes an authority in a certain subject when he has skill and specialized knowledge, as he brings contributions to the improvement of educational technology. At this point, the process of reading, analyzing and organizing the pertinent suggestions and changes takes place[17,23], so that the video has greater scientific rigor and achieves the proposed objective.

Validating an educational material is essential to have reliable technology. If there is no validation process, there is a risk of creating inappropriate material with no educational objective[18]. To this end, the video was validated by nurses as well as design and advertising professionals, being considered relevant, with objective language and easy to understand the idea transmitted.

The notes raised by the expert judges were thoroughly analyzed and accepted, according to the relevance and possibility at that moment. Suggestions were observed, mainly in questions related to the necessary modifications, as well as important contributions to the final version of the script. For the technical judges, the script had an impact, being in line with the results of studies on the elaboration and validation of videos for virtual education[24-25].

Another important modification, suggested by the content judges, was the removal of the speech referring to the indication of the use of paracetamol. Thus, the change was made, since, after a thorough analysis of the study, it was considered that the choice of drug therapy for analgesia should be according to the medical prescription, due to side effects and interactions with other drugs[26].

Changing technical terms was another suggestion accepted in this study. The language of a people is one of the most imperative goods, because through it, culture and knowledge are transmitted between generations. During the audiovisual transmission, it is significant that the reports between the characters are consistent with the level of knowledge of the viewers[27]. In this sense, it was decided to partially proceed with the suggested changes to replace technical terms, clarifying the language for the general public. However, some terms remained, such as "pneumoperitoneum", "trendelenburg", "multimodal anesthesia", "antithrombotic stocking" and "check-up", because the target audience has knowledge about the robotic surgical procedure and more access to this procedure.

In the Rhythm category, the content and appearance judges reported that more dynamism was needed in the character, to

make the video more attractive to the patient. In this way, the modification was considered, adopting juxtaposition of images, concrete language, colors, short scenes, and divisions by scenarios. Using images with dramatizations, fictional narratives, fantasy, short scenes, transposition of scenarios, humor and animation by drawing makes the educational video an agile and dynamic rhythm tool[25].

In summary, the changes made in the study for the elaboration of the educational video are in accordance with the reference used. Most of the proposed suggestions considered relevant were accepted, which enriched and qualified the video production even more, being incorporated into the final version of the video. Therefore, the material will be able to guide nurses in educational activities, in the perioperative period of RS patients, so that they feel welcomed and well-prepared for the surgical procedure, which will contribute to the surgical recovery.

Study limitations

One of the limitations of the study was the scarcity of national articles published by nursing that addressed the research topic, thus demonstrating the need for more research in the field of nursing on robotics. In addition, the period of the COVID-19 pandemic required social isolation and the suspension of robotic (elective) surgeries, causing a gap regarding the participation of patients undergoing RS for video validation.

Contributions to Nursing and Health

The study contributes to the practice of nurses working in clinical-surgical care, as they play an important role in preparing and teaching patients about their needs, as nurses are born educators. In this sense, it is unquestionable and indispensable to develop educational video technology, in the face of surgical interventions in the modern robotic world, to provide a consolidated basis that anticipates the information of the procedure for the patient, as it will play a significant role in their recovery.

CONCLUSIONS

The educational video created includes a compilation of subjects of an instructive nature for patient support through robotics. Therefore, the objectives of the study were achieved: educational technology of the educational video type was built, aimed at teaching robotic surgery in the perioperative period; and the content and appearance were validated by expert judges.

RS is an innovative subject, and nursing must be up-to-date in terms of knowledge related to this process, so that it can implement perioperative care for patients undergoing this highly complex procedure. Systematized work helps to avoid team failures, so the nurse has a fundamental role in the multidisciplinary team to guide the actions and care provided to patients in the perioperative period.

It is hoped, through this study, to arouse in other researchers the interest of developing researches that carry out the validation process similar to that of the theme. Furthermore, the expectation is that there will be clinical validation in the future, to assess the effectiveness and effectiveness of the material in terms of knowledge, attitudes, and practices of the target audience. As a digital tool, the educational video provides information for the patient's cognitive-behavioral intervention that helps to understand the process involved and minimize negative feelings.

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