ORIGINAL ARTICLE

OBJN
Online Brazilian Journal of Nursing
ISSN: 1676 - 4285 | www.objnursing.uff.br

Submission: 12-Mar-2026
Approved: 10-Jun-2026

VIDEO EDUCATIONAL MESSAGES TO SUPPORT SELF-CARE IN PATIENTS WITH HEART FAILURE: A METHODOLOGICAL STUDY

MENSAGENS EDUCATIVAS EM VÍDEO PARA APOIO AO AUTOCUIDADO EM PACIENTES COM INSUFICIÊNCIA CARDÍACA: ESTUDO METODOLÓGICO

MENSAJES EDUCATIVOS EN VIDEO PARA EL APOYO AL AUTOCUIDADO EN PACIENTES CON INSUFICIENCIA CARDÍACA: ESTUDIO METODOLÓGICO

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How to cite: Pereira BSV, Souza JP, Nepomuceno AMT, Andrade LL, Padilha JM, Sousa MM. Video educational messages to support self-care in patients with heart failure: a methodological study. Online Braz J Nurs. 2026;25(1):e20266973. https://doi.org/10.17665/1676-4285.20266973

RESUMO

Objetivo: Desenvolver e avaliar as evidências de validade de mensagens educativas em vídeo como ferramenta de apoio ao autocuidado de pacientes com insuficiência cardíaca. **Método:** Estudo metodológico, desenvolvido em três etapas: 1) análise e concepção do conteúdo e desenvolvimento das mensagens em vídeo; 2) validação do conteúdo por um painel de especialistas; e 3) validação da aparência com o público-alvo. Utilizou-se estatística descritiva. **Resultados:** Foram desenvolvidas 11 mensagens educativas em vídeo de curta duração. Participaram da validação de conteúdo seis enfermeiros e, da validação de aparência, 10 pacientes com insuficiência cardíaca. Todas as mensagens alcançaram um Índice de Validade de Conteúdo ≥ 0,83 e um Índice de Validade de Aparência Total de 0,92. **Conclusão:** As mensagens em vídeo foram consideradas válidas quanto ao conteúdo e à aparência, podendo ser empregadas como ferramentas de apoio às estratégias educativas para a promoção do autocuidado.
Descritores: Insuficiência Cardíaca; Autocuidado; Telefone Celular; Recursos Audiovisuais; Tecnologia Educacional.

ABSTRACT

Objective: To develop and evaluate the validity evidence of educational video messages as a tool to support self-care in patients with heart failure. **Method:** A methodological study developed in three stages: 1) content analysis and design, and development of the video messages; 2) content validation by an expert panel; and 3) face validation with the target audience. Descriptive statistics were used. **Results:** Eleven short educational video messages were developed. Six nurses participated in the content validation, and 10 patients with heart failure participated in the face validation. All messages achieved a Content Validity Index ≥ 0.83 and a Total Face Validity Index of 0.92. **Conclusion:** The video messages were considered valid in terms of content and appearance and can be used as tools to support educational strategies for promoting self-care.
Descriptors: Heart Failure; Self Care; Cell Phone; Audiovisual Aids; Educational Technology.

RESUMEN

Objetivo: Desarrollar y evaluar las evidencias de validez de mensajes educativos en video como herramienta de apoyo al autocuidado de pacientes con insuficiencia cardíaca. **Método:** Estudio metodológico, desarrollado en tres etapas: 1) análisis y concepción del contenido y desarrollo de los mensajes en video; 2) validación del contenido por un panel de expertos; y 3) validación de la apariencia con el público objetivo. Se utilizó estadística descriptiva. **Resultados:** Se desarrollaron 11 mensajes educativos en video de corta duración. Participaron en la validación de contenido seis enfermeros y, en la validación de apariencia, 10 pacientes con insuficiencia cardíaca. Todos los mensajes alcanzaron un Índice de Validez de Contenido ≥ 0,83 y un Índice de Validez de Apariencia Total de 0,92. **Conclusión:** Los mensajes en video fueron considerados válidos en cuanto al contenido y la apariencia, pudiendo ser empleados como herramientas de apoyo a las estrategias educativas para la promoción del autocuidado.
Descriptores: Insuficiencia Cardíaca; Autocuidado; Teléfono Celular; Recursos Audiovisuales; Tecnología Educacional.

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Publisher:
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What is already known:

- Self-care is fundamental for the clinical management of heart failure.
- Text messages are used to provide health information.
- Video-mediated educational strategies have the potential to improve clinical outcomes.

What this article adds:

- Educational video messages showed content and appearance validity.
- They can be disseminated across different platforms and care settings.
- They contribute to expanding access to health education for patients with heart failure.

INTRODUCTION

Heart failure (HF) is a public health problem affecting approximately 64 million people worldwide, with a higher incidence in individuals over 70 years of age[1]. In Brazil, HF is responsible for increasing mortality rates, which entails high financial burdens and overload on the Unified Health System[2].

People with HF face challenges related to treatment complexity, the need for health education, and adherence to self-care behaviors. In this context, self-care in HF encompasses behaviors aimed at maintaining physiological stability (such as daily medication use, regular physical activity, and a salt-restricted diet), symptom perception—which involves listening to one's own body through the monitoring of clinical signs—and the proper management of these symptoms[3-4].

Several factors influence self-care, including the level of knowledge about the disease, experience, skills, beliefs, values, social norms, socioeconomic status, access to health services, the presence of cognitive impairment, social support, depressive symptoms, multiple comorbidities, and the level of health literacy (HL). Previous studies[5-7] indicate that patients with HF do not adequately adhere to self-care practices.

Isolated routine consultations and verbal guidance may be insufficient to ensure comprehension of the strategies required for self-care[8-9]. Therefore, health education is fundamental to promoting self-care in patients with HF. The inclusion of new technologies in digital health education, such as audiovisual resources, has proven to be a promising approach to complement traditional practices and strengthen the active role of patients in the health-disease process, as it offers a dynamic and low-cost experience to support the maintenance and management of self-care for people with different levels of education and cognitive abilities[4,10-11].

The use of cell phones shows continuous growth in Brazil. A survey identified that 87.6% of users employ these devices to watch videos and 83.5% to access social media[12]. In this context, educational video messages constitute a potentially effective strategy for the digital education of people with HF. This resource is particularly relevant because it includes individuals with low levels of education and visually demonstrates guidance that is difficult to understand when presented exclusively in a verbal format.

Educational technologies in this format enable the sharing of information through mobile applications and social media, without geographic, temporal, or environmental restrictions[13]. Furthermore, it is estimated that about 75% of information is absorbed through visual stimuli[9]. Thus, video messages can be revisited whenever necessary, which favors continuous learning and the consolidation of self-care strategies[12].

In Latin America, especially in Brazil, which exhibits cultural heterogeneity and challenges in accessing health services, there is a scarcity of studies using video messages for the education of people with HF. The development of educational videos aimed at self-management of fluid restriction, thirst control, and reduction of salt consumption has been identified[13-14].

Therefore, there is a clear need for studies that develop comprehensive, updated educational guidance aligned with patients' needs, capable of implementation across multiple digital platforms (mobile applications and social media), with the potential to reduce the production of printed materials. This study also aligns with the Sustainable Development Goals (SDGs), especially SDG 3 (Good Health and Well-being) and SDG 4 (Quality Education), by proposing an innovative health education strategy mediated by digital technologies.

Given the above, the following research question was formulated: What is the validity evidence of educational video messages to support self-care in patients with HF? The objective of this study was to develop and evaluate the validity evidence of educational video messages as a tool to support self-care in patients with heart failure.

METHOD

Study design

This is a methodological study developed in three stages: 1) analysis and design of the content of the educational video messages; 2) analysis of content validity evidence with a panel of expert nurses; and 3) analysis of face validity evidence with the target audience.

Stage 1 – Analysis and content design of the educational video messages

In the first stage, content selection was based on the recommendations of the guidelines from the European Society of Cardiology[15], as well as the Brazilian Guideline for Acute and Chronic Heart Failure[16], addressing the following topics: signs and symptoms of clinical decompensation, daily body weight monitoring, regular physical activity practice, reduction of sodium consumption in the diet, fluid restriction, correct and regular use of medications (dose, schedule, and storage), sleep hygiene measures,

mental health care, sexual activity, cessation of alcohol and tobacco use, and annual influenza vaccination.

Eleven storyboards (textual content and graphic images) were created, following the recommendations of Fleming, Reynolds, and Wallace[17], divided into pre-production, production, and post-production. Pre-production encompassed material planning, including content definition, script writing, and organization of audiovisual resources. Production corresponded to recording the scenes according to the previously established planning. Finally, post-production involved editing and finalizing the material, with audio adjustments, assembly, and insertion of visual effects[17]. Each storyboard addressed a single topic.

The educational video messages were developed by a researcher in the field of cardiovascular nursing, with experience in clinical care, teaching, and research with people with HF, in conjunction with two undergraduate nursing students. To produce the messages, Canva Pro® software was used (design, typography, illustrations, soundtrack, and audio editing). A vertical format suitable for mobile devices was adopted, respecting the maximum duration of 60 seconds[18]. The scripts were reviewed by a linguistics expert regarding clarity and grammatical correctness, with a view to adopting simple language free of technical terms.

During the pre-production, production, and post-production phases, a *storyboard* was used as a strategy for task organization and promotion of transparency in the collaborative process, to improve communication among team members and effectively identify priorities[19].

Stage 2 – Content validation

In the second stage, the analysis of the content validity evidence of the video messages was performed by a panel of expert nurses.

Potential experts were identified through the Lattes Platform of the National Council for Scientific and Technological Development (CNPq), using the advanced subject search tool with the keywords: "heart failure", "self-care", and "health technologies". Eighteen experts were invited via email, of whom six agreed to participate in the study, in accordance with the literature recommendation of including a minimum of five and a maximum of ten experts[20].

Expert selection criteria

For expert selection, criteria adapted from a previous study were followed[21], requiring compliance with at least three of the following criteria: 1) Clinical experience with patients with HF for at least three years; 2) Publications in journals and/or events related to the topic (heart failure, self-care); 3) Stricto sensu specialization in Nursing or Health Sciences; and 4) Teaching experience in the area of Adult and/or Elderly Health.

Instrument and data collection for content validation

To the experts who consented to participate in the study, the Informed Consent Form (ICF) and an electronic questionnaire via Google Forms® were sent, containing professional characterization, the evaluation instrument, and the educational messages (theoretical content and recorded and edited audiovisual resources). The stipulated deadline for returning evaluations was 20 days, with the possibility of an additional 10-day extension. Data collection took place from March to May 2024.

Experts evaluated the content of the messages using a four-point Likert scale regarding the criteria of theoretical relevance, language clarity, and clinical pertinence[21]. Theoretical relevance evaluated whether the theme is pertinent to what is intended to be achieved, where 1 = "Not relevant", 2 = "Slightly relevant", 3 = "Relevant", and 4 = "Highly relevant". Language clarity verified whether the material prepared for mobile phones was written in such a way that the concept is understandable and adequately expresses what is expected to be measured, with 1 = "Not clear", 2 = "Slightly clear", 3 = "Clear", and 4 = "Highly clear". Clinical pertinence evaluated whether the content is appropriate to achieve the proposed objectives, where 1 = "Not pertinent", 2 = "Slightly pertinent", 3 = "Pertinent", and 4 = "Highly pertinent"[21]. A field was reserved for suggestions, considerations for changes, and justifications for the assigned scores.

Stage 3 – Face validation with the target audience

After incorporating the adjustments suggested by the expert panel and analyzed by the researchers, the educational video messages were edited, and face validation was carried out with the target audience. In this stage, as recommended by the literature[21], 10 patients diagnosed with chronic HF participated, with a minimum age of 18 years, under outpatient follow-up at the cardiology service of a university hospital in Northeastern Brazil, who owned a smartphone with the WhatsApp® application. Data collection took place between August and September 2024, in person, through an interview conducted by a researcher with no prior relationship with the participants, who individually evaluated each message made available on a smartphone device.

Instrument and data collection for face validation

Face validation encompassed the analysis of the content with its aesthetic harmony, considering lines, shapes, colors, and the movement of the images[22]. This process was conducted using an instrument structured in two parts. The first included the sociodemographic and clinical characterization of the participants, covering variables such as sex, age, self-declared race, marital status, education, employment status, family income, etiology of HF, functional class according to the New York Heart Association (NYHA), associated comorbidities, transthoracic echocardiogram results, and medication therapy in use[13].

The second part used the Health Educational Technology Face Validation Instrument (IVATES), composed of 12 items related to the organization of visual elements, illustrations, letter size, content, language, and motivation. Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree)[22]. Space was also provided for comments and suggestions regarding the messages.

Data analysis

Content validity was analyzed using the Content Validity Index (CVI), calculated from the experts' agreement for each item (Item-Level Content Validity Index — I-CVI), obtained by dividing the number of experts who assigned a score of 3 or 4 by the total number of evaluators. The minimum acceptable value was considered ≥ 0.78[23].

Face validation was analyzed using the Face Validity Index (FVI), adapted from the CVI calculation method[23]. The calculation of the FVI per item (I-FVI) was obtained by dividing the number of participants who assigned a score of 4 or 5 by the total number of participants. The total FVI (T-FVI) was calculated by the average of the I-FVI of all evaluated items. Items with FVI < 0.78 were reformulated according to the suggestions of the target audience[21].

Data were organized in Microsoft Office Excel® spreadsheets and analyzed using descriptive statistics (absolute and relative frequencies, mean, and standard deviation). The experts' comments and suggestions were presented in a table through a narrative synthesis.

Ethical aspects

This research met the requirements of Resolution No. 466/2012 of the National Health Council and was approved by the Research Ethics Committee under opinion no. 6.300.864. The participants' formal agreement was obtained by signing the Informed Consent Form (ICF).

RESULTS

Eleven short educational video messages were developed, each targeting a specific self-care domain: (1) sexual activity, (2) immunization, (3) symptom recognition, (4) weight control, (5) physical activity, (6) fluid intake control, (7) sleep hygiene, (8) mental health, (9) medication use, (10) dietary care, and (11) tobacco and/or alcohol cessation.

Regarding the expert panel, six nurses agreed to participate in the study: 4 (66.7%) were male and 2 (33.3%) were female, with a mean age of 39.83 years (±5.69). Geographically, 4 (66.7%) resided in the Southeast Region and 2 (33.3%) in the Northeast Region of Brazil. Regarding academic degrees, 5 (83.3%) held a doctoral degree and 1 (16.7%) a master's degree. Furthermore, 5 (62.5%) held positions in teaching, 2 (25%) in clinical care, and 1 (12.5%) in hospital management. Notably, the group had a mean of 14.6 years (±5.28) of clinical experience in caring for patients with HF, and 4 (66.7%) had scientific publications in the field.

The messages were evaluated using the CVI for theoretical relevance, language clarity, and clinical pertinence. All items received the maximum CVI (1.0) for theoretical relevance and achieved a CVI ≥ 0.83 for language clarity and clinical pertinence (Table 1). Notably, no message presented a CVI below 0.83.

Additionally, the experts provided suggestions for improving the material, which were incorporated into the final version when deemed relevant (Table 2).

Table 1 – Content Validity Index of the video messages (n=6). João Pessoa, PB, Brazil, 2024

Domain	Message	I-CVI		
		Theoretical relevance	Language clarity	Clinical pertinence
Sexual activity	01	1.00	1.00	1.00
Immunization	02	1.00	0.83	1.00
Recognition of signs and symptoms of decompensation	03	1.00	0.83	1.00
Body weight monitoring	04	1.00	1.00	1.00
Physical activity practice	05	1.00	0.83	0.83
Fluid intake control	06	1.00	0.83	1.00
Sleep hygiene	07	1.00	1.00	1.00
Mental health	08	1.00	1.00	1.00
Medication use	09	1.00	1.00	1.00
Dietary care	10	1.00	1.00	1.00
Cessation of tobacco and alcohol consumption	11	1.00	1.00	1.00

Note: CVI: Content Validity Index.
Source: Research data, 2024.

Table 2 – Synthesis of suggestions proposed by the experts and implemented in the video messages (n=6). João Pessoa, PB, Brazil, 2024

Domain	Suggestions	Recommendation
Sexual activity	Review the video content to make it more specific when addressing the public with the possibility of sexual activity, clarifying that it refers to patients with compensated heart failure; patients in more severe stages should be guided by health professionals.	Accepted

Domain	Suggestions	Recommendation
Sexual activity	Include examples of sexual positions that require less physical effort.	Suggestion not accepted due to the duration of the messages and the variability of the HF functional class, which restricts sexual activity in more advanced classes.
Sexual activity	Insert guidance on psychological counseling (related to fear) and medical treatment for sexual dysfunction.	Accepted
Immunization	Replace the expression "Family Health Unit (USF)" with "Basic Health Unit", considering that not all USFs are part of the Family Health Strategy, but still have vaccination rooms.	Accepted
Recognition of signs and symptoms of decompensation	Add the symptom "precordial pain" to the content presented.	Accepted
Physical activity	Provide guidance on actions in case of worsening dyspnea upon exertion.	Accepted
Physical activity	Adjust the image of the elderly person running on a treadmill, as it may induce the practice of moderate-to-intense activity.	Accepted
Physical activity	Insert the recommendation to stop physical activity and seek medical attention immediately in case of precordial pain during exercise.	Accepted
Fluid intake control	Indicate control of daily fluid intake between 1.5 and 2 liters, according to professional guidance.	Accepted
Medication use	Change the expressions "your medication" to "your medications" and "control your health" to "control your disease and improve your health".	Accepted
Medication use	Add the guidance not to use medications without a medical prescription and not to interrupt treatment, even in the absence of symptoms.	Accepted
Dietary care	Expand the examples of canned foods cited, including options such as canned beans and vegetables, for a better understanding by the public regarding sodium content.	Accepted
Cessation of tobacco and alcohol consumption	Emphasize the risks of excessive alcohol consumption and smoking, highlighting that both can significantly worsen heart failure.	Accepted

Source: Research data, 2024.

The revised educational messages underwent face validation with the target audience. Among the 10 participants, 8 (80%) were male and 2 (20%) were female, with a mean age of 63 years (±8.79). Regarding self-declared race, 5 (50%) were mixed-race, 4 (40%) white, and 1 (10%) black. Regarding marital status, 8 (80%) were married or in a stable union, and 2 (20%) were divorced or separated. Regarding education level, 6 (60%) had incomplete elementary school, 2 (20%) incomplete high school, 1 (10%) complete elementary school, and 1 (10%) had no schooling. The predominant family income was up to two minimum wages (9; 90%). Regarding the etiology of the disease, 6 (60%) had non-ischemic HF and 4 (40%) had ischemic HF. All participants were on polypharmacy, with a mean of 6 (±1.62) medications, and 8 (80%) used beta-blockers.

The IVATES evaluation indicated I-FVI values ≥ 0.80 for all 12 items, as detailed in Table 3.

The evaluation of the items showed satisfactory scores, which, together with the Total Face Validity Index (T-FVI = 0.92), attest to the adequacy of face validity. Figure 1 displays illustrative screenshots of the developed educational messages.

When asked about the importance of accessing educational video messages through digital platforms and applications, such as WhatsApp®, 9 (90%) of the participants reported that this format provides greater security regarding the origin of the information and enables content review, which favors the understanding of appropriate behaviors.

It is also worth noting that the interviewees presented no comments or suggestions for modifications regarding appearance. The educational messages are available online for free and can be accessed via the link: https://drive.google.com/drive/folders/14DTMviVzG8ALiom88M8cfrS75vyCXkpO?usp=drive_link

Table 3 – Results of the appearance evaluation of the IVATES items assessed by the target audience (n=10). João Pessoa, PB, Brazil, 2024

Evaluated Items	Item-FVI
1. The illustrations are adequate for the target audience	1.00
2. The illustrations are clear and convey ease of understanding	1.00
3. The illustrations are relevant to the comprehension of the content by the target audience	1.00
4. The colors of the illustrations are adequate for the type of material	0.80
5. The shapes of the illustrations are adequate for the type of material	0.90
6. The illustrations portray the daily life of the intervention's target audience	0.90
7. The layout of the figures is in harmony with the text	0.80
8. The figures used elucidate the content of the educational material	1.00
9. The illustrations assist in the presentation of the theme and are in a logical sequence	0.90
10. The illustrations are in adequate quantities in the educational material	0.90
11. The illustrations are in adequate sizes in the educational material	0.90
12. The illustrations help in changing the behaviors and attitudes of the target audience	1.00
Total-FVI	**0.92**

Source: Research data, 2024.

Figure 1 – Screenshots of the developed video messages. João Pessoa, PB, Brazil, 2024



Source: Prepared by the authors, 2024.

DISCUSSION

The educational video messages were developed for flexible access by patients and/or caregivers across different devices, such as mobile applications, social media, tablets, computers, and smartphones, without a specific viewing order.

This research stands out for incorporating resources such as texts, audio, and images—elements not yet contemplated in previous studies[24-25] that used Short Message Service (SMS) for the education of patients with HF and that require a higher level of education for full comprehension. Thus, the video messages have the potential to reach individuals with low levels of health literacy, being disseminated even through social media such as WhatsApp®, which expands the educational reach.

The development of educational technology requires systematic and rigorous steps to meet the needs of its target audience[26]. The content validation process brought together a panel of qualified experts who recommended minor adjustments to refine the material, which were subsequently

incorporated to improve the clarity and quality of the information addressed. Other studies[27-28] that validated the content of educational technologies also adopted the CVI as the method for analyzing validity evidence, achieving similar results.

The illustrations and layout were positively evaluated by the target audience, with emphasis on the clarity and relevance of the messages. The appropriate appearance of an educational technology is essential for content comprehension, which must be attractive and delivered in simple, accessible language[22,26]. Nonetheless, two criteria—color adequacy and harmony between images and text—showed room for improvement, aiming to optimize the audience's visual experience.

The choice of colors for the development of the messages followed recommendations regarding the use of high-contrast combinations, especially between text and background, to improve readability and information comprehension[29]. The palette was limited to a small number of colors to avoid visual overload.

The results corroborate an investigation conducted in India, which adopted similar content in validating the design and layout of short-duration videos with HF patients[30]. Being short-duration productions, the video messages are easily shareable in the virtual environment[31]. This strategy presents high reach potential, given the widespread use of mobile devices and growing internet access among all age groups in Brazil[12]. Furthermore, this approach proves particularly advantageous in contexts of difficult access to specialized services and social vulnerability, where health literacy is impaired, reinforcing the role of nursing in promoting evidence-based care and building critical-reflective thinking.

As a contribution to nursing practice, the educational video messages can be replicated as a support tool for health education actions conducted by nurses, both in teaching and in clinical practice. In addition, they are characterized by low cost and feasibility of dissemination in different care contexts, constituting an ecologically more sustainable alternative by reducing the production, storage, and distribution of printed materials used in health education activities.

As limitations of this study, we highlight the exclusive participation of nurses in file and content validation processes and the execution of the research in a single outpatient setting. These aspects may restrict the generalization of the results to other care contexts and populations with different sociodemographic characteristics, which is why future studies contemplating the multidisciplinary team and diverse scenarios are recommended. Subsequent intervention research will be conducted to evaluate the effectiveness of messages sent via mobile applications and social media on the self-care and clinical outcomes of this population, in the short and long term.

CONCLUSION

The educational video messages were considered valid in terms of content and appearance and can be employed as tools to support educational strategies for promoting self-care, aiming to favor adherence to health practices and the optimization of clinical outcomes in people with heart failure.

CONFLICT OF INTEREST

The authors declare no conflict of interests.

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All authors are responsible for drafting the text and critically revising the intellectual content, for the final published version, and for all ethical, legal, and scientific aspects related to the accuracy and integrity of the study.

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