

Construction and validation of content for educational videos anchored in behavioral change for people with diabetes

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THEMATIC ARTICLE

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Abstract *Objective: to build and validate the content of educational video scripts, focusing on behavioral changes for the self-care of people with diabetes. Method: this work was a methodological study, anchored in the transtheoretical model of behavioral change, developed between September 2021 and November 2022, involving two stages: theoretical procedures and empirical and analytical procedures. Validation was carried out by nine judges in the first round and six in the second. In data collection, a Likert-type scale was used, divided into nine criteria and subsequently analyzed based on the content validation index (above 80%) and binomial test. Results: four scripts were constructed based on the topics: self-assessment of behavior, stages of the motivation for change stage, reflections on daily behaviors, adoption of healthy habits, and relapses in the change process. The content achieved an average Validation Index of 0.93 and 1.0 in the first and second round, respectively. Conclusion: the scripts constructed constitute tools with the potential to support health education actions used with people with diabetes in an attempt to change behaviors.*

Key words *Validation studies, Nursing, Educational technology, Self-care, Diabetes mellitus*

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Introduction

Self-care actions for people with diabetes mellitus can diminish the chances of cardiovascular complications by 80%; however, there is a need to implement efficient educational approaches to promote these actions^{1,2}. Daily difficulties in changing habits, frustration, emotional suffering, little compromise with self-care actions, low level of knowledge, poor efficiency in terms of concluding actions, and poor family support have all been indicated as hurdles for self-care actions¹.

Support for self-care, offered by healthcare professionals, is a key component of the Model of Chronic Care and of the national and international guidelines for caring for people with diabetes³. This component emphasizes the need for training and preparing people to manage their own health care, since such an engagement has proved to be essential for behavioral changes and the prevention of complications⁴.

The report from the European Union's Strategic Development Plan, 2016-2021⁵, points out that the use of educational technologies that are safe and accessible according to the specificities of different groups, is something required to decrease social inequality rather than exacerbating it. Key interventions in self-care actions, therefore, may be decisive for decreasing some grievances caused by chronic health conditions and may be able to foster an alignment in terms of co-responsibility of people with DM, thus improving their quality of life⁶.

However, concerning this theme, the literature shows no available studies with well-founded theoretical bases focused on the development of educational technologies aimed at behavioral change, self-care, and health promotion. Available studies that suggest the use of technologies in the care for people with DM treated the production and validation of a short-length video about foot care, based on the reference by Dorothea Orem⁷; focused on the validation of a multimedia app on a mobile platform to provide patients with knowledge on foot care⁸; and dealt with the identification of barriers for self-care, but they did not mention the use of educational technologies or any well-founded theory⁹.

Some studies highlight the importance of having self-care actions geared toward people with DM, focused on the engagement of the individuals with their health condition and the need for self-care^{3,10}. Therefore, there is a need for the development and the implementation of educational technologies focused on behavioral chang-

es and the adoption of a healthy lifestyle (regular sleep, proper management of medication, stress management, and practice of physical exercises), which can lead to better physical and mental health for people with chronic conditions¹¹.

Considering the above arguments, the following question arises: Are educational videos, based on behavioral changes and self-care of people with diabetes, valid in terms of content? To find the answer for this question, the current study had, as its objectives: constructed and validate the content of scripts of educational videos aimed at behavioral changes and self-care of people with diabetes.

Methodology

Ethical aspects

This study was approved by the Ethics Committee on Research Involving Human Beings of the Universidade Federal de Mato Grosso do Sul (CEP/UFMS), logged under combined decision no. 5,405,988 and was conducted in accordance with Resolution no. 466/2012 from the National Health Council. The free and informed consent form, signed by the researchers, was sent by e-mail to all individuals who were invited to participate in this study. This form was subsequently signed and returned, via e-mail, by those who agreed to participate.

Design, time, and place of the study

This is a methodological study developed in two phases: theoretical procedures and empirical and analytical procedures. The scripts were created between September 2021 and March 2022, and submitted to content validation in the period of April to November 2022. The SQUIRE guide of the EQUATOR network was used in the description of the study's report.

Sample, inclusion and exclusion criteria

This study counted on the participation of professionals contacted by a search conducted in the Lattes platform (<http://lattes.cnpq.br/>) using the descriptors: "diabetes mellitus", "health education", "educational technology", and "self-care". The inclusion criteria were: being a nurse, working in teaching and/or in the Family Health Strategy (FHS), and having a minimum score of five points in the Fehring criteria¹², which con-

siders the graduation, academic studies, and professional experience in the care for patients with diabetes. The study excluded the participants that did not meet the determined deadline (15 days to return the script evaluation in each round).

A total number of 125 professionals were initially found, and out of those, 54 fit in the previously defined criteria and were invited to participate in the study via e-mail. Twenty accepted to participate, and nine returned a fully completed evaluation form. This sample of judges fits into the interval between six and twenty, which is recommended for the evaluation of evidence validity in various situations¹³. In terms of the contingent of invited specialists, the present study reached a number that is higher than the minimum recommended in literature¹⁴.

The main researcher and guide elaborated four scripts for educational videos, each with six to eight scenes, involving four characters and with an estimated length of five to eight minutes, considering that long videos tend to disperse the attention of the viewer^{15,16}. The scripts were sequential, and the content of each video emphasized a specific theme. The strategy of having the scripts in continuity was chosen in order to clarify the development of the main character, who goes through every phase of behavioral change presented by the theoretical model (the adopted reference).

One integrative review study² showed that educational technologies identified for the promotion of self-care in people with diabetes, focused on foot care, prevention of neuropathy, self-management of health, knowledge and expectations of people with diabetes, and prevention of severe complications, which backed researchers' decision in the choice of technology and the focus on self-care and behavioral change issues.

To write the scripts, a pre-production sequencing was followed: (1) synopsis: central ideas introduced in a paragraph; (2) argument: summarized text, written in prose and without dialogues; and (3) scripts: description of visual and audio aspects of the story⁽¹⁷⁾. Each content presented in the scripts took into consideration the life habits that had a direct influence on the management of chronic conditions, as described in the Basic Attention Notebook (Caderno de Atenção Básica)¹⁸, and in a stage of the Trans-theoretical Model of Behavioral Change (*modelo transteórico da mudança de comportamento* – MTT)¹⁹. This is relevant because the treatment of diabetes requires, with or without pharmacological treatment, the adoption of healthy life

habits, such as a balanced diet, physical exercise, moderation in the consumption of alcohol, and non-smoking,

For the development of the scripts, we produced a chronogram of meetings of the main researchers every 15 days while formulating the study to discuss and verify if the basic elements of the content covered in each video were clear, and if the phase of motivation for behavioral change was coherent with the reference concept¹⁹.

According to the MTT recommendations, there are five stages of readiness for change: (1) Pre-contemplation, when the individual has no awareness of the inadequate behaviors; (2) Contemplation – the individual realizes that there is a behavioral problem and begins to consider the possibility of change; (3) Preparation – the individual makes specific plans for action and makes small changes in behavior; (4) Action – the moment when the plans for change are performed/implemented; and (5) Maintenance – when the individual works on consolidating the change and preventing relapses¹⁹.

Script 1 treated the need for self-assessment of current behavior (in terms of nutrition and the practice of physical activities), an essential element for behavioral change and management of a chronic condition. The focus of this script was on helping people with diabetes to identify life habits that require change, through the choices and/or attitudes of the main character, which was described as in the **precontemplation** stage¹⁹ in terms of the need for behavioral change. The cognitive processes addressed consciousness raising, self-reevaluation, environmental reevaluation, emotional relief, and social deliberation.

Script 2 treated the stage of **contemplation**¹⁹ in which the character managed to consider the pros and cons of the behavioral change. The content was the management of stress, addressed in a with a motivational consultation with nurse who helped in the process of self-assessment of the character's behavior.

Script 3 reinforced that people with diabetes need to reflect on health habits and behaviors. It presented a fictitious situation, using the following stages of change: **action and maintenance and behavioral processes**¹⁹: helping relationships, counter-conditioning, stimulus control, reinforcement management, and self-deliberation.

Finally, script 4 treated **failures and relapses**¹⁹, taking into consideration the admission of such a possibility, the support to people with diabetes, and valuing maintenance strategies, these being strategic actions of encouragement of self-

care. In this final script, the behavioral processes included were: counter-conditioning, relationships helping, and stimulus control.

The conclusion of each script was based on encouragement to reflect and self-evaluate the care actions performed by each individual, built according to the recommendations of the Manual of Supported Self-Care for Professionals²⁰. It is important to mention that in pre-production and technical construction, a guide for video production was used as a reference, guiding the process of script production²¹.

Validation of content: empirical and analytical procedures

The present study focused on the validation of content by specialist judges. Therefore, semantic validation (conducted with people with diabetes and health professionals who work in Primary Health Care (PHC)) will be the objective of a future study that is a part of the matrix project.

For content validation, the study followed the *Delphi* technique, with the participation of pre-selected judges. The use of this technique enables analytical procedures to occur concomitantly with empirical procedures, which favors the carrying out of statistical analyses of the judges' answers in each round and allows for the verification of adequacy indexes in comparison to previously established levels, making it possible to provide feedback to the group of specialists in order to improve the material being validated.

The online questionnaire, made available via *google forms*, was divided into two parts: the first treated general information (identification, qualification, and professional experience), while the second part dealt with questions related to the evaluation of the script, following some criteria related to the concept idea, dramatic construction, rhythm, characters, dramatic potential, dialogues, visual style, referent public, and production estimate⁶, among others used in video validation studies^{22,23}.

The words related to the criteria of audiovisual production presented dichotomic answers (Yes or No), and the adequation of each criterion was evaluated with answers in a Likert scale of four points (4 – totally adequate; 3 – adequate; 2 – partially adequate, and 1 – inadequate). After the evaluation of each category, the judges were provided with space to present justifications or propose suggestions.

Analysis of results and statistics

Data was collected in two moments (first and second *Delphi* round), then organized and digitized in Excel 2010 spreadsheets and submitted to descriptive and inferential analysis in the Statistical Package for the Social Sciences (SPSS) program, using the Content Validation Index (CVI), specifically the Item Content Validity Index (I-CVI), the Content Validation Index for scale based on average (S-CVI/AVE) and the Content Validation Index for scale based on universal agreement (S-CVI/UA)²⁴. IVC scores below 0.8 were adjusted according to suggestions of the judges and returned for further evaluation in order to improve the levels of agreement in relation to the adequacy criteria.

The binomial test was applied (non-parametric version of the t-test of a sample, for a set of dichotomous categorical data) to compare the proportions of the dichotomous variables which significantly differ from 0.8, with a significance level of 5%²⁵, considering a 95% confidence interval (95%CI) and a p-value ≤ 0.05 as the parameter for statistical significance.

Results

The nine judges participating in the first *Delphi* round of validation of the educational videos and the six participating in the second were all females and had up to five years of experience in PHC. The average age was 50.89 in the first round and 49.67 in the second. In both rounds, there was predominance of judges who were professors and with a doctorate degree in nursing. In Table 1, other characteristics are presented.

Chart 1 shows the suggestions presented by the judges in the two rounds. It can be noticed that judges two, five, and nine made no suggestions in either round. The suggestions presented in the first round were analyzed by the main researchers and incorporated into the re-writing of the scripts for the second round of evaluation. No divergence was identified among the judges in relation to any of the evaluated elements.

In the criteria of dramatic construction, dialogues, and referent audience, emphasis was placed on the need to revise the language to make it more accessible (Chart 1).

In Table 2, one can note that all of the criteria reached validation indexes by item, above 0.80, and that the criteria rhythm, dramatic potential, and visual style were validated unani-

Table 1. Characterization of the specialist judges participating in the first (n = 9) and second (n = 6) rounds of validation. Campo Grande, MS, Brazil. 2023.

Variables	First round (n = 9)		Second round (n = 6)	
	n	%	n	%
Sex				
Female	9	100.0	6	100.0
Male	-	-	-	-
Region of origin				
Midwest	1	11.1	1	16.7
North	1	11.1	1	16.7
Southeast	4	44.4	2	33.3
South	3	33.3	2	33.3
Master's degree				
Basic Nursing	1	11.1	1	16.7
Epidemiology	1	11.1	-	-
Absent	7	77.8	5	83.3
Doctorate				
Nursing	3	33.4	3	50.1
Basic nursing	1	11.1	1	16.7
Nursing philosophy	1	11.1	-	-
Sciences	2	22.2	1	16.7
Public health/Epidemiology	1	11.1	-	-
Function/Position				
Professor	8	88.9	6	100.0
Nurse (FHS)	1	11.1	-	-
Time in the position (months)				
Up to 180	2	22.2	1	16.7
Between 180 and 264	3	33.4	3	50.1
Between 264 and 540	4	44.4	2	33.2
Experience in PHC*				
Yes	9	100.0	6	100.0
No	-	-	-	-
Time of experience in PHC (years)				
Up to 5	4	44.4	3	50.1
Between 20 and 25	2	22.2	2	33.2
More than 30	3	33.4	1	16.7

*n = number; † = FHS: Family Health Strategy (ESF: Estratégia de Saúde da Família); ‡ PHC: primary health care (APS: atenção primária à saúde).

Source: Authors.

mously by the judges, other criteria, such as the concept idea, dramatic construction, characters, dialogues, referent audience, and estimate of production) obtained a I-IVC of 0.89. Moreover, the average IVC was 0.93 and the universal agreement, 0.33. We highlight, as a matter of curiosity, that, if we consider in the first round only the six

judges who participated in the second, the criterion of character would also show an I-IVC 1.00, and the average IVC and the S-IVC/UA would be, respectively, 0.91 and 0.44 (data not shown in the table).

After completing the modifications in the four scripts, an increase in I-IVC, S-IVC/AVE, and S-IVC/UA was observed in five criteria, given that all of them reached the maximum index of 100% agreement in two rounds.

We can notice in Chart 2 that all of the validation criteria of the scripts received suggestions for improvement, except for the criterion estimate of production. The main suggestions of the judges were related to the use of simpler language and the inclusion of characters' social characteristics. Moreover, the judges also reinforced the family and professional connections of the main character (Ana).

For the purpose of promotion, use the camera in your cellular phone to read the validated scripts (Figure 1).

Discussion

The scripts of the educational videos with focus on self-care for people with diabetes reached the evidence of content validation recommended in the literature. The educational material was evaluated by health professionals, primarily nurses with expertise in Diabetes Mellitus and health education.

In terms of holistic care, health education is undeniably related to extension of care⁽²⁶⁾. In this sense, nursing has had an active participation in the construction of technological tools for the support of teaching/learning. The creation and validation of educational videos, for instance, facilitates the perspectives of communication with a broader audience and constitutes a more visually attractive type of material¹⁵.

It is important to highlight that the use of theoretical references in the development and validation of educational technologies (ET) tends to make such tools more adequate for the realities of health professionals and can better meet the demands of the intended audience, as it is also more attractive, making the process of teaching-learning easier and favoring health promotion²⁵. Considering the scarcity of studies in the literature concerning educational technologies based on behavioral theories², the use of TTM as a theoretical reference directed the entire process of development of the scripts created in the pres-

Chart 1. Changes suggested by the specialized judges in content (n = 9). Campo Grande, MS, Brazil, 2023.

Criteria	Suggestions: round 1	Round 2
Concept idea	Judge 1: Make it clear that the regular practice of physical exercise reduces the risks of chronic complications, while sporadic practice does not. Judge 6: Include some means of communication of the character with the healthcare professional other than the in-person contact at the Basic Health Unit. Judge 8: Include the type of medication treatment in the first script. Perhaps, having access to glucometers is not a reality for every person.	No suggestions
Dramatic construction	Judge 4: Include language that is less technical. Judge 6: Substitute the presentation by a dialogue in which people already know each other.	Judge 6: include the age of Ana's daughter
Characters	Judge 1: Support network was poorly described (only co-workers). This may distance the listener from the problem situation presented. Judge 6: Include the main character in a support group for young people and adults with diabetes (whatsApp or something similar online). Judge 8: Rethink the friend of the main character.	Judge 3: Include the daughter in the scene of behavioral change
Dialogues	Judge 1: Pay attention to the use of the term "diet". It conveys a sense of temporality to something that should be implemented in a continuous manner. Judge 4: Use more accessible language. Judge 6: Substitute formal phrases by common language. Judge 8: Revise the sections that are not in the passive voice.	Judge 6: suggests revision in the written text
Visual style	Judge 1: Remove the beer bottle from the scene. Judge 8: Textual suggestion. Example - I acknowledge that my lifestyle is unhealthy, and I intend to change it; 2 - I acknowledge that my lifestyle is unhealthy, and I do not intend to change it; or 3- I do not acknowledge that my lifestyle is unhealthy, and I do not intend to change it.	No suggestion
Reference audience	Judge 4: Revise for a more accessible language. Judge 7: Rethink the choice of physical exercise. Riding bicycles is recommended only to a part of the population.	Judge 3: change terms such as glucose and transtheoretical model

Source: Authors.

ent study. The emphasis on the motivational stages for the behavioral changes proposed in each video may provide subsidies for strategic actions of health education with focus on the self-assessment of health conditions and on the promotion of self-care for people with diabetes.

It is important to mention that behavioral changes require the identification of factors that may influence the effectiveness of self-care and the management of the chronic conditions by individuals with Diabetes Mellitus 2²⁷. Therefore, specific content related to self-care activities for people with diabetes was followed in the production of the scripts. That content included: the use of medication, glycemic monitoring, practice of physical activities, nutrition in general, and stress management. Consonant with the study that dealt with the creation and validation of an app for foot care for people with diabetes, those phases require appropriate pedagogical strategies and methods⁸.

The content specialists were nurses and professors with experience in PHC. It is important to consider the experiences and diverse situations that those professionals have to share regarding the management of Diabetes Mellitus 2 in different contexts, since they are the ones who deal, on a daily basis, with the difficulties associated with the process of behavioral changes²⁸. Therefore, our study sought to select specialists with expertise in the issues and/or thematic areas of the videos, with the purpose of ensuring rigor and robustness to the assessment process.

From this standpoint, the judges produced contributions referring to the relationships between self-care habits and clinical results; to understanding the reality experienced by the users; to making language simpler; to explaining the relationship between the reality and self-care, supported by the connections between professionals and users; as well as to the contributions related to the stages of behavioral change, thereby

Table 2. Comparison between first and second rounds of the values obtained in relation to Absolute Frequencies and Index of Content Validation (universal agreement, by item and general average). Campo Grande, MS, Brazil, 2023.

Criteria evaluated	1	2	3	4	Answers 3 or 4	I-IVC	S-IVC/AVE (IVC average)	S-IVC/UA
	First round							
Concept idea	0	1	5	3	8	0.89	0.93	0.33
Dramatic construction	0	1	3	5	8	0.89		
Rhythm	0	0	5	4	9	1.00		
Characters	0	1	5	3	8	0.89		
Dramatic potential	0	0	4	5	9	1.00		
Dialogues	0	1	6	2	8	0.89		
Visual style	0	0	6	3	9	1.00		
Referent public	0	1	5	3	8	0.89		
Production estimate	0	1	4	4	8	0.89		
Second round								
Concept idea		0	1	5	6	1.00	1.00	1.00
Dramatic construction		0	0	6	6	1.00		
Rhythm		0	0	6	6	1.00		
Characters		0	2	4	6	1.00		
Dramatic potential		0	1	5	6	1.00		
Dialogues	0	0	0	6	6	1.00		
Visual style	0	0	1	5	6	1.00		
Referent public	0	0	0	6	6	1.00		
Production estimate	0	0	1	5	6	1.00		

* 1 = inadequate; † 2 = partially adequate; ‡ 3 = adequate; § 4 = totally adequate; || UA = universal agreement; ¶ I-IVC = index of validity of content by item; ** S-IVC/AVE = index of validation of content with average scale; †† S-IVC/UA = index of validation of content for scale based in universal agreement.

Source: Authors.

incrementing the specific content. It is important to mention that the comments brought relevant information for the alignment of content and to provide scientific knowledge and quality to the evaluated material, which is something commonly done in other studies of validation of educational videos^{15,16}.

Hence, some criteria, which were validated in the first round, received suggestions. Regarding the concept idea, there was a suggestion to emphasize that the continued practice of physical exercises may reduce complications and not sporadic practice. In consonance with this suggestion, one review study showed that the practice of physical activities is associated with the quality of life and adherence to the management of diabetes²⁹. Likewise, another study found that there is low adherence (22.6%) to the practice of specific physical exercise (lasting 30 minutes, 5 to 7 times a week) by people with diabetes²⁷. With the incorporation of the suggestions, the target audience may assimilate the need to maintain

self-care actions and self-assessment of their daily actions regarding physical exercises, as well as understand their relevance in the reduction of grievances and in the management of the disease.

About the characters, the main suggestions were based on the support network, which was collective, made up of professional teams or through family support. Concerning that kind of support, the judge who suggested its inclusion claimed that its absence may distance the viewer from the problem situation presented in the final piece. Moreover, a systematic review study³⁰ highlighted the need for support as part of the change strategy. Furthermore, family and social factors may influence the management of the chronic condition by the individual and encourage changes in lifestyle, these factors being essential for the process. Likewise, partner support and educational activities in groups significantly favor the maintenance of general self-care actions.

The implementation of communication by mobile phone apps, such as WhatsApp, and the

Chart 2. Excerpts from the four scripts modified during content validation. Campo Grande, MS, Brazil, 2023.

Fist vision	Final version
Concept idea	
1st script/4th Scene INTERNAL/DAY/HOUSE (kitchen) DETAIL PLAN: Ana's hands getting the food as the glucometer remains forgotten on the table.	1stscript/4thScene INTERNAL/DAY/HOUSE (kitchen) DETAIL PLAN: Ana's hands getting the food.
2nd script/1st Scene Narrator NURSE:(ON) [...] Ana is not able to have a healthy routine, and she does not believe that she needs to change; her eating is unhealthy and she does not practice physical activities regularly.	2nd script/1st Scene Narrator NURSE:(ON) [...] Although Ana acknowledges that her lifestyle is unhealthy, as she eats too much fried food, drinks fizzy drinks, smokes and does not do physical exercises in a continuous manner ; she has difficulties changing those behaviors.
2nd script/7ª Scene NURSE(ON): Hello, nice to meet you, my name is Laura. I am a nurse from the Basic Unit.	2nd script/7ª Scene ENFERMEIRA(ON): Hello, Ana, how are you? It's nice to see you again. Has anything changed since our last appointment?
Dramatic construction	
3rd script/4th Scene Narrator-ANA(ON): [...] These actions are very important for the completion of the treatment, to control diabetes and avoid mortality. So it is! Let me recap my suggestions to you!!	3rd script/4th Scene Narrator-ANA(ON): [...] The healthcare professionals from the Basic Unit organized a WhatsApp group , with all of the hiperdia participants, called " Daily dose of Self-Care ". They post messages, YouTube videos, audios with advice about healthy habits for daily life [...]
2nd script/4th Scene Narrator NURSE:(ON) Maria Júlia (Ana's daughter) (ON): Mom, are you all right?	2nd script/4th Scene Narrator NURSE(ON) Maria Júlia, Ana's adolescent daughter (ON): Mom, are you all right?
Characters	
4th Scene: INTERNAL/(office)/DAY [...] Ana's friend arrives to help her and stay by her side as the two have a conversation [...]	4th Scene: INTERNAL/(office)/DAY [...] Ana's daughter arrives to help her and they both stay by her side as they have a conversation [...]
Dialogues	
3rd script/ 4th Scene Narrator-ANA(ON): Having to start a diet might be discouraging for many, [...]	3rd script/ 4th Scene Narrator-ANA(ON): Having to start a healthy diet might be discouraging for many, [...]
Visual style	
2nd script/7th Scene NURSE(ON): Good (acknowledges that her lifestyle is unhealthy and intends to change it); Medium (acknowledges that her lifestyle is unhealthy and does not intend to change it); Bad (does not acknowledge that her lifestyle is unhealthy and does not intend to change it).	2nd script/7th Scene NURSE(ON): 1 - You acknowledge that your lifestyle is unhealthy and intend to change it; 2 - You acknowledge that your lifestyle is unhealthy and do not intend to change it; or 3- You do not acknowledge that your lifestyle is unhealthy and do not intend to change it;
Referent public	
2nd script/ 4th Scene: Narrator NURSE:(ON) Ana started to feel sick because her glucose had increased (acute complication of diabetes).	2nd script/ 4th Scene:Narrator NURSE:(ON) Ana started to feel sick because of the high glucose, also known as " blood sugar ", had increased, and that was considered to be an acute complication, Diabetes Mellitus 2.
3rd script: 2nd Scene EXTERNAL/(Street)/DAY Ana riding a bicycle with friends and happy about having reached her targets of change [...]	3rd script: 2nd Scene EXTERNAL/(Street)/DAY Ana strolling , happy about having reached her targets of change [...]

Source: Authors.



Figure 1. QR-CODE for access to the scripts for “Educational videos anchored in behavioral changes for people with diabetes”, Campo Grande, Brazil, 2023.

Source: Authors.

inclusion of the main characters in an online support group was also a suggestion for the adequation of the scripts. The justification comes from the easy access of these means of communication, which creates closer interaction with PHC professionals. Other strategies, such as video-conferences, video-calls, and text messages, have all been used in educational programs for self-care of people with diabetes³⁰. Taking this into account, we chose to include in the scripts, the strategic communication with Community Health Agents and tele-monitoring, considering the advantages that those resources bring in terms of decision-making and counseling for the development of abilities to control glycemic glucose, glycated hemoglobin (HbA1c), blood pressure, and body weight³¹.

Adequating language to the target audience was the most frequent suggestion, which appeared in many of the criteria. The need for use of a more simplified language was a finding present in another validation study³², particularly since it identified a significant association between poor health literacy and people with diabetes and Arterial Hypertension³³. Bearing that in mind, we altered words that were considered overly complex, such as diet and transtheoretical model, changing to a more informal and empathetic language with the substitution of those terms for healthy eating and theoretical change model; both changes were validated in the second round.

Concerning the final validation, we should mention that the loss of three judges from the nine initial ones did not compromise the results achieved in this study, since the number of final participants was in accordance with literature³⁴⁻³⁶. Our study also observed a high level of agreement regarding the final contents of the scripts. Despite the suggestions, the contents of the scripts were considered valid; therefore, the percentages of agreement in all of the items were close to or above the expected agreement, from a statistical point of view.

In the space provided in the data collection instrument for notes and written suggestions, in a highly emphatic manner, some of the judges highlighted the positive points of the formulation of educational technology. One of the judges stated that the explanation, offered by the main character, of the phases of change was an excellent teaching strategy. This statement allows us to infer that the discernment of a patient with diabetes, and the recognition of the phases of change, is often non-linear, hence the need to make the process clearer and feasible for those individuals.

This study corroborates with the development of knowledge in the field of health, more particularly in the area of nursing, and more specifically for health professionals who work in PHC, since the contents of the scripts for the educational videos were validated by the specialist judges. After having been recorded, the videos will be submitted to validation by people with diabetes and by health professionals, enabling the videos to be used as a technology for the support of healthcare services, thus confirming their reliability, creativity, and commitment to the well-being of the users of health services. Studies of this nature reinforce the need for the formulation and validation of these tools so as to promote advancements in nursing.

Limitations of the study

We can consider the number of scripts used in this study to be a limitation, since this might have demanded more time from the judges to evaluate and may well have increased the time for the return of the evaluated material to the main researcher. Moreover, the results found in the present study should not be overgeneralized, since this study used the minimum recommended number of judges. However, the diverse representation of professionals from different areas and their geographic distribution were elements

present in our study, which supported the practical reflections brought by the results.

The fact that semantic evaluation was not conducted does not limit our ability to infer the level of understanding that the target audience has concerning the scripts. The next phase of the study, however, will include the recording of the videos and the semantic and appearance validation performed by people with diabetes and by health professionals.

Conclusion

The content of the four scripts of educational videos created for the promotion of self-care and behavioral changes in people with diabetes were validated in terms of content. They were written

according to four themes: self-assessment, phases of motivation, reflections on behaviors, and healthy habits and relapses during the process of change. Moreover, in the future, other scripts will follow the next required stages for the creation of educational videos, and, possibly, other psychometric measurements will be required to improve the subsequent stages of the study.

The contents of the scripts have the potential to subsidize healthcare actions aimed at people with diabetes, with a focus on behavioral change and the promotion of self-care. We hope that the results of the present study encourage other researchers to build and validate more technologies for the self-care of people with chronic conditions, focused on effectiveness and the promotion of health and the prevention of complications.

Collaborations

JS Sá: conceptualization, methodology, data curation, formal analysis, writing of the original draft, review, and editing. GO Arruda: data curation, formal analysis, methodology, writing of the original draft, and writing, review. SS Marcon: writing of the original draft, review. MCFL Haddad: writing of the original draft, and writing, review. RR Palasson: writing of the original draft, and review. MAF Júnior: writing of the original draft, and review. EF Teston: conceptualization, methodology, data curation, writing of the original draft, review, and editing. All authors participated in the preparation of the manuscript and approved its final version for submission.

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