ALCANCE E EFICÁCIA DO PROGRAMA “VIDA ATIVA MELHORANDO A SAÚDE” (VAMOS 3.0), IMPLEMENTADO NA ATENÇÃO PRIMÁRIA À SAÚDE EM SANTA CATARINA, BRASIL

Cezar Grontowski Ribeiro, Lisandra Maria Konrad, Camila Tomicki, Fabiana Almeida Brito, Cassiano Ricardo Rech, Fabio Araújo Almeida, Tânia Rosane Bertoldo Benedetti

https://doi.org/10.1590/SciELOPreprints.8381

Submetido em: 2024-04-03
Postado em: 2024-04-08 (versão 1)
(AAAA-MM-DD)

ARTIGO

PROMOTION OF PHYSICAL ACTIVITY AND HEALTHY EATING IN PUBLIC HEALTH: DEVELOPMENT OF VAMOS VERSION 3.0, PRINTED AND ONLINE

CEZAR GRONTOWSKI RIBEIRO[1]
ORCID: https://orcid.org/0000-0003-0640-3110
<cezar.ribeiro@ifpr.edu.br>
LISANDRA MARIA KONRAD[2]
ORCID: https://orcid.org/0000-0002-8863-4862
<lisakonrad@hotmail.com>
CAMILA TOMICKI[3]
ORCID: https://orcid.org/0000-0002-3784-1570
<camitomicki@gmail.com>
FABIANA ALMEIDA BRITO[4]
ORCID: https://orcid.org/0000-0002-1262-4246
<fabiana.silva@unmc.edu>
CASSIANO RICARDO RECH[5]
ORCID: https://orcid.org/0000-0002-9647-3448
<cassiano.rech@ufsc.br>
FABIO ARAÚJO ALMEIDA[6]
ORCID: https://orcid.org/0000-0002-2404-0694
<fabio.almeida@unmc.edu>
TÂNIA ROSANE BERTOLDO BENEDETTI[7]
ORCID: https://orcid.org/0000-0002-2035-5082
<tania.benedetti@ufsc.br>

[1] Instituto Federal do Paraná (IFPR). Palmas, PR, Brasil. Universidade Federal de Santa Catarina (UFSC). Florianópolis, SC, Brasil.
[2] Universidade Federal de Santa Catarina (UFSC). Florianópolis, SC, Brasil.
[3] Universidade Federal de Santa Catarina (UFSC). Florianópolis, SC, Brasil.
[4] Universidade Federal de Santa Catarina (UFSC). Florianópolis, SC, Brasil.
[5] University of Nebraska Medical Center (UNMC). Omaha, NE, United States of America.
[6] University of Nebraska Medical Center (UNMC). Omaha, NE, United States of America.
[7] Universidade Federal de Santa Catarina (UFSC). Florianópolis, SC, Brasil.

ABSTRACT: Introduction: We developed the intervention *Programa Vida Ativa Melhorando a Saúde* (VAMOS 3.0). This behavior change program aims to motivate people towards an active and healthy lifestyle. Objective: describe the development process of VAMOS 3.0 in print and online formats. Methods: A methodological study of content analysis, structure, implementation, and evaluation were carried out to develop a new version of VAMOS 3.0. Results: The new version had changes in content (short, direct, and affirmative sentences, images, color palette), structure (increased number of sections, time of application), and implementation (duration, form of participation, monitoring). In addition to the printed format, an online program was created containing the same characteristics to expand the reach. Final considerations: VAMOS 3.0 is suitable for public health in Brazil and has promising strategies for application in basic health units, as well as in other types of institutions such as schools, government offices, gyms, public or private companies.

Keywords: Behavior Change, Health Promotion, Health Technology, Physical Activity, Eating Behavior.

ALCANCE E EFICÁCIA DO PROGRAMA "VIDA ATIVA MELHORANDO A SAÚDE" (VAMOS 3.0), IMPLEMENTADO NA ATENÇÃO PRIMÁRIA À SAÚDE EM SANTA CATARINA, BRASIL

RESUMO: Introdução: Desenvolvemos a intervenção Programa Vida Ativa Melhorando a Saúde (VAMOS 3.0). Este programa de mudança de comportamento visa motivar as pessoas para um estilo de vida ativo e saudável. Objetivo: descrever o processo de desenvolvimento do VAMOS 3.0 nos formatos impresso e online. Métodos: Foi realizado um estudo metodológico de análise de conteúdo, estrutura, implementação e avaliação para desenvolver uma nova versão do VAMOS 3.0. Resultados: A nova versão teve alterações no conteúdo (frases curtas, diretas e afirmativas, imagens, paleta de cores), estrutura (aumento do número de seções, tempo de aplicação) e implementação (duração, forma de participação, acompanhamento). Além do formato impresso, foi criado um programa online contendo as mesmas características para ampliar o alcance. Considerações finais: O VAMOS 3.0 é adequado para a saúde pública no Brasil e possui estratégias promissoras para aplicação em unidades básicas de saúde, bem como em outros tipos de instituições como escolas, repartições públicas, academias, empresas públicas ou privadas.

Palavras-chave: Mudança de Comportamento, Promoção da Saúde, Tecnologias em Saúde, Atividade Física, Comportamento Alimentar.

ALCANCE Y EFICACIA DEL PROGRAMA "VIDA ACTIVA MEJORANDO LA SALUD" (VAMOS 3.0), IMPLEMENTADO EN ATENCIÓN PRIMARIA DE SALUD EN SANTA CATARINA, BRASIL

RESUMEN: Introducción: Desarrollamos la intervención Programa Vida Ativa Melhorando a Saúde (VAMOS 3.0). Este programa de cambio de comportamiento tiene como objetivo motivar a las personas hacia un estilo de vida activo y saludable. Objetivo: describir el proceso de desarrollo de VAMOS 3.0 en formato impreso y en línea. Métodos: Se realizó un estudio metodológico de análisis de contenido, estructura, implementación y evaluación para desarrollar una nueva versión de VAMOS 3.0. Resultados: La nueva versión tuvo cambios en contenido (oraciones cortas, directas y afirmativas, imágenes, paleta de colores), estructura (mayor número de secciones, tiempo de aplicación) e implementación (duración, forma de participación, seguimiento). Además del formato impreso, se creó un programa online con las mismas características para ampliar el alcance. Consideraciones finales: VAMOS 3.0 es adecuado para la salud pública en Brasil y tiene estrategias prometedoras para su aplicación en unidades básicas de salud, así como en otro tipo de instituciones como escuelas, oficinas gubernamentales, gimnasios, empresas públicas o privadas.

Palabras clave: Cambio de Comportamiento, Promoción de la Salud, Tecnologías en Salud, Actividad Física, Cambio Alimentario.

INTRODUTION

Evidence shows that physical inactivity and inadequate nutrition are among the main factors for the increase in chronic non-communicable diseases (MALTA et al., 2017; RIBEIRO et al., 2016). In this sense, policymakers have encouraged the development of comprehensive and successful public health interventions, as they face challenges in clinical practice to encourage people to change lifestyle behaviors (SAMDAL et al., 2017; CHAUHAN et al., 2017).

Providing tools and strategies to healthcare professionals to work with the population and develop health goals, eliminate barriers and monitor behavior can influence lasting behavior change (HOOKER et al., 2018). However, it is necessary to carefully develop these interventions so that they are widely adopted by organizations, effective in the real world (O'CATHAIN et al., 2019) and maintain results (FJELDSOE et al., 2011).

In Brazil, interventions based on changing physical activity and eating behavior have been tested in public health (KONRAD et al., 2020) and received incentives from the Ministry of Health in an attempt to align disease prevention and health promotion actions (MALTA et al., 2017). One of these interventions is the behavior change program Active Life Improving Health – VAMOS (BENEDETTI et al., 2012; BENEDETTI et al., 2017). VAMOS has been implemented in the Brazilian population since 2012 in different contexts and regions (BENEDETTI et al., 2017; BENEDETTI et al., 2020). With a retention rate of over 50% of participants (KONRAD et al., 2019), the effectiveness results of the intervention showed an increase in the practice of physical activity, a decrease in sedentary behavior, an increase in the consumption of healthy foods, a reduction in body weight and an improvement in the perception of self-esteem and quality of people's lives (SCHERER et al., 2018; BORGES et al., 2019; MEURER et al., 2019; GERAGE et al., 2020; SOUZA et al., 2020). On the other hand, qualitative evaluations of the intervention highlighted the need for readjustment BORGES et al., 2019) and expansion (MEURER et al., 2019) of the program. Aspets such as the increase in intervention time, the depth and clarity of the content, inclusion of recruitment strategies for greater reach and participant adherence were cited as essential to increase the effectiveness and sustainability results of the program (SCHERER et al., 2018).

These findings motivated the development of a new version of the program. Thus, the objective of this study was to describe the development process of VAMOS version 3.0, in printed and online formats.

METHODOLOGY

Kind of study

This is a methodological study of analysis, updating and restructuring of a behavior change program. This study is part of the community-based project entitled *Programa Vida Ativa Melhorando a Saúde*. It was approved by the Human Research Ethics Committee of the Federal University of Santa Catarina (under no. 1,394,492), with the indicator RBR2vw77q in the Brazilian Registry of Clinical Trials (http://www. ensaiosclinicos.gov.br/).

Description of the intervention

VAMOS is a behavior change program that aims to motivate adults and elderly people to adopt an active and healthy lifestyle in relation to physical activity and nutrition. Adapted to the Brazilian reality, the first version (1.0) of the program was created in 2011 (BENEDETTI et al., 2012) based on the North American program "Active Living Every Day" (BLAIR et al., 2010). This version was tested in public health with a focus on promoting physical activity in the elderly. In 2014, the second version (2.0) of the program was developed, expanding the target population (adults and elderly people) and associating eating behavior with physical activity as another marker of the intervention.

VAMOS, version 2.0, is based on the constructs of Sociocognitive Theory (BANDURA; AZZI; POLIDORO, 2008) and uses educational strategies to help health professionals guide the population. The educational material consists of 12 printed textbooks that include content, objectives and activities that provide guidance on the importance of adhering to and maintaining healthy lifestyles (TOMICKI et al., 2021).

The structure of teaching material is characterized by texts with a large amount of information. The supporting images are made up of caricatures created specifically for the program and

photos of people who previously consented to the use of the images. The orange and green were defined to form the color palette of the teaching material, publicity material and for use on the program website(www.vamos.ufsc.br). The font chosen for the titles was Myriad Pro 18pt and for the body text Gouldy Old Style 12pt. The size of the book was defined as 173mm x 244mm on 250g offset paper.

VAMOS, version 2.0, is implemented face-to-face for people aged 18 or over, who do not meet the minimum recommendations for physical activity, have inadequate eating behavior and/or have health problems (BENEDETTI et al., 2012). The program is developed in groups with up to 25 participants, over three months, in weekly sections lasting 1h30 and two hours. To implement the program, a health professional, called a multiplier, receives 20 hours of online training (JOSÉ et al., 2019).

The intervention is evaluated based on primary markers, which are the practice of physical activity and eating behavior, as well as secondary markers measuring body weight and perception of quality of life (BENEDETTI et al., 2012; TOMICKI et al., 2021). The evaluation process takes place using the RE-AIM tool, widely used in health programs (ALMEIDA et al., 2014).

Materials and procedures

The new version of the program was developed considering three methodological steps: **construction of content, structuring of teaching material and implementation of the program**.

Content construction

It refers to an essential part of the health promotion process and its organization provides a dynamic and understandable reading of the guidelines for the target audience (GRUDNIEWICZ et al., 2015). The readjustment and updating of the content was carried out according to the following steps: identification of themes, description of the main concepts and objectives, insertion of motivational activities and certification of the efficiency, clarity, simplification and objectivity of the content (PASQUALI, 2010).

At this stage, we read the studies on the program (BORGES et al., 2019; GERAGE et al., 2017; TONOSAKI et al., 2018), the VAMOS teaching material, version 2.0 and the DiaBEAT-it (ALMEIDA et al., 2014; ALMEIDA et al., 2023) program due to the similarity with the proposal and applicability in the health area. Furthermore, to ensure the information was updated, other bibliographic sources on the topic were consulted.

Structuring teaching material

The structure of an educational material helps in learning information. To develop a coherent and dynamic teaching material, the duration of the intervention was considered (number of sections and duration of each section), customization of the material design, creation of visual communication elements and the adequacy of fonts, images and other graphic elements (PASQUALI, 2010).

At this stage, a number of sections were defined that included all the information necessary for the program proposal and meetings with a satisfactory time to motivate changes in health behaviors. We opted for a simple and direct language, with short sentences, common vocabulary, in an appropriate font and size, designed to facilitate reading, regardless of education. After organizing the content by the researchers (CGR, LMK and TRBB), a company was hired to carry out tests to define the design and modeling of the teaching material in relation to the layout of the content, color palette, images, font and size of the titles and texts, book size and type of paper to be used.

The team from the Organizational Genesis Orientation Laboratory (LOGO) at the Federal University of Santa Catarina (UFSC) assisted in the production of high-resolution images for use in books and in the production of promotional material. The people who participated in the photographic sections signed an informed consent form. Image bank was also used (https://elements.envato.com/photos/) from the contracted design company. All content was reviewed by a professional in the Literature/Portuguese area.

Implementation

The impact of an intervention is directly associated with the way it is made available to the target audience (MICHIE et al., 2017). The new version of the program was designed to be tested beyond public health and to meet the need to expand population reach. For this, two formats are considered: printed and online. The printed format will be used in the face-to-face modality in which the intervention was already being implemented. The online training to enable health professionals to implement the program in person was adapted based on the new materials developed and validated for a new certification (KONRAD et al., 2020). The online format was organized containing the same contents and activities as the printed format, to be made available through a platform, whose modeling in a virtual environment was carried out by the same design company responsible for structuring the teaching material.

The LOGO team collaborated in the reorganization of the VAMOS Program page (www.vamos.ufsc.br) to enable access and registration for participants. The Superintendence of Electronic Governance and Information and Communication Technology (SETIC) at UFSC helped provide support for the creation and hosting of the virtual environment on the institutional Moodle platform. In it, the participant registers in the virtual environment by creating an individual login and password, with which they access the teaching material to evaluate, read and understand the content, carrying out fixation and reflection activities.

The entire VAMOS 3.0 development process was conducted by two researchers (CGR and LMK) and approved in its final form by the project coordinator (TRBB).

RESULTS

VAMOS 3.0 was developed to be implemented in printed and online formats, supported by teaching material with a new design and updated content and distributed in 18 sections.

Content Construction

In addition to updating the information, with the expansion of the number of program sections, additional content was added to inform and motivate people to change lifestyle behaviors.

In the general context, the contents bring new information about the main markers of the program, such as concepts and benefits of PA and CA. The teaching material includes content on the health consequences of a physically inactive life and inappropriate eating behavior. In addition, strategies are presented for adopting and maintaining healthy behaviors and choices.

Regarding physical activity, information was added on appropriate clothing; recommendations for adults; consequences of physical inactivity; good practices at home, at work and at leisure; identification of places and opportunities to be active; time, frequency and intensity of physical exercise. In food, information was included on the description of food groups; fat, salt and sugar; food calories, reading and understanding labels; conscious food consumption; and strategies for good nutrition.

Description of the intervention

VAMOS is a behavior change program that aims to motivate adults and elderly people to adopt an active and healthy lifestyle in relation to physical activity and nutrition9. Adapted to the Brazilian reality, the first version (1.0) of the program was created in 2011 (BENEDETTI et al, 2012) based on the North American program "Active Living Every Day" (BLAIR et al., 2010). This version was tested in public health with a focus on promoting physical activity in the elderly. In 2014, the second version (2.0) of the program was developed, expanding the target population (adults and elderly people) and associating eating behavior with physical activity as another marker of the intervention.

The objective of the teaching material is to motivate and assist in changing the participant's behavior. Table 1 presents the themes and objectives of the 18 sections of VAMOS 3.0. The distribution of objectives and sequence of activities follows coherent aspects to reinforce the necessary behavioral changes. This way, the person can more easily understand the information being passed on and make appropriate decisions regarding each topic.

The authors believe that understanding and motivation for action is essential when it is intended that people make correct decisions not when it comes to physical activity and nutrition. In this way, the material was developed for constant interest and focus of people not contained in the possibilities that the program presents for an active and healthy life.

Table 1. Description of the sections and objectives of versions 2.0 and 3.0 of the VAMOS Program.

VAMOS VERSION 2.0	OBJECTIVE (*)	VAMOS VERSION 3.0	OBJECTIVE (**)
Introduction	To present the program, the teaching material and the VAMOS family.	1. Let's start?	Present the VAMOS Program. Perform the initial assessment of the participants.
1. Let's prepare?	Understand the concepts of behavior change, PA and EB. Reflect on the benefits of healthy living.	2. Are we going to know the program?	Introduce issues related to healthy lifestyle and behavior change.
2. Let's know more about healthy eating?	Reflect on the usual food and get information about EB. Organize an eating plan.	3. Will we know the benefits of a healthy lifestyle?	Introduce the concepts, importance and benefits of regular PA and EB practice.
3. Let's decide and practice?	Optimize the time to include PA in the routine and the differences in PA levels. Develop an initial plan for practice and self-monitoring.	4. Will we understand more about PA?	Know the types of activities and physical exercises, health recommendations, drawing up a weekly plan.
4. Are we going to challenges?	Know the barriers to behavior change in PA and EB and discuss possible solutions.	5. Will we understand more about healthy eating?	Analyze food choices and preparation, with an emphasis on fat, salt and sugar.
5. Are we going to set goals?	Review the levels of PA and EB. Monitor the time of moderate or vigorous PA and the quality of food.	6. Will we understand the health risks?	Know about obesity and its health consequences.
6. Will we gather support and go step by step?	Identify the main sources of support. Review the PA plan and learn to use the step counter.	7. Will we fight the obstacles?	Understand the factors that interfere with the change to an active and healthy lifestyle.
7. Will we get confidence and review the objectives?	Discuss the progress made and review the goals of PA and EB. Use positive messages and stretching techniques.	8. Will we review the plans?	Create elements of analysis that allow to review and reformulate the action plan in PA and EB.
8. Are we going to face the obstacles?	Recognize barriers to an active and healthy lifestyle. Learn about muscle strengthening and EB in your routine.	9. Are we going to identify social support?	Check the sources of social support that can assist in behavioral changes.
9. Will we understand the stress?	Identify stressful situations and learn techniques to reduce them. Reflect on ways to manage time.	10. Will we manage stress?	Understand and identify the causes of stress, risks and compromises.

10. Will we find new opportunities to have a healthy life?	Identify new options for PA and EB, and the importance of maintaining behavior and avoiding relapses.	11. Will we get to know good practices in PA?	Check good PA practices at home, at work, and at leisure.
11. Are we going to make lasting changes?	Valuing successes and maintaining motivation. Reflect on strategies for solving problems and maintaining changes.	12. Let's talk about fat, salt and sugar?	Acquire greater knowledge about fat, salt and sugar in food, and their impact on health.
Appendices	Reinforce the knowledge acquired with more detailed information and guidance photos for the practice of exercises.	13. Will we learn about labels and calories?	Understand food labels and identify food calorie values.
		14. Are we going to identify opportunities to be healthy?	Identify opportunities for adopting a healthy lifestyle.
		15. Will we avoid release?	Understand what relapses are and what strategies to minimize or avoid them.
		16. Are we going to maintain motivation and progress?	Understand how to maintain motivation and progress in PA and EB.
		17. Will we maintain the new behaviors?	Understand the need to maintain healthy behaviors.
		18. Will we review the lifestyle?	Evaluate the changes obtained during the program and set goals to follow after completion.

Legends: PA = physical activity. CA = Eating Behavior. QoL = Quality of Life. CR = Cardiovascular Risk. Notes: * Version 2.0 data extracted from Benedetti et al., 2014. Source: Prepared by authors, 2021.

The objective of the teaching material is to motivate and assist in changing the participant's behavior. The distribution of objectives and sequence of activities follows coherent aspects to reinforce the necessary behavioral changes. This way, the person can more easily understand the information being passed on and make appropriate decisions regarding each topic.

To familiarize the participant with the program, a basic structure was created for each section. All sections present the same informative sequence. This allows the participant to assimilate the dynamics of the sections, developing the activities gradually and geared to their needs.

Table 2 presents the layout characteristics of the teaching material. From section 2, a proposal for changing behavior was inserted in relation to the practice of physical activity and healthy eating that the participant must propose to carry out, called a task. From section 3 onwards, a self-assessment was inserted at the beginning of the teaching material (did you complete your task?), leading the participant to reflect on their daily behavior and the achievement of their goals. In all sections, the content of the section and the performance of the fixing activities are presented in sequence. From section 3 onwards, a reminder of the previous section was organized at the beginning of the teaching material, to help the participant connect the information previously received with the new information. At the end of each section, tips related to the content covered and a summary of the section were also included, aiming to help understand the content and motivate daily actions.

Table 2. Layout of the content of the VAMOS 3.0 teaching material.

ITEM	DESCRIPTION
Welcome	Introduction to the theme and objective of the section.
Let's remember	Summary of topics covered in the previous section (from section 3 onwards).
Did You Accomplish Your Task?	Record of the goal established in the previous section (from section 3).
Specific Content	Information about concepts and strategies for behavior change.
Activities	Strategies to assist in reflection and motivate active and healthy choices.
Tips	Information on practical actions to make simple and lasting changes.
Summary	Objective review of the topics covered in the section.
Task	Record of goals defined by the participant (from section 2).

Source: Prepared by authors, 2021.

In this new version, two sections were included that address the evaluation of participants before and after the intervention. The objective is to evaluate, at an individual level, the effectiveness of the program with regard to primary markers (physical activity and eating behavior) and secondary markers (body weight, cardiovascular risk, perception of health and perception of quality of life).

Structure of teaching material

The number of sections was increased from 12 to 18, to meet the increased execution time of the program and provide more informative elements that can help change behavior.

The color palette was expanded, using, in addition to orange and green, the colors lilac and blue. Orange was used on the cover, welcome page and content pages; lilac was used for fixation activities; blue for tips and green for the section summary and reminder about the previous section. This color differentiation was a strategy for participants to be able to identify each part of a section.

The Table 3 presents the structure of teaching material. The images used to aid the content of the sections were highlighted and with high resolution, seeking to assist in understanding the text. All are representative of the theme being presented and care was taken to present the country's multiculturalism, with representation of different races/ethnicities. These changes aimed to facilitate viewing and handling of the material.

Table 3. Description of the structure of the teaching material for versions 2.0 and 3.0. of VAMOS Program.

Features	VAMOS 2.0	VAMOS 3.0	
	Printed	Printed	On-line
Text size	Extensive with lots of information	Short, direct and with affirmative phrases	Short, direct and with affirmative phrases
Number of sections	12	18	18
Color palette	Orange and green	Orange, green, purple and blue	Orange, green, purple and blue
Images	Caricatures	High resolution photos	High resolution photos
Source of titles	Myriad Pro 24pt.	Open Sans 18 pt.	Open Sans 18 pt.
Body text font	Goudy Old Style 12 pt.	Open Sans 11 pt.	Open Sans 11 pt.
Book format	173 mm x 244 mm	226 mm x 277 mm	226 mm x 277 mm (*)
Paper type	Off set 250 g	Matte Coupe 250 g (cover) Matte Coupe 115 g (inside)	Non applicable

(*) Suitable for the screen size for 100% viewing. Source: Prepared by authors, 2021.

Implementation

To implement VAMOS 3.0, two formats were created: printed and online. Although both are identical in content and structure, the form of implementation differs both in the need for a multiplier and in the implementation characteristics. Table 4 presents the differences between the in-person and online versions.

Form of Implementation in face-to-face format. The program is aimed at people aged 18 or over, especially those who do not meet the minimum recommendations for PA (at least 150 minutes of moderate or vigorous PA per week), who have inappropriate eating behavior and/or NCDs. The duration was extended from three to between six and nine months. The printed version was designed for use in face-to-face group meetings with up to 25 people. The meeting lasts between 1h30 and two hours, at a place and time defined by the multiplier, who also monitors the activities and progress of the participants.

Application Form in Online Format. A responsive virtual environment was created (which adapts to different devices), with the aim of creating an interaction and usability experience for the user with the content that allows learning and information retention. The objective is to generate positive changes to increase physical activity and improve eating behavior.

The application is carried out individually, in a virtual environment, in a location with adequate electronic equipment and internet access. Furthermore, the section can be carried out at a time that is most convenient for the participant, without the need for a multiplier. After entering their login and password, the participant can access the content, and the activities present learning trails for completion and registration, which can be monitored by VAMOS Program researchers. Both the answers the participant recorded and the results of their assessments are available so they can track their progress. Information is described to guide the participant in carrying out the program appropriately, so that each section is carried out within the proposed period (weekly initial sections, fortnightly intermediate sections and monthly final sections).

Table 4. Description of how versions 2.0 and 3.0 are applied. of the VAMOS Program.

Features	VAMOS 2.0		VAMOS 3.0
	Printed	Printed	On-line
Age	18 years older	18 years older	18 years older
Criteria	Does not meet the minimum recommendations for PA practice, has inappropriate EB and / or has health problems	Does not meet the minimum recommendations for PA practice, has inappropriate EB and / or has health problems	Does not meet the minimum recommendations for PA practice, has inappropriate EB and / or has health problems
Duration	3 months	Up to 9 months	Up to 9 months
Modality	Group (face-to-face meeting)	Group (face-to-face meeting)	Individual (on-line)
Participants	Up to 25 people	Up to 25 people	Unlimited
Section time	90 minutes to 2h	90 minutes to 2h	Defined by the participant
Location	Provider choice	Provider choice	With internet access
Schedule	Provider definition	Provider definition	Defined by the participant
Activities	Recorded in didactic material	Recorded in didactic material	Registered in a virtual environment
Monitoring	Provider	Provider	Researchers

(*) Suitable for the screen size for 100% viewing. Source: Prepared by authors, 2021.

Evaluation of the VAMOS Program

Monitoring and evaluation of the VAMOS Program continues to be carried out through the REAIM model. It was developed to evaluate the potential, planning and impact of public and community health programs (ALMEIDA, BRITO, ESTABROOKS, 2013; GLASGOW; VOGT; BOWLES, 1999). The evaluation process of the VAMOS program using RE-AIM is described in the publication of its logical model (GLASGOW; VOGT; BOULES, 1999).

The primary and secondary markers were maintained, with cardiovascular risk being added to the secondary markers, measured by waist circumference. The evaluation process was maintained using the RE-AIM tool (ALMEIDA et al. 2014).

To evaluate changes in behavior and the effectiveness of the program, a questionnaire was validated. It contains sociodemographic information (gender, age, skin color, marital status, education, occupation, income), regular physical activity (measured by self-report and/or accelerometry), eating behavior (healthy and unhealthy diet), body weight and waist circumference (cardiovascular risk) (SILVA; RIBEIRO; BENEDETTI, 2020).

DISCUSSION

The National Supplementary Health Agency (ANS) created the Guide for Modeling Programs for Health Promotion and Risk and Disease Prevention (BRASIL, 2011). In it, it highlights that implementing programs that associate health promotion strategies with the prevention of risks and development of diseases helps to qualify health management and assistance.

In this sense, behavior change programs have been reported as promising and effective strategies for promoting health (GERAGE et al., 2020). Understanding that the effectiveness of changes begins in the home environment, interventions developed in health environments can interact with this reality, acting as supporting agents in changing and maintaining behaviors acquired with the program (YOUNG, 2014). In this sense, the quality of the teaching materials used to implement these programs is fundamental. Relevant information allows the creation of clear and easy-to-understand guidelines (HORTENSE; BERGEROT; DOMENICO, 2018), and can be used by participants to assist in the behavior change process.

The use of structured content and strategies serves as a tool for professionals to implement innovations in health and promote behavioral change in people. Therefore, it is necessary to be clear about the content presented, to which audience it is intended to be transmitted and what is the best way(s) to pass on the information (ALMEIDA et al., 2014). These precautions were used in the development of VAMOS 3.0.

Since its first version, VAMOS has always been concerned with approaching Design, resulting in more dynamic and attractive teaching materials, allowing participants to identify with the information made available in a more user-friendly way. The tools used by marketing make the intervention more attractive to users regarding changing needs. The rapprochement between the areas of Physical Education and Design is of fundamental importance, in addition to being recent in the country and not very widespread. In this sense, we suggest interaction between areas for the development of future interventions.

A highlight of this study is the creation of a virtual environment for hosting VAMOS 3.0, unprecedented in our country. Despite the existence of a range of technological devices already developed, such as heart rate monitors, pedometers, calorie counters, among many other applications, there are still no educational programs aimed at changing behavior with the characteristics of VAMOS. In other words, they focus on increasing physical activity and improving eating behavior.

The World Health Organization understands the use of technologies in health promotion programs as promising and encourages their development (WHO, 2016). Automatic, real-time feedback expands the simultaneous reach of people and is low cost. These factors have been reported as advantages of this application modality. It is still necessary to expand the scientific evidence about its real effectiveness (MENDES; BREDA, 2017). However, benefits of using technologies to support positive

behavior change have been reported. Among them, we have examples of health monitoring and effective self-care, support for necessary changes, increased communication and information (PIETTE, 2007).

It is important to highlight that the VAMOS Program is an innovative health proposal. Its methodology, structure and form of implementation are unprecedented in the country. We understand that VAMOS can be an important strategy in promoting health, due to the effective results already obtained (SCHERER et al., 2018; BORGES et al., 2019; MEURER et al., 2019; GERAGE et al., 2020; SOUZA et al., 2020). It is an alternative for use by public health professionals, when it comes to promoting active and healthy lifestyles.

CONSIDERATIONS

The production of teaching materials with structured content and strategies to be used as tools that guide behavior change, aiming for an active and healthy lifestyle.

To achieve the objectives of the VAMOS Program, a potentially suitable version was created for large-scale application and with the possibility of implementation in different regions of the national context. The logical sequence, with an increasing format of information and appropriation of content, was designed to provoke participants' empathy with the material and allow for better understanding, using short and objective information, awakening a process of reflection and action.

The new version underwent a reformulation of the graphic and structural design, expanding the sections and adapting the content for application in any Brazilian region or cultural context. This procedure indicates that the program is promising for application in basic health units, as well as in other spaces and institutions, such as schools and institutions in the public and/or private sectors.

Being a pioneering and innovative initiative in the area of health, VAMOS 3.0 in printed and online format, presents itself as an important alternative in preventing diseases and promoting health and quality of life for Brazilian adults and elderly people.

REFERENCES

ALMEIDA, Fabio Almeida; BRITO, Fabiana Almeida; ESTABROOKS, Paul. RE-AIM Model: Translation and cultural adaptation for Brazil. *REFACS (online)*. v. 1, n. 1, 2013. DOI: 10.18554/refacs.v1i1.602.

ALMEIDA, Fabio Araújo; PARDO, Kimberlee; SEIDEL, Richard; DAVY, Brenda; YOU, Wen; WALL, Sarah; SMITH, Erin; GREENAWALD, Mark; ESTABROOKS Paul. Design and methods of "diaBEAT-it!": a hybrid preference/randomized control trial design using the RE-AIM framework. *Contemp Clin Trials*. V. 38, n. 2, p. 383-396, 2014. DOI: 10.1016/j.cct.2014.06.010.

ALMEIDA, Fabio Araújo; YOU, Wen;, BRITO, Fabiana Almeida; ALVES, Thais F.; GOESSL, Cody; WALL, Sarah S.; SEIDEL, Richard W.; DAVY, Brenda M.; GREENAWALD, Mark H.; HILL, Jennie L.; ESTABROOKS, Paul A. A randomized controlled trial to test the effectiveness of two technology-enhanced diabetes prevention programs in primary care: The DiaBEAT-it study. *Front Public Health*. v. 11, 1000162, 2023. DOI: 10.3389/fpubh.2023.1000162.

BANDURA, Albert; AZZI, Roberta Gurgel; POLIDORO, Soely. *Social Cognitive Theory*: basic concepts. Porto Alegre, Brazil: Artmed, 2008.

BENEDETTI, Tânia Rosane Bertoldo; MANTA, Sofia Wolker; GOMEZ, Luiz Salomão Ribas; RECH, Cassiano Ricardo. Logical model of a behavior change program for community intervention – Active Life Improving Health – VAMOS. *Rev Bras Ativ Fís Saúde*. v. 22, n. 3, p. 309-313, 2017. DOI: 10.12820/rbafs.v.22n3p309-313.

BENEDETTI, Tânia Rosane Bertoldo; RECH, Cassiano Ricardo; KONRAD, Lisandra Maria; ALMEIDA, Fabio Araújo; BRITO, Fabiana A.; CHODZKO-ZAJKO, Wojtek; SCHWINGEL, Andiara. Rethinking physical activity programs for older Brazilians and the role of public health centers: a randomized controlled trial using the RE-AIM model. *Front Public Health*. v. 8, n. 48, 2020. DOI: 10.3389/fpubh.2020.00048.

BENEDETTI, Tânia Rosane Bertoldo; SCHWINGEL, Andiara; GOMEZ, Luiz Salomão Ribas; CHODZKO-ZAJKO, Wojtek. "VAMOS" (Active Life Improving Health) Program: from conception to first results. *Rev Bras Cineantropom Performance Hum*. v. 14, n. 6, p. 723-737, 2012. DOI: 10.5007/1980-0037.2012v14n6p723.

BLAIR, Steven N.; DUNN, Andrea L.; MARCUS, Bess H.; CARPENTER, Ruth Ann; JARET, Peter. *Active Living Every Day*. Champaign, IL: Human Kinetics, 2010.

BORGES, Rossana Arruda; TOMICKI, Camila; ALMEIDA, Fabio Araújo; SCHWINGEL, Andiara; CHODZKO-ZAJKO, Wojtek; BENEDETTI, Tânia Rosane Bertoldo. Reach of the "VAMOS" program in primary care organizational barriers and facilitators. *Rev Bras Geriatr Gerontol*. v. 22, n. 3, e180225, 2019. DOI: 10.1590/1981-22562019022.180225.

BRASIL. National Supplementary Health Agency. *Booklet for modeling programs to promote health and prevent risks and diseases* / National Supplementary Health Agency (Brazil). – Rio de Janeiro: ANS, 2011.

CHAUHAN, Bhupendrasinh; JEYARAMAN, Maya; MANN, Amrinder; LYS, Justin; SKIDMORE, Becky; SIBLEY, Kathryn; SETTA, Ahmed; ZARYCHANSKI, Ryan. Behavior changes interventions and policies influencing primary healthcare professionals' practice an overview of reviews. *Implement Sci*. v. 12, n. 1, 38, 2017. DOI: 10.1186/s13012-016-0538-8.

FJELDSOE, Brianna; NEUHAUS, Maike; WINKLER, Elisabeth; EAKIN, Elizabeth. Systematic review of maintenance of behavioral change following physical activity and dietary interventions. *Health Psychol*. v. 30, n. 1, p. 99-109, 2011. DOI: 10.1037/a0021974.

GERAGE, Aline Mendes; BENEDETTI, Tânia Rosane Bertoldo; CAVALCANTE, Bruno Remígio; FARAH, Breno Quintella; RITTI-DIAS, Raphael Mendes. Efficacy of a behavior change program on cardiovascular parameters in patients with systemic arterial hypertension: randomized controlled clinical trial. *Einstein (São Paulo)*. v. 18, eAO5227, 2020. DOI: 10.31744/einstein_journal/2020AO5227.

GERAGE, Aline Mendes; BENEDETTI, Tânia Rosane Beretoldo; RITTI-DIAS, Raphael Mendes; SANTOS, Ana Célia Oliveira; SOUZA, Bruna Cadengue Coelho; ALMEIDA, Fabio Araújo. Effectiveness of a behavior change program on physical activity and eating habits in patients with hypertension: a randomized controlled trial. *J Phys Act Health*. v. 14, n. 12, p. 943-952, 2017. DOI: 10.1123/jpah.2016-0268.

GLASGOW, Russel E.; VOGT, Thomas M.; BOULES, Shawn M. Evaluating the public health impact of health promotion interventions: the REAIM framework. *Am J Public Health*. v. 89, n. 9, p. 1322-1327, 1999. DOI: 10.2105/ajph.89.9.1322.

GRUDNIEWICZ, Agnes; BHATTACHARYYA, Onil; McKIBBON, K. Ann; STRAUS, Sharon E. Redesigning printed educational materials for primary care physicians: design improvements increase usability. *Implement Sci*. v. 10, 156, 2015. DOI: 10.1186/s13012-015-0339-5.

HOOKER, Stephanie; PUNJABI, Anjoli; JUSTESEN, Kacey; BOYLE, Lucas; SHERMAN, Michelle D. Encouraging Health Behavior Change: Eight EvidenceBased Strategies. *Fam Pract Manag.* 2018; v. 25, n. 2, p. 31-36, 2018. PMID: 29537244.

HORTENSE, Flávia Tatiana Pedrolo; BERGEROT, Cristiane Decat; DOMENICO, Edvane Birelo Lopes. Construction and validation of clinical content for the development of learning objects. *Rev Bras Enferm.* v. 71, n. 2, p. 306-313, 2018. DOI: 10.1590/0034-7167-2016-0622.

JOSÉ, Helma Pio Mororó; KONRAD, Lisandra Maria; RIBEIRO, Cezar Grontowski; BENEDETTI, Tânia Rosane Bertoldo. Validation of elearning training for multipliers of the Active Life Improving Health (VAMOS) Program. *J. Phys. Education*. v. 30, e3040, 2019. DOI: 10.4025/jphyseduc.v39i1.3040.

KONRAD, Lisandra Maria; RIBEIRO, Cezar Grontowski; TOMICKI, Camila; BENEDETTI, Tânia Rosane Bertoldo. Validation of educational technology to implement a community program in public health. *Rev Bras Ativ Fís Saúde.* v. 25, e0155, 2020. DOI: 10.12820/rbafs.25e0155.

KONRAD, Lisandra Maria; TOMICKI, Camila; RIBEIRO, Cezar Grontowski; BEZERRA, Juciléia Barbosa; MACIEL, Elaine Cristina; RECH, Cassiano Ricardo; PITANGA, Francisco Gondim; BENEDETTI, Tânia Rosane Bertoldo. Length of stay in a behavior change program in primary health care: "VAMOS" Program. *Rev Bras Ativ Fís Saúde.* v. 24, e0090, 2019. DOI: 10.12820/rbafs.24e0090.

MALTA, Déborah Carvalho; BERNAL, Regina Tomie Ivata; LIMA, Margareth Guimarães; ARAÚJO, Silvânia Sueli Caribé; SILVA, Marta Maria Alvez; FREITAS, Maria Imaculada de Fátima; BARROS, Marilisa Berti de Azevedo. Chronic non-communicable diseases and the use of health services: analysis of the National Health Survey in Brazil. *Rev Saude Publica*. v. 51 (supl1), 4s, 2017. DOI: 10.1590/S1518-8787.2017051000090.

MENDES, Romeu; BREDA, João. New technologies in promoting physical activity. *Rev Factors Risk.* v. 44, p. 106-111, 2017.

MEURER, Simone Teresinha; LOPES, Aline Cristina Souza; ALMEIDA, Fabio Araújo; MENDONÇA, Raquel de Deus; BENEDETTI, Tânia Rosane Bertoldo. Effectiveness of the VAMOS Strategy for Increasing Physical Activity and Healthy Dietary Habits: A Randomized Controlled Community Trial. *Health Educa Behav.* v. 46, n. 3, p. 406-416, 2019. DOI: 10.1177/1090198118820095.

MICHIE, Susan; THOMAS, Tiago; JOHNSTON, Maria; AONGHUSA, Pol Mac; SHAWE-TAYLOR, John; KELLY, Michael; DELERIS Léa; FINNERTY, Ailbhe; MARQUES, Marta; NORRIS, Emma; O'MARA-EVES, Alison; WEST, Robert. The Human Behavior-Change Project: harnessing the power of artificial intelligence and machine learning for evidence synthesis and interpretation. *Implement Sci.* v. 12, 121, 2017. DOI: 10.1186/s13012-017-0641-5.

O'CATHAIN, Alicia; CROOT, Liz; DUNCAN, Edward; RUSSEAU, Nikki; SWORN, Katie; TURNER, Katrina; YARDLEY, Lucy; HODDINOTT, Pat. Guidance on how to develop complex interventions to improve health and healthcare. *BMJ Open.* v. 9, e029954, 2019. DOI: 10.1136/bmjopen-2019-029954.

Pasquali L. *Psychological instrumentation:* Fundamentals and practices. Porto Alegre, Brazil: Artmed, 2010.

PIETTE, John D. Interactive behavior change technology to support diabetes selfmanagement. *Diabetes Care.* v. 30, n. 10, p. 2425-2432, 2007. DOI: 10.2337/dc07-1046.

RIBEIRO, Andrea Queiroz; SALGADO, Sara Maria Lopes; GOMES, Ivani Soleira; FOGAL, Aline Siqueira; MARTINHO, Karina; ALMEIDA, Luciene; OLIVEIRA, Wederson Cândido. Prevalence and

factors associated with physical inactivity in the elderly: a population-based study. *Rev Bras Geriatr Gerontol.* v. 19, n. 3, p. 483-493, 2016. DOI: 10.1590/1809-98232016019.150047.

SAMDAL, Gro Beate; EIDE, Geir Egil; BARTH, Tom; WILLIAMS, Geoffrey; LEMAND, Eivind. Effective behavior change techniques for physical activity and healthy eating in overweight and obese adults; systematic review and metaregression analyses. *Int J Behav Nutr Phys Act.* v. 14, n. 42, 2017. DOI: 10.1186/s12966-017-0494-y.

SCHERER, Fabiana Cristina; GERAGE, Aline Mendes; BORGES, Lucelia Justino; BORGES, Rossana Arruda; MELO, Fernanda Cristiane; TEIXEIRA, Denilson Castro; BENEDETTI, Tânia Rosane Bertoldo. Effect of two programs on promoting physical activity in the elderly. *Rev Bras Ativ Fís Saúde.* v. 23, e0034, 2018. DOI: 10.12820/rbafs.23e0034.

SILVA, Monica Costa; RIBEIRO, Cezar Grontowski; BENEDETTI, Tânia Rosane Bertoldo. VAMOS program: instruments for measuring physical activity, nutrition and anthropometry. *Rev Bras Cineantropom Performance Hum*. v. 22, e58256, 2020.

SOUZA, Paulo Vitor; TOMICKI, Camila; KONRAD, Lisandra Maria; SANDRESCHI, Paula Fabricio; RIBEIRO, Cezar Grontowski; MACIEL, Elaine Cristina; RECH, Cassiano Ricardo; BENEDETTI, Tânia Rosane Bertoldo. Effectiveness of an intervention in promoting the lifestyle of public servants. Rev Bras Ativ Fís Saúde. v. 25, e0135, 2020. DOI: 10.12820/rbafs.25e0135.

TOMICKI, Camila; RECH, Cassiano Ricardo; KONRAD, Lisandra Maria; MACIEL, Elaine Cristina; ALMEIDA, Fabio, BENEDETTI, Tânia Rosane Bertoldo. Promoting healthy lifestyles in Brazil: design and method of "VAMOS Program" in public health system. *Rev Bras Ativ Fís Saúde.* v. 26, e0182, 2021.

TONOSAKI, Lucia Midori Damaceno; RECH, Cassiano Ricardo; MAZO, Giovana Zapellon; ANTUNES, Gabriel de Aguiar; BENEDETTI, Tânia Rosane Bertoldo. Barriers and facilitators to participation in a behavior change program: focus group analysis. *Rev Bras Ciênc Esporte*. v. 40, n. 2, p. 138-145, 2018. DOI: 10.1016/j.rbce.2018.01.012.

YOUNG, Scott. Healthy behavior changes in practical settings. *Perm J*. v. 18, n. 4, 8992, 2014. DOI: 10.7812/TPP/14-018.

WHO. World Health Organization. Regional Office for Europe. *Physical activity strategy for the WHO European Region 2016–2025*. Copenhagen: World Health Organization; 2016.

AUTHORS' CONTRIBUTION

Author 1 - conception and development, methodological design, bibliographic survey, active participation in data collection and analysis, writing the final text.
Author 2 - conception and development, methodological design, bibliographic survey, active participation in data collection and analysis, writing the final text.
Author 3 - methodological design, critical review, and writing of the final text.
Author 4 - methodological design, critical review, and writing of the final text.
Author 5 - methodological design, critical review, and writing of the final text.
Author 6 - methodological design, critical review, and writing of the final text.
Author 7 - conception and development, methodological design, bibliographic survey, active participation in data collection and analysis, writing the final text.

DECLARATION OF CONFLICT OF INTEREST

The authors declare no conflict of interest.

This research was funded by the Chamada Pública n° 10/2015 – Apoio à Programa de Pesquisa para o SUS (PPSUS): Gestão Compartilhada em Saúde – FAPESC/PPSUS/TO n.2016TR2210. Processo FAPESC n. 484/2016, Brasil.

Este preprint foi submetido sob as seguintes condições:

- Os autores declaram que estão cientes que são os únicos responsáveis pelo conteúdo do preprint e que o depósito no SciELO Preprints não significa nenhum compromisso de parte do SciELO, exceto sua preservação e disseminação.
- Os autores declaram que os necessários Termos de Consentimento Livre e Esclarecido de participantes ou pacientes na pesquisa foram obtidos e estão descritos no manuscrito, quando aplicável.
- Os autores declaram que a elaboração do manuscrito seguiu as normas éticas de comunicação científica.
- Os autores declaram que os dados, aplicativos e outros conteúdos subjacentes ao manuscrito estão referenciados.
- O manuscrito depositado está no formato PDF.
- Os autores declaram que a pesquisa que deu origem ao manuscrito seguiu as boas práticas éticas e que as necessárias aprovações de comitês de ética de pesquisa, quando aplicável, estão descritas no manuscrito.
- Os autores declaram que uma vez que um manuscrito é postado no servidor SciELO Preprints, o mesmo só poderá ser retirado mediante pedido à Secretaria Editorial do SciELO Preprints, que afixará um aviso de retratação no seu lugar.
- Os autores concordam que o manuscrito aprovado será disponibilizado sob licença Creative Commons CC-BY.
- O autor submissor declara que as contribuições de todos os autores e declaração de conflito de interesses estão incluídas de maneira explícita e em seções específicas do manuscrito.
- Os autores declaram que o manuscrito não foi depositado e/ou disponibilizado previamente em outro servidor de preprints ou publicado em um periódico.
- Caso o manuscrito esteja em processo de avaliação ou sendo preparado para publicação mas ainda não publicado por um periódico, os autores declaram que receberam autorização do periódico para realizar este depósito.
- O autor submissor declara que todos os autores do manuscrito concordam com a submissão ao SciELO Preprints.