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Promoting an active and healthy lifestyle among users of Primary Health Care in Brazil: a study of the VAMOS Program based on the RE-AIM tool

Promoção de um estilo de vida ativo e saudável em usuários da Atenção Primária à Saúde no Brasil: um estudo do Programa VAMOS com base na ferramenta RE-AIM

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ABSTRACT

Objective: To evaluate the adoption, reach, and effectiveness of the Active Life Improving Health Program (*Programa Vida Ativa Melhorando a Saúde* – VAMOS, version 2.0) implemented in Primary Health Care across different regions of Brazil. Methods: This community-based intervention consisted of 12 sessions conducted by health professionals, with assessments performed at baseline and post-intervention. Results: The adoption rate among professionals was 72.7% (n = 8). The reach of the recruitment strategies was 0.34% (n = 231), the intervention reach was 61.0% (n = 141), and the participant retention rate was 75.8% (n = 107). Increases were observed in total physical activity time, reductions in sedentary behavior, improvements in healthy food consumption, decreases in waist circumference, and enhanced perceived quality of life ($p < 0.05$). Conclusion: The VAMOS Program demonstrated high adoption and reach rates, as well as effectiveness in promoting positive changes in physical activity, healthy eating, body measurements, and perceived quality of life, highlighting its potential as a health promotion strategy within Primary Health Care.

Keywords: Public health; Health promotion; Lifestyle; Behavior.

RESUMO

Objetivo: Foi avaliar a adoção, o alcance e a efetividade do Programa Vida Ativa Melhorando a Saúde (VAMOS, versão 2.0) implantado na Atenção Primária à Saúde de diferentes regiões do Brasil. Métodos: Trata-se de uma intervenção comunitária composta por 12 encontros conduzidos por profissionais de saúde, com avaliações realizadas no baseline e pós-intervenção. Resultado: A taxa de adoção pelos profissionais foi de 72,7% (n = 8). O alcance das estratégias de recrutamento foi de 0,34% (n = 231), o alcance da intervenção foi de 61% (n = 141) e a taxa de retenção dos participantes foi de 75,8% (n = 107). Observou-se aumento no tempo dedicado à atividade física total, redução do comportamento sedentário, melhora no consumo de alimentos saudáveis, redução da circunferência da cintura e aumento da percepção positiva de qualidade de vida ($p < 0,05$). Conclusão: O Programa VAMOS apresentou taxas elevadas de adoção e alcance, além de efetividade na promoção de mudanças positivas em atividade física, alimentação saudável, medidas corporais e percepção positiva da qualidade de vida, evidenciando seu potencial como estratégia de promoção da saúde na Atenção Primária.

Palavras-chave: *Saúde pública; Promoção da saúde; Estilo de vida; Comportamento.*

Introduction

No communicable diseases and conditions affect approximately 70% of the global population[1]. Among modifiable behavioral risk factors, physical inactivity and unhealthy diet stand out as the main causes associated with no communicable diseases and conditions[2]. Consequently, public policies have directed efforts toward promoting lifestyle changes, with an emphasis on encouraging physical activity and the consumption of healthy foods[3]. However, in Brazil, 37% of the adult

population does not meet adequate levels of physical activity, and 78.6% do not consume the minimum amount of fruits and vegetables recommended by the World Health Organization[4].

Interventions within the scope of Primary Health Care (PHC) have been prioritized in health promotion agendas. In this context, several goals have been established, including the development of community-based programs aimed at promoting physical activity and healthy eating[3-5]. The literature indicates that approximately 54% of these programs address both topics[6]; however, there are difficulties in quantifying the public health impact of such interventions. This limitation is mainly due to insufficient information regarding the evaluation of essential factors, such as adoption by health professionals, reach among the target population, and program effectiveness[7].

The Active Life Improving Health Program (*Programa Vida Ativa Melhorando a Saúde* – VAMOS, version 2.0) is a community-based intervention designed to promote an active and healthy lifestyle. Its approach is grounded in education as a central element for behavior change, with an emphasis on physical activity practices and healthy eating[8]. Its effectiveness has been demonstrated in different contexts[9-11]. However, organizational adoption, recruitment of the target population, and intervention reach within the PHC setting remain underexplored, as these factors directly influence program effectiveness.

Therefore, the objective of this study was to evaluate the RE-AIM framework dimensions[12]—adoption, reach, and effectiveness—considering the implementation of the VAMOS Program (version 2.0) in PHC across different regions of Brazil.

Methods

This community-based intervention study was conducted between 2017 and 2019 in Basic Health Units (BHU) from different regions of Brazil. The project was approved by the Ethics Committee for Research with Human Beings (decision no. 1.394.492, protocol no. 475075/2012-9), State Funding Agency of Santa Catarina.

The intervention protocol—the VAMOS Program (version 2.0)—was designed for adults and older adults, with no exclusion criteria applied by the facilitators or the research team responsible for conducting the study. The intervention consisted of 12 face-to-face sessions held weekly or biweekly over a period of three to five months, with a 12-month post-intervention maintenance follow-up[8]. The program was based on a health education methodology and was delivered by a health professional (facilitator) previously trained through the Online Training for VAMOS Program Facilitators[13].

Facilitators who agreed to implement the program in their workplace received the educational materials (12 booklets addressing physical activity and healthy eating) and dissemination materials (posters, flyers, and business cards) free of charge to invite the community. To implement the VAMOS Program, invitations were sent to 44 health professionals certified through the online training who were working in PHC in different regions of the country. These professionals were trained during the online course and, after evaluation and approval, were certified as VAMOS Program facilitators[13]. After the professional accepted the invitation, the dissemination materials were sent. In all locations, the same dissemination period (15–30 days) and strategies were used: posting posters in BHU and community settings; verbal invitations to users by health team professionals; distribution of business cards during consultations; and distribution of flyers by community health workers in community centers, churches, and during home visits.

Intervention monitoring was conducted remotely by the VAMOS research team in direct contact with the facilitators. Communication between researchers and facilitators occurred via telephone and email. For data collection regarding participant characteristics at baseline and post-intervention, facilitators received an instructional video on how to complete the online forms (Google Forms®). All facilitators and study participants signed an informed consent form after reading the document.

To estimate public health impact, the VAMOS Program uses the RE-AIM framework, which evaluates interventions across five dimensions: adoption, reach, effectiveness, implementation, and maintenance[7]. This study analyzed adoption, reach, and effectiveness.

Adoption refers to an organizational-level measure of participation, considering the absolute number, proportion, and representativeness of settings and/or professionals willing to implement an intervention compared with those eligible. The adoption rate among professionals was calculated by dividing the number of professionals who delivered the intervention by the number of eligible professionals, multiplied by 100.

To assess program reach, three distinct rates were

calculated. Considering the study participants, a recruitment reach rate was calculated by dividing the number of users who expressed interest in participating in the intervention by the number of potentially eligible users (those exposed to dissemination strategies), multiplied by 100.

Intervention reach, in turn, is an individual-level measure of participation that considers the absolute number, proportion, and representativeness of individuals who agreed to participate compared with those eligible. The reach rate was calculated by dividing the number of users who initiated the intervention by the number of eligible users, multiplied by 100. In addition, the participant retention rate was calculated by dividing the number of users who completed the intervention by the number of users who initiated it, multiplied by 100.

Effectiveness refers to an individual-level measure assessing the impact of the intervention on the primary outcomes analyzed. In this study, variables were examined based on assessments conducted at baseline and post-intervention. Participants were evaluated using a questionnaire[14] specifically developed to assess the primary markers (physical activity level and dietary behavior) and secondary markers (waist circumference and perceived quality of life) of the VAMOS Program.

Physical activity level was measured using the International Physical Activity Questionnaire (IPAQ), short version[15], which estimates time spent (minutes/week) in sedentary behavior and in total physical activity (sum of moderate- and vigorous-intensity activities).

Dietary behavior was assessed using 12 questions extracted from the Surveillance of Risk and Protective Factors for Chronic Diseases by Telephone Survey[4]. For analysis, an overall healthy eating score was generated by summing food groups, ranging from zero to five points, with higher scores indicating healthier dietary behaviors. Responses considered the frequency of consumption of specific foods, categorized as "never," "almost never," "1–2 days per week," "3–4 days per week," "5–6 days per week," and "every day" (including Saturday and Sunday).

Waist circumference was measured using a non-elastic measuring tape with 0.1 cm precision, positioned midway between the lowest rib and the iliac crest, following the protocol of the International Society for the Advancement of Kinanthropometry[16].

Perceived quality of life was assessed using the question "Considering the past two weeks, how would you rate your quality of life?" extracted from the WHOQOL-BREF questionnaire[17]. Response options were "very poor," "poor," "neither poor nor good," "good," and "very good." Based on this, the percentage of participants with a negative quality of life (very poor or poor) or a positive quality of life (neither poor nor good, good, and very good) was calculated.

In the descriptive analysis, continuous variables were expressed as mean and standard deviation, while categorical variables were presented as absolute and relative frequencies. For inferential analysis, data distribution was assessed using the Kolmogorov–Smirnov test. Comparisons between baseline and post-intervention data were performed using the paired Student's t test and the Wilcoxon test. A significance level of 5% was adopted for all analyses. Data were analyzed using the Statistical Package for the Social Sciences (SPSS®), version 22.0, and the quality of life variable was analyzed using MedCalc®, online version. All analyses were conducted per protocol, considering only participants assessed at both study time points (baseline and post-intervention).

Results

Adoption

A total of 44 health professionals, certified through the online training, were invited to implement the VAMOS program. Of these, 23 did not respond to emails, and 10 declined for various reasons: maternity leave (n = 1), vacations or departure from service (n = 7), or inability due to other scheduled activities at the BHU (n = 2). In total, 11 professionals expressed interest in implementing the intervention at their linked BHU unit. After the dissemination of materials was sent, eight health professionals effectively implemented the program, corresponding to an adoption rate of 72.7%.

The VAMOS program was implemented in municipalities from the South (n = 4), Southeast (n = 2), and Northeast (n = 2) regions of Brazil. Among the eight municipalities, three were classified as small (2,617 to 3,527 inhabitants), two as medium-sized (12,609 to 62,263 inhabitants), and three as large (138,572 to 157,743 inhabitants). The health professionals were from the fields of Physical Education (n = 4), Psychology (n = 2), Nutrition (n = 1), and Physiotherapy (n = 1), with an average of 3.5 years (SD = 2.0) of experience in PHC. The majority were women (62.5%; n = 5), married (62.5%; n = 5), with an average age of 36.5 years (SD = 5.5) and an income between 5 and 10 min-

imum wages (62.5%; n = 5).

Reach

The target population of the study consisted of users from eight BHU (n = 66,706). The reach rate of recruitment strategies was 0.34% (n = 231). Of these, 141 initiated the program, resulting in an intervention reach rate of 61%. By the end of the intervention, retention was 75.8% (n = 107) (Figure 1).

Among the 107 program participants, the majority were women (93.4%; n = 100), aged between 18 and 40 years (42.9%; n = 46), of mixed race (48.6%; n = 52), married (54.2%; n = 58), with completed high school education (31.7%; n = 34), low income (1 to 2 minimum wages) (34.5%; n = 37), and economically active (35.1%; n = 38).

Effectiveness

Table 1 presents the data from baseline and post-intervention assessments at each BHU, considering the markers of the VAMOS Program. In general, a statistically significant increase was observed in total

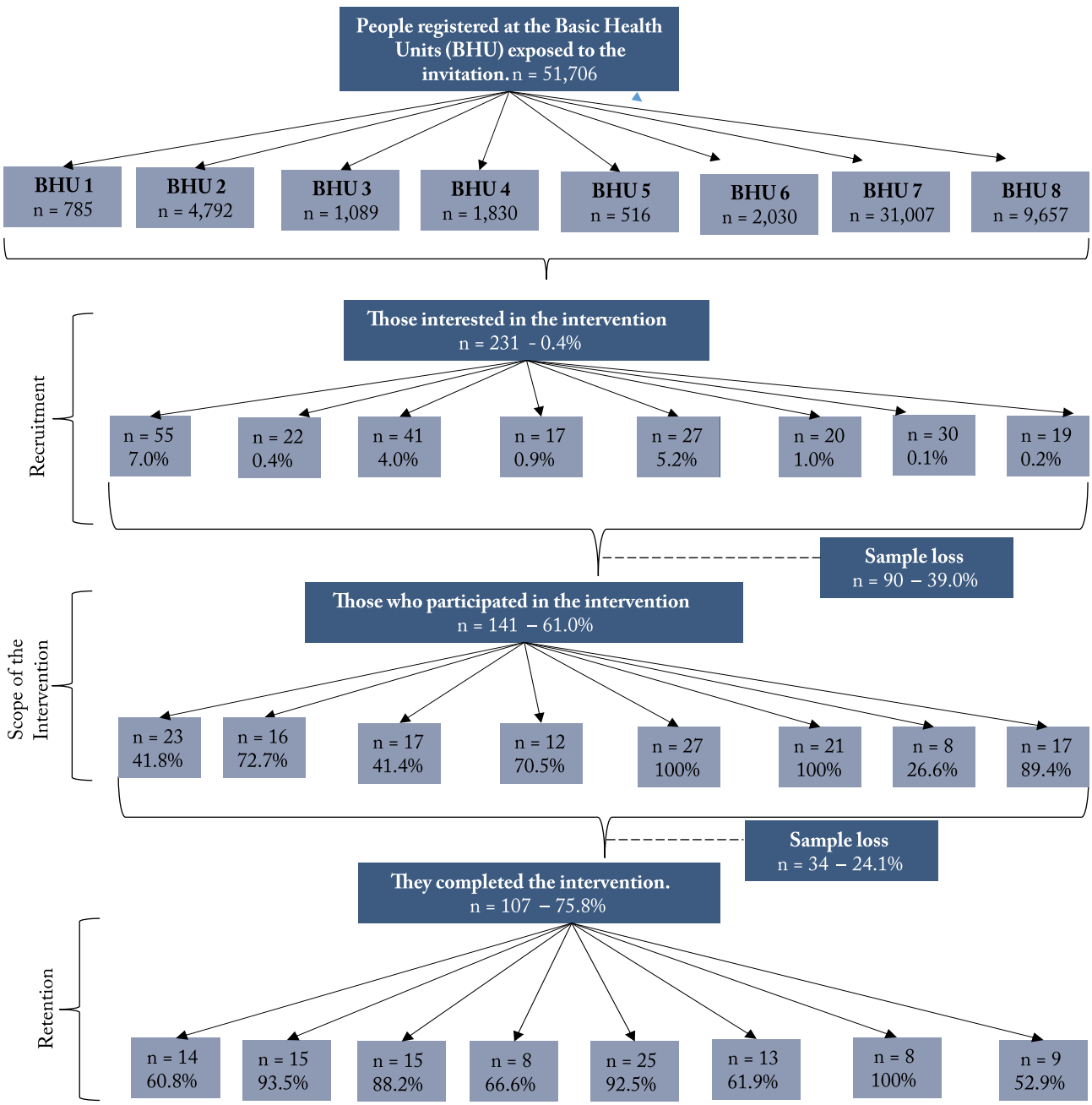

Figure 1 – Recruitment, reach, and retention rates of participants in the VAMOS Program (version 2.0) in Primary Health Care, Brazil, 2019.

physical activity time, reduction in sedentary behavior, improvement in healthy food consumption, reduction in waist circumference, and improvement in perceived quality of life ($p < 0.05$).

Regarding physical activity, participants from seven BHU increased their total physical activity time. The weekly average increased from 1,105.9 minutes/week (SD = 1,239.8) at baseline to 1,351.2 minutes/week (SD = 1,455.5) post-intervention, representing a 22.3% increase. In four BHU (BHU 1, BHU 6, BHU 7, and BHU 8), 50% of participants increased the time spent in sedentary behavior, although without statistical significance. On average, sedentary behavior decreased from 492.8 minutes/week (SD = 268.0) to 482.0 minutes/week (SD = 247.4).

Regarding dietary behavior, a statistically significant improvement in food choices was observed in at least 75% of the participants across the BHU. The healthy eating score increased from 31.7 points (SD = 6.5) at baseline to 34.1 points (SD = 5.3) post-intervention.

Another marker used in the program is waist circumference measurement. In 75% of the BHU, a reduction was observed post-intervention. The average decreased from 90.4 cm at baseline to 88.6 cm post-intervention, representing a 2% reduction, albeit modest, but a positive effect.

Finally, in the perception of quality of life, an improvement was observed in 87.5% of the BHU. The percentage of participants reporting positive quality of life increased from 61.2% (n = 63) at baseline to 80.6% (n = 83) post-intervention, corresponding to a 19.4% increase in VAMOS participants.

Discussion

The implementation of the VAMOS Program showed positive results across the three evaluated dimensions. Regarding adoption, eight of the 44 invited health professionals effectively implemented the intervention, resulting in an adoption rate of 72.7%, spread across different regions of the country with diverse educational backgrounds. Concerning reach, the program engaged users from eight BHU, reaching 231 individuals, of whom 141 started, and 107 completed the intervention (75.8% retention), with a predominance of women, mixed-race individuals, married, low-income, and with medium education. In the effectiveness dimension, significant improvements were observed, including increased physical activity time, reduced sedentary behavior, improved food choices, reduced waist circumference, and improved positive quality of life perception, indicating a substantial impact on both objective and subjective health markers.

Adoption

Information on adoption rates and the characteristics of organizations agreeing to implement an interven-

Table 1 – Effectiveness of the VAMOS Program (version 2.0) in Primary Health Care (n = 103), Brazil, 2019.

Municipality	Total physical activity (minutes/week) Average (standard deviation)			Sedentary behavior (minutes/week) Average (standard deviation)			Diet Average (standard deviation)			Waist circumference (centimeters) Average (standard deviation)		
	Pre	Post	p	Pre	Post	p	Pre	Post	p	Pre	Post	p
Basic Health Unit 1 (n = 14)	832.14 (933.1)	743.58 (856.3)	0.99	432.14 (178.0)	469.29 (186.6)	0.40	32.08 (5.6)	34.08 (5.1)	0.001*	85.64 (17.4)	80.71 (17.6)	0.001*
Basic Health Unit 2 (n = 15)	698.48 (538.9)	732.67 (322.5)	0.60	430.00 (211.6)	362.00 (112.5)	0.08	33.40 (6.4)	37.47 (4.1)	0.001*	84.30 (9.5)	81.80 (8.4)	0.001*
Basic Health Unit 3 (n = 13)	1228.39 (1306.5)	2771.08 (2379.5)	0.001*	492.30 (253.3)	406.15 (193.5)	0.001*	33.08 (6.5)	34.53 (4.4)	0.20	91.00 (14.2)	87.80 (12.9)	0.001*
Basic Health Unit 4 (n = 6)	1056.66 (955.0)	1731.67 (2013.6)	0.99	424.14 (169.6)	390.09 (168.6)	0.10	30.67 (3.6)	35.17 (3.3)	0.09	84.00 (11.0)	82.67 (10.1)	0.08
Basic Health Unit 5 (n = 25)	1755.80 (1753.8)	1558.20 (1487.8)	0.20	588.80 (250.3)	514.80 (159.6)	0.001*	28.37 (8.3)	31.44 (6.6)	0.001*	89.82 (11.3)	87.28 (12.3)	0.90
Basic Health Unit 6 (n = 13)	821.92 (1183.1)	988.07 (1107.0)	0.40	685.39 (434.7)	823.84 (402.2)	0.50	29.39 (4.0)	32.53 (4.1)	0.001*	90.82 (9.5)	92.58 (12.0)	0.30
Basic Health Unit 7 (n = 8)	1007.12 (875.3)	1178.75 (749.2)	0.60	356.25 (147.3)	375.00 (131.2)	0.60	35.25 (3.1)	35.25 (3.4)	0.999	98.88 (15.5)	99.75 (16.3)	0.60
Basic Health Unit 8 (n = 9)	760.55 (695.4)	1125.55 (675.8)	0.99	315.00 (144.2)	383.33 (186.6)	0.40	36.67 (3.7)	36.22 (4.4)	0.70	105.44 (12.9)	105.31 (12.8)	0.30
Overall (n = 103)	1105.91 (1239.8)	1351.23 (1455.5)	0.001*	492.84 (268.0)	482.05 (247.4)	0.30	31.76 (6.5)	34.12 (5.3)	0.001*	90.43 (13.7)	88.62 (14.6)	0.001*

Legend: p = probability value; * $p < 0.01$

tion are crucial, as they directly influence the implementation process, especially in varying contexts[7]. The literature does not provide a consensus on cutoff points for good adoption rates, as this dimension depends on local realities. Community intervention studies using the RE-AIM model report organizational adoption rates ranging from 28%[18] to 100%[19]. Additionally, the quantity of items reported on this dimension can differ significantly. A systematic review found that only 25% of studies reported adoption data, with the most frequently reported items being the target population description (57%), inclusion/exclusion criteria (17%), intervention setting description (33%), participation rates (15%), and methods used (9%)[20]. Another systematic review of behavior changes programs in Brazil found that only 17% of studies reported adoption elements, 37% described the team, and 23% detailed the intervention setting[6].

In this study, no health professionals from the North and Central-West regions expressed interest in implementing the VAMOS program. In the North region, no facilitators were certified, while in the Central-West region, neither of the two certified professionals adopted the program. The main reasons reported were a lack of availability to implement the intervention and a lack of support from management/health teams.

The development of actions within PHC depends on the engagement of management, health teams, and available infrastructure. The program's logical framework anticipates its insertion in different contexts[8] and provides free online training to enable health professionals from any BHU in the country to implement the program. This training serves as a facilitation tool, promoting health promotion activities across various regions and contexts, while also supporting the continuous education of health professionals and strengthening the implementation of public health promotion strategies[21].

Monitoring data from the Ministry of Health indicate that most PHC actions are concentrated in the Northeast (35.8%), Southeast (31.2%), and South (19%) regions, while the North and Central-West regions have the lowest percentages, between 6 and 8%[22]. Thus, specific strategies involving health managers and professionals in these regions are necessary to expand the implementation of innovative health promotion actions.

Therefore, organizational adoption is a central dimension for enhancing community interventions, increasing population reach, and expanding the greater impact on public health[7].

Reach

Understanding the reach of a program is essential for improving an intervention to maximize the number of people served[7]. A systematic review of international studies revealed that 89% of them presented data on this dimension[23]. In Latin America, another review identified that approximately 90% of studies reported data on reach[20]. Nationally, according to the aforementioned review[7], 61% of the 26 studies evaluated included information on reach, with the most frequently described items being the target population (96%), identification method (64%), and participation rate (38%).

A study conducted in the South of Brazil, involving 146 municipalities, investigated the reach of physical activity interventions in public health. The results showed that in 56.8% of municipalities, fewer than 100 users were reached by physical activity interventions, 13.7% had 100 to 199 users, 17.8% had 200 to 400 users, and only 6.2% reported over 500 participants. The average reach was 3.8%[24]. In contrast, this study presented three reach rates, highlighting not only the population that participated in the intervention study but also the reach rates of recruitment strategies used.

Effectiveness

With regard to effectiveness, although individuals may change their physical activity habits by increasing daily levels, reducing sedentary behavior remains challenging[23]. Overall, studies using similar protocols have reported consistent findings. Even with increases in physical activity level and time, participants in the VAMOS Program tend to primarily increase light-intensity activities in their daily routines, with minimal reductions in sedentary behavior[9,11].

The literature identifies sedentary behavior as a health risk factor regardless of engagement in physical activity. A systematic review demonstrated a strong association between sitting time and all-cause mortality among adults, even among those who are physically active[25].

Regarding dietary behavior, previous studies[11,26] using similar protocols—although with different implementation strategies—have observed consistent results among adult and older adult populations. The VAMOS Program is based on the Dietary Guidelines for the

Brazilian Population, addressing aspects ranging from food selection to the preparation of healthier meals, encouraging greater consumption of fruits, vegetables, and unprocessed or minimally processed foods while reducing the intake of processed and ultra-processed foods. The findings of the present study corroborate previous evidence[9,27], showing increased consumption of unprocessed foods and water, along with reduced intake of salt, sugar, and oil.

Public policies and programs aimed at promoting healthy eating among the Brazilian population have been implemented nationwide, with more than 70% of actions carried out within the Unified Health System[28]. In terms of physical activity, a 1.9-fold increase in the number of Health Academy (Academia da Saúde) Program facilities was observed between 2015 (856) and 2017 (1,664)[22], reinforcing strategies that seek to develop individual competencies, promote collective actions, and create diverse and healthy food environments[29].

Waist circumference is directly associated with dietary intake and sedentary behavior and represents a central measure for assessing the risk of cardiovascular diseases and metabolic syndrome[30]. Within the context of the VAMOS Program, secondary outcomes such as waist circumference are assessed to monitor intervention effects and support health professionals in tracking cardiovascular risk.

Finally, perceived quality of life, although subjective and influenced by several external factors, is used as a parameter to evaluate adverse effects and the overall impact of public health interventions[7]. In a previous study[11] applying the same protocol among PHC users in Belo Horizonte, an approximate 20% increase in perceived quality of life was observed.

The VAMOS Program promotes self-confidence and autonomy among its participants, fostering lifestyle changes and, as a direct consequence, improvements in quality of life. This marker represents a relevant outcome of the intervention, particularly from a public health perspective, as it provides a critical assessment of the program's impact[20].

Although the literature predominantly focuses on program effectiveness when considering the likelihood of successful implementation, it is equally essential to evaluate outcomes related to other dimensions that are fundamental to the sustainability and replication of interventions in different contexts[31]. The RE-AIM framework has demonstrated applicability for evaluating interventions across multiple settings, allowing projection of effects on all stakeholders involved in the program, from facilitators to participants, as well as on the benefits of implemented actions.

Despite its innovative nature—by presenting an adaptable protocol and encompassing populations from different regions of the country—this study has some limitations. These include the absence of qualitative data collection from managers, facilitators, and program participants; the lack of a control group to compare effectiveness; and the absence of objective measures to assess physical activity. Addressing these limitations could further strengthen the analyses and reinforce the potential of the VAMOS Program version 2.0 as a promising health promotion strategy within the Brazilian PHC context.

Some gaps remain, such as the non-participation of the North and Central-West regions and the low adherence of male participants to the VAMOS Program. Although relevant, these issues were not addressed within the dimensions analyzed in this study.

In conclusion, the program presented high rates of adoption and reach, as well as effectiveness in promoting positive changes in physical activity, healthy eating, body measurements, and perceived quality of life. Thus, the VAMOS Program (version 2.0) led to improvements in the evaluated markers, directly reflecting enhanced health conditions among participants and demonstrating its potential for incorporation as a health promotion strategy across different PHC settings.

Conflict of interest

The authors declare no conflict of interest.

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Author's contributions

Santana NQ and Benedetti TRB: Conceptualization; Methodology; Software development, implementation, and testing; Data and experiment validation; Data analysis; Research; Tool provision; Data curation; Supervision; Project administration; Data presentation design; Funding acquisition; Original manuscript writing; Writing - revision and editing; Approval of the final manuscript version. Konrad LM: Conceptualization; Tool pro-

vision; Data curation; Writing - revision and editing; Approval of the final manuscript version. Maciel EC: Conceptualization; Methodology; Writing - revision and editing; Approval of the final manuscript version. Sandreschi PF: Software development, implementation, and testing; Data and experiment validation; Data analysis; Writing - revision and editing; Approval of the final manuscript version. Tomicki C and Quadros EN: Conceptualization; Tool provision; Writing - revision and editing; Approval of the final manuscript version.

Declaration regarding the use of artificial intelligence tools in the article writing process

The authors used ChatGPT artificial intelligence tools to assist in the translation process of the manuscript.

Availability of research data and other materials

The contents underlying the research text are contained in the manuscript.

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Reviewers' assessment

The reviews of this article were originally conducted in Portuguese. This version has been translated using ChatGPT and subsequently reviewed by the Chief Editors.

Reviewer A

Anonymous

Format

- Does the article comply with the manuscript preparation guidelines for submission to the Revista Brasileira de Atividade Física e Saúde?
  Yes
- Regarding formal aspects, is the manuscript well structured, containing the following sections: introduction, methods, results, and discussion (with the conclusion as part of the discussion)?
  Yes
- Is the language appropriate, and is the text clear, precise, and objective?
  Yes
- Was any indication of plagiarism observed in the manuscript?
  No
  Suggestions/comments:
  No comments

Abstract

- Are the abstract (in Portuguese) and the abstract (in English) adequate—containing the study objective, participant information, studied variables, main results, and a conclusion—and do they reflect the content of the manuscript?
  Yes
  Suggestions/comments:
  No comments

Introduction

- Was the research problem clearly stated and delimited?
  Yes
- Is the research problem appropriately contextualized in relation to the existing knowledge, moving from the general to the specific?
  Yes
- Are the reasons that justify the study (including the authors' assumptions about the problem) well established in the writing?
  Yes
- Are the references used to support the presentation of the research problem current and relevant to the topic?
  Yes
- Was the objective clearly presented?
  Yes
  Suggestions/comments:
  No comments

Methods

- Are the methodological procedures generally adequate for studying the research problem?
  Yes
- Are the methodological procedures adopted for conducting the study sufficiently detailed?
  Yes
- Was the procedure used for selecting or recruiting participants adequate for the research problem and described in a sufficient, clear, and objective manner?
  Yes
- Were information about the instruments used for data collection, their psychometric properties (e.g., reproducibility, internal consistency, and validity), and when applicable, the operational definition of variables provided?
  Yes
- Is the data analysis plan adequate and adequately described?
  Yes
- Were inclusion and/or exclusion criteria for sample participants described and appropriate for the study?
  Yes
- Did the authors provide clarification on the ethical procedures adopted in the research?
  Partially
  Suggestions/comments:
- I was unsure about the Research Ethics Committee approval. Was it approved or not?

Results

- Is the use of tables and figures appropriate and does it facilitate proper communication of the study re-

sults?
Yes
- Is the number of illustrations in the article in accordance with the journal's submission guidelines?
Yes
- Are the number of participants at each stage of the study, as well as the number and reasons for losses and refusals, presented in the manuscript?
Yes
- Are the characteristics of the participants presented and sufficient?
Yes
- Are the results presented adequately, highlighting the main findings and avoiding unnecessary repetition?
Yes

Suggestions/comments:
No comments

Discussion
- Are the main findings of the study presented?
Yes
- Are the study's limitations and strengths presented and discussed?
Yes
- Are the results discussed in light of the study limitations and the existing knowledge on the topic?
Yes
- Do the authors discuss the potential contributions of the main findings for scientific development, innovation, or real-world interventions?
Yes

Suggestions/comments:
No comments

Conclusion
- Is the study conclusion presented appropriately and coherent with the study objective?
Yes
- Is the study conclusion original?
Yes

Suggestions/comments:
No comments

References
- Are the references up-to-date and sufficient?
Yes
- Are most of them composed of original research articles?
Yes
- Do the references comply with the journal's formatting and quantity guidelines?
Yes
- Is in-text citation adequate, meaning that statements are supported by references that substantiate them?
Yes

Suggestions/comments:
No comments

Comments to the author
- The manuscript is well written and clear. I only suggest implementing the corrections noted. I identified only two spacing errors between words:
- Page 1, line 11
- Page 7, line 26
- I was unsure about the Research Ethics Committee approval. Was it approved or not?

Final decision
- Accepted for publication in its current form

Reviewer B
Anonymous

Format
- Does the article comply with the manuscript preparation guidelines for submission to the Revista Brasileira de Atividade Física e Saúde?
Yes
- Regarding formal aspects, is the manuscript well structured, containing the sections introduction, methods, results and discussion (with the conclusion as part of the discussion)?
Yes
- Is the language appropriate, and is the text clear, precise and objective?
Yes
- Was any indication of plagiarism observed in the manuscript?
No

Suggestions/comments:
- The manuscript satisfactorily complies with the guidelines of the Revista Brasileira de Atividade Física e Saúde in terms of structure, language and originality, with no evident signs of plagiarism.

Abstract
- Are the abstract in Portuguese and the abstract in

English adequate, containing the objective, information about the study participants, studied variables, main results and a conclusion, and do they reflect the content of the manuscript?
Partially

Suggestions/comments:

- In both the Portuguese abstract and the English abstract, there is an implicit conclusion of effectiveness and applicability of the program. However, given the importance of this study, the conclusion should be complemented with a stronger, more explicit and conclusive final sentence, such as:
- "The results indicate that the VAMOS 2.0 program is a promising strategy for health promotion in Primary Care."

Introduction

- Was the research problem clearly stated and delimited?
  Yes
- Is the research problem adequately contextualized in relation to existing knowledge, moving from the general to the specific?
  Yes
- Are the reasons that justify the study, including the authors assumptions about the problem, well established in the writing?
  Yes
- Are the references used to support the presentation of the research problem current and relevant to the topic?
  Partially
- Was the objective clearly presented?
  Yes

Suggestions/comments:

- It would be useful to cite the original or most recognized source of the RE AIM tool in the final paragraph to strengthen the conceptual foundation. The following reference is considered foundational and should be included, given that the study uses the RE AIM framework as its basis:
- Glasgow, R. E., Vogt, T. M., and Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: the RE AIM framework. American Journal of Public Health, 89(9), 1322–1327. https://doi.org/10.2105/AJPH.89.9.1322
- Another suggestion is to replace Reference 4 (VIGITEL 2014) with a more recent version, such as VIGITEL 2021 or 2022, available from the Ministry of Health website. This will strengthen the currency of the statistical data presented in the article.
- Brazil. Ministry of Health. Secretariat of Health Surveillance. Department of Health Analysis and Surveillance of Non Communicable Diseases. Vigitel Brasil 2021: surveillance of risk and protective factors for chronic diseases by telephone survey. Brasília: Ministry of Health, 2022.

Methods

- Are the methodological procedures generally adequate to study the research problem?
  Yes
- Are the methodological procedures adopted for conducting the study sufficiently detailed?
  Yes
- Was the procedure used to select or recruit participants adequate for the research problem and described in a sufficient, clear and objective manner?
  Partially
- Were information about the instruments used for data collection, their psychometric properties (for example reproducibility, internal consistency and validity) and, when pertinent, the operational definition of variables presented?
  Yes
- Is the data analysis plan adequate and well described?
  Yes
- Were the inclusion and exclusion criteria for sample participants described and adequate for the study?
  Partially
- Did the authors provide clarification on the ethical procedures adopted in the research?
  Yes

Suggestions/comments:

- Recruitment procedures were standardized, but details are lacking regarding how participants were approached individually and whether there was selection bias, such as the predominance of women in the sample. I suggest including these details.
- The inclusion and exclusion criteria are not explicitly described, which is a limitation. Page 3 lines 17 to 18 mention that the program targeted adults and older adults, but no information is provided about exclusions such as pre existing health conditions. This may affect the generalizability of the results. I request a more detailed description of the inclusion and exclusion criteria, including health conditions

when possible.
- Page 3 lines 23 to 33 describe the multipliers and the online training. However, the manuscript does not state whether there was any evaluation of the training effectiveness. How was it determined that the multipliers were adequately trained? If an evaluation existed, please include evidence demonstrating the effectiveness of the training.

Results

- Is the use of tables and figures appropriate and does it facilitate the communication of the study results?
  Yes
- Is the number of illustrations in the article in accordance with the guidelines for manuscript submission?
  Yes
- Are the number of participants at each stage of the study, as well as the number and reasons for losses and refusals, presented in the manuscript?
  Partially
- Are the characteristics of the participants presented and sufficient?
  Partially
- Are the results adequately presented, highlighting the main findings and avoiding unnecessary repetition?
  Yes

Suggestions/comments:

- Ninety participants dropped out between recruitment and completion, representing a 39 percent loss. What reasons were reported by those who withdrew? There is no in depth analysis of the profile of participants who abandoned the program, which introduces selection bias. What strategies could be adopted by multipliers to improve retention or adherence? I suggest including the reasons for dropout.
- Participant characteristics do not include information on comorbidities or motivation for participation. If possible, I suggest including these details.

Discussion

- Are the main findings of the study presented?
  Yes
- Are the limitations and strengths of the study presented and discussed?
  Yes
- Are the results discussed in light of the study limitations and existing knowledge?
  Yes
- Do the authors discuss the potential contributions of the main findings to scientific development, innovation or real world interventions?
  Partially

Suggestions/comments:

- The study clearly presents its main findings, discusses limitations and strengths, contextualizes results with existing literature and highlights important contributions. However, I suggest the authors better emphasize how the results may guide public policies, particularly considering the specific challenges in the North and Central West regions regarding program adoption and increasing male adherence.

Conclusion

- Is the study conclusion adequately presented and coherent with the study objective?
  Yes
- Is the study conclusion original?
  Yes

Suggestions/comments:

- The conclusion is adequate, coherent and original, reinforcing the potential of the VAMOS Program as a health promotion strategy in Primary Care.

References

- Are the references up to date and sufficient?
  Yes
- Are most of them original research articles?
  Yes
- Do the references comply with the journal guidelines regarding quantity and format?
  Yes
- Is in text citation adequate, meaning that statements cite references that substantiate them?
  Yes

Suggestions/comments:

- The references are updated, relevant and mostly based on original articles, matching the scope of the study.
- Minor formatting adjustments may be needed to align with journal guidelines, such as using italics for journal names and consistent abbreviations.
- In a few cases, additional references may strengthen the statements.
- It would also be useful to cite the foundational RE

AIM reference mentioned earlier.
- Another suggestion is to replace VIGITEL 2014 with a more recent edition such as VIGITEL 2021 or 2022 to strengthen the currency of epidemiological data.

Comments to the author

Dear Author,
- Congratulations on your work. The study "Promotion of an active and healthy lifestyle among Primary Health Care users in Brazil: an evaluation of the VAMOS Program based on the RE AIM tool" provides relevant contributions to public health, especially the multidimensional evaluation of the program and its impact on the population.
- The study also fills an important gap by evaluating the VAMOS Program in Brazilian Primary Care using the RE AIM framework, offering valuable insights for public policies.
- However, small adjustments may strengthen its clarity and impact, such as strategies to expand reach, partnerships with community health workers, use of digital technologies, and addressing the specific challenges of the North and Central West regions, as well as strategies to increase male engagement.
- Your study already represents an important contribution to the field, and these suggestions aim only to further enhance its scientific and social impact.

Final decision

- Minor revisions required