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Effects of a counseling program on physical activity levels of health professionals

Efeitos de um programa de aconselhamento nos níveis de atividade física de profissionais de saúde

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ABSTRACT

Objective: To analyze the effects of an intervention, based on the practice of counseling, on the physical activity (PA) levels of Primary Health Care (PHC) workers in the city of São Carlos, São Paulo. Methods: A controlled and randomized pilot study was conducted in 22 PHC Centers between 2018 and 2019, with 58 participants randomly allocated between the intervention (IG) (n = 29) and control (CG) (n = 29) groups. The intervention consisted of four weekly face-to-face meetings, together with the delivery of educational materials and motivational messages sent daily on the smartphone. Sociodemographic data and PA level were collected using the long version of the International Physical Activity Questionnaire (IPAQ). The IG and CG were evaluated after (post-intervention) and 12 weeks after the intervention (follow-up). Results: Despite the greater proportions of positive changes in PA levels in the IG compared to the CG, there were no significant changes in PA levels during commuting (p = 0.758; p = 0.373) and in the sum of leisure and commuting PA (p = 0.274; p = 0.944), when comparing 12 weeks after the intervention (follow-up) and the pre-intervention moment. Conclusion: The intervention was considered viable, with a possibility of large-scale application in PHC.

Keywords: Occupational health; Health promotion; Behavior; Exercise; Primary Health Care.

RESUMO

Objetivo: Analisar os efeitos de uma intervenção de aconselhamento nos níveis de atividade física (AF) de trabalhadores da Atenção Primária à Saúde (APS) do município de São Carlos, São Paulo. Métodos: Foi conduzido um estudo controlado e randomizado em 22 unidades da APS entre os anos de 2018 e 2019, com 58 participantes aleatoriamente alocados entre os grupos de intervenção (GI) (n = 29) e controle (GC) (n = 29). A intervenção consistiu em quatro encontros presenciais semanais com entrega de materiais educativos e mensagens motivacionais enviadas diariamente no smartphone. Foram coletados dados sociodemográficos e o nível de AF por meio do Questionário Internacio-nal de Atividade Física (IPAQ), versão longa. Os GI e GC foram avaliados logo após e 12 semanas após o término da intervenção (follow-up). Resultados: Apesar de as alterações positivas nas proporções de mudanças nos níveis de AF no GI comparado ao GC, não houve alterações significativas nos níveis de AF no deslocamento (p = 0,758; p = 0,373) e na soma de AF de lazer e deslocamento (p = 0,274; p= 0,944), na comparação entre 12 semanas após a intervenção (follow-up) e o momento pré-intervenção. Conclusão: a intervenção foi considerada viável, sendo uma possibilidade de aplicação em grande escala na APS.

Palavras-chave*: Saúde do trabalhador; Promoção da saúde; Comportamento; Exercício físico; Atenção Primária à Saúde.*

Introduction

The health benefits of physical activity (PA) are well known. From a multidimensional perspective, they serve to prevent and control Chronic Noncommunicable Diseases and reduce mortality rates[1,2]. However, only one in four individuals meets the global recommendations for moderate and vigorous PA[3,4], demonstrating the need for a greater supply of spaces that promote a healthier lifestyle for the population[5].

In Brazil, the provision of actions aimed at promoting healthy behaviors in the population can occur through Primary Health Care (PHC), as recommended by the National Health Promotion Policy, which indicates counseling as a strategy that can favor and encourage users to practice PA and adopt a healthy lifestyle, and highlights the role of health professionals as agents of health promotion and education[6-9].

Despite this, according to scientific evidence, a large number of professionals who work in PHC have health-related problems, such as high levels of stress, being overweight, and emotional issues[10-12]. These factors can negatively influence the assistance provided to the user, due to a drop in productivity, emotional and economic losses, and user dissatisfaction with the service[10,12,13]. Therefore, there is a need to offer specific actions to promote healthy lifestyle habits for these workers, such as the practice of PA, especially in the workplace[14].

After offering supervised PA to professionals at a hospital in Canada[15], researchers identified an increase of 18.8 minutes of weekly moderate PA following the intervention. Studies point to the relevance of interventions in different workplaces to improve the quality of life and health of workers[14,15]. Furthermore, studies show that health professionals who have information on and perform PA, in addition to benefiting from the practice, feel more prepared to advise and are more likely to provide counseling during their clinical practice, a fact that should be looked at carefully, since more than half of the Brazilian population benefits from the Family Health Strategy program[16].

Brazilian studies suggest promising effects of PA practice of educational actions and counseling in PHC users. Still, little is known about whether actions are also offered to professionals, and whether the characteristics of existing models, in terms of counseling time, individual counseling, and actions applied with different strategies, have been effective for this public[10,17,18]. Study proposals with this objective are important, as they can improve health promotion actions aimed at PHC workers and positively affect the control of risk factors for users of the Unified Health System (Sistema Único de Saúde - SUS).

Regarding the composition of interventions, behavioral strategies that use goal-setting techniques, individual counseling, and motivational interviewing appear to be more effective when compared with general information-sharing programs or supervised exercises[19]. Furthermore, findings demonstrate that multicomponent interventions are more likely to be effective, since participants are offered different resources to support and guide them throughout the process, such as educational instructions, goal setting, identification and overcoming of barriers, guidance on how to use urban spaces, and a survey of equipment that assists in the execution of PA practice[19].

A possible additional strategy in health counseling programs is using mobile devices, which favor communication and can facilitate the motivational process of behavior change[20-22]. However, few studies still use technological tools as an intervention component or focus on counseling interventions specifically for PHC health professionals. In this sense, the current study analyzed the effects of a counseling intervention on the PA levels of PHC workers after the intervention and during follow-up (after 12 weeks of the end of the intervention).

Methods

Study design

A randomized controlled intervention study was conducted in PHC-SUS health Centers between 2018 and 2019. During this investigation, the municipality contained 12 Basic Health Centers and 21 Family Health Centers, totaling 805 Primary Care workers. Around 83% of Basic Health Centers and 85% of Family Health Centers agreed to participate in the proposed study. The effects of a counseling program aimed at increasing the practice of PA were evaluated in comparison to a group of health workers who did not receive any intervention.

The randomization process was conducted by a person external to the research, using Random software and sealed envelopes. To control for any differences in the baseline, workers were paired considering the health center where they worked and their age (±10 years). Workers were allocated to the Intervention Group (IG) or Control Group (CG).

After allocation, participants received a telephone call to schedule the first meeting, when the baseline assessment was carried out. The effects of the intervention were assessed after the intervention protocol (post-intervention assessment), and 12 weeks after the intervention (follow-up).

The writing of this study was guided by the items of the Consort Statement (Consolidated Standards of Reporting Trials)[23]. The Federal University of São Carlos Research Ethics Committee approved the study. The research protocol was registered in the Brazilian Clinical Trials Registry, registration number: RBR – 7ph66k.

Participants

Health workers working in the PHC-SUS of the city of São Carlos, São Paulo, were included, without distinction between their training centers and/or activities developed in the health Centers (n = 805). Health workers were excluded if they: (i) presented attendance of less than 75% in the intervention sessions; (ii) were dismissed from the unit (e.g., fired, discharged, and resignation); and (iii) those who refused to be interviewed and/or participate in the interventions after the group allocation.

The invitation and recruitment of professionals were carried out using different strategies, starting with forwarding emails from the research team to the municipal health secretary and to the managers of the city's health centers. Interested healthcare workers then spread the word about the invitation at team meetings held at healthcare facilities, as well as on social media, particularly WhatsApp groups. These contacts were essentially aimed at explaining the project.

Intervention group

The previously trained research team implemented the IG protocol through four weekly face-to-face meetings (≅ 40 minutes each) during the four weeks of intervention, with the themes and approaches based on the Integrated Behavior Change Model for Physical Activity proposed by Hagger and Chatzisarantis[20]. The intervention lasted approximately four weeks for each participant. Participants carried out a first assessment before the intervention (M1) and, after the intervention application period, professionals were invited to carry out a new assessment (M2), in addition to an assessment 12 weeks after the end of the intervention (M3).

Figure 1 presents the proposed assessment and intervention steps. Further information on the intervention protocol can be found in the study by Gomes et al.[24].

The meetings took place at health Centers, with prior authorization from the responsible manager, on the following dates and times previously scheduled by the professional. The meetings included offering advice on

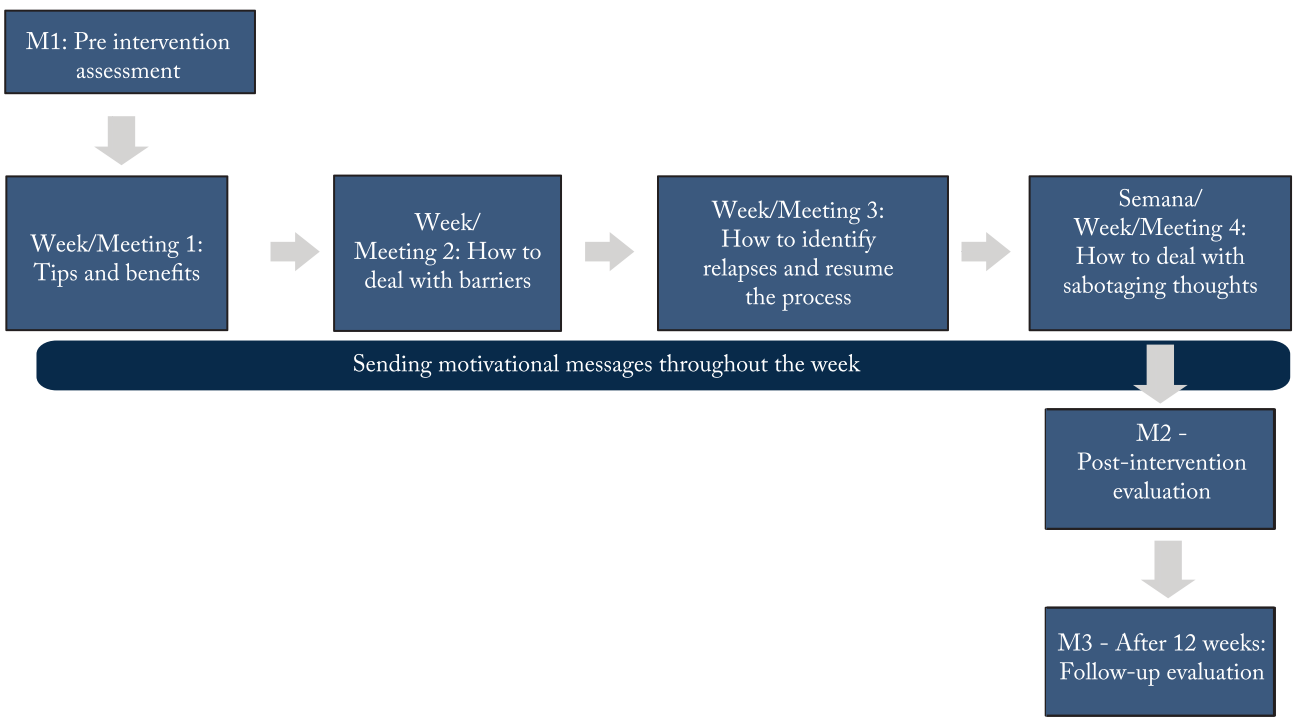

Figure 1 – Assessment stages and proposed intervention. 2019

different PA topics, distributing pamphlets on topics covered, and developing a self-management plan. In addition, professionals were encouraged to increase their PA levels by at least 10 minutes more than they used to.

As presented by the Integrated Behavior Change Model for Physical Activity, communication is a key element for adopting the habit of practicing PA, considering the dissemination of information that encourages the incorporation and consolidation of this practice in the daily routine, especially the debate on the advantages of PA to health, the potential disadvantages triggered by not adopting this habit, and the debate on barriers and coping strategies[20]. This model combines several classic theories in the field, which support the joint construction of a proposal between participant and intervener, for the insertion of PA in their routines as well as their goals.

In view of the abovementioned, the proposal for advising on the practice of PA for PHC professionals was considered appropriate, with the following strategy being adopted and topics addressed:

- 1st meeting: benefits of PA and tips for changing behavior, such as the amount of PA practice suggested by international health organizations, the positive impact of PA practice on health, and PA options. In addition, in this meeting, the professional was invited to report their daily routines and complete a form indicating the times of day, in order to identify moments when PA practice could be incorporated, enabling action planning and self-monitoring of behavior;
- 2nd meeting: possible barriers, at which point the professional was invited to reflect on the controllable and uncontrollable barriers that hindered the incorporation of the habit, and together with the counselor, think of strategies to overcome these barriers;
- 3rd meeting: relapse and return to desired behavior, during which active listening was carried out of the professional's difficulties, which are natural in a process of changing habits, and motivation and guidance were applied to continue the process, reinforcing the importance of planning the daily routine;
- 4the meeting: thoughts that sabotage behavior change, in which it was discussed how to face sabotaging thoughts, always keeping in mind the advantages of adopting the practice of PA in the daily routine, in addition to reinforcing the importance of self-monitoring and self-confidence.

The counseling session was carried out in a model of interaction between the professional and counselor, so that the professional decided and indicated at what point in their routine it was possible to increase the practice of PA. In each meeting, an action plan was completed with the professional, in which the professional established goals they intended to achieve during the intervention and committed to them. At the end of the initial and final assessments, each health professional received feedback on their lifestyle habits. In addition to the face-to-face meetings, the professionals undergoing the intervention chose the frequency (3 to 5 times per week) and the type of message (motivational, educational, and/or guidance) they would like to receive in the form of a Short Message Service (SMS).

Regarding the nature of the messages, they could be motivational, educational guidelines on PA and the benefits of this practice, the consequences of bad habits, reminders, audios with guidelines, and motivational videos from a project member. Regarding the frequency of messages, participants could choose how many days of the week they would like to receive messages, including weekends. In addition, participants could indicate whether they would like the team to contact them to send motivational material by other means, such as video call, phone call, email, Facebook, or WhatsApp. A post-intervention assessment was carried out after the last face-to-face meeting.

Control group

CG professionals were invited to the three evaluation moments of the study: baseline, post-intervention (after the end of the intervention), and follow-up (12 weeks after the end of the intervention). At the time of the post-intervention evaluation, each CG participant attended a lecture lasting an average of 90 minutes, covering all the topics worked on with the IG.

Study variables

- Sociodemographic and health unit data – for the health professional, age, gender, years of education, profession, and time in the current role were evaluated, as well as the name of the unit in which the professional worked.
- Physical activity – The International Physical Activity Questionnaire (IPAQ), validated Brazilian version,

was used. PA performed in "free time" and "commuting" were the primary outcomes of this study, highlighting the following sub-items: (i) leisure-time walking; (ii) moderate leisure-time PA; (iii) vigorous leisure-time PA; (iv) leisure time; (v) commuting; (vi) leisure-time PA; (vii) sitting time. Only the leisure and travel domains were analyzed because these were the topics covered by the counseling [25].

Data were collected at three moments: M1 being the baseline (first contact with the person), M2 after the intervention, and M3 at the 12-week follow-up with both groups.

Analyses

The collected data were digitized and systematized in Excel spreadsheets, version 2016, and the Statistical Package for the Social Sciences (SPSS). Researchers who did not participate in the protocol implementation process conducted the analyses, which involved: descriptive analysis, including mean, standard deviation (SD), median, absolute frequency, and relative frequency, as well as 95% confidence intervals (95% CI). To verify possible changes in PA levels, delta descriptive analysis was used for the post-intervention and baseline periods (triangle symbol 1), follow-up and baseline (triangle symbol 2). A change was considered when participants changed their PA levels by at least 10 minutes during leisure time, commuting time, or the sum of leisure time and commuting time. A t-Student test was used to compare the groups, and the Chi-square test was used to verify associations, considering the significance level of 5%. Non-parametric comparison was carried out using the Whitney Test.

Results

Figure 2 details the selection process of the research participants. In summary, among 805 PHC-SUS workers in the city of São Carlos, 96 were interested in participating in the study. However, there were 38 withdrawals prior to the baseline assessment. Thus, 58 health workers were randomized to the IG and CG (composed of 29 members). Four dropouts (IG and CG, with two in each group) were observed during the follow-up due to a lack of interest in continuing the study, retirement, work overload, and personal problems, totaling 27 members.

The mean age of the CG participants was 46.8 (± 11.6 years old), while in the IG it was 41.1 (± 7.0 years old) (p = 0.049). Regarding the years of study, the CG and IG presented 14.7 (± 3.1) and 15.1 (± 3.3) years, respectively. The CG had a family income of 6.6 ± 5.8 minimum wages, while the IG had 4.7 ± 2.6. These and other results can be found in Table 1.

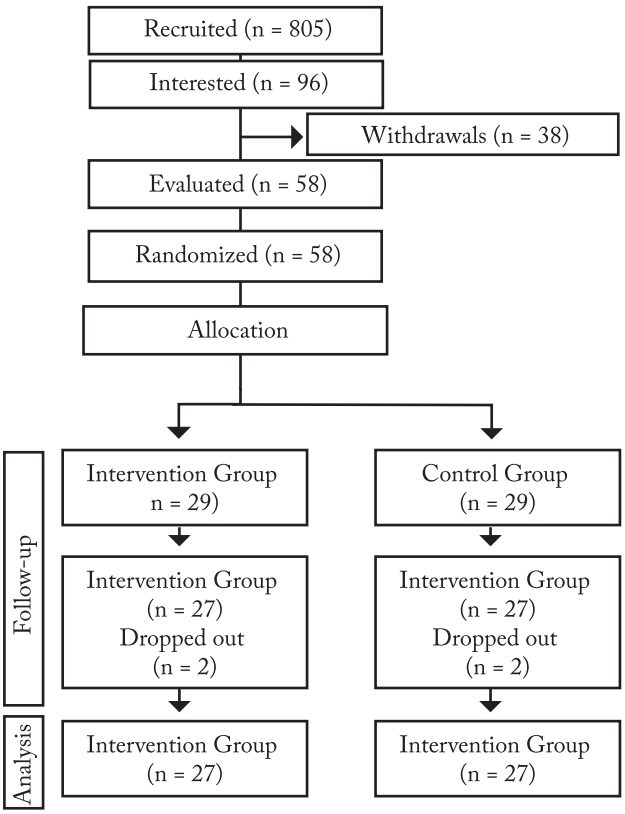

Figure 2 – Flowchart of the research participant selection process. 2019

Figure 3 represents the possible changes that may have occurred regarding deltas 1 (Δ1) and delta 2 (Δ2).

Although there was no statistically significant difference, a trend towards improvement could be seen through the proportions presented in Figure 3, which may strengthen the relationship between the PHC worker and PA practice [Figure 3].

Discussion

The main results of this study contribute with indications that the counseled professionals could slightly changed their PA levels in leisure time, however, the findings were not statistically significant. This is a pioneering study, with a direct intervention to promote PA specifically to PHC health professionals. Similar studies only deal with the effects of interventions with counseling and health education related to training professionals to advise PHC users[18,26,27], private companies[14], or hospitals[15].

Table 1 – Characteristics of the intervention and control groups at the beginning of the investigation. 2019.

	Intervention Group (n = 27)		Control Group (n = 27)	
	Mean (± SD)	%	Mean (± SD)	%
Age (years)	41.1 (± 7.0)		46.8 (± 11.6)	
Female gender		100		100
Years of education	15.1 (± 3.3)		14.7 (± 3.1)	
Family income (= Minimum Wages)	4.7 (± 2.6)		6.6 (± 5.8)	
Time in current position (years)	9.9 (± 7.9)		12.0 (± 6.9)	
Profession	n	%	n	%
Community Health Agent	6	22.2	8	29.6
Administrative Assistant	1	3.7	0	0
Nursing Assistant	7	26.0	4	14.8
Oral Health Assistant	3	11.1	1	3.7
General Services Assistant	0	0	3	11.1
Dentist	0	0	2	7.4
Nurse	5	18.5	2	7.4
Speech Therapist	1	3.7	1	3.7
Process Manager	1	3.7	0	0
Doctor	0	0	1	3.7
Nutritionist	1	3.7	1	3.7
Receptionist	0	0	1	3.7
Nursing Technician	1	3.7	2	7.4
Occupational Therapist	1	3.7	0	0
Missing Information	0	0	1	3.7

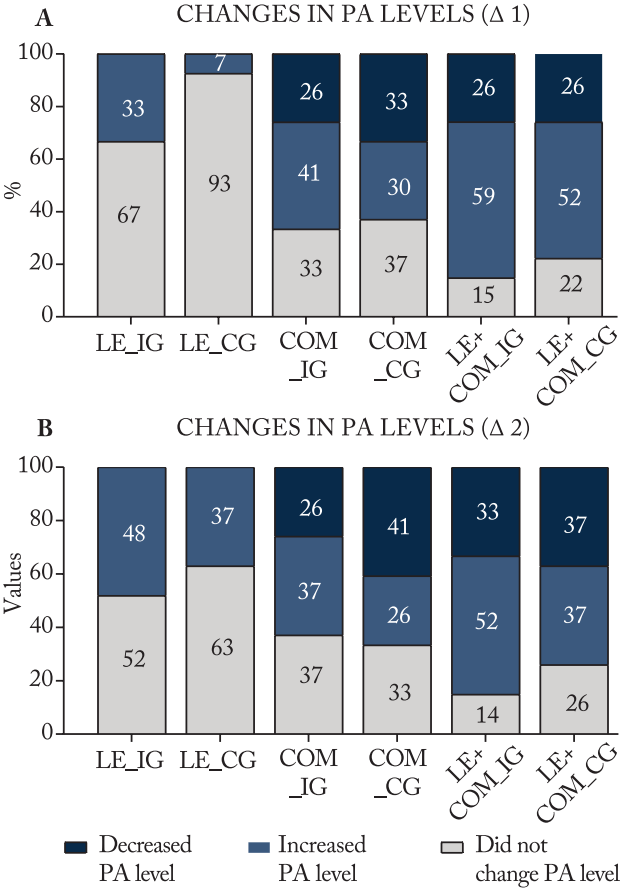

Figure 3 – Changes in physical activity levels during leisure time, commuting time, and the sum of leisure and commuting time according to Δ1 and Δ2
Legend: PA = physical activity; Δ1 = Post-intervention and pre-intervention; Δ2 = Follow-up and pre-intervention; LE_IG = leisure-time physical activity of the intervention group; LE_CG = leisure-time physical activity of the control group; COM_IG = commuting physical activity of the intervention group; COM_CG = commuting physical activity of the control group; LE+COM_IG = sum of leisure-time and commuting physical activity of the intervention group; LE+COM_CG = sum of leisure-time and commuting physical activity of the control group.

Although existing studies refer to training interventions for health professionals to guide the population, this experience of health education during training on the topic of PA may indirectly affect the perception of capacity and motivation for counseling during consultations with PHC users[16,28,29]. Likewise, although it was not the direct objective of the present investigation, it is important to emphasize that the health professional's adoption of healthy habits and the perception of health improvements from this behavior can contribute to a greater frequency of advice for the practice of PA in PHC.

The intervention components of this research were individual counseling sessions, motivational messages on smartphones, and the delivery of educational materials. Previous research has proposed other intervention protocols. Some studies offered supervised PA practice[14], or longer intervention times[14,15]. Still, no studies with similar proposals were found specifically with PHC health professionals for a more robust comparison of the data from the current research. Although there was no statistically significant difference, a trend towards improvement could be seen through the proportions presented in Figure 3, which may strengthen the relationship between the PHC worker and PA practice.

The current study showed that some professionals did not change their PA levels. According to Filgueira et al.[24], the theme of lifestyle habits for health professionals involves financial issues and some conceptual confusion between interest in changing habits versus the habit itself, resulting in behaviors sometimes directed by biomedical concepts, sometimes by their de-

sires, and sometimes by culture and social contexts[30]. Furthermore, Gomes et al.[24] indicate that the main barriers are a lack of time, stress levels, and a lack of a support network in family care.

Strategies such as sending motivational messages and reminders via cell phone can help increase PA levels and change behavior due to greater access to information and communication, which aligns with technological changes occurring in the media and provision of services[20-22]. Cheval et al.[31] observed that, although the messages did not directly affect PA, they were related to increased intentions to practice it.

The current research chose to analyze the effects of a short-term program using the counseling strategy, which, in addition to being lower cost, is possibly more feasible for health managers to implement in the routine work of the Centers. The review by Maniva et al.[32] points out the importance of strategies and components similar to the present investigation, since the health professional gains autonomy in the change process, and the materials provided serve as support.

Intervention programs that promote PA and use counseling as the main strategy are outlined as planned learning combinations that allow the exchange of experiences and facilitate support to participants, including goals established, managing relapses, and self-monitoring progress[26]. Communication in activities enables the individual to reflect and act in preventing and controlling diseases, as it is seen as a mechanism for exchange between scientific knowledge and common sense. From this perspective, the study proposal was a viable option chosen to achieve the desired long-term change in behavior[19].

This research has some strengths: use of a randomized clinical trial method, follow-up analysis, application of face-to-face counseling sessions, and use of technology as a motivational and monitoring strategy. The approach used in the counseling sessions was based on an Integrated Behavior Change Model for Physical Activity, which is scientifically well recognized[20]. Finally, the results of perception of positive changes are described qualitatively in the study by Gomes et al.[24], which strengthens the robustness of the intervention protocol used.

The current study has some limitations that should be mentioned. Despite the wide dissemination and direct encouragement of professionals during team meetings in all health Centers in the municipality, only 7% of health network workers were interested, and many were already physically active. The sample size was therefore limited for more robust statistical analysis and conclusions. The IPAQ instrument allows for separate domain analyses; however, the use of objective measures, such as accelerometry, qualitative studies, and studies that explore different intervention periods (long and short) are recommended in future studies.

Conclusion

The main results of the current study, showed that despite the lack of a statistically significant difference, a slight improvement in the proportions of PA levels was identified. The proposed intervention model may be viable, and when implemented on a large scale in future studies, it could lead to positive results in changing PA behavior for PHC professionals.

Conflict of interest

The authors declare no conflict of interest.

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Authors' contributions

Bisetto LA, Belo LF, Lorenzi LJ, Silva FL, Catarino CM: Software development, implementation and testing; Data and experiment validation; Data analysis; Research; Tool provision; Data curation; Supervision; Project administration; Data presentation design; Writing of the original manuscript; Writing - review & editing; Approval of the final version of the manuscript. Fernandes E, Guerra PH: Data presentation design; Writing of the original manuscript; Writing - review and editing; Approval of the final version of the manuscript. Mininel VA, Gomes GAO: Conceptualization; Methodology; Software development, implementation and testing; Data and experiment validation; Data analysis; Research; Tool provision; Data curation; Supervision; Project administration; Data presentation design; Writing of the original manuscript; Writing - review and editing; Approval of the final version of the manuscript.

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

The authors did not use artificial intelligence tools to prepare the manuscript.

Availability of research data and other materials

Data are available upon request from reviewers.

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