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Physical activity counseling in Primary Health Care

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Abstract *The aim of this study was to determine the prevalence and examine the correlates of physical activity counseling by primary health care professionals in Florianopolis, state of Santa Catarina. A face-face survey was carried out with 587 professionals from 49 Health Centers. Physical activity counseling was evaluated in the last 12 months. The correlates explored in the association were sociodemographic, training and professional performance, knowledge of physical activity recommendations and physical activity level. The prevalence of physical activity counseling was 86.2% (95%CI=83.2-88.8%). The professionals most likely to provide counseling were those with graduate degrees in Public Health (OR=3.71; 95%CI: 1.69-9.37), who had academic experiences in primary health care (OR=2.68; 95%CI: 1.32-5.92), who belonged to the Family Health Support Center (OR=4.52; 95%CI: 1.31-28.50), who participated in meetings of physical activity (OR=1.91; 95%CI: 1.08-3.44) and were physically active (OR=1.80; 95%CI: 1.01-3.27). The results show that aspects of training and professional performance and the physical activity level of professionals contribute positively to counseling for physical activity in primary health care.*

Key words *Counseling, Primary Health Care, Health Personnel, Motor activity*

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Introduction

Physical activity is an important factor for human development, and it has been related to sociability, learning quality of life and health maintenance[1]; furthermore, physical activity has recognized benefits for the prevention of non-communicable chronic diseases[2]. An estimated three million deaths a year worldwide are related to physical inactivity, which imposes a challenge to health systems to incorporate actions to promote physical activity to the population[2].

In this sense, counseling has been proposed as an effective strategy to increase physical activity levels[3,4] and its practice is strongly recommended[5,6]. The practice of counseling in health services has been shown to be important, as it is a low-cost health education technology that can be applied by various health professionals[7]. In addition, it is estimated that 62.6% Brazilian population is served by the Family Health Strategy[8]. This high capillarity and scope can favor the use of counseling as a health care strategy.

Studies reinforce the importance of health counseling[9,10]. A systematic review with 21 studies showed that 60% health professionals provided counseling for physical activity[9]. In Brazil, this prevalence ranged from 46.2 to 88.9%[9,11-15]. However, most studies investigated the practice of counseling among physicians, nurses and community health agents[11,12,14,15], not considering professionals from other Primary Health Care (PHC) teams. The Family Health Strategy organizes its work based on multidisciplinary actions[16]. Thus, in addition to including general practitioners, nurses, nursing assistants, community health agents, dental surgeons and oral health technicians, this model can count on the Family Health Support Centers (NASF-AP), a multiprofessional team working to expand the scope of care provision to users[17]. This model has produced favorable results for the health of the population[16,17], constituting an important context for counseling promotion. Thus, identifying the prevalence and factors associated with physical activity counseling in the PHC reality, in Brazil, can broaden the discussion on the role of this strategy in the current context of the *Sistema Único de Saúde* (SUS) or Unified Health System.

Regarding association studies, most of them have tested the relationship between physical activity counseling and professional category, sociodemographic variables or barriers to counseling[12,14,15,18,19]. These studies show that personal characteristics, such as considering effective counseling for lifestyle changes[15,20] and being prepared to counsel[11,15,20] were associated with greater chances of counseling for physical activity. Additionally, regarding attitudes, having a lower body weight[18], having a positive self-rated health[15] and practicing physical activity[12,14,18,19] were also associated with counseling practice. On the other hand, the isolated and simultaneous presence of barriers such as lack of time[11,21], knowledge and guidance negatively contributed to the practice of counseling for physical activity[21]. Still, little has been explored about the characteristics of training and professional performance. A study that analyzed working time, daily number of consultations, participation in physical activity courses and support from a multidisciplinary team, did not find an association with counseling[15]. However, these data are not conclusive, requiring further analysis to better investigate these variables. In this sense, the present study sought to advance the state of the art, including in the analysis of variables of training and action strategy of health professionals as possible elements that may be related to physical activity counseling.

Thus, the aim of the study was to describe the prevalence and examine the correlates to physical activity counseling by primary health care professionals in Florianopolis, state of Santa Catarina.

Method

This was an observational, cross-sectional, quantitative study, carried out in 2018. PHC professionals from the municipality of Florianopolis, capital of the state of Santa Catarina, Southern Brazil, with an estimated population of 516,524 inhabitants, were evaluated. Florianopolis has the third-highest Municipal Human Develop Index in Brazil (0.847) and a high urbanization rate[22].

The municipality's PHC is organized based on the model of the Family Health Strategy, according to SUS guidelines[23] and stands out in the national scenario for presenting high levels of coverage[8]. It is composed of 49 Basic Health Units (UBS), called Health Centers, distributed in four Health Districts (Center, Continent, North, and South) which have the "Family Health", "Oral Health" and "NASF-AP" teams. This study included the 49 Health Centers.

All procedures were approved by the Ethics Committee in Research with Human Beings of the Federal University of Santa Catarina (opin-

ion 2,693,520). Participants were informed about their willingness to participate in the research, upon consent and signing the Free and Informed Consent Term, in accordance with Resolution 466/2012.

Participants

Participants were health professionals working in the PHC in Florianopolis, and the Family Health Team was composed of a community health agent, a nurse, a physician and a nursing technician; the Oral Health Team consisted of an assistant/technician in oral health and a dental surgeon; and the NASF-AP multiprofessional team was composed of a social worker, nutritionist, physical therapist, psychologist, pharmacist and physical education professional.

The study included resident professionals from Programs in Family Health at the Federal University of Santa Catarina and the University of the State of Santa Catarina. Interns and volunteers did not participate in the survey.

According to data from the National Registry of Health Establishments furnished by the Municipal Health Department and updated by the Health Districts, the total number of professionals in 2018 corresponded to 1,056.

Data collection

A census was carried out and all the professionals in service at the time of data collection were invited to respond to the survey instrument. Data were collected by a team consisting of four researchers during the planning meetings of the Health Centers and NASF-AP meetings from August to November 2018. They participated in the whole process of research design, elaboration of instruments and data collection.

The researchers contacted the Districts and Health Center coordinators to schedule the date and time for data collection. Also, they carried out the dissemination of the survey via email, in addition to the application, data collection and organization of the questionnaires. The collection was preceded by a brief explanation about the research and instructions for self-completion of the questionnaire. To minimize losses in data collection, a second visit was made to collect questionnaires from professionals who were not present or were unable to complete at the time of the meeting. For higher data reliability, all questionnaires were checked by two researchers at different times.

Instrument and variables

A self-administered questionnaire composed of 49 objective questions was applied. These questions were distributed in five blocks: 1 - counseling for physical activity; 2 - knowledge about physical activity recommendations; 3 - level of physical activity during leisure time; 4 - training and professional performance and block 5 - sociodemographic information.

The instrument was developed by the research team based on a systematic review[9]. Subsequently, the questionnaire was evaluated and approved by two specialists in the field of Physical Education with expertise in PHC and tested with undergraduate students and health professionals.

Counseling for physical activity

Physical activity counseling was evaluated through the recall question: "During your consultations, in the last 12 months, did you provide physical activity counseling to users?", with a dichotomous answer option ("no", "yes"). This question was based on other studies on counseling[9,24].

Sociodemographic variables

The sociodemographic variables were sex ("male", "female"), age group ("20 to 29 years old", "30 to 49 years old" and "≥50 years old") and marital status ("single", "married/common-law marriage" and "divorced/widowed")[25]. In addition, education was initially assessed in five categories ("incomplete elementary", "complete elementary/incomplete elementary/secondary school", "complete elementary/incomplete high school", "complete high school/incomplete higher education" and "complete higher education")[25]. Schooling was grouped with the question of having a graduate degree ("no" and "yes") and, thus, recategorized into "no undergraduate degree", "undergraduate degree" and "graduate degree".

Professional qualification

In relation to Graduate Studies in Public Health, the question used was: "Was the graduate program you completed in Public Health, or Family and Community Health or Collective Health?", with a dichotomous answer option ("no", "yes").

Academic experiences in PHC were evaluated by the question: "During the undergraduate

course, did you participate in academic programs or activities related to professional intervention in Primary Care (PC)?", with answer options: "mandatory curricular internship at PC", "PET-Saúde (Program of Education through Work for Health)", "scientific initiation project related to PC", "extension project related to PC", "PRÓ-Saúde (National Program for Reorientation of Professional Training in Health)", "no other programs were offered". The answers were dichotomized ("no", "yes").

Participation in a course on physical activity was evaluated through the question: "In the last 12 months, have you participated in any training course offered by the Municipal Health Department that addressed the topic of physical activity and health?", with a dichotomous answer option ("no", "yes").

Professional performance

To evaluate the professional team, professionals were grouped into two categories: 1) Family Health and Oral Health "eSF/eSB" (community health agent, nurse, physician, nursing technician, oral health assistant/technician and dental surgeon); 2) "NASF-AP" (social worker, nutritionist, physical therapist, psychologist, pharmacist and physical education professional).

The type of employment relationship was evaluated through the question: "What type of employment relationship do you currently have in Primary Care?". The answers were recategorized into "temporary" (commissioned position, temporary contract, cooperative and health resident) and "public service" (effective public servant).

Participation in health support on physical activity was evaluated by the question: "In the last 12 months, how often have you received or carried out support from the NASF-AP team on the topic of physical activity and health, such as: performing technical actions-assistance (discussion of clinical cases) and/or technical-pedagogical (continuing education on topics relevant to the teams)?". Responses were recategorized into "no" (the "never" response) and "yes" (the "rarely", "often" and "always" responses).

The working time (in years and/or months) in PHC was evaluated by the question: "How long have you worked in Primary Care?". The answers were dichotomized into: "≤3 years" and ">3 years". The weekly workload was evaluated in five categories and later dichotomized into "≤30h" and "≥40h".

Physical activity recommendations knowledge

Knowledge of moderate and vigorous physical activity recommendations for adults was assessed using self-reported and described knowledge questions. Self-reported knowledge was assessed by the question: "Do you know the recommendations for physical activity for apparently healthy adults, regarding moderate and vigorous physical activity?", with a dichotomous answer option ("no", "yes"). For the knowledge described, professionals reported the minimum weekly frequency and the minimum time (in minutes) recommended for physical activity for adults to achieve health benefits, according to the World Health Organization[26]. The score of minutes per week (min/week) of recommended physical activity was the result of the product of the weekly frequency and the minimum time, with knowledge categorized as "correctly described the physical activity recommendations" for values between "150-300 min/week" of moderate physical activity, and "75-150 min/week" of vigorous physical activity, and "did not correctly describe physical activity recommendations" values below or above these references[26].

Level of physical activity during leisure time

Leisure-time physical activity was assessed using the long version of the International Physical Activity Questionnaire (IPAQ) instrument[27]. It was calculated from the sum of the products of the weekly frequency and the time in minutes of moderate, vigorous physical activity and leisurely hiking in a typical week, and the time in physical activities of vigorous intensity was multiplied by two. Thus, for data analysis, the score of minutes per week was categorized into "<150 min/week" and "≥150 min/week" according to international recommendations[26].

Data analysis

Information was entered using EpiData® version 3.1 software (The EpiData Association, Odense, Denmark). Data were reviewed with exploratory analysis to identify possible typing errors, which were manually corrected. An initial analysis was run with descriptive statistics, absolute and relative frequency distribution. The prevalence of counseling was described among the categories of independent variables using the

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Chi-Square test. The association was analyzed using bivariate binary logistic regression analysis and adjusted for all covariates. After the bivariate analysis, all variables from the same level or higher level, which presented p-value<0.20, were selected for adjustment in the final model, according to the backward method. Analyses were performed using the R software version 3.5.3 and the significance level was kept at 5%.

Results

A total of 1,056 professionals from the 49 Health Centers were invited to the survey. The refusal rate was 25.8% (n=273) and the loss was 18.5% (n=196). The losses occurred due to incomplete filling of data (n=23; 3.7%) and due to absence from work (vacation and leaves) during the data collection period (n=173, 16.4%). Thus, the final sample consisted of 587 professionals (85.4% women).

There was a predominance of professionals of 30-49 years old (68.8%), with graduate degrees (44.2%). As for professional practice, most professionals belonged to the Family Health and Oral Health teams (87.7%), were public service providers (61.8%), worked in PHC for more than three years (77.1%) and with a workload equal to or greater than 40 hours per week (80.6%) (Table 1).

The proportion of physical activity counseling was 86.2% (95%CI: 83.2;88.8%). In the bivariate analysis, there was a greater chance of counseling among those with undergraduate degree, with a graduate degree, with a graduate degree in Public Health, with academic experience in PHC who belonged to the NASF-AP, who participated in matrix meetings on physical activity and were physically active (Table 2).

After adjustment for all covariates, the analysis showed that professionals with a graduate degree in Public Health remained associated with a higher chance of counseling (OR=3.71; 95%CI: 1.69;9.37), who had academic experiences in PHC during initial training (OR=2.68; 95%CI: 1.32;5.92), who belonged to the NASF-AP team (OR=4.52; 95%CI: 1.31;28.50), who participated in physical activity matrix meetings (OR=1.91; 95%CI: 1.08;3.44) and were physically active (OR=1.80; 95%CI: 1.01;3.27) when compared to their peers (Table 2).

Discussion

This study shows that approximately eight out of ten PHC professionals in Florianopolis reported performing some type of physical activity counseling in the last 12 months. Higher counseling was observed among professionals with a graduate degree in Public Health who had academic experience in PHC, who belonged to the NASF-AP, who participated in support meetings on physical activity and were physically active.

The practice of physical activity counseling reported by professionals was 86.2%. Similar results were found in other studies[13]. A systematic review[9] identified that the average prevalence of counseling reported by health professionals was 60.2±22.7%. In studies carried out in Brazil with medical professionals, nurses, nursing technicians and community health agents, the prevalence ranged from 46.2 to 88.9%[11-15]. The high prevalence in the present study can be explained by the characteristics of PHC in Florianopolis as it is recognized for its innovative practices, constant investment in permanent health education, and for being a national reference in population coverage of the Family Health Strategy (above 70%)[28-30]. In addition, it relies on multidisciplinary teams throughout the territory, and has 14 Physical Education professionals, which may have contributed to the dissemination of content on physical activity to other professionals and, consequently, to the increase in the practice of counseling. Still, this high prevalence has an innovative character, since in addition to including professionals from the Family Health team, NASF-AP and Oral Health professionals were also considered. In fact, experimental evidence in different countries has identified that counseling is an effective strategy for increasing the level of physical activity in adults treated in PHC[5,31]. From this perspective, the SUS in Brazil presents a promising scenario with great potential for the practice of counseling, due to the scope of PHC, above all, due to the participation of multidisciplinary teams[32]. However, physical activity counseling is a construct far beyond recommending physical activity and requires a foundation in theories about behavior change. For this reason, it is necessary to check the quality of this counseling, in other words, it is necessary to verify if the strategies used to advise are based on solid theoretical models that promote behavior change[33]. Therefore, the prevalence-related findings are novel even though challenges related to the quality of counseling need to be further investigated.

Table 1. Characteristics of the sample of Primary Health Care professionals. Florianópolis, 2018 (n=587).

Variables	Category	n	%
Sex	Male	80	14.6
	Female	468	85.4
Age group	20 to 29 years old	82	14.0
	30 to 49 years old	404	68.8
	≥50 years old	101	17.2
Marital status	Single	191	34.9
	Married/Common-law marriage	298	54.5
	Divorced/Widowed	58	10.6
Schooling	No undergraduate degree	223	39.3
	Undergraduate degree	94	16.5
	Graduate degree	251	44.2
Graduate degree in PH[1]	No	383	68.5
	Yes	176	31.5
Professional team	ESF/ESB[4]	515	87.7
	NASF-AP[5]	72	12.3
Employment relationship	Temporary	218	38.2
	Public service	353	61.8
Working time in PHC [2*]	≤3 years	122	22.9
	≥3 years	410	77.1
Workload[3]	≤30 hours/week	111	19.4
	≥40 hours/week	460	80.6

[1]Public Health; [2] Primary Health Care; [3] Workload per week; [4] Family Health Team/Oral Health Team; [5] Family Health Support Centers. *The frequencies did not correspond to the total due to missing data (omission of the interviewee in the survey).

Source: Authors.

Health professionals who reported having a graduate degree in Public Health were 3.7 times more likely to provide counseling compared to professionals who do not have this training (no undergraduate degree or with a graduate degree in another area). No studies were found that tested this specific association[9]. However, a specialization degree in Public Health can favor the opening of the professional to address the issue of physical activity, since this field intends to break with the traditional paradigm of health care, allowing a broader look at the various factors involved in the genesis of the disease, in health promotion, and a more communicative, horizontal and transdisciplinary practice[34,35]. Additionally, the incentive for graduate studies in Public Health strengthens the SUS, since the guiding principles of this policy involve welcoming and comprehensively looking at the individual, in addition to supporting counseling actions for physical activity, as health professionals are important mediators of reflections on behavior change.

Another important result was that health professionals with academic experience in PHC were more likely to perform physical activity counseling than professionals who did not have this experience during the initial training process. Although no studies have tested this association, the literature identifies experiences during the initial training process are decisive for knowledge about the reality of PHC[36] and are closely related to the strengthening of professional identity[37]. Also, the experience in the SUS reality provides the opportunity for interaction in multidisciplinary teams and dialogue between different professions, which drives transdisciplinary exchange of knowledge[38,39]. These experiences are essential to transform work organization modes and qualify health care practices[40] as they prepare future professionals for a more collaborative and humanized practice, not focused on disease, but on health promotion. In this way, promotion of these experiences can have a positive impact on consolidating the practice of counseling for physical activity during consultations. An example of

Table 2. Binary Logistic Regression for analysis of the association between sociodemographic factors, training and professional performance, level of physical activity and the provision of physical activity counseling for health professionals in Primary Health Care. Florianópolis, 2018 (n=587).

Variables	%[7]	Crude Analysis		Adjusted Analysis	
		OR (95%CI)	p	OR (95%CI)	p
Sex			0.968		-
Male	86.2	1		-	
Female	86.5	0.99 (0.45;1.97)		-	
Age group			0.556		-
20 to 29 years old	90.2	1		-	
30 to 49 years old	85.4	0.74 (0.31;1.55)		-	
≥50 years old	86.1	0.59 (0.21;1.55)		-	
Schooling			<0.001		-
No undergraduate degree	76.2	1.00		-	
Undergraduate degree	87.2	2.55 (1.27;5.39)		-	
Graduate degree	94.8	7.34 (3.79;15.21)		-	
Graduate degree in PH[1]			<0.001		0.002
No	81.7	1.00		1.00	
Yes	95.5	5.46 (2.59;13.42)		3.71 (1.69;9.37)	
Academic experience at PHC[2]			<0.001		0.009
No	81.5	1.00		1.00	
Yes	95.0	4.45 (2.29;9.52)		2.68 (1.32;5.92)	
Professional team			0.012		0.043
ESF/ESB[3]	84.7	1.00		1.00	
NASF-AP[4]	97.2	6.29 (1.90;38.91)		4.52 (1.31;28.50)	
Knowledge about MVPA[5] recommendations			0.094		0.520
Did not know - Did not describe	83.1	1.00		1.00	
Knew - Did not describe	89.0	1.53 (0.87;2.79)		1.27 (0.78;2.70)	
Knew - Described correctly	95.0	3.27 (0.94;20.64)		2.02 (0.56;13.80)	
Participation in a course about PA[6]			0.763		-
No	86.0	1.00		-	
Yes	86.4	0.86 (0.34;2.61)		-	
Participation in matrix support on PA[6]			<0.001		0.028
No	77.3	1.00		1.00	
Yes	90.5	2.96 (1.72;5.16)		1.91 (1.08;3.44)	
Working time in PHC[2]			0.635		-
≤3 years	86.1	1.00		-	
>3 years	87.7	0.86 (0.44;1.58)		-	
PA level[6]			0.009		0.048
<150 minutes/week	82.2	1.00		1.00	
≥150 minutes/week	91.0	2.08 (1.21;3.68)		1.80 (1.01;3.27)	

*Adjusted analysis only with variables with p≤0.20 and variables without similarity. [1] Public Health; [2] Primary Health Care; [3] Family Health Team/Oral Health Team; [4] Family Health Support Centers; [5] Moderate to Vigorous Physical Activity; [6] Physical Activity in Leisure Time; [7] Percentage of Physical Activity counseling/Pearson's chi-square test.

Source: Authors.

this are the programs in the SUS that allow students to experience PHC through curricular internships, extension projects, and programs, such as the Education Program for Work for Health (PET-Saúde) and experiences and internship in the reality of the Unified Health System (VER-SUS). Despite this, it is necessary to strengthen the teaching-service partnership and strategies that improve training for the various professional categories to work in PHC, since each has

its own challenges related to initial training[36,40]. Also, it is necessary to think about the inclusion of physical activity counseling in the syllabus of undergraduate health programs, since this is an interdisciplinary, promising topic that requires knowledge and skills from professionals[41,42].

Participating in support health meetings on physical activity and belonging to the multidisciplinary team of the NASF-AP were related to greater chances of physical activity counseling. Only one study tested the association between counseling and participating in the support health meeting on physical activity, but did not evidence an association and was carried out with professionals from the Family Health team[15]. Therefore, the present study is pioneer in investigating counseling for physical activity among various professionals of the Family Health, Oral Health and NASF-AP teams. Furthermore, this result highlights the importance and applicability of PHC policies, such as the implementation of support health meeting and actions focused on integrality, transdisciplinary and overcoming the disease-centered health model[43,44]. The essential role NASF-AP has played through matrix support[17] signals the need for these teams to be upheld, given that recent political changes in the way Brazilian PHC is financed may contribute to weakening this strategy[45,46]. Furthermore, it is essential that health units can count on the NASF-AP as a support team, creating space on the agenda for holding support health meetings. Still, it is worth highlighting the role of the Physical Education professional in these teams[43]. The sharing of knowledge about physical activities by the Physical Education professional seems to influence counseling not only through the health education component, such as the offer of physical activity groups[11], but also through the provision of permanent education and expanded clinical actions, as conversation circles, directed studies, case discussions and consultation, which can contribute to the propagation of the topic about physical activity among other specialties[44]. Although this professional plays a key role in support meetings on physical activity, it is necessary to consider that many still demonstrate difficulties in working in the context of PHC, possibly due to the lack of approximation of the Physical Education syllabus of Brazilian higher education institutions on topics related to Public Health[47,48]. Therefore, the support of the NASF-AP team (especially the Physical Education professional) and holding matrix meetings are essential for promoting physical activity counseling in PHC.

Physically active professionals were more likely to provide physical activity counseling. Similar results were found in studies with community health workers in Brazil[12,14]. Studies conducted with physicians in the United States and Japan have also shown a relationship between the habit of practicing physical activities and counseling to promote this behavior[18,19]. Another study identified that support policies to increase physical activity levels in undergraduate health students have been considered important for developing a training program in physical activity counseling[42]. These findings reinforce how essential it is to involve health professionals in healthy behaviors and occupational programs encourage the practice of physical activities. Thus, the positive and affective experience with the practice of physical activities, in addition to contributing to improving the quality of life of professionals, can be a motivating element to encourage and advise patients to change their behavior towards an active lifestyle[13,14].

As a strength, this is a pioneering study for investigating physical activity counseling to professionals from different health teams, including the NASF-AP and Oral Health teams[9]. The representative sample of PHC professionals in a Brazilian capital is also a strength of the study. Also, as a strong point, the search for investigating the association of aspects related to training and professional performance in the practice of counseling for physical activity is highlighted. Some limitations must be considered. The counseling measure used may have overestimated the results, since in a single question, it was not possible to encompass the complexity and polysemy permeating the term "health counseling". Professionals may have had divergent understandings of the term, which would require a refinement of the concept for future research through the objective identification of strategies that have been used. There may also have been a "social desirability" bias, depending on the context in which the respondents were inserted.

Conclusion

The prevalence of physical activity counseling reported by PHC professionals was high (approximately 86%). Furthermore, the highest chances of counseling for the practice of physical activity were identified among professionals with a graduate degree in Public Health, academic experience in PHC, who belonged to the multidis-

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ciplinary team of the NASF-AP, participated in support health meetings about physical activity and were physically active compared to their peers. It is suggested that future studies explore the strategies, barriers, and knowledge necessary for counseling in PHC by professionals to better understand the physical activity counseling scenario in Brazil.

Practical implications

The results found in the present study reinforce the importance of investing in educational strategies to guide PHC professionals on behavioral counseling and physical activity. These should be encouraged both during initial training, with experiences in the SUS, as well as in permanent and continuing education, with incentives for specializations in Public Health, guaranteeing conditions for carrying out support health and programs to promote physical activity for academics and professionals in service. Additionally, the presence of the NASF-AP, and especially of the Physical Education professional, must be maintained and valued in the Brazilian PHC policies, since the performance of this team is related to the provision of counseling for physical activity and has been essential to expand population health care.

Collaborations

SQ Moraes was responsible for planning, conducting data collection and analysis, and writing the manuscript. ACB Santos worked on planning and conducting data collection and reviewing the final draft. RC Fermino was responsible for the critical review of the manuscript. CR Rech participated in the initial study design, data analysis, and critical review of the manuscript.

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