

Counseling strategies on the physical activity practice received by adults in Primary Health Care

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Abstract *This study analyzed the association between sociodemographic characteristics, health conditions, stages of change behavior, and the different counseling strategies on the physical activity (PA) practice received by users of Primary Health Care (PHC) of the Unified Health System. A cross-sectional study was conducted with a representative sample of 779 adults treated at the 15 Basic Health Units in São José dos Pinhais, Brazil. The variables were measured with valid instruments, and the counseling strategies were evaluated based on the “5 As” method. As main results, the two most frequently reported strategies were “receiving information about PA benefits” (91%) and “assessing the PA level” (84%). Age group, hypertension, number of comorbidities, and the medication consumed were consistently associated with at least 50% of the counseling strategies received ($p < 0.05$). No associations were observed between the variables analyzed and the two most frequently reported strategies. It is concluded that the counseling strategies received vary according to the some analyzed variables.*

Key words *Health strategies, Motor activity, Behavior control, Biobehavioral sciences, Unified Health System*

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Introduction

The World Health Organization (WHO) underscores the multiple benefits of physical activity (PA) for health maintenance, improvement, and reducing risk factors for chronic diseases¹. It is estimated that 15% of premature deaths globally could be avoided annually with a physically active lifestyle². In Brazil, despite widespread acknowledgment of PA's importance³, about 59% of adults in capital cities are insufficiently active during their leisure time⁴. Numerous factors influence PA participation, indicating that motivations beyond mere awareness and benefits affect this behavior⁵.

The Brazilian National Health Promotion Policy prioritizes PA within the Unified Health System (SUS, in Portuguese)⁶, requiring implementation and expansion of community intervention programs across different population groups^{6,7}. Currently, PA interventions in Primary Health Care (PHC) range from health education to supervised exercise programs⁷, with some employing counseling strategies⁷ proven effective in increasing PA⁸⁻¹⁰.

In Brazil, studies report that 50-86% of PHC professionals provide brief PA counseling¹¹⁻¹³, with physicians being the most frequent counselors, followed by nurses and community health workers^{11,12}. However, PHC users report lower counseling rates, between 35-43%^{11,12,14}. Internationally, health professionals' PA counseling rates vary from 11-95%, with user-reported rates between 5-62%¹², mostly targeting individuals with chronic diseases^{15,16}.

Health professionals use various counseling strategies, such as explaining PA benefits, assessing PA levels, and supplying educational materials¹⁷⁻²². Brief counseling can encourage discussions on healthy behaviors in individual or group sessions^{9,10}. All health professionals can counsel PHC users on PA, and systematic, specific interventions are suggested to be more effective than brief or generic ones²³⁻²⁵. The five "As" (5As) model is a systematic, evidence-based counseling method grounded in behavior change theories applicable to various health behaviors, including PA^{18,20,23,24,26,27}.

The behavior change process involves stages related to an individual's interest, availability, and ability to change their behavior²⁸⁻³⁰. Thus, counseling interventions should be tailored to the individual's stage of change behavior (SCB)^{23,26,28,29}. Strategies such as emphasizing PA benefits and identifying barriers are more prop-

er for individuals in the early SCB (pre-contemplation and contemplation)^{19,20,23,27,28}.

Three SUS-based studies identified common counseling strategies used by PHC professionals: "providing information on PA benefits", "assessing PA levels", "recommending PA types", "identifying barriers", and "offering solutions to reduce these barriers"^{17,22,31}. However, no studies have explored PHC users' perceptions of the counseling strategies employed by professionals. Understanding user perceptions could enhance dialogue between professionals and SUS users, enabling the provision of comprehensible and far-reaching information based on users' socio-demographic characteristics, health conditions, and SCB for PA^{18-20,30}. Therefore, this study aims to analyze associations between sociodemographic characteristics, health conditions, SCB, and the different brief PA counseling strategies received by PHC users.

Methods

This study draws on data from the project "Effectiveness of Community Programs for Promoting Physical Activity and Reducing Sedentary Behavior"^{14,32}. The study report was prepared following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Study design, location, and ethical aspects

From April to October 2019, before the COVID-19 pandemic, a cross-sectional observational study with quantitative data collection was conducted. This study included a representative sample of adults from all Basic Healthcare Units (BHUs) in the urban area of São José dos Pinhais, Paraná, southern Brazil.

São José dos Pinhais is a medium-sized city in the metropolitan area of Curitiba, the state capital. It spans 946 km² (79% rural) with a population of 329,000. The city's Human Development Index (HDI) is 0.758, and its Gini Index is 0.459, both close to national averages of 0.727 and 0.460, respectively³³. In 2019, the city had 413 health establishments, including 27 BHUs (56%), with 15 located in urban areas. Although most of the city is rural, 90% of the population lives in urban areas, leading to the selection of the 15 urban BHUs for the study^{14,32}.

The study received approval from the Ethics Committee of PUCPR (approval

#2.882.260/2018). Participants were informed about the study's voluntary nature and provided written consent to take part.

Sample size and selection of participants

The sample size was estimated based on the average number of appointments from January to February 2019 ($N = 34,275$), as reported on the "Transparent Health" website³⁴. To represent the sample accurately, we considered a 30% prevalence of PA counseling at BHU³⁵ (based on literature and a pilot study), a 95% confidence level, a four-percentage point margin of error, and a design effect of 1.5. The minimum required sample size was 745 participants. Accounting for a 10% allowance for losses and refusals, the target was increased to 820 users. To enhance the accuracy of future multivariate analyses, we added an extra 100 participants, bringing the total to 920. The sample size was proportionally distributed based on the number of appointments at each BHU, ranging from 31 to 92 users.

Only adults (≥ 18 years) were invited to participate. Exclusions included individuals not living in the city, first-time BHU visitors, those with physical limitations preventing leisure-time PA (LTPA), and those with cognitive or speech impairments hindering questionnaire comprehension. Nine individuals were excluded in total.

Participants were systematically selected based on their positions in the BHU waiting room. Interviewers positioned themselves at the BHU entrance to identify the first five individuals, counting them from left to right. The third user was selected and invited to participate. If the individual refused or did not meet the inclusion criteria, the next person to the left was selected.

Data collection

Ten trained interviewers conducted face-to-face interviews with users in a private room, either before or after their consultations with healthcare professionals, to prevent external influences on responses. The average time to complete the questionnaire was 18 minutes (± 5 minutes, ranging from 9 to 55 minutes).

Outcome variable

Strategies for PA counseling

Brief PA counseling was assessed using a question: "In the past year (12 months), during any visit to the BHU, did you receive any counseling on PA from a healthcare professional? (tips or guidance on walking, exercises, or sports to maintain or improve your health) (no, yes)." This measure was adapted from similar studies to fit the local context^{12,35}.

Users who received counseling answered questions about the strategies used by healthcare professionals, based on the 5As model (*Assess*: evaluate/ask; *Advise*: counsel; *Agree*: agree; *Assist*: help; *Arrange*: organize)^{19-21,26,27}. Originally developed for smoking cessation, the 5As model has been adapted for other health behaviors, including physical inactivity^{19,26,27}. The questions identified PA counseling strategies using a dichotomous response for eight independent questions²². The total number of strategies received was calculated by summing the eight options and categorizing them into two groups (1-3 and ≥ 4 strategies). Users also reported which professional provided the counseling and when it was received, with the option to select multiple responses.

Independent Variables (potential predictors)

Independent variables were identified and selected based on a literature review on associated factors with brief PA counseling received by PHC users^{11,12,14}. These variables are described below.

Socio-demographic characteristics

Gender (female, male) was determined by observing physical characteristics. Age was categorized into three groups: 18-39 years, 40-59 years, and ≥ 60 years. Marital status was classified as either "without a partner" (single, divorced, widowed) or "with a partner" (married, in a stable union). Skin color was self-reported and initially categorized as white, yellow, black, brown, or indigenous; then grouped for analysis into white (white and yellow) and non-white (black and brown). Education level was assessed with five categories: 1) illiterate or incomplete elementary school, 2) complete elementary school or incomplete middle school, 3) complete middle school or incomplete high school, 4) complete high school or incomplete higher

education, and 5) complete higher education. These were then recoded into three categories: incomplete elementary, complete elementary, and complete high school or higher. The economic class was determined using a standardized questionnaire³⁶ and categorized into seven groups (A1, A2, B1, B2, C, D, E), which were then grouped into lower class (C+D+E) and upper class (A+B).

Health conditions

Body Mass Index (BMI) was calculated using self-reported weight and height (weight/height²) and categorized as underweight (≤ 24.9 kg/m²), normal weight (25.0-29.9 kg/m²), and overweight (≥ 30.0 kg/m²)³⁷. The presence of comorbidities was determined by dichotomous self-reported medical diagnoses for hypertension, diabetes, dyslipidemia, and coronary disease⁴, and participants were categorized by the number of comorbidities (0, 1, ≥ 2). Continuous medication use for chronic diseases was reported³⁵ and classified by the number of medications (0, 1-3, ≥ 4).

Healthcare access was characterized by the number of visits to BHU in the past 12 months (1-3, 4-7, ≥ 8).

Stages of change behavior (SCB) for leisure-time physical activity (LTPA)

The SCB for LTPA was assessed using a standardized questionnaire²⁹, with participants being classified into five categories based on a recommended algorithm^{28,38}: 1) pre-contemplation: not engaging in regular PA and not planning to start within the next six months, 2) contemplation: not engaging in regular PA but planning to start within the next six months, 3) preparation: not engaging in regular PA but planning to start within the next 30 days, 4) action: engaging in regular PA for less than six months, and 5) maintenance: engaging in regular PA for six months or more.

“Regular PA” was defined according to WHO guidelines^{1,39}, which recommend at least six months of meeting the criteria (≥ 150 minutes/week of moderate to vigorous PA or ≥ 75 minutes/week of vigorous PA). Only intentional PA during leisure time, such as recreational activities, sports, or exercise, was considered²⁹.

Data quality control

Data quality control was ensured and was described in other studies^{14,40}.

Data analysis

Data were analyzed using absolute and relative frequency distributions. The “select cases” function isolated data from participants who reported receiving PA counseling. The frequency of each counseling strategy was then determined across categories of independent variables: sociodemographic characteristics, health conditions, and SCB. Associations were analyzed using chi-square (χ^2) tests for heterogeneity, linear trend, or Fisher’s exact test. SPSS version 26.0 software was used, with a significance level of 5%.

Results

Out of 935 users approached, the refusal rate was 14% (n=134), and the loss rate was 2% (n=22), resulting in 779 respondents. Most participants were female (69.8%), aged 18-39 years (45.2%), living with a partner (64.0%), white (73.0%), had completed high school or higher education (50.5%), and were from a lower economic class (71.2%) (Table 1).

In terms of health conditions, 67.3% were overweight (BMI ≥ 25 kg/m²), 35.9% had hypertension, 15.7% had diabetes, 15.9% had dyslipidemia, and 6.5% had been diagnosed with coronary artery disease. Most participants had no comorbidities (54.8%) and were taking one or more medications (51.3%). About 61% of participants were in the early SCB for LTPA (pre-contemplation, contemplation, preparation) (Table 1).

Forty-three percent of respondents reported receiving PA counseling. The most frequently reported strategies were healthcare professionals “commented on the benefits of PA” (90.7%) and “asked about the PA level” (84.2%) (Table 2). About half of the users (51.0%) received 1-3 counseling strategies (data not shown in Table). Physicians were the most reported providers of counseling (97.3%), and consultations were the most common time for counseling (98.8%) (Table 2).

Counseling prevalence was higher among users during the preparation, action, and maintenance of SCB for LTPA ($p = 0.015$) (Figure 1). Among those who received counseling, the number of strategies used did not significantly associate with SCB ($p = 0.929$) (Figure 2).

Regarding the association between sociodemographic characteristics, health conditions, SCB, and the counseling strategies received, the

female sex showed a significant positive association with the professionals' strategy of "advised PA based on individual characteristics" (61.6% vs. 49.0%; $p = 0.033$). "Identified PA barriers" were more common among users in the SCB pre-contemplation and contemplation (36.7% vs. 24.1% and 23.0%; $p = 0.020$). Age, hypertension, number of comorbidities, and number of medications showed consistent significant associations with at least 50% ($n = 4$) of the counseling strategies received ($p < 0.05$) (Table 3). No significant associations were found between the analyzed variables and the strategies of "commented on the PA benefits" and "asked about PA level" ($p > 0.05$). Further results from the analysis of associations between variables and brief PA counseling strategies are detailed in Table 3.

Discussion

This study examined potential predictors of brief PA counseling strategies received by users of BHU in the PHC based on the SUS context. The most frequently reported strategies were professionals "commented on the PA benefits" and "asked about PA level". The sex (female) was associated with the professionals' strategy of "advised PA based on individual characteristics", while "identified PA barriers" was more common among users in the pre-contemplation and contemplation SCB for LTPA. Age, hypertension, number of comorbidities, and number of medications were significantly associated with at least 50% of the counseling strategies.

The quantitative approach of this study allowed for the examination of associations between sociodemographic variables, health conditions, SCB, and the prevalence of each counseling strategy in a representative sample of adults and elderly individuals. According to the literature, no earlier studies have explored the prevalence of counseling strategies received by PHC users, highlighting the novelty and strengths of this study. The variables were measured using standardized procedures and valid instruments, ensuring comparability with similar studies.

The lack of similar studies on counseling strategies received by PHC users limits the comparison and discussion of our results. However, three studies have examined brief PA counseling strategies used by health professionals in PHC^{17,22,31}. Two studies in Florianópolis, Santa Catarina State, used a quantitative approach^{17,22}, while one study in the countryside of São Paulo

State used a qualitative approach³¹. Health professionals reported that the main strategies were "providing information about the benefits of PA", "assessing PA levels", "recommending types of PA", "identifying PA barriers", and "offering solutions to reduce barriers". Some of these strategies are consistent with the results based on users' perceptions in our study.

In this study, the most often reported strategies were health professionals "commented on the PA benefits" (90.7%) and "asked about PA level" (84.2%). While this study focuses on users' feelings, similar strategies were noted in the Florianópolis-SC research, which focused on professionals' feelings^{17,22}. The widespread dissemination of PA benefits through media and health professionals³, likely explains the high prevalence of knowledge among adults (81%). Despite significant associations between some sociodemographic characteristics and

Table 1. Characteristics of adults treated in primary health care. São José dos Pinhais, Brazil, 2019 ($n = 779$).

Variables	n	%
Socio-demographic		
Sex		
Female	544	69.8
Male	235	30.2
Age group (years)		
18-39	346	45.2
40-59	283	36.9
≥ 60	137	17.9
Missing	33	
Marital status		
Without a partner	280	36.0
With a partner	497	64.0
Missing	2	
Skin color		
White	566	73.0
Brown	157	20.3
Black	49	6.3
Yellow	3	0.4
Missing	4	
Education level		
Incomplete elementary schooling	247	31.7
Complete elementary schooling	139	17.8
Complete high school or higher education	393	50.5
Lower classes (C+D+E)	555	71.2
Upper classes (A+B)	224	28.8

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Table 1. Characteristics of adults treated in primary health care. São José dos Pinhais, Brazil, 2019 (n = 779).

Variables	n	%
Health conditions		
Body Mass Index		
Underweight (< 24.9 kg/m ²)	248	32.2
Normal weight (25.0-29.9 kg/m ²)	291	37.4
Overweight (≥ 30.0 kg/m ²)	230	29.9
Missing	30	
Hypertension		
No	499	64.1
Yes	280	35.9
Diabetes		
No	657	84.3
Yes	122	15.7
Dyslipidemia		
No	655	84.1
Yes	124	15.9
Coronary artery disease		
No	728	93.5
Yes	51	6.5
Number of comorbidities*		
0	427	54.8
1	204	26.2
≥ 2	148	19.0
Number of medications		
0	387	49.7
1-3	277	35.6
≥ 4	115	14.8
Access to healthcare services		
Number of visits to Basic Healthcare Unit (BHU) within the last 12 months		
1-3	394	50.6
4-7	203	26.1
≥ 8	182	23.4
Stages of change behavior (SCB) for leisure-time physical activity (LTPA)		
Pre-contemplation	138	17.7
Contemplation	165	21.2
Preparation	172	22.1
Action	37	4.7
Maintenance	267	34.3

* hypertension + diabetes + dyslipidemia + coronary artery disease.

Source: Authors.

PA knowledge, it is essential to promote brief PA counseling on benefits widely in BHU and PHC^{3,23}. According to the principles of PHC in Brazil, the focus should extend beyond curative and medicinal actions to include preventive

health promotion actions, ensuring universality, comprehensiveness, and equity⁴¹.

The two most often received PA counseling strategies, “commented on the PA benefits” and “asked about PA level”, were not associated with any analyzed variables. It is hypothesized that these strategies might be more common among older individuals, those with lower education and income, higher numbers of comorbidities and medications, and those in the preliminary stages of the SCB (pre-contemplation and contemplation)^{14,23}. The literature suggests reinforcing PA benefits for individuals in these SCB^{20,23,27}. Similarly, counseling on “offered solutions to barriers” should be more frequent for users in the preparation stage^{20,23,27}. To ensure individuals receive proper counseling strategies, they should be screened and classified into the relevant SCB, with this information available to healthcare professionals supplying the counseling.

The nonspecific nature of counseling can partly be attributed to healthcare professionals’ limited knowledge of “PA and public health.”⁴². Continuous and enhanced education, along with practical experience in PHC, could improve the quality of counseling. Professionals specializing in public health are 3.7 times more likely to provide PA counseling¹³. Additionally, counseling can be considered any information given to the user.

Regarding sociodemographic variables, age group over 60 were positively associated with receiving 50% of the counseling strategies (1: PA recommendations, 2: counseling based on individual characteristics, 3: identifying barriers, and 4: solutions to reduce barriers). These findings are consistent with evidence that older adults receive more PA counseling^{12,14}. The higher number of strategies for older adults is beneficial, as they are more susceptible to physical inactivity, especially in lower-income countries like Brazil^{4,5}. The most reported barriers to PA among PHC users are fatigue and lack of time⁴⁰. However, older adults commonly report barriers such as existing injuries or illnesses, fear of injury during PA, and feeling too old for PA⁴⁰. Therefore, increased attention from healthcare professionals using various counseling strategies could encourage or facilitate PA among older adults³⁰.

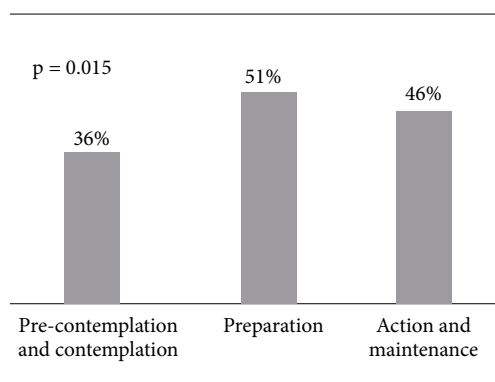
Hypertension, number of comorbidities, and number of medications were positively associated with at least 50% of the counseling strategies. These results are expected and are beneficial, especially in PHC, where health con-

Table 2. Brief physical activity (PA) counseling received by adults in primary health care. São José dos Pinhais, Brazil, 2019.

	n	%
Did you receive counseling on PA? (n = 779)		
No	444	57.0
Yes	335	43.0
Counseling strategies taken by health professionals (n = 335)*		
Did the health professional who provided the counseling...		
Commented on the benefits of regular PA for health?	304	90.7
Asked about your PA level?	282	84.2
Commented about PA recommendations for health?	206	61.5
Advised PA based on your characteristics?	194	57.9
Identified your PA barriers?	93	27.8
Offered solutions to address those barriers?	49	14.6
Used any strategy to identify if you are regularly engaging in PA following the counseling?	9	2.7
Used any strategy to identify if you started PA following the counseling?	8	2.4
Health professional who provided the counseling (n = 335)*		
Physician	326	97.3
Nurse	50	14.9
Nutritionist	37	11.0
Community health works	13	3.9
Physiotherapist	9	2.7
Pharmacist	8	2.4
Psychologist	8	2.4
When counseling was offered (n = 335)		
During a medical consultation	331	98.8
During blood pressure measurement	11	3.3
In the waiting room of the Basic Healthcare Unit	6	1.8
In Basic Healthcare Unit groups	5	1.5
During home visits	3	0.9

* Data from respondents who reported receiving PA counseling, who could select more than one response option.

Source: Authors.

**Figure 1.** Association between prevalence of counseling received and stages of change behavior (SCB) for leisure-time physical activity (LTPA) in adults treated in primary health care. São José dos Pinhais, Brazil, 2019 (n = 779).

Source: Authors.

ditions are the main barriers to PA⁴⁰. It is crucial to focus more on individuals with comorbidities, as these barriers can negatively affect PA, particularly LTPA^{30,43}.

The transtheoretical model guides behavioral health interventions, like PA, by identifying the most proper actions based on an individual's stage in the SCB^{19-21,23,28}. Although SCB is crucial for tailoring counseling strategies, it was associated with only two (25%) of the strategies received (*"identifying PA barriers"* and *"identifying the start of PA"*). The inverse association between those in the pre-contemplation and contemplation stages and the identification of barriers is concerning. At these stages, health professionals should use impartial counseling to engage users in future consultations and highlight the benefits of starting PA^{19-21,23}. While the

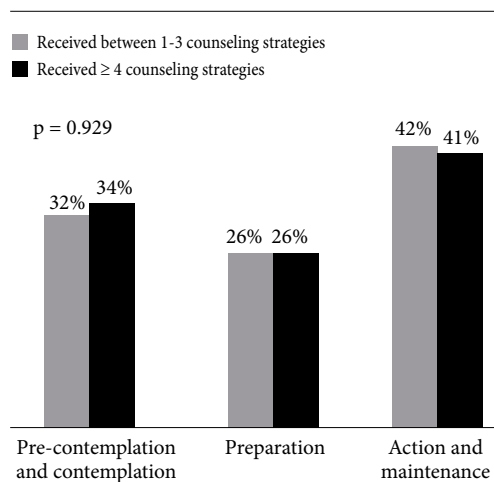


Figure 2. Association between the number of counseling strategies received and stages of change (SCB) for leisure-time physical activity (LTPA) in adults treated in primary health care. São José dos Pinhais, Brazil, 2019 (n = 335).

Source: Authors.

strategies used may not align with the behavioral stage, any counseling could encourage the initiation of PA^{14,30}. This suggests that professionals might not know users' SCB or the most suitable counseling strategies for each stage.

In Brazil, the prevalence of counseling by PHC professionals is high, ranging from 50-86%¹¹⁻¹³. However, the quality of information used during counseling is more important than the number of strategies employed⁴². This underscores the need for PHC professionals to be trained in "epidemiology, PA, and public health" to enhance their skills and supply effective, high-quality PA counseling^{18,27,42,44,45}. Professionals must also be proficient in using proper tools, methodologies, and counseling strategies tailored to patients' sociodemographic profiles, health conditions, and SCB^{19-21,23,25,27}. The Brazilian Ministry of Health's documents, "Physical Activity Guide for the Brazilian Population"³⁹ and "Guide on Brief Counseling for PA in PHC in SUS"⁴⁶, offer recommendations on PA and implementing counseling in both individual and group settings, facilitating these actions.

Our findings, showing low specificity in counseling strategies based on sociodemographic characteristics, health conditions, and SCB, underscore the need for Physical Education professionals in PHC teams. Users coun-

seled by other health professionals to start or increase PA could consult these specialists for detailed activity guidance based on SCB (frequency, intensity, duration, and type of activities)⁴⁷. Counseling could also be tailored to promote active commuting (walking and bicycling) or reduce sedentary behavior^{30,48,49}, considering each user's sociodemographic characteristics, health conditions, and PA levels. Physical Education professionals could further support ongoing training and education during BHU team meetings⁴⁷.

This study has five key limitations. First, the sample was limited to adult and elderly users of BHU in the urban area of a medium-sized city in southern Brazil, which lacked Physical Education professionals on their health teams. This absence may have affected users' perceptions of the counseling strategies. Second, participants' perceptions could be influenced by memory bias, especially among the elderly, who may not recognize the information as professional guidance but rather as informal counseling. Third, the reported prevalence of comorbidities was high compared to surveys using related questions (e.g., Risk and Protective Factors Surveillance System for Chronic Diseases by Telephone Interviews – VIGITEL⁴), likely due to the higher proportion of people with diseases seeking health services. Fourth, the quantitative approach, using a short and standardized questionnaire to assess brief counseling strategies, did not allow for an in-depth exploration of interpersonal aspects crucial for implementing community PA programs. Therefore, this approach may have failed to capture contextual information related to the counseling strategies, which would require qualitative or mixed methods. Finally, the cross-sectional design's lack of temporality means that caution is needed in interpreting the results, as causal relationships cannot be proved.

Conclusion

The most often received PA counseling strategies were "providing information about the PA benefits" and "assessing the PA level". The prevalence of different strategies varied based on sociodemographic characteristics (gender, age, marital status, skin color), health conditions (type and number of comorbidities and medications), and SCB.

Analyzing BHU users helps understand how individual characteristics influence the PA

Table 3. Association between socio-demographic variables, health conditions, stage of change behavior, and prevalence of PA counseling strategies received by adults treated in primary health care. São José dos Pinhais, Brazil, 2019 (n = 335).

	Commented on the PA benefits	Asked about your PA level	Commented about PA recommendations	Advised PA based on individual characteristics	Identified PA barriers	Offered solutions to address those barriers	Used any strategies to identify PA practice	Used any strategies to identify PA start
	%	%	%	%	%	%	%	%
Socio-demographic								
Sex – sig.	0.423 ^b	0.139 ^b	0.122 ^b	0.033^b	0.163 ^b	0.428 ^b	0.519 ^f	0.697 ^f
Female	91.6	86.1	64.1	61.6	30.0	15.6	2.5	2.1
Male	88.8	79.6	55.1	49.0	22.4	12.2	3.1	3.1
Age group (years) – sig.	0.984 ^f	0.773 ^f	0.016^f	0.049^f	0.001^f	0.003^f	0.061 ^f	0.072 ^f
18-39	90.4	84.3	51.3	49.6	16.5	7.8	0.0	0.0
40-59	91.0	83.3	66.7	61.1	31.3	15.3	4.2	2.8
≥ 60	90.4	86.3	67.1	63.0	37.0	23.3	2.7	4.1
Marital status – sig.	0.806 ^b	0.530 ^b	0.154 ^b	0.119 ^b	0.031^b	0.702 ^b	0.276 ^f	0.100 ^f
Without a partner	90.1	82.2	67.3	64.4	35.6	15.8	4.0	2.0
With a partner	90.9	84.9	59.1	55.2	24.1	14.2	2.2	2.6
Skin color – sig.	0.126 ^b	0.725 ^b	0.195 ^b	0.357 ^b	0.314 ^b	0.038^b	0.240 ^f	0.584 ^f
White (white, yellow)	89.5	84.9	63.9	59.7	29.4	17.2	2.1	2.5
Non white (black, brown)	94.8	83.3	56.3	54.2	24.0	8.3	4.2	2.1
Education level – sig.	0.876 ^f	0.721 ^f	0.120 ^f	0.545 ^f	0.216 ^f	0.069 ^f	0.662 ^f	0.444 ^f
Incomplete elementary schooling	90.8	82.4	65.6	58.8	29.8	17.6	3.8	3.1
Complete elementary schooling	88.9	87.0	64.8	63.0	35.2	20.4	1.9	3.7
Complete high school or higher education	91.3	84.7	56.7	55.3	23.3	10.0	2.0	1.3
Economic class – sig.	0.806 ^b	0.590 ^b	0.606 ^b	0.862 ^b	0.729 ^b	0.914 ^b	0.461 ^f	0.100 ^f
Lower classes (C+D+E)	91.0	84.8	60.7	58.2	28.3	14.8	2.5	2.5
Upper classes (A+B)	90.1	82.4	63.7	57.1	26.4	14.3	3.3	2.2

it continues

Table 3. Association between socio-demographic variables, health conditions, stage of change behavior, and prevalence of PA counseling strategies received by adults treated in primary health care. São José dos Pinhais, Brazil, 2019 (n = 335).

	Commented on the PA benefits	Asked about your PA level	Commented about PA recommendations	Advised PA based on individual characteristics	Identified PA barriers	Offered solutions to address those barriers	Used any strategies to identify PA practice	Used any strategies to identify PA to start
Health conditions								
Body Mass Index – sig.	0.971 ^t	0.879 ^t	0.077 ^t	0.001^t	0.080 ^t	0.115 ^t	0.252 ^f	0.280 ^f
Underweight (< 24.9 kg/m ²)	92.6	82.7	53.1	43.2	22.2	12.3	0.0	0.0
Normal weight (25.0-29.9 kg/m ²)	87.7	85.1	61.4	56.1	23.7	10.5	2.6	3.5
Overweight (≥ 30.0 kg/m ²)	91.9	83.8	65.4	66.9	32.4	19.1	3.7	2.9
Hypertension – sig.	0.464 ^h	0.538 ^h	0.009^h	0.076 ^h	0.004^h	0.006^h	0.085 ^f	0.002^f
No	91.8	83.1	55.2	53.6	21.3	9.8	1.1	0.0
Yes	89.5	85.5	69.1	63.2	35.5	20.4	4.6	5.3
Diabetes – sig.	0.493 ^h	0.445 ^h	0.055 ^h	0.224 ^h	0.171 ^h	0.028^h	0.003^f	0.001^f
No	90.2	83.4	58.9	56.2	26.0	12.5	1.1	0.8
Yes	92.9	87.1	71.4	64.3	34.3	22.9	8.6	8.6
Dyslipidemia – sig.	0.978 ^h	0.165 ^h	0.034^h	0.225 ^h	0.130 ^h	0.025^h	0.029^f	0.078 ^f
No	90.8	82.7	58.5	56.2	25.8	12.3	1.5	1.5
Yes	90.7	89.3	72.0	64.0	34.7	22.7	6.7	5.3
Coronary artery disease – sig.	0.377 ^h	0.826 ^h	0.206 ^h	0.040^h	0.003^h	< 0.001^h	0.178 ^f	0.024^f
No	91.2	84.3	60.5	56.2	25.5	12.4	2.3	1.6
Yes	86.2	82.8	72.4	75.9	51.7	37.9	6.9	10.3
Number of comorbidities* – sig.	0.817 ^t	0.316 ^t	0.005^t	0.052 ^t	0.001^t	< 0.001^t	0.003^f	< 0.001^f
0	90.8	82.4	54.2	51.4	19.7	7.7	0.7	0.0
1	91.4	83.8	61.9	61.9	27.6	12.4	1.0	1.0
≥ 2	89.8	87.5	72.7	63.6	40.9	28.4	8.0	8.0
Number of medications – sig.	0.844 ^t	0.321 ^t	0.004^t	<0.001 ^t	<0.001 ^t	<0.001 ^t	0.029 ^f	0.008 ^f
0	90.1	82.9	54.1	45.9	19.8	5.4	0.9	0.0
1-3	91.2	83.0	60.4	57.9	25.8	15.7	1.9	1.9
≥ 4	90.8	89.2	76.9	78.5	46.2	27.7	7.7	7.7
SCB for LTPA – sig.	0.625 ^t	0.760 ^t	0.551 ^t	0.392 ^t	0.020^t	0.429 ^t	0.093 ^f	0.002^f
Pre-contemplation and contemplation	91.7	83.5	58.7	56.9	36.7	17.4	0.9	0.0
Preparation	90.8	83.9	63.2	52.9	24.1	12.6	1.1	0.0
Action and maintenance	89.9	84.9	62.6	61.9	23.0	13.7	5.0	5.8
Prevalence	90.7%	84.2%	61.5%	57.9%	27.8%	14.6%	2.7%	2.4%

* hypertension + diabetes + dyslipidemia + coronary artery disease; ^h χ^2 test significance value for heterogeneity; ^t χ^2 test significance value for linear trend; ^f significance value for Fisher's exact test; SCB: stages of change behavior; LTPA: leisure-time physical activity.

Source: Authors.

counseling they receive. Our findings supply key insights for planning, implementing, and maintaining integrated PA counseling in PHC. Counseling strategies should be tailored to users' sociodemographic characteristics, health conditions, and SCB, following PHC guidelines and employing shared care, interprofessional approaches, and individualized therapeutic

plans. Additionally, it is crucial to adopt a broad perspective on health and PA, considering both benefits and strategies to overcome barriers limiting PA practice. Further studies should assess the effectiveness of counseling by trained professionals using evidence-based protocols to promote PA among PHC users.

Collaborations

LAC Sposito participated in the initial design of the study, data analysis, literature review, and writing of the article in all its stages. LP Santos participated in the initial design of the study, planning and coordination of data collection, data analysis, literature review, and writing of the article in all its stages. AT Silva, PH Guerra, MR Loch, CR Rech, and CR Rodriguez-Añez collaborated in the interpretation of results and critical review of the manuscript. RC Fermino was responsible for the design and coordination of the project, fundraising, data analysis, interpretation of results, literature review, writing, and review of the article in all its stages.

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