

Original Article

# Factors associated with adherence to the Academia da Cidade Program in Recife

## Fatores associados à adesão ao Programa Academia da Cidade do Recife

Emmanuelly Correia de Lemos<sup>1</sup>, Letícia Lemos Ayres da Gama Bastos<sup>1</sup>, Geanine Barros da Silva<sup>2</sup>, Carlos Feitosa Luna<sup>3</sup>, Giselle Campozana Gouveia<sup>3</sup>

### Abstract

This paper aimed to identify factors associated with adherence to the Academia da Cidade Program (ACP) in Recife. It is a cross-sectional study developed in 20 ACP centers, involving 289 users (93.7% female, 67.1% aged 30-59 years) and 244 former users (91.4% female, 63.5% aged 30-59 years) of the program. We used a self-administered questionnaire for data collection. The dependent variable was adherence to the ACP (starting and staying in it for at least three months), and the independent variables were sociodemographic aspects, participation in the ACP, and variables related to the reasons that led participants to start attending the ACP. For data analysis, we used descriptive statistics and binary logistic regression, in which Odds Ratio (OR) was the measure of association. The results of the multivariable analysis revealed that participants aged 30 or older (OR = 7.18; 95%CI: 2.57-20.03), unemployed (OR = 1.62; 95%CI: 1.01-2.59), who had been attending the ACP for 25 months or longer (OR = 7.41; 95%CI: 3.80-14.46), whose weekly participation frequency was higher than three days (OR = 7.09; 95%CI: 1.81-27.80), and who had started attending the ACP to improve their physical performance (OR = 1.87; 95%CI: 1.17-3.00) and due to the team's and teacher's confidence and commitment (OR = 2.78; 95%CI: 1.37-5.64) were more likely to adhere to the ACP. Therefore, the factors associated with adherence to the ACP were related to sociodemographic characteristics, users' participation in the ACP and reasons that led users to start attending the program.

### Keywords

Health Promotion; Physical Activity; Primary Health Care.

### Resumo

O objetivo desta pesquisa foi identificar os fatores associados à adesão ao Programa Academia da Cidade (PAC), no Recife. Estudo transversal, realizado em 20 polos do PAC, e que envolveu 289 usuários (93,7% do sexo feminino, 67,1% de 30 a 59 anos de idade) e 244 ex-usuários (91,4% do sexo feminino de 30 a 59 anos de idade) do programa. Foi utilizado um questionário autoaplicado para coleta de dados. A variável dependente foi adesão ao PAC (iniciar e se manter nele por pelo menos três meses), e as variáveis independentes foram as sociodemográficas, de participação e as relacionadas aos motivos que levaram os participantes a iniciarem no PAC. Para análise dos dados foram utilizadas a estatística descritiva e a regressão logística binária, em que a Odds Ratio (OR) foi a medida de associação. Os resultados da análise multivariável revelaram que os participantes com 30 anos de idade ou mais (OR = 7,18; IC95%: 2,57-20,03), desempregados (OR = 1,62; IC95%: 1,01-2,59), que participavam do PAC por 25 meses ou mais (OR = 7,41; IC95%: 3,80-14,46) e com uma frequência semanal maior que três dias (OR = 7,09; IC95%: 1,81-27,80), que tinham iniciado no PAC para melhorar seu desempenho físico (OR = 1,87; IC95%: 1,17-3,00) e pela confiança e compromisso da equipe (OR = 2,78; IC95%: 1,37-5,64), tiveram mais chances de aderir ao PAC. Conclui-se que os fatores associados à adesão ao PAC foram os relacionados às características sociodemográficas, de participação e aos motivos que levaram os participantes a iniciarem no programa.

### Palavras-chave

Promoção da saúde; Atividade física; Atenção básica à saúde.

## Introduction

In 2002, the *Academia da Cidade Program* (ACP) was implemented in the city of Recife, state of Pernambuco (Northeastern Brazil). The program is a muni-

icipal health promotion strategy that aims at contributing to promote the health of Recife's population by means of physical activity practice, leisure and guidance for the adoption of healthy habits<sup>1</sup>.

The program's interventions are currently developed at 41 public places - called centers - that were constructed or re-qualified for this purpose. It is important to highlight that the number of centers in

1 Programa Associado de Pós-Graduação em Educação Física Universidade de Pernambuco/Universidade Federal da Paraíba.

2 Secretaria Municipal de Saúde do Recife. Coordenação de Promoção da Saúde.

3 Núcleo de Saúde Coletiva. Centro de Pesquisas Aggeu Magalhães. Fundação Oswaldo Cruz Pernambuco.

the city has increased from the end of 2011 onwards, due to a partnership established between Recife's Municipal Health Department and the Cities Department of the State of Pernambuco for the construction of twenty ACP centers in the city.

The ACP professionals also work at 17 *Psychosocial Care Centers* (PCC) and in more than 60 health or social units, such as family health units, in order to amplify the program's ramification in the network. The interventions developed at the centers happen in the morning, afternoon and evening periods and are conducted by Physical Education Professionals. The population begins to participate in the program by means of spontaneous demand and being referred by the healthcare network<sup>1</sup>.

Although the ACP has been in operation for more than thirteen years, little is known about factors associated with people's adherence to the program; what is known are the reasons that led people to participate in it<sup>2,3</sup>. The concept of "adherence" is controversial in the literature<sup>4,6</sup>, but the most used one defines adherence to exercise programs as the act of starting and staying in them.

There is a consensus according to which the variables that contribute to a higher or lower degree of people's participation in physical activity programs can be related to sociodemographic, lifestyle and self-rated health characteristics<sup>7-10</sup>.

In addition, factors like previous participation in physical activity programs, knowledge and beliefs about the benefits of this practice, and aspects like the place of the intervention, the type and intensity of the activity, and the professionals' characteristics and profile also interfere in the population's participation in physical activity interventions<sup>10</sup>.

People's adherence to physical activity promotion programs like the ACP has represented one of the greatest challenges of public health<sup>11-13</sup>. Although there are evidences that point to the health benefits of the regular practice of physical activity<sup>14,15</sup>, the population of many countries still presents insufficient levels of this behavior<sup>16,17</sup>.

The main knowledge gaps about factors that interfere in adherence in community-based interventions for physical activity promotion are related to the characteristics of the offer, accessibility, quality of the spaces and the profile of the professionals involved, as well as to the challenge concerning the implementation of these programs<sup>3,18,19</sup>. Studies that analyzed adherence to physical activity focused on private fitness centers<sup>20,21</sup>; on the other hand, studies that were carried out in the context of public physical activity promotion programs investigated older adults<sup>7,22,23</sup>.

We would like to highlight the importance of knowing the factors that can influence adherence to programs like the ACP, as this may help to establish strategies that can contribute to greater adherence and to increase their effectiveness<sup>24</sup>. Therefore, this study aimed to identify factors associated with adherence to the ACP in the city of Recife.

## Methods

This descriptive, quantitative, cross-sectional study was conducted at 20 ACP centers. When the study was carried out, there were 21 centers in operation. The only center that was excluded from the study was the one located at *Centro Médico Ermírio de Moraes*, as only users referred by the center itself attend it.

Centers in all the regions of the city were investigated, located in the following neighborhoods of Recife: Boa Viagem, Brasília Teimosa, Ipsep, Lagoa do Araçá, Ibura, Jardim São Paulo, San Martim, Engenho do Meio, Praça do Poeta, Avenida

do Forte, Beira Rio, Sítio da Trindade, Morro da Conceição, Jaqueira, Ilha do Leite, Santo Amaro, Coque, Alto do Capitão, Hipódromo and Ilha do Joaneiro.

The study's population was composed of users and former users of the program. Users were considered individuals who, at the moment of data collection, had been participating in the ACP for at least three months. The former users were indicated by one user, and were those who participated in the ACP in the past (2011) for at least three months. We established the period of three months because we believed that, with this participation time, the study's target audience could have experienced more fully the interventions developed by the program, and this would enable them to provide faithful answers about factors related to adherence to the ACP.

The ACP users were randomly selected at the beginning of the activities of each group, in the two periods (morning and evening) of the centers' operation. The former users were selected intentionally by means of the indication of one user who accepted to participate in the study.

Data were collected between October 2011 and January 2012 by four researchers involved in the study. A self-administered questionnaire about reasons that lead people to practice physical activity was used<sup>25</sup>. The variables analyzed in the study were: dependent variable – adherence to the ACP, represented by the user who started and stayed in the program for at least three months (former user/non-adherent = 0 and user/adherent = 1); independent variables: sex (female = 0, male = 1), age group (18 to 29 years = 0, 30 to 59 years = 1, 60 years or older = 2), race/skin color (non-white = 0, white = 1), years of schooling (1 to 9 years = 0, 10 to 12 years = 1, 13 years or more = 2), marital status (married = 0, single = 0, separated = 2, widowed = 3, partner in a stable union = 4), work situation (employed = 0, unemployed = 1), participation time in the ACP (3 to 6 months = 0, 7 to 24 months = 1, 25 months or longer = 2), weekly frequency of participation in the ACP (lower than 3 days = 0, 3 days = 1, higher than 3 days = 2), to adopt a healthy lifestyle (no = 0, yes = 1), likes to exercise (no = 0, yes = 1), to increase knowledge in the area of health (no = 0, yes = 1), to improve physical performance (no = 0, yes = 1), to improve health (no = 0, yes = 1), medical advice (no = 0, yes = 1), to improve self-image (no = 0, yes = 1), to improve self-esteem (no = 0, yes = 1), to recover from injury (no = 0, yes = 1), to relax/reduce the level of stress (no = 0, yes = 1), to recover from daily work activities (no = 0, yes = 1), influence of television/media (no = 0, yes = 1), time available for the practice (no = 0, yes = 1), period of the year (no = 0, yes = 1), program's location (no = 0, yes = 1), activities offered by the program (no = 0, yes = 1), social support given by friends and colleagues (no = 0, yes = 1), to expand the social network (no = 0, yes = 1), social support given by partner and family (no = 0, yes = 1), social support given by the team and teacher (no = 0, yes = 1), team's and teacher's confidence and commitment (no = 0, yes = 1), likes challenges (no = 0, yes = 1), to leave home (no = 0, yes = 1),

The data were keyboarded with double entry in the Epi Info software (version 3.5.3). Afterwards, the *validate* procedure was performed. For data analysis, the Stata software (version 11.0) was used.

Initially, a descriptive analysis of the data was conducted to characterize the study groups (users and former users) and the chi-square test was applied to compare differences among proportions of the independent variables and among the categories of the dependent variable (former user/non-adherent and user/adherent). To evaluate the crude and adjusted association between the independent variables and the dependent variable, binary logistic regression was used. The

variables that presented  $p$ -value  $\leq 0.25^{26}$  in the crude analysis were considered for the multivariable analysis (adjusted). The quality of the final model was evaluated in the following way: (1) comparison of concurrent models (Deviance statistics – D-statistics), (2) analysis of multicollinearity (Variance Inflation Factor – VIF) and (3) Hosmer-Lemeshow Test. The residuals of the regression were also evaluated, and influential and leverage points were removed from the final model.

This study was approved by the Ethics Committee of the *Centro de Pesquisas Aggeu Magalhães/FIOCRUZ PE* under no. 07/2011. All subjects participated voluntarily and signed a consent document.

## Results

Overall, 289 users/adherents and 244 former users/non-adherents participated in the study. In both groups (users/adherents and former users/non-adherents, respectively), it was verified that the majority were female (92.7% and 91.4%,  $p=0.568$ ), aged 30 to 59 years (67.1% and 63.5%,  $p<0.001$ ), referred being non-white (63.7% and 68.9%,  $p=0.200$ ), had 10 to 12 years of schooling (55.7% and 54.1%,  $p=0.142$ ), and were married or lived with partner (46.0% and 43.9%,  $p=0.009$ ) – Table 1.

Concerning participation in the ACP, the majority of users/adherents had been participating for 25 months or longer (50.2%) and the former users/non-adherents participated in the program during 7 to 24 months (51.2%,  $p = 0.001$ ). Both the users/adherents (83.4%) and the non-users/non-adherents (67.2%) had a frequency of participation of three days or more per week ( $p=0.001$ ) – Table 1.

Among the eleven most cited reasons by users/adherents and former users/non-adherents to start attending the ACP, seven were related to interpersonal factors and four were related to the program. Of the reasons related to interpersonal factors, only likes to exercise had a statistically significant difference between the studied groups: 43.3% for users/adherents and 29.1% for former users/non-adherents ( $p=0.001$ ). On the other hand, all the ACP-related reasons had a significant difference between the analyzed groups (users/adherents and former users/non-adherents, respectively). The reasons were: activities offered by the program (43.6% and 30.7%,  $p=0.002$ ), social support given by the team and teacher (42.6% and 31.1%,  $p=0.007$ ), location of the ACP (41.9% and 30.7%,  $p=0.008$ ), team's and teacher's confidence and commitment (16.6% and 10.2%,  $p=0.035$ ) – Table 2.

In the crude analysis, the variables associated ( $p<0.05$ ) with adherence to the ACP were age group, marital status, work situation, participation time in the ACP, number of days per week, started attending the program because likes to exercise and likes challenges, because of the activities offered by the program, because of its location, and because of the team's and teacher's confidence, commitment and social support – Tables 3 and 4.

In the adjusted analysis, the following variables remained associated: age group, work situation, participation time in the ACP, number of days per week, and started attending the program because of the team's and teacher's confidence and commitment. Unlike the crude analysis, started attending the program to improve physical performance was also associated. However, other reasons related to the ACP (activities offered by the program, social support given by the team and teacher and the program's location) lost their significance in this analysis, and some remained as variables that adjusted the model.

**TABLE 1** – Distribution of sociodemographic characteristics and characteristics related to users' and former users' participation in the Academia da Cidade Program (ACP), Recife, 2012.

Characterization of participants	User (n = 289)		Former user (n = 244)		p-value
	n	%	n	%	
Sex					
Female	268	92.7	223	91.4	0.568
Male	21	7.3	21	8.6	
Age group (years)					
18 to 29	11	3.8	48	19.7	<0.001
30 to 59	194	67.1	155	63.5	
60 or older	84	29.1	41	16.8	
Race/Skin color					
Non-white	184	63.7	168	68.9	0.200
White	105	36.3	76	31.1	
Years of schooling					
1 to 9 years	83	28.7	65	26.6	1.42
10 to 12 years	161	55.7	132	54.1	
13 or more	45	15.6	47	19.3	
Marital status					
Single	64	22.1	89	36.5	0.009
Married	133	46.0	107	43.9	
Separated	31	10.7	15	6.1	
Widowed	38	13.1	18	7.4	
Partner in a stable union	23	8.0	15	6.1	
Work situation					
Employed	111	38.4	123	50.4	0.006
Unemployed	178	61.6	121	49.6	
Participation time in the ACP					
3 to 6 months	44	15.2	80	32.8	0.001
7 to 24 months	100	34.6	125	51.2	
25 months or longer	145	50.2	39	16.0	
Number of days in which participates in the ACP (days per week)					
Less than 3 days	10	3.5	26	10.7	0.001
3 days	38	13.1	54	22.1	
More than 3 days	241	83.4	164	67.2	

Thus, people aged 30 years or older (OR = 7.18; 95%CI: 2.57-20.03) who have been participating in the ACP for a period of 25 months or longer (OR = 7.41; 95%CI: 3.80-14.46), with a weekly frequency of participation higher than 3 days (OR = 7.09; 95%CI: 1.81-27.80), were seven times more likely to adhere to the ACP when compared to younger individuals who have been participating in the ACP for up to six months and attend it at least three days per week – Table 5. Individuals who reported being unemployed (OR = 1.62; 95%CI: 1.01-2.59) and having started attending the ACP to improve physical performance (OR = 1.87; 95%CI: 1.17-3.00) were almost two times more likely to adhere to the program. And those who started attending the program because of the team's and teacher's confidence and commitment (OR = 2.78; 95%CI: 1.37-5.64) were almost three times more likely to adhere compared to employed individuals and those who started for other reasons – Table 5. This model presented a good quality of adjustment. The VIF values were below 1.41 for all variables and the result of the Hosmer-Lemeshow Test was 0.29 (p=0.05).

**TABLE 2** – Distribution of users' and former users' reasons for starting to attend the Academia da Cidade Program (ACP), Recife, 2012.

Reasons for starting to attend the ACP	User (n = 289)		Former user (n = 244)		p-value
	n	%	n	%	
To adopt a healthy lifestyle	259	89.6	223	91.4	0.488
To relax/reduce the level of stress	142	49.1	108	44.3	0.262
To improve physical performance	143	49.5	102	41.8	0.077
To improve health	135	46.7	109	44.7	0.638
Activities offered by the program	126	43.6	75	30.7	0.002
Social support given by the team and teacher	123	42.6	76	31.1	0.007
Likes to exercise	125	43.3	71	29.1	0.001
Program's location	121	41.9	75	30.7	0.008
To improve self-esteem	105	36.3	86	35.2	0.323
Time available for the practice	61	21.1	45	18.4	0.443
Social support given by friends and colleagues	52	18.0	44	18.0	0.991
Medical advice	46	15.9	37	15.2	0.811
Social support given by partner and family	46	15.9	37	15.7	0.811
Team's and teacher's confidence and commitment	48	16.6	25	10.2	0.035
To expand the social network	37	12.8	31	12.7	0.973
To improve self-image	35	12.1	23	9.4	0.323
To recover from daily work activities	25	8.7	18	7.4	0.591
To recover from injuries	11	3.8	16	6.6	0.154
To increase knowledge in the area of health	7	2.4	8	3.3	0.553
To leave home	6	2.1	6	2.5	0.767
Likes challenges	8	2.8	2	0.8	0.120
Period of the year	5	1.7	3	1.2	0.443
Influence of television/media	2	0.7	5	2.0	0.191

**TABLE 3** – Crude logistic regression analysis to associate sociodemographic and participation characteristics with adherence to the Academia da Cidade Program (ACP), Recife, 2012.

Sociodemographic and participation in the ACP characteristics	Total	Adherence		OR	95% CI	p-value
	n	n	%			
Sex						
Female	491	268	54.6	1.00	-	-
Male	42	21	50.0	0.83	0.44 - 1.56	0.568
Age group						
18 to 29	59	11	18.6	1.00	-	-
30 to 59	349	194	55.6	5.46	2.74 - 10.8	<0.001
60 or older	125	84	67.2	8.94	4.20 - 19.0	<0.001
Race/Skin color						
Non-white	352	184	52.3	1.00	-	-
White	181	105	58.0	0.79	0.55 - 1.13	0.20

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Sociodemographic and participation in the ACP characteristics	Total	Adherence		OR	95% CI	p-value
		n	%			
Years of schooling						
1 to 9 years	148	83	56.1	1.00	-	-
10 to 12 years	293	161	54.9	0.95	0.64 - 1.42	1.42
13 or more	92	45	48.9	0.74	0.44 - 1.26	-
Marital status						
Married	240	133	55.4	1.00	-	-
Single	153	64	41.8	0.58	0.38 - 0.87	0.009
Separated	46	31	67.4	1.66	0.85 - 3.24	0.135
Widowed	56	38	67.9	1.69	0.91 - 3.14	0.092
Partner in a stable union	38	23	60.5	1.23	0.613 - 2.48	0.556
Work situation						
Employed	234	111	59.5	1.00	-	-
Unemployed	299	178	47.4	1.63	0.15 - 2.30	0.006
Participation time in the ACP						
3 to 6 months	124	44	35.5	1.00	-	-
7 to 24 months	225	100	44.4	1.45	0.93 - 2.29	-
25 months or longer	184	145	78.8	6.76	4.06 - 11.26	<0.001
Number of days in which participates in the ACP						
< 3 days	36	10	3.5	1.00	-	-
3 days	92	38	13.1	1.83	0.79 - 4.23	-
> 3 days	405	241	83.4	3.82	1.79 - 8.14	0.001

**TABLE 4** – Crude logistic regression analysis to associate self-reported reasons for starting to attend and adhering to the Academia da Cidade Program (ACP), Recife, 2012.

Reasons for starting to attend the ACP	Total	Adherence		OR	95% CI	p-value
		n	%			
To adopt a healthy lifestyle						
No	51	30	58.8	1.00	-	-
Yes	482	259	53.7	0.81	0.45 - 1.46	0.488
Likes to exercise						
No	337	164	48.6	1.00	-	-
Yes	196	125	63.7	1.86	1.29 - 2.67	0.001
To increase knowledge in the area of health						
No	518	282	54.4	1.00	-	-
Yes	15	7	46.7	0.732	0.26 - 2.05	0.553
To improve physical performance						
No	288	146	50.7	1.00	-	-
Yes	245	143	58.3	1.36	0.97 - 1.92	0.077
To recover from injuries						
No	506	278	54.9	1.00	-	-
Yes	27	11	40.7	0.56	0.26 - 1.24	0.154
To improve health						
No	289	154	53.3	1.00	-	-
Yes	244	135	55.3	1.09	0.77 - 1.53	0.638
Medical advice						
No	450	243	54.0	1.00	-	-

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Reasons for starting to attend the ACP	Total	Adherence		OR	95% CI	p-value
		n	%			
Yes	83	46	55.4	1.06	0.66 - 1.69	0.811
To improve self-image						
No	475	254	53.5	1.00	-	-
Yes	58	35	60.3	1.32	0.76 - 2.30	0.323
To improve self-esteem						
No	342	184	53.8	1.00	-	-
Yes	191	105	55.0	1.05	0.74 - 1.49	0.794
To relax/reduce the level of stress						
No	283	147	51.9	1.00	-	-
Yes	250	142	56.8	1.22	0.86 - 1.71	0.262
To recover from daily work activities						
No	490	264	53.8	1.00	-	-
Yes	43	25	58.1	1.19	0.63 - 2.24	0.591
Influence of television/media						
No	526	287	54.6	1.00	-	-
Yes	7	2	28.6	0.33	0.06 - 1.73	0.191
Time available for the practice						
No	427	228	53.4	1.00	-	-
Yes	106	61	57.5	1.18	0.77 - 1.82	0.443
Period of the year						
No	525	284	54.1	1.00	-	-
Yes	8	5	62.5	1.41	0.34 - 5.98	0.637
Program's location						
No	337	168	49.8	1.00	-	-
Yes	196	121	61.7	1.62	1.13 - 2.32	0.008
Activities offered by the program						
No	332	163	49.1	1.00	-	-
Yes	201	126	62.7	1.74	1.21 - 2.49	0.002
Social support given by friends and colleagues						
No	437	237	54.2	1.00	-	-
Yes	96	52	54.2	0.99	0.64 - 1.55	0.991
To expand the social network						
No	465	252	54.2	1.00	-	-
Yes	68	37	54.4	1.01	0.61 - 1.68	0.973
Social support given by partner and family						
No	450	243	54.0	1.00	-	-
Yes	83	46	55.42	1.06	0.66 - 1.69	0.811
Social support given by the team and teacher						
No	334	166	49.7	1.00	-	-
Yes	199	123	61.8	1.64	1.14 - 2.34	0.007
Team's and teacher's confidence and commitment						
No	460	241	52.4	1.00	-	-
Yes	73	48	65.7	1.75	1.04 - 2.93	0.035
Likes challenges						
No	523	281	53.7	1.00	-	-
Yes	10	8	80.0	3.45	0.73 - 16.38	0.120
To leave home						
No	521	283	54.3	1.00	-	-
Yes	12	6	50.0	0.84	0.27 - 2.64	0.767



**TABLE 5** – Adjusted logistic regression analysis to associate sociodemographic characteristics, participation characteristics and reasons for starting to attend the program with adherence to the Academia da Cidade Program (ACP), Recife, 2012.

Factors associated with adherence to the ACP	OR	95% CI	p-value	OR*	95% CI	p-value
<b>Age group</b>						
18 to 29	1.00	-	-	1.00	-	-
30 to 59	5.46	2.74-10.8	<0.001	7.18	2.57-20.03	<0.001
60 or older	8.94	4.20-19.0	-	6.22	2.00-19.45	0.002
<b>Work situation</b>						
Employed	1.00	-	-	1.00	-	-
Unemployed	1.63	0.15-2.30	0.006	1.62	1.01-2.59	0.042
<b>Participation time in the ACP</b>						
3 to 6 months	1.00	-	-	1.00	-	-
7 to 24 months	1.45	0.93-2.29	-	1.08	0.61-1.91	-
25 months or longer	6.76	4.06-11.26	<0.001	7.41	3.80-14.46	<0.001
<b>Number of days in which participates in the ACP</b>						
< 3 days	1.00	-	-	1.00	-	-
3 days	1.83	0.79-4.23	-	3.69	0.87-15.51	-
> 3 days	3.82	1.79-4.23	-	7.09	1.81-27.80	0.005
<b>Reason to adhere – To improve physical performance</b>						
			0.001			
No	1.00	-	-	1.00	-	-
Yes	1.36	0.97-1.92	0.07	1.87	1.17 – 3.00	0.009
<b>Reason to adhere – Team's and teacher's confidence and commitment</b>						
No	1.00	-	-	1.00	-	-
Yes	1.75	1.04-2.93	0.035	2.78	1.37 – 5.64	0.004

\* Adjusted by race/skin color, marital status, having started to attend the ACP for the following reasons: likes to exercise, to recover from injuries, program's location and activities offered by the program.

## Discussion

The results of the present study revealed that the participants who were more likely to adhere to the ACP were adults who were unemployed and who started attending the ACP motivated to improve their physical performance and because of the team's and teacher's confidence and commitment. Likewise, users who had been participating in the ACP for more than one year and attended it on the majority of the weekdays in which the program is in operation were also more likely to adhere.

A higher adherence of adults aged 30 years or older was observed in the present study. A similar result was found in the study carried out by Andreotti and Okuma<sup>11</sup>, indicating that physical activity practice can be more experienced among adults, as their motivation to pursue a healthy behavior can be based on the search for health. On the other hand, reaching the younger public, which is also an objective of the ACP<sup>1</sup>, is one of the challenges posed to the program. Thus, new strategies must be developed and/or strengthened to contribute to the adherence of this population.

Being unemployed was also associated with being more likely to adhere to the ACP. Having a flexible schedule and the possibility of committing to the regular practice of physical exercises can favor these people's adherence to the ACP. This

population's profile should also be considered. Being unemployed can be related to low and middle income, and also to the development of domestic activities, as the majority were women, and many of them could be already retired.

Some of the findings of the present study were similar to the results of a study conducted by Costa, Bottcher and Kokubun<sup>27</sup>: participants who had been attending the program with a weekly frequency of three days or more for 25 months or longer. These authors argued that the higher the participation time, the more likely the participants are to stay in the programs. Therefore, to meet the expectations of older and more assiduous users and, likewise, guarantee the adherence of new participants to the ACP, routines for planning and monitoring that fit this reality need to be established.

The participants who started attending the ACP with the objective of improving their physical performance and due to the team's and teacher's confidence and commitment were the ones who were most likely to adhere to the program. In a study carried out by Feitosa<sup>2</sup> with ACP users in 2015, the majority indicated the relationship with the teachers and their competence as strong points for them to stay in the program. A systematic review conducted by Martins<sup>28</sup> found that, to guarantee quality in the health services, one of the necessary aspects is the good professional-user relationship.

In the present study, enjoying physical exercise and recovering from injuries were reasons to adhere to the ACP related to interpersonal aspects. This was reported by another study<sup>11</sup> that found that adherence was related to participants' individual perceptions and expectations. Therefore, perceptions and expectations must be taken into account in the program's planning activities.

The program's location was one of the reasons to adhere to the ACP. This indicates that having a program decentralized in the territory contributes to people's adherence, which strengthens the importance of re-qualifying and valuing public spaces<sup>2,11</sup>.

Evidences about the physical environment's influence on exercise adherence reveal that access to the facilities serves as a visual stimulus and reduces physical and psychological barriers associated with exercising, as the fact that the place for the practice is nearby reduces the person's travel time. Thus, it is a variable that interferes in the person's choice to exercise<sup>29,30</sup>.

In this study, the activities offered by the ACP represented an important factor for people's adherence to the ACP. In the studies conducted by Feitosa<sup>2</sup> and Halal<sup>3</sup>, the authors observed that users show a high degree of satisfaction regarding these activities, which contributes to their adherence to the program.

Knowing the factors associated with adherence to physical activity promotion programs is fundamental, as it enables to adapt the programs to users' expectations, and allows to mobilize adequate resources to the population's specific needs, increasing adherence itself, satisfaction and programs' effectivity<sup>3</sup>.

The results found in this study enhanced knowledge in the field of study of adherence to physical activity promotion programs, highlighting that the factors that contribute to people's adherence to these programs are related to personal characteristics and also to the program's characteristics. Therefore, the professionals and managers of these programs must attempt to investigate these factors and, then, define strategies that are able to identify the aspects that contribute positively to adherence and revise the elements that produce a negative influence on people's participation in the programs.

Some limitations should be considered in the interpretation of the findings of this study: the cross-sectional design, which does not allow to consider, with a high

degree of certainty, whether the relationship between exposure (sociodemographic and participation aspects and reasons for starting to attend the ACP) and the outcome (adherence to the ACP) is causal or not; the selection bias, as users/adherents were randomly selected and former users/non-adherents were selected in an intentional way; and the memory bias: as a self-administered questionnaire was used, this may have overestimated some results, in the case of users/adherents who remembered more easily the exposure to ACP-related aspects, or underestimated the results, in the case of former users/non-adherents, who may not have mentioned some exposure because they were no longer participating in the program.

We believe that further research is needed in order to analyze factors related to adherence to public programs of physical activity promotion. Such research should include other investigation techniques, such as the focus group, to enable a deeper understanding of this field of knowledge.

We conclude that the factors associated with adherence to the ACP were related to sociodemographic and participation characteristics and to reasons that led the participants to start attending the program. These results can help the ACP's professionals and managers to establish and improve practical strategies to increase people's adherence to the program.

## Acknowledgments

We would like to thank all the individuals who contributed, directly or indirectly, to the conduction of this research. The research was not financed by any fostering agency. It was financed by the authors themselves.

## Authors' contributions

All the authors participated in the conception of the project or in data analysis and interpretation, in the article's writing and in the critical revision of the intellectual content, and also in the final approval of the version to be published.

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**CORRESPONDING  
AUTHOR**  
**EMMANUELLY CORREIA DE LEMOS**  
emmanuelylemos@gmail.com

Rua Falcão, nº 22, Ouro Preto, Olinda,  
Pernambuco. CEP: 53370-101.  
Telephone: +55 (81) 997190294

**RECEIVED** 30/11/2015  
**REVISED** 23/02/2016  
**APPROVED** 29/05/2016