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Leisure-time physical activity and associated factors in fitness zones

Prática de atividade física no lazer e fatores associados em frequentadores de academias ao ar Livre

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Abstract – Fitness zones (FZ) are a great alternative to physical activity practice. The aim of this study was verify physical activity practice and associated factors among FZ users of Pelotas. Participants answered a questionnaire containing demographic, socio-economic, behavioral, health and on the use of FZs. A long version of the International Physical Activity Questionnaire was used to determine the level of physical activity and those who reported at least 150 minutes / week of PA in the leisure time were considered sufficiently active. The study included 323 subjects (65.3% women), mean age 52.5 years, 83.6% white skin color and 61.9% married. Almost half of respondents were overweight (48.0%), 45.8% had high blood pressure, 10.5% had diabetes and 64.4% used medications. About 77.7% of respondents were classified as sufficiently active. Health perception was associated to leisure physical activity, and the better the health perception, the higher the prevalence of sufficient physical activity. Collective programs with participation of Physical Education teacher can contribute to interaction of practitioners with the use of fitness zones and increase the level of physical activity of individuals.

Key words: Environment; Epidemiology; Health behavior; Motor activity; Public health.

Resumo – *As Academias ao Ar Livre (AAL) são uma ótima alternativa para realização de atividade física (AF) de forma gratuita. O objetivo deste estudo foi verificar a prática de AF e fatores associados em reqüentadores das AAL de Pelotas-RS. Os participantes responderam a um questionário contendo questões demográficas, socioeconômicas, comportamentais, de saúde e relativas à utilização das AAL. Foi utilizada a versão longa do International Physical Activity Questionnaire para determinar o nível atividade física dos indivíduos e foram considerados suficientemente ativos aqueles que relataram pelo menos 150 minutos/semana de AF no domínio de lazer. Participaram do estudo 323 indivíduos (65,3% mulheres), com média de idade de 52,5 anos, 83,6% de pele branca e 61,9% casados. Quase a metade dos entrevistados apresentava sobrepeso (48,0%), 45,8%, pressão alta, 10,5% diabetes e 64,4% utilizam medicamentos. Foram classificados como suficientemente ativos 77,7% dos entrevistados. Tanto na análise bivariada quanto na multivariável a percepção de saúde se mostrou associada à AF de lazer, sendo que quanto melhor à percepção de saúde maior a prevalência de AF suficiente. Programas coletivos com participação do professor de Educação Física podem colaborar para interação dos praticantes com o uso das AAL e aumentar o nível de atividade física dos indivíduos.*

Palavras-chave: *Atividade motora; Comportamentos saudáveis; Epidemiologia; Meio ambiente; Saúde pública.*

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INTRODUCTION

A large number of epidemiological studies have consistently shown that adequate levels of physical activity (PA) are related to the prevention and treatment of numerous diseases, especially cardiovascular diseases[1]. In addition, several factors have been shown to be associated with higher levels of leisure-time PA, among them, male sex[2], younger ages[2,3], higher schooling and income[4,5]. However, in general, the Brazilian population presents low prevalence of active individuals[6].

One of the ways to encourage the practice of leisure-time PA is the use of easily accessible safe outdoor public spaces that provide appropriate equipment for this purpose[7]. In this sense, one of the governmental actions aimed at increasing the infrastructure conditions of these spaces is the implementation of the so called Fitness Zones (FZ), which have become increasingly frequent in Brazil and in the world[8,9].

Fitness Zones basically consist of a set of durable equipment for strength training and aerobic activities, available free of charge in public places[9]. Generally, these equipments use the practitioner's body mass as an overload for performing bodybuilding and stretching activities[10].

Although it has the potential to stimulate PA in the population, few studies have analyzed whether its users effectively reach the weekly PA recommendations for health benefits[11]. Therefore, the aim of this study was to verify the adequate practice of PA and associated factors among FZ users of Pelotas-RS.

METHODOLOGICAL PROCEDURES

The study was characterized by being of the cross-sectional observational type, and a face-to-face interview was conducted with FZ users of the city of Pelotas-RS.

The tracking of the existing FZs was carried out through contact with the Municipal Department of Education and Sport and search in neighborhoods. Three FZs were identified in the urban area of the city. The neighborhoods where the three FZs are located are characterized by being residential areas of middle / high income.

Data collection took place during seven weeks, between the months of October and December of 2014 in the three FZs, simultaneously. The interviews were conducted on two days of the week, Mondays and Tuesdays, and on Saturdays, totaling three days a week. The collection schedules were defined according to the times of greater flow of FZ users, defined through observation of interviewers during morning and afternoon in the defined places.

Two periods of the day were defined for data collection: from 08:00 am to 11:00 am and from 05:00 pm to 07:00 pm. On days when it was raining in a way that made it difficult or impossible to use the devices in any of the collection periods, it did not occur. These days or periods were replaced by other days in the same week.

Nine interviewers were selected and trained. The interviewers remained in the defined place during the period in which they were scheduled, even if at some point the devices were not being used, and should apply the questionnaire to all persons using any outdoor gym equipment.

FZ users included in the study that refused to answer the questionnaire during the data collection period were considered refusals. Those who agreed to respond, the interviewer requested the signing of the Free and Informed Consent Form, and then carried out the application of the questionnaire.

The instrument used for data collection was a pre-tested and coded questionnaire, elaborated from the composition of parts of other instruments with questions already validated or that presented adequate reproducibility on the subject[8,10,12]. The questionnaire was basically composed of three blocks, which included demographic, socioeconomic, behavioral, health issues (block 1), another one specifically containing questions about leisure-time physical activity (block 2) and, finally, a block with questions regarding the use of fitness zones (block 3). Demographic information collected was: sex (male, female), skin color (white, black, yellow, brown), separated for analysis purposes into 'White' or 'Black / Brown', age (complete years) and marital status (single, separated, widowed, married / living with partner) separated for analysis purposes into 'Married / Living with a partner' or 'Single / Separated / Widowed'. The socioeconomic variables evaluated were: schooling (illiterate, incomplete elementary school, complete elementary school, incomplete high school, complete high school, complete higher education) and family income (in Brazilian currency, divided into categories: A1- R$ 7.558,00 or more; R$ 3.945,00 to R$ 7.557,00, B1 - R$ 2.257,00 to R$ 3.944,00, B2- R$ 1.319,00 to R$ 2.256,00, C1 - R$ 862,00 to R$ 1.318,00, C2 - R$ 574,00 to R$ 861,00, D - R$ 330,00 to R$ 573,00, E - R$ 0 to R$ 329,00)[13]. The weight status was verified by the Body Mass Index (BMI), which was calculated by weight (kg) (self reported), divided by squared height (m) (self reported). The behavioral indicators collected were smoking (current smoker, ex-smoker and never smoked) and leisure-time PA (sufficiently active: ≥150 min / wk; insufficiently active: <150 min / wk) (leisure domain of the long version of the IPAQ International Physical Activity Questionnaire)[12]. Individuals' health information was collected from their health perception (excellent, very good, good, regular or poor); by the presence of self-reported diseases such as hypertension and diabetes using questions already applied in other studies[14]; and by the use of medication, evaluated by self-report. On the other hand, variables related to the use of fitness zones (frequency of use, length of stay, days and shifts, level of effort, reason for use, etc.) were collected through a questionnaire used by Souza et al. al.[8], who also sought to verify the profile of FZ users.

Data collected were doubly entered in the EpiData 3.1 software and, subsequently, typing inconsistencies found were verified and corrected. Data analysis was conducted using the Stata 13.0 statistical package. A descriptive analysis of variables under study was performed using central

- mean trend measures and their respective standard deviations, for continuous variables and calculation of proportion and confidence intervals for categorical variables. Bivariate analysis was conducted through chi-square and linear trend tests. To verify possible associations between the independent variables and the outcome controlled for potential confounders (multivariable analysis), Poisson regression was used. Variables that showed $p \leq 0.2$ value in the bivariate analysis were submitted to multivariate analysis for confounding factor control, with the following input order of variables in the adjusted model: first, sociodemographic and economic variables, after behavioral and health variables. Significant associations with value $p \leq 0.05$ were considered significant.

This study was conducted within the ethical standards required by the Helsinki Declaration and in accordance with Resolution 466/12 of the National Health Council and was submitted to and approved by the Ethics Research Committee of the Faculty of Physical Education of the Federal University of Pelotas – 724.170.

RESULTS

The mean age of interviewed individuals was 52.5 years (SD = 14.2 years), and 61.3% were 50 years of age or older. Regarding the sociodemographic variables, the majority were female (65.3%), white skin color (83.6%) and married or living with partners (61.9%). Approximately 70.0% of individuals had high school or higher education; however, 48.6% reported monthly family income of up to R$ 2.256,00. Regarding behavioral variables, 9.9% reported smoking currently and 77.7% were classified as sufficiently active. The overweight category was predominant (48.0%), 45.8% reported having high blood pressure, 10.5% had diabetes and 64.4% used medications. However, 31.6% considered their health as regular / poor (Table 1).

Table 1. Description of demographic, socioeconomic, nutritional, behavioral and health variables of FZ users of the urban perimeter of the city of Pelotas-RS, 2014.

Variables	n	%
Sex (n= 323)		
Male	112	34.7
Female	211	65.3
Age (complete years) (n= 323)		
20-29	25	7.7
30-39	40	12.4
40-49	60	18.6
50-59	87	26.9
60-69	78	24.2
70 or older	33	10.2
Skin color (n= 323)		
White	270	83.6
Black/Brown	53	16.4
Marital status (n= 323)		
Single / Separated / Widowed	123	38.1

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Variables	n	%
Married / Living with partner	200	61.9
Income (Brazilian currency) (n= 309)		
Up to R$ 861,00	29	9.4
R$ 862,00- 1318,00	37	12.0
R$ 1319,00- 2256,00	84	27.2
R$ 2257,00- 3944,00	71	23.0
R$ 3945,00- 7557,00	65	21.0
R$ 7558,00 or more	23	7.4
Schooling (n= 323)		
Incomplete elementary school	49	15.2
Complete elementary school	31	9.6
Incomplete high school	19	5.9
Complete high school	138	42.7
Complete higher education	86	26.6
BMI* (kg/m2) (n= 323)		
Normal weight	81	25.1
Overweight	155	48.0
Obesity	63	19.5
Morbid obesity	24	7.4
Smoking (n= 323)		
Never smoked	205	63.5
Former smoker	86	26.6
Current smoker	32	9.9
Health perception (n= 323)		
Excellent	26	8.0
Very good	39	12.1
Good	156	48.3
Regular	91	28.2
Poor	11	3.4
Hypertension (n= 323)		
No	175	54.2
Yes	148	45.8
Diabetes (n= 323)		
No	289	89.5
yes	34	10.5
Use of medications (n= 323)		
No	115	35.6
Yes	208	64.4
Leisure-time PA (n= 323)		
Insufficiently active	72	22.3
Sufficiently active	251	77.7

*BMI: Body Mass Index.

In the bivariate analysis, the only independent variable associated with the study outcome (physical activity) was health perception. The better the health perception reported by individuals, the greater the prevalence of sufficient practice of PA (Table 2). Table 3 shows the results of the multivariate analysis. Again, the only variable that remained associated with the outcome after control for confounding factors was health perception,

following the same trend of increasing sufficiently active individuals as health perception improved (p = 0.002).

Table 2: Physical activity and associated factors among FZ users of the urban perimeter of the city of Pelotas-RS, 2014.

Variables	Insufficiently active		Sufficiently active		p
	n	%	n	%	
Total	72	22.3	251	77.7	
Sex					0.568
Male	45	21.3	166	78.7	
Female	27	24.1	85	75.9	
Skin color					0.250
White	57	21.1	213	78.9	
Black/Brown	15	28.3	38	71.7	
Marital status					0.207
Single / Separated / Widowed	32	26.0	91	74.0	
Married / Living with partner	40	20.0	160	80.0	
Schooling (n= 323)					0.495
Incomplete elementary school	14	28.6	35	71.4	
Complete elementary school	9	29.0	22	71.0	
Incomplete high school	3	15.8	16	84.2	
Complete high school	26	18.8	112	81.2	
Complete higher education	20	23.3	66	76.7	
Income					0.512
Up to R$ 861,00	9	31.0	20	69.0	
R$ 862,00- 1318,00	11	29.7	26	70.3	
R$ 1319,00- 2256,00	18	21.4	66	78.6	
R$ 2257,00- 3944,00	15	21.1	56	78.9	
R$ 3945,00- 7557,00	12	18.5	53	81.5	
R$ 7558,00 or more	3	13.0	20	87.0	
BMI* (kg/m^2)					0.051
Normal weight	18	22.2	63	77.8	
Overweight	27	17.4	128	82.6	
Obesity	27	31.0	60	69.0	
Smoking					0.095
Never smoked	38	18.5	167	81. 5	
Former smoker	24	28.0	62	72.0	
Current smoker	10	31.3	22	68.7	
Health perception					0.01
Excellent / Very good	7	10.8	58	82.2	
Good	34	21.8	122	78.2	
Regular / Poor	31	30.4	71	69.6	
Hypertension					0.284
No	43	24.6	132	75.4	
Yes	29	19.6	119	80.4	
Diabetes					0.492
No	66	22.8	223	77.2	
Yes	6	17.7	28	82.3	
Use of medications					0.134
No	31	27.0	84	(73.0)	
Yes	41	19.7	167	(80.3)	

* Linear trend test.

Table 3. Adjusted analysis * with respective confidence intervals and p value of physical activity practice among FZ users of the urban perimeter of Pelotas (n = 323).

Variable*	Prevalence ratio (95%CI)#	p
BMI		0.516
Normal weight	1.00	
Overweight	1.08 (0.94-1.24)	
Obesity	0.94 (0.78-1.13)	
Smoking		0.139
Never smoked	1.00	
Former smoker	0.89 (0.77-1.03)	
Current smoker	0.89 (0.70-1.14)	
Use of medications		0.060
No	1.00	
Yes	1.14 (1.00-1.29)	
Health perception		0.002&
Excellent / very good	1.31 (1.12-1.53)	
Good	1.13 (0.97-1.32)	
Regular / Poor	1.00	

* Only variables that in the bivariate analysis presented value p≤0.2 in the association with the outcome were included in the multivariable analysis; # Prevalence ratio obtained through Poisson regression; & Wald test for linear trend.

DISCUSSION

To achieve sufficient PA practice, according to the World Health Organization (WHO), an adult individual needs to perform at least 150 minutes of moderate PA or 75 minutes of intense PA weekly. Achieving these recommendations can provide numerous health benefits, such as reducing the risk of developing noncommunicable diseases and depression[11]. In the present study, a PA prevalence of 22.3% was found among FZ users. Such information was only found in a study that deals with the same topic in literature[8]. This fact may be linked to the assumption that users of public spaces for the practice of PA naturally reach the time needed to be considered sufficiently active, which ends up by eliminating such investigations.

Studies conducted in Brazil and worldwide have found an association between insufficient PA and other behavioral risk factors for chronic diseases, among them, tobacco consumption[15,16]. A study by Varo et al.[16] found a direct association between smoking and physical inactivity, with smokers presenting 50% higher risk of being inactive during leisure time.

In the present study, among those who never smoked, 81.5% were sufficiently active, but despite this high prevalence, no association was found between these variables, corroborating the findings of Nerín et al.[17], who also found no association. The fact that our study found no association between variables can be explained by the low prevalence of smokers found among participants (9.9%), which was somewhat expected since, although some of them did not reach PA recommendation, all practiced some activity and smoking is described as more prevalent in sedentary individuals, and physical exercise is considered a protective factor against its onset[18,19].

Approximately 3/4 of subjects were included in the overweight and obesity group, such as the study by Souza et al.[8], with a population similar to the present study. When analyzing the practice of sufficient PA in relation to BMI, no association between these variables was found. It is important to emphasize that the prevalence of sufficient PA among overweight and obese subjects analyzed together was similar to those with normal BMI (77.7% vs 77.8%, respectively). Individuals with overweight and obesity seek to engage in PA practices aiming at reducing health risks arising from this condition[11,20]. During this process, achieving sufficient PA levels can occur naturally.

In the present study, there was no association between level of PA of FZ users and use of medication. However, national studies have shown consistent data that more active people have less use of drugs[21,22]. A study conducted in the city of São Paulo showed that individuals who did not perform 150 min / week of leisure-time PA were 2.78 (95% CI: 1.45, 5.30) times more likely to need medication in the long term[23]. On the other hand, European studies do not indicate this association[24,25]. The difference in results may be related to cultural aspects that differentiate populations among countries, or to the way information related to drug use was collected. In the present study and in the European studies, these data were evaluated by self report, being subject to memory bias.

The only variable associated with sufficient practice of leisure-time PA was health perception. Although it is simple information, health self-perception has shown an association with mortality. People who perceive their health as "poor" are two to three times more likely to die than those who perceive their health as "excellent". In this sense, the associations found with health risk factors reinforce the usefulness of this information[27]. In the present study, the better the health self-perception, the greater the likelihood that individuals will achieve the recommended practice of adequate PA for health benefits, especially for those who consider their health as excellent or very good. Such association has also been described in the studies of Szwarcwald et al.[28], Södergren et al.[29] and Fonseca et al.[30]. Nevertheless, since these studies have cross-sectional design, such association should be carefully evaluated due to the difficulty of establishing the order of events in the association.

Some limitations should be considered when analyzing the results. One of them is that the data collection was only performed at one time of the year, which included the end of October until mid December (spring). Although we have not collected data in other months / seasons, it is believed that the public of other months / seasons was not included here, since this is, according to several authors, the time in which more outdoor activities are performed. However, since interviews were held on Mondays, Tuesdays, and Saturdays, we may have lost some individuals who use FZ on other days of the week. Another factor to be remembered is that cross-sectional studies are subject to reverse causality, which makes it difficult to understand the order of events, especially variables associated

with this study (health self-perception and practice of leisure-time PA). On the other hand, methodological and logistical aspects, as well as data collection through validated questionnaires are important points to be highlighted in the study.

It was clear from the data analysis that FZs effectively contribute to the vast majority of their users to achieve recommended PA levels for health benefits. Although they present in their structure devices for performing strength and aerobic activities, FZs alone cannot cause some of their users to reach the minimum PA recommendations, and 35.8% of those who use FZs alone do not reach the PA recommendation. Nevertheless, the potential of this type of public policy should not be discarded as an option, at no cost, in promoting healthy lifestyle of the population. Initiatives such as the implementation of collective programs, coordinated and given by Physical Education teachers could help to increase the rates of active stay in these places.

CONCLUSION

About 3/4 of FZ users achieved the minimum recommended leisure-time PA for health benefits. In addition, the only variable associated with practice was self-perceived health. Further studies should be carried out in order to better understand the relationship between practitioners and levels of practice in these places.

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