Physical activity at leisure, transportation, social support and urban environment perception in women and men in Florianópolis/SC

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Joris PAZIN*
Maria de Fátima Silva DUARTE**
Adriano Ferretti BORGATTO**
Marco Aurélio PERES**
Lisiane Schilling POETA**

*Centro de Ciências da Saúde e do Esporte, Universidade do Estado de Santa Catarina, Florianópolis, SC, Brasil.
**Centro de Desportos, Universidade Federal de Santa Catarina, Florianópolis, SC, Brasil.

Abstract

The aim of the study was to identify characteristics of the perceived physical environment and social support associated with physical activity during leisure (LFA), and transportation (TFA) in man and women. The study was based on a systematic sample of 746 residents in Florianópolis, SC, Brazil, obtained by phonebook. We utilized the long version of International Physical Activity Questionnaire (IPAQ), and the scale of active mobility in the community environment (news adapted). The outcomes investigated were not meeting the recommendations for physical activity (NARAF) in LFA and TFA in man and women. As explanatory variables we investigated the characteristics of socio-demographic variables, perception of the environment, general health, and body mass index (IMC). We performed logistic regression analysis to estimate the odds ratios and the adjusted attributes of the physical environment and social support of man and women that NARAF. The response rate was 91% (n = 746). The prevalence of women in NARAF in transportation was 73.3% (69.1-77.5%) and for men was 71.1% (66.1 to 76.2%). In the LFA NARAF prevalence of women was 78.4% (74.5-78.3%) and 74.9% (70.1-79.7%) in men. In TFA environmental attributes associated with less chance of NARAF were: live in an area close to shopping areas, gym and bank branch close to home. In the LFA, street lighting, security during the day, walking site close to home and live near the coastline. Programs to promote AFL in adults should consider variables of the urban environment (lit streets, safety, local walking or physical activity and attractiveness of locations). To promote the TFA should be considered public and private structures (proximity to shopping areas, gyms, banks and attractiveness of locations).

Key Words: Environment; Motor activity; Adult; Leisure activities.

Introduction

Regular physical activity (PA) has been pointed as an important component of a healthy life style[1]. Increase in physical activity levels and a healthy life style can reduce the risk of coronary diseases and influence the rate of mortality by chronic diseases[2]. However, studies from Brazil and other countries show that the population is not sufficiently physically active[3] and the increase of sedentary behavior has been a crescent concern for public health policies[4-5].

One possibility to change population attitude towards physical activity is to identify associated factors that can make possible the implementation of public policies and strategies that contribute to an active life style adoption[6]. The models that try to explain the prevalence of physical activity in leisure and transport are multifactorial and consider psychosocial, sociodemographic factors and, more recently, urban environmental characteristics in different populations and contexts[7-10]. There is evidence that some attributes of the perceived urban environment are associated with practice of physical activity during leisure (LFA) and transport (TFA)[11-12]. Individuals that mentioned having

a facility to walk were significantly more likely to meet the physical activity recommendations (41.5%) than those who did not (27.4%) showing a direct relation between facilities accessibility and the proportion of individuals that meet the recommendations[13]. The presence of bicycle lanes was shown to be associated to walking time, vigorous and moderate PA[7]. Nevertheless, the association of the characteristics of perceived urban environment with the attitude towards physical activity vary depending on country region provided the perception of environment and physical activities demands are influenced by social, cultural and economic context[11-14]. In Brazil the studies that made use of the same methods of the present study considered low-socioeconomic-status regions[10]; being transversal in nature. Although there is the necessity to perform longitudinal studies and natural experiments to establish cause and effect relations between urban environment changes and attitude towards physical activity, the present study aims to show which characteristics of perceived urban environment differ between men and women from diverse age groups.

The goal of the present study was to identify which characteristics of perceived urban environment are associated with the attitude towards LFA and TFA in men and women from Florianópolis, SC.

Methods

This study is part of the first stage (baseline) of a research project - natural experiment performed in the continental region of Florianópolis/SC. The city population is estimated to be 408,161 habitants[15]. The sample was composed of inhabitants 18 years old or older; residents of six districts (Jardim Atlântico, Estreito, Capoeiras, Canto, Coloninha e Balneário) that belong to the delimited area of study (54.479 residents)[15]. The sample size was 656; calculated to estimate the prevalence of 75% and 70% of individuals that do not meet the physical activity recommendations (NARAF) in leisure time (LFA) and transport (TFA), respectively, considering a confidence interval of 95%. The choice of 75% and 70% values of NARAF is based on other prevalence studies performed in Brazil. We added 10% to the value to compensate the losses and refusals and, more 15% to control for confounding factors. The estimated sample size was 820[16] and the number of individuals that responded the questionnaire was 746, from both sexes, discounting the 9% of refusals. The inclusion criteria were to be resident in the aforementioned districts, living in a maximum distance of 1500 meters from Beira-Mar Continental in the continental direction and divided in three areas delimited by the CAD - Microstation - Bentley program, from the urban planning institute of Florianópolis/SC city: Up to 500 meters from the coastline (mixed area, commercial and residential); from 501 to 1000 meters (mixed area, commercial and residential); and from 1001 to 1500 meters (higher concentration of residences than commercial establishments). The systematic sample was obtained from the residential telephone directory of all streets that belong to the studied area. The sampling fraction was obtained by dividing the number of eligible telephones in the studied area (n = 7630) by the estimated sample (n = 820), resulting in the value "nine". We did not consider as eligible the telephone lines owned by commercial establishments; those out of service; those that provided no response for ten calls done in varied days and periods of day, including weekends, holidays, nighttime; and those that, probably, were deactivated. The interviews were performed only after informed consent was obtained by the interviewee on the telephone (procedure approved by the Ethics Committee - n. 284, Process n. 327/08, FR 228074). The interviews were performed or scheduled to a different day and time according to interviewee's preference. The period of interviews ranged from March to July of 2009. The average duration of each interview was about 9 minutes.

The instrument was tested in terms of reproducibility on 30 individuals of similar age and characteristics; two interviews were conducted with an interval period from three days to one week between them. The Alpha of Cronbach was 0.80, which corresponds to a good internal consistency[17]. Provided that the same interviewer conducted all interviews, no quality control was necessary. The observed variables were physical activity during leisure (LFA) and transport (TFA). To evaluate LFA and TFA, we employed the long version of the International Physical Activity Questionnaire (IPAQ)[18] in sections 2 and 4, which treated PA for transport and leisure time, respectively. LFA and TFA were analyzed as dichotomous variables: meeting or not the physical activity recommendations[19]. The utilized criteria to categorize individuals as non-

meeting the physical activity recommendations (NARAF) were to not perform three or more days of vigorous activity and for less than 20 minutes per day or five or more days of moderate-intensity activity and/or walking of at least 20 minutes per day or five or more days of any combination of walking, activity of moderate or vigorous intensity (cf. short and long version of IPAQ)[19]. The socioeconomic variables were age, sex, race/ethnicity, marital status, educational level (categorized in primary, secondary and higher school) and self-reported general health status. A section of the System of Risk Factors Vigilance and Not Transmissible Chronic Diseases Protection by Telephonic Interview[20] questionnaire was used. It treats demographic characteristics, health status (categorized in positive or negative health status), smoking and body mass index (BMI). The self-reported body mass and height were obtained to determine the BMI - calculated as the ratio of the body mass (kg) by squared height (m). For both sexes, the individual was considered normal if the BMI value was between 18.5 and 24.9 kg/m^2, overweight if it was between 25 and 29.9 kg/m^2, and obese if it was bigger than 30 kg/m^2 [21]. To evaluate the perceived urban environment, we used the Brazilian version of the Neighborhood Environmental Walkability Scale (NEWS) scale[22] and the social support scale to physical activity practice[23]. The latter scale showed internal consistency, validity and reproducibility being used in epidemiological studies with adults and elderlies in East Zone of São Paulo[10, 24].

In terms of descriptive statistics, we used mean and proportion of NARAF people. The logistic regression was performed to estimate raw and adjusted odds ratios of urban and social environmental attributes (independent variables) associated to LFA and TFA NARAF. The statistical power of the multiple regression including transport and leisure as outcome was 89.5% and 92.1%[25], respectively. Associations with a p-value ≤ 0.20 in the bivariate analysis were selected to be included in the multivariate model[26].

It was used the stepwise regression with the forward method for modeling. The significance level adopted for analyses were p ≤ 0.05. All analyses were performed using SPSS 15.0.

Results

The sample size was 746 individuals with a response rate of 91%. According to TABLE 1, the prevalence of NARAF women in transport was 73.3% and NARAF men was 71.1%. In leisure, the prevalence of NARAF women was 78.4% and NARAF men was 74.9%

According to TABLE 2, the logistic regression showed that four environmental variables were significantly associated, considering significance level of 5%. For TFA, women showed less NARAF chance for those that in area - live closer to commercial area (up to 500 m and between 501 and 1000 m of distance); green area - reported green area up to 10 walking minutes from their home; security - reported safe-feeling to walk during the day; and crosswalk - reported crosswalk nearby their home.

For the multivariate logistic regression for TFA in women, the variables with p-value ≤ 0.20 were selected. Thus, we assessed the relation of tested variables controlling for the variables that remained in the model. The included variables in the model were area and daylight security. From those variables of the model, no variable showed association at 5% of significance level.

TABLE 1 - Sample description according to socioeconomic, demographic, health status, smoking, BMI and physical activity variables.

Variable	Men			Women		
	n	%	95% CI	n	%	95% CI
Age group						
18-34 years of age	76	38.2	(32.8-43.6)	98	22.7	(33.4-42.6)
35-54 years of age	120	24.2	(19.4-29.0)	164	38.1	(18.8-26.7)
≥ 55 years of age	118	37.6	(32.2-43.0)	169	39.2	(34.6-43.8)
Marital status						
Single	75	23.8	(18.1-19.4)	103	23.9	(20.4-22.1)
Married/together	212	67.3	(62.1-72.5)	225	52.2	(47.5-56.9)
Widower	8	2.5	(3.6-9.1)	55	12.8	(8.2-14.1)
Separated/divorced	20	6.3	(4.2- 10.3)	48	11.1	(9.6-15.9)
Educational level						
Primary school	39	12.6	(8.9-16.3)	80	18.7	(8.9-16.3)
Secondary school	103	33.2	(27.9-38.5)	154	36.1	(31.5-40.6)
Higher level	168	53.3	(48.6-59.8)	193	45.2	(40.5-49.9)
Skin color						
White	248	79.0	(74.4-83.5)	320	74.4	(70.3-78.6)
Dark	14	4.5	(2.2-6.7)	17	4.0	(2.1-5.8)
Brown/yellow	52	16.6	(18.3-19.3)	93	18.2	(17.8-18.7)
BMI category						
Normal	128	40.6	(35.4-46.4)	260	60.3	(58.0-67.3)
Overweight	140	44.4	(39.2-50.3)	109	25.3	(22.0-30.5)
Obese	45	14.3	(10.5-18.3)	46	10.7	(8.0-14.1)
Smoking						
Daily	25	7.9	(3.9-9.4)	52	12.1	(5.1-10.2)
Occasionally	21	8.5	(8.1-8.9)	33	8.0	(7.6-8.4)
No	269	85.4	(81.5-89.3)	346	80.3	(76.5-84.0)
Health status						
Positive health	245	77.8	(73.2-82.4)	330	76.6	(72.5-80.6)
Negative health	70	22.2	(17.6-26.8)	101	23.4	(19.4-27.4)
Physical activity in transport						
Meet [a]	91	28.9	(23.9-33.9)	115	26.7	(22.5-30.9)
Does not meet [b]	224	71.1	(66.1-76.1)	316	73.3	(69.1-77.5)
Physical activity in leisure						
Meet [a]	79	25.1	(20.3-29.9)	93	21.6	(17.7-25.5)
Does not meet [b]	236	74.9	(70.1-79.7)	338	78.4	(74.5-82.3)

[a] Meet the recommendations of physical activity level;
[b] Does not meet the recommendations of physical activity level;
* 95% Confidence Interval.

TABLE 2 - Raw and adjusted odds ratio for NARAF and physical built environment and social environment on physical activity in transport in women. Florianópolis/SC, 2009.

Variables	n	%	PA transport Raw OR (IC95%)	*p	PA transport Adjusted OR *** (IC95%)	**p
Area of residence				**0.021**		0.087
Up to 500 m from coastline	107	33.9	**0.55 (0.33-0.93)**		0.54 (0.31-0.97)	
501-1000 m	75	23.7	**0.48 (0.28-0.84)**		0.57 (0.31-1.05)	
1001-1500 m	134	42.4	**Reference**		Reference	
Green area [a]				**0.026**		
Yes	129	67.9	**0.61 (0.40-0.94)**		#	#
No	186	76.5	**Reference**			
Lit streets [a]				0.060		
Yes	238	71	0.58 (0.33-1.02)		#	#
No	76	80.9	Reference			
Segurity during daylight [a]				**0.039**		0.107
Yes	243	70.8	**0.53 (0.29-0.97)**		0.57 (0.29-1.12)	
No	69	82.1	**Reference**		Reference	
Security at night [a]				0.060		
Yes	71	66.4	0.63 (0.39-1.02)		#	#
No	240	75.7	Reference			
Crosswalk [a]				**0.031**		
Yes	244	70.9	**0.51 (0.28-0.94)**		#	#
No	71	82.6	**Reference**			
Plane streets [a]				0.123		
Yes	137	69.9	0.71 (0.46-1.10)		#	#
No	179	76.5	Reference			
Walking difficult by traffic [a]				0.132		
Yes	209	75.7	1.40 (0.90-2.17)		#	#
No	107	69.0	Reference			
Bank facility [a]				0.064		
Yes	172	69.1	0.65(0.41-1.02)		#	#
No	127	77.4	Reference			
Supermarket [a]				0.058		
Yes	122	67.8	0.66 (0.43-1.01)		#	#
No	179	76.2	Reference			
Drug store [a]				0.154		
Yes	253	71.7	0.63 (0.34-1.19)		#	#
No	56	80.0	Reference			
Bakery [a]				0.185		
Yes	290	72.5	0.48 (0.16- 1.42)		#	#
No	22	84.6	Reference			
Restaurant [a]				0.099		
Yes	197	70.1	0.64 (0.37- 1.09)		#	#
No	81	78.6	Reference			

* p < 0.05;
** p < 0.20;
*** Adjusted analysis by educational level and health perception;
# Variable was not maintained in the model after adjustment by educational level and health perception;
NARAF: Does not meet physical education recommendations;
[a] Up to 10 walking minutes from home.

According to TABLE 3, in the raw logistic regression, two environmental variables were significantly associated, considering significance level of 5%. For TFA, men showed less NARAF chance for those that in area - live closer to commercial area (up to 500 m and between 501-1000 m of distance); health center - live up to 10 walking minutes from a health center.

In the multivariate logistic regression for TFA in men, the variables with p-value ≤ 0.20 were selected. Thus, we assessed the relation of tested variables controlling for the variables that remained in the model. The included variables in the model were area and health center. From those variables in the model, only the variable living up to 500 or between 501 and 1000 m from coastline (mixed areas with residential and commercial establishments) was associated considering significance level at 5%. Specifically, the NARAF chance in TFA for men is lower for those who closer (500 m and between 501 and 1000 m).

TABLE 3 - Raw and adjusted odds ratio for NARAF and physical built environment and social environment on physical activity in transport in men. Florianópolis/SC, 2009.

[c] Up to 10 walking minutes from home.

Variables	n	%	PA transport Raw OR (IC95%)	*p	PA transport Adjusted OR *** (IC95%)	**p
Area of residence				**0.046**		**0.050**
Up to 500 m from coastline	87	38.8	**0.52 (0.28-0.96)**		**0.51 (0.26-1.00)**	
501-1000 m	57	25.4	**0.45 (0.23-0.88)**		**0.43 (0.21-0.89)**	
1001-1500 m	80	35.7	**Reference**		**Reference**	
There is physical activity facilities near home [c]				0.066		0.069
Yes	175	74.2	1.67 (0.97-2.90)		1.73 (0.96-3.12)	
No	48	63.2	Reference		Reference	
Relatives' invitation for walking				0.151		0.095
Yes	56	65.1	0.68 (0.40-1.15)		0.61 (0.35-1.09)	
No	168	73.4	Reference		Reference	
There is a health center near home [c]				**0.048**		0.097
Yes	158	68.7	**0.52 (0.27-0.99)**		0.56 (0.28-1.11)	
No	59	80.8	**Reference**		Reference	

According to TABLE 4, in the raw logistic regression, three environmental variables were significantly associated, considering significance level of 5%. In LTA, women showed less NARAF chance for those that in sport courts - reported sport courts up to from home; sport clubs - reported sport clubs up to 10 minutes from home; proximity to coastline - live up to 10 minutes from the coastline.

In the multivariate logistic regression for LFA in women, the variables with p-value ≤ 0.20 were selected. Thus, we assessed the relation of tested variables controlling for the variables that remained in the model. The included variables in the model were sport clubs, relatives' invitation to walk and public squares. From those variables in the model, only relatives' invitation to walk and public squares were associated considering significance level of 5%. Specifically, the NARAF chance was lower in women that reported relatives inviting them to walk and practice PA and in those that have access to public square in up to 10 walking minutes from home.

TABLE 4 - Raw and adjusted odds ratio for NARAF and physical built environment and social environment on physical activity during leisure time in women. Florianópolis/SC, 2009.

Variables	n	%	PA leisure Raw OR (IC95%)	*p	PA leisure Adjusted OR *** (IC95%)	**p
Live close to the coastline [a]				**0.038**		
Yes			**0.61 (0.38-0.97)**		#	#
No			Reference			
Traffic hampers walking [a]				0.066		
Yes	224	81.2	1.55 (0.97-2.47)		#	#
No	114	73.5	Reference			
Security during daylight [a]				0.121		
Yes	263	76.7	0.60 (0.32-1.14)		#	#
No	71	84.5	Reference			
Neighbors' invitation for walking				0.180		
Yes	99	74.4	0.72 (0.44-1.16)		#	#
No	239	80.2	Reference			
Relatives' invitation for walking				0.111		**0.041**
Yes	94	73.4	0.67 (0.41-1.09)		**0.40 (0.17-0.96)**	
No	242	80.4	Reference		**Reference**	
Sport courts close to home [a]				**0.028**		
Yes	142	75.1	**0.64 (0.41-0.99)**		#	#
No	102	85.7	**Reference**			
Public square				0.105		**0.050**
Yes			0.64 (0.38-1.09)		**0.36 (0.13-1.00)**	
No			Reference		**Reference**	
Soccer field				0.095		
Yes			0.61 (0.34-1.09)		#	#
No			Reference			
Sport club close to home [a]				0.031		0.115
Yes			0.47 (0.24-0.93)		0.50 (0.21-1.18)	
No			Reference		Reference	

* p < 0.05;
** p < 0.20;
*** Adjusted analysis by educational level and health perception;
# Variable was not maintained in the model after adjustment by educational level and health perception;
NARAF: Does not meet physical education recommendations;
[a] Up to 10 walking minutes from home.

According to TABLE 5, in the raw logistic regression, three environmental variables were significantly associated, considering significance level of 5%. In LFA, men showed less NARAF chance for those that in proximity to coastline - live up to 10 minutes from coastline; sport courts - reported sport courts up to 10 walking minutes from home; residence time - live at least 21 years at the current place; walking facility - reported walking facility up to 10 minutes from home.

In the multivariate logistic regression for LFA in men, the variables with p-value ≤ 0.20 were selected. Thus, we assessed the relation of tested variables controlling for the variables that remained in the model. The included variables in the model were proximity to coastline; residence time; walking facility and fitness facility. From those variables in the model, proximity to coastline; residence time, walking facility and fitness facility also they were significantly associated in the adjusted model.

TABLE 5 - Raw and adjusted odds ratio for NARAF and physical built environment and social environment on physical activity during leisure time in men. Florianópolis/SC, 2009.

Variables	n	%	PA leisure Raw OR (95% CI)	*p	***PA leisure Adjusted OR (95% CI)	**p
Live close to the coastline [a]				**0.020**		**0.046**
Yes			**0.53 (0.32-0.91)**		**0.47 (0.23-0.98)**	
No			**Reference**		**Reference**	
Residence time				**0.002**		**0.010**
1-5 years			**0.66 (0.30-1.08)**		**0.67 (0.24-1.09)**	
6-10 years			**0.42 (0.20-0.87)**		**0.31 (0.11-0.84)**	
11-20 years			**0.30 (0.16-0.58)**		**0.28 (0.12-0.63)**	
≥ 21 years			**Reference**		**Reference**	
Traffic hampers walking [a]				0.066		
No			0.58 (0.32-1.04)		#	#
Yes			Reference			
Walking facility close to home [a]				**0.050**		**0.016**
Yes			**0.56 (0.31-1.00)**		**0.40 (0.19-0.84)**	
No			**Reference**		**Reference**	
Fitness facility close to home [a]				0.067		**0.012**
Yes			0.48 (0.22-1.05)		**0.24 (0.08-0.80)**	
No			Reference		**Reference**	

* p < 0.05;
** p < 0.20;
*** Adjusted analysis by educational level and health perception;
# Variable was not maintained in the model after adjustment by educational level and health perception;
NARAF: Does not meet physical education recommendations;
[a] Up to 10 walking minutes from home.

Discussion

The goal of the present study was to identify perceived urban environment and social support variables associated with the attitude towards LFA and TFA in men and women.

According to the literature, the time spent with walking per week and moderate physical activity are significantly associated to the number of commercial establishments and shopping centers[7]. In the present study, in TFA, men living in areas 500 or between 501 and 1000 m from coastline (mixed areas, commercial and residential) showed 52% and 45% less NARAF chance than those living farther (predominantly residential area). The NARAF association with living areas remained significant after inclusion in the multivariate logistic regression. The results corroborate with other studies[7,8] that showed association between proximity to commercial areas and walking for transport; many ordinary activities are done by walking - such as going to supermarket, bakery and bank agencies.

Beyond commercial areas, the availability of public services may be associated with the attitude in TFA[27]. The present study showed that, for men, proximity (up to 10 minutes from home) of health centers from home results in a NARAF chance of 48% - lower than the chance of men that do not report such condition. When this variable was included in the multivariate model, it was not significant, showing that the relation of this variable and NARAF in TFA was confounded with some other variable in the model. In women, no public services were associated with NARAF in TFA, which shows the association between environmental attributes and physical activity differ between sexes in this community.

According to the literature, the number of built attributes in the environment (illumination, pleasantness of communitarian environment, green areas, walls and well-cared sidewalks) have been positively associated to meeting the PA recommendations when compared to areas that do not offer such attributes - particularly in terms of

TFA and walking[9]. In the present study, only women showed, in TFA, a NARAF chance 39% lower for those reporting green areas up to 10 minutes from home and 49% lower for those reporting crosswalks - only in the raw logistic regression. In men, the same attributes were not associated with the attitude in TFA, which shows that in this community the security in terms of vehicle traffic and neighborhood appearance have higher importance for women. In LFA, some studies show a possibility of significant differences in physical activity and, specially, walking in more attractive places. In Australia, individuals from both sexes living close to the coastline were significantly more active in terms of walking and leisure exercises[28]. In the present study, men and women that reported to live up to 10 minutes from coastline showed 39% and 47%, respectively, less NARAF chance in LFA than those who reported living farther. After the adjustment for potential confounding factors, the association was not maintained for women although the direction of association was the same. In the multivariate model, living close to coastline remained associated considering significance level at 5% only for men. Observing that the NARAF chance in LFA was 53% lower in men that live close to coastline, it seems that for men and women the proximity to coastline is an attractiveness factor and/or of ease for the practice of walking and physical exercises provided that this area is plainer and have a large number of public squares with sport courts and fitness equipment. In USA, young adults that live close to areas that are attractive and supplied with fitness equipment are more likely to engage in physical activity[29].

The social environmental attributes have also been studied to explain the attitude towards LFA and TFA. Individuals that perceived a high motivational input from their social environment were more likely to meet the physical activity recommendations than those in a non-motivational social environment[24]. Nevertheless, in another study[30] the social support was not significantly associated to the activity level for both sexes. In the present study, women that reported that relatives' invitation for walking and physical activity practice showed 60% less NARAF chance in LFA than those who did not. This variable of the perceived environment maintained the considered significance level of 5% in the multivariate model. Observing that the NARAF chance in LFA was lower for women who reported relatives' invitation to physical activity, it becomes clear the importance of social support for women. The result corroborates with studies in Portugal and Belgium where the social and familiar support were related to walking in leisure time[31]. In another study, performed in São Paulo (Brazil), after the inclusion of the "educational level" as a variable, only elderly men that were invited by friends (not relatives) to exercise were more likely to exercise in leisure time[24].

The perception of places and opportunities for physical activity is very important provided that studies show that individuals who perceived more opportunities were more likely to meet the physical activity recommendations than those who did not[32]. In the present study, women who had sport courts and clubs up to 10 walking minutes from home showed 36% and 53%, respectively, less NARAF chance in LFA compared to those who did not. After adjustment for potential confounding factors, the association was not significant anymore for women but maintained the direction. Women who reported living up to 10 minutes (walking) from a public square (which included fitness equipment) showed 64% less NARAF chance in leisure, with significant association in the multivariate model. This result shows that women from Florianópolis showed influence of proximity to public facilities on the attitude towards physical activity. This is similar to Bourdeaudhuij et al.[33] that showed that, in Portugal and Belgium, women who reported less difficulty to go to adequate places for physical activity were more likely to be physically more active. For men, those who reported to have walking facilities up to 10 minutes from their home showed 44% less NARAF chance on LFA than those who did not. In the multivariate model for men, walking and fitness facilities up to 10 walking minutes from home remained significant considering the 5% level; with 60% and 76% less NARAF chance. This results are in accordance to another study[13] that showed significant association between places with easiness of assess and adequacy for walking and physical activity that meets the recommended standard.

The security perception (in terms of crimes) is another social environmental aspect that might be related to physical activity. The feeling of insecurity or security in terms of crimes can be perceived differently between men and women, from regions and/or countries with distinct social contexts resulting in higher or lower association with attitude towards physical activity. Men who reported feel some insecurity or not feeling totally safe in Boston, USA, were 51% less likely to achieve high level of

AF and self-efficacy, while women were 32% less likley[34]. In the present study, only for women the NARAF chance in TFA was 47% on those who reported feeling secure to walk during daylight time than those who did not. After adjusting for potential confounding factors, the association did nor maintained its level of significance although it maintained the direction. This indicates that security has a high level of importance for women in this region and can have influence on the attitude towards physical activity. The literature has presented significant associations between perceived security and walking for transport in Brazil[10], walking during leisure time[35] and physical activity during leisure in Florida, USA[36]. In a research with eight countries of Europe[37], it was shown that the security perception was not associated with the likelihood of practicing exercises often for men; in another study performed at Ermelino Matarazzo nighborhood, in São Paulo-Brazil, the security perception during daylight time was not associated with exercising during leisure time for elderly women[24]. This difference on the influence of security on physical activity practice from one study from southeast to south regions of the same country shows that the perception and the importance of urban environment attributes can be different according to each region or city.

In the present study, another variable of the urban environment was considered: residence time. This variable was significantly associated with NARAF chance in leisure, but only for men. Those who lived from 1 to 5, 6 to 10 and 11 to 20 years in the same place showed 34, 58 and 70% less NARAF chance, respectively, than those who lived in the same place for 21 or more years. The association between living less than 21 years at the same place and NARAF remained significant after multivariate logistic regression. We could not find a reasonable explanation for this result.

Considering the results obtained in the studied region, we can highlight that, for men, living in an area up to 500 or 501 to 1000m from coastline -where there is proximity between residences and commerce - showed a significant influence in the more active behavior in transport. For men, directly related attributes of urban environment such as the proximity to the coastline, walking and fitness facilities were significantly associated to a more active behavior in leisure.

For women, beyond the proximity to public squares with fitness equipment, relatives' invitation for practice (walking or physical activity) - related to social support - were significantly associated to a more active behavior in leisure.

According to the present results and the consulted literature, the planning and development of public policies to promote active communities during leisure must prioritize more attractive facilities for physical activity, close to residential areas, emphasize security, encourage active transport building areas where there is availability of public and private services close to residences.

Limitations

This study has the potential limitations related to the utilization of self-reported data to qualify physical activity level. The cross-sectional design does not allow the establishment of cause and effect relation between environment and physical activity

Resumo

Atividade física no lazer, deslocamento, apoio social e percepção do ambiente urbano em homens e mulheres de Florianópolis/SC

O objetivo do estudo foi identificar características do ambiente físico e social percebido associadas à atividade física no lazer (AFL) e deslocamento (AFD) em homens e mulheres. Amostra sistemática de 746 pessoas residentes em Florianópolis/SC obtida por lista telefônica. Utilizou-se o questionário internacional de atividade física (IPAQ) versão longa e o questionário da escala de mobilidade ativa no ambiente comunitário news adaptado. Os desfechos investigados foram: não atender as recomendações em relação à atividade física (NARAF) nas AFL e AFD em homens e mulheres. Como variáveis exploratórias foram investigadas as características das variáveis sócio-demográficas, percepção do ambiente, saúde geral e índice de massa corporal. Foi realizada análise de regressão logística para estimar as razões de chance bruta e ajustada dos atributos do ambiente físico e apoio social das pessoas que NARAF. A taxa de resposta foi de 91% (n

= 746). A prevalência de mulheres que NARAF no deslocamento foi de 73,3% (69,1-77,5%) e a de homens de 71,1% (66,1-76,2%.). Nas AFL a prevalência de mulheres que NARAF foi de 78,4% (74,5-78,3%) e a de homens de 74,9% (70,1-79,7%). Nas AFD os atributos do ambiente associados a menos chance de NARAF foram: morar em área próxima ao comércio; academia e agência bancária próximo de casa. Nas AFL, ruas iluminadas, segurança durante o dia, local para caminhar próximo de casa e morar próximo à orla marítima. Programas de promoção de AFL em adultos devem considerar variáveis do ambiente urbano (ruas iluminadas, segurança, local para caminhar ou praticar atividade física e a atratividade dos locais). Para promover as AFD devem ser consideradas as estruturas públicas e privadas (proximidade dos centros de compra, academias, agências bancárias e atratividade dos locais).

Palavras-chaves: Meio ambiente; Atividade motora; Adulto; Atividades de lazer.

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ADDRESS
Lisiane Schilling Poeta
Centro de Desportos
Universidade Federal de Santa Catarina
Campus Universitário - Trindade
88040-900 - Florianópolis - SC - BRASIL
e-mail: lisi.poeta@gmail.com

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