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Active commuting reduces sociodemographic differences in adherence to recommendations derived from leisure-time physical activity among Brazilian adults



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ABSTRACT

Objective: To investigate the consequences of including active commuting, compared with the leisure domain only, in the prevalence and sociodemographic factors associated with attending the physical activity recommendations, in Brazilian adults.

Study design: Population-based cross-sectional study.

Method: Adults between 20 and 59 years of age ($n = 1720$) were face-to-face interviewed from September 2009 to January 2010. Sociodemographic indicators and leisure-time and commuting physical activity were assessed by a validated questionnaire. Poisson regression was used to estimate crude and adjusted prevalence ratio (PR) and 95% confidence interval (95% CI).

Results: The prevalence of adherence to recommendations when only leisure-time physical activity was considered was 15.5% (95% CI: 13.6; 17.4) and was associated with men (PR: 1.57, 95% CI: 1.25; 1.96), adults without a partner (PR: 1.38 95% CI: 1.05; 1.81) and higher educational level and income. The prevalence of adherence to physical activity recommendations after the combination of leisure-time and commuting was 29.1% (95% CI: 26.5; 31.6). Percentages differences in favor of men, white adults and those with higher educational level and income were no longer significant after the inclusion of active commuting.

Conclusion: The inclusion of active commuting expands the percentage of adults who achieved the health-related physical activity recommendations and reduced important sociodemographic differences derived from the analysis of leisure-time physical activity

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alone. Public health strategies should consider the different domains of physical activity in the monitoring and promotion of a more active lifestyle.

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Introduction

Nationwide surveillance systems, such as the Behavioral Risk Factor Surveillance System in the US,¹ and the Telephone-Based Surveillance of Risk and Protective Factors for Chronic Diseases in Brazil,² traditionally have been using leisure-time physical activity data to monitor the prevalence of inactive people. National data show that the adherence to health-related physical activity recommendations when only leisure-time is considered varies from 28.0% in the city of Sao Luis to 43.9% in Florianopolis.³

However, a rising shift from promoting exercises in leisure-time to advocating an active living has increased the interest in other domains of physical activity, especially active commuting, which has great potential to incorporate physical activity into daily life.⁴ In addition, active commuting has been associated with reductions on cardiovascular morbidity and mortality⁵ and all-cause mortality.⁶

On the other hand, physical activity patterns in each domain are strongly associated with sociodemographic characteristics.^{7–9} Therefore, disregarding active commuting could generate inaccurate evidence about prevalence and sociodemographic factors associated with adherence to health-related physical activity recommendations.⁷

Therefore, the aim of this study was to investigate the consequences of including active commuting, compared with the leisure domain only, in the prevalence and sociodemographic factors associated with attending the health-related physical activity recommendations, in Brazilian adults.

Methods

Study design and sample selection

The present study was conducted in Florianopolis, a Brazilian city with the third highest Human Development Index of the country,¹⁰ from September 2009 to January 2010. This cross-sectional population-based research included adults aged 20–59 years.

The sample size was calculated using the following parameters and estimates: unknown outcome prevalence (50%), 95% confidence interval (95% CI), a sample error of 3.5 percentage points, a design effect of two due to the cluster sample design, and the addition of 10% to compensate for refusals. An oversample of 15% was included to control for confounding in adjusted analysis. After rounding, the final sample size was 2016 adults.

The sampling was performed in two stages. First, the census sectors were selected in the urban area of Florianopolis. Census sectors are territorial units defined by the

Brazilian Institute of Geography and Statistics, representing an average of 300 households.¹¹ The 420 urban census sectors were listed in ascending order of average income of the head of the household. This procedure was adopted because people with different socio-economic conditions can live in the same census tract. Sixty of the census sectors were selected at random, and the number of households in each of the selected sectors was updated. This process was useful to assess changes in the number of households, as the most recent data were published in 2000.¹¹ Within the range of one to seven (420/60), the seventh sector was randomly selected. Then, all the other sectors were systematically selected respecting a seven-step range. In each selected sector, all the occupied domiciles were listed, and 18 were systematically selected, aiming to reach the predicted sample size. For this, the total number of households in each sector was divided by 18. A number between one and the quotient was randomly selected, and the remaining 17 households were selected respecting a quotient-step range. All residents of the selected households aged 20–59 years were included, except those who were institutionalized or incapable of responding

Table 1 – Sociodemographic characteristics of the sample. Florianopolis, Brazil, 2010.

Variables	n	% ^a
Gender		
Male	761	44.7
Female	959	55.3
Age (years)		
20–29	540	33.5
30–39	392	23.4
40–49	438	25.2
50–59	350	17.9
Skin color (self-determined)		
White	1444	85.8
Brown	147	9.1
Black	87	5.1
Marital status		
Without a partner	677	40.2
With a partner	1043	59.8
Educational level (years)		
≤4	161	8.0
5–8	253	13.7
9–11	568	33.7
≥12	737	44.6
Per capita family income (quartile)		
1° (poorest)	508	29.0
2°	335	19.0
3°	421	26.0
4° (wealthiest)	421	26.0

^a Weighted sample.

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