



Prevalence and correlates of sedentary behaviour in an Atlantic Canadian population-based cohort

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Introduction

Sitting time (i.e., sedentary behaviour) has been shown to be a risk factor for a number of chronic diseases and higher mortality, independent of physical activity levels (1). Despite the health risk, research suggests that the majority of the Canadian population spend about 10 hours per day sedentary (2). The Canadian Health Measures Survey (CHMS), first launched in 2007, collects health information via household interviews and direct measures. A main goal of the CHMS is to allow researchers to determine relationships between disease risk factors and health status, and to explore emerging public health issues among Canadians. Research has shown that in order to change behaviour, targeting interventions to specific groups of the population may prove more effective (3). Examining the correlates of sitting time among the Atlantic PATH cohort will allow us to determine what groups are most sedentary and may benefit from targeted interventions. The aim of this report is to examine the demographic and medical correlates associated with sitting time in a cohort of Atlantic Canadians.

Methods

Study Design and Participants

A detailed description of participant recruitment and data collection methods have been previously published (4). Briefly, as part of the Canadian Partnership for Tomorrow Project

(CPTP), Atlantic Partnership for Tomorrow's Health (PATH) recruited 31,173 participants, aged 35-69 years currently living in Atlantic Canada, to complete a series of assessments. Self-report questionnaires including lifestyle behaviors, health outcomes, and physical measurements were collected.

Measures

Demographic correlates were collected via self-report questionnaires, medical variables were assessed by both self-report and objective measures. For the purposes of this report, we focused on the following demographic and medical variables: age, sex, marital status, income, education level, employment status, ethnicity, smoking and alcohol behaviour, body mass index, and select comorbidities.

Participants were asked to report their levels of sitting time using open-ended questions included in the International Physical Activity Questionnaire (IPAQ) (5). Participants were asked to separately report how many hours and minutes per day was spent sitting on both an average weekday and weekend day. Each question provided examples of sedentary behaviours (e.g., time spent sitting at a desk, visiting friends, sitting or lying down to watch TV, etc.) to assist participants.

Analyses

Long form IPAQ data was used if available; otherwise, we used short form IPAQ data. As there are currently no standard cut-points for sitting time, tertiles were calculated to create three categories to assess low (≤ 4 hours per day), moderate (> 4 to < 7 hours per day), and high (≥ 7 hours per day) amounts of sedentary behaviour. Associations were explored using chi-square analyses. Demographic and medical variables were dichotomized where possible to simplify analyses. Multinomial regression was used to determine the direction of significant differences.

Results

This study included data from 27,662 participants that provided information on their sitting time. Results indicated that participants were spending on average 371 and 298 minutes sitting per weekday and weekend day, respectively. When examined as low, moderate, and high categories, over a third of the sample were sedentary between four and seven hours per day (37.7%). Table 1 details the associations between sitting time and the selected demographic and medical correlates. Among the demographic and medical characteristics examined, chi-square analyses found significant differences in sitting time for province ($p < .001$), age ($p < .001$), marital status ($p < .001$), education level ($p < .001$), income ($p < .001$), employment status ($p < .001$), alcohol use ($p = .004$), smoking status ($p < .001$), body mass index ($p < .001$), and comorbidities ($p < .001$). Multinomial regression analyses revealed that compared to those sedentary for 7 or more hours per day, those accumulating four or less hours per day were more likely to be living in Nova Scotia ($B = 0.303$; $p < .001$), married ($B = 0.368$; $p < .001$), have high school or lower education level ($B = 0.167$; $p = .001$), have an income of less than 75,000 ($B = 0.131$; $p = .003$), more likely to be retired ($B = 0.440$; $p < .001$), have 1-3 drinks per week ($B = 0.136$; $p = .015$), be normal weight ($B = 0.344$; $p < .001$) or overweight ($B = 0.203$; $p < .001$), or have no ($B = 0.512$; $p < .001$), one ($B = 0.436$; $p < .001$), or two comorbidities ($B = 0.380$; $p < .001$); they were also less likely to be employed full-time ($B = -0.803$; $p < .001$).

Discussion

Sitting time behaviour among Atlantic Canadians was found to be lower than the Canadian average reported by the CHMS (2). This is likely due to the self-report measures used to assess sitting time. However, when categorized into low, moderate and high levels of sitting time, analyses revealed some significant differences in sitting time based on demographic and

medical variables. Results suggest that those engaging in more sitting time behaviours are unmarried, more educated, employed full-time, obese, have a higher income, and three or more comorbidities. Recent reviews of the correlates of sedentary behaviour revealed mixed results for characteristics such as age, sex, education level, employment status, income, ethnicity, marital status, smoking behaviour, alcohol use, and body mass index (1, 6, 7). One reason for the mixed results may be the variety of measures used to assess the sedentary behaviours. Some studies measured TV or screen-time behaviour specifically, while others measured general sitting behaviour. Future research should attempt to use measures that break down specific sitting behaviours to allow more detailed examination. For example, an intervention targeting sitting time at work would be very different from one targeting TV viewing time at home. There are many variables that may influence sitting time in either place and research to date is inconsistent as to which correlates are significant. Clearly, more correlate research is needed to determine what sociodemographic and medical characteristics are important to consider when targeting sedentary behaviour.

References

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Table 1. Demographic and medical correlates of sitting time among Atlantic Canadians

	Sitting time in hours			P value
	4 hour or less	>4 to <7 hours	7+ hours	
Province				
Nova Scotia	5135 (33.9)	5486 (36.2)	4536 (29.9)	<.001
New Brunswick	1951 (25.4)	3057 (39.8)	2667 (34.7)	
Newfoundland & Labrador	1102 (29.2)	1478 (39.2)	1192 (31.6)	
Prince Edward Island	276 (28.2)	373 (38.1)	330 (33.7)	
Sex				
Male	2602 (30.2)	3215 (37.3)	2806 (32.5)	.09
Female	5886 (30.9)	7208 (37.9)	5945 (31.2)	
Age				
30-49	2730 (26.5)	3974 (38.5)	3611 (35.0)	<.001
50-59	2893 (29.2)	3726 (37.6)	3285 (33.2)	
60+	2865 (38.5)	2723 (36.6)	1855 (24.9)	
Ethnicity				
White	7510 (30.6)	9215 (37.5)	7822 (31.9)	.15
Not white	491 (28.4)	664 (38.4)	575 (33.2)	
Marital Status				
Married/Common Law	6995 (31.7)	8352 (37.8)	6745 (30.5)	<.001
Not married	1465 (26.7)	2035 (37.1)	1987 (36.2)	

Education level				
High School or less	1765 (36.0)	1772 (36.1)	1370 (27.9)	<.001
Postsecondary	6698 (29.5)	8618 (38.0)	7359 (32.5)	
Income				
Less than 75,000	3754 (33.7)	4007 (36.0)	3362 (30.2)	<.001
75,000 or more	3877 (28.0)	5378 (38.9)	4582 (33.1)	
Employment status				
Full time	4027 (23.9)	6581 (39.1)	6242 (37.0)	<.001
Part time	1029 (40.0)	945 (36.7)	601 (23.3)	
Retired	2163 (43.2)	1804 (36.0)	1044 (20.8)	
Not employed	1115 (38.5)	972 (33.6)	810 (28.0)	
Alcohol behaviour				
Never drink	555 (32.2)	586 (34.0)	582 (33.8)	.004
<Once a week	3445 (30.3)	4245 (37.3)	3693 (32.4)	
1-3 per week	2547 (30.1)	3301 (39.0)	2610 (30.9)	
4+ per week	1350 (30.0)	1721 (38.3)	1423 (31.7)	
Smoking status				
Current non-smoker	7632 (30.8)	9372 (37.9)	7751 (31.3)	<.001
Current smoker	780 (28.8)	980 (36.2)	947 (35.0)	
Body Mass Index				
Underweight (<18.5)	59 (33.9)	62 (35.6)	53 (30.5)	<.001
Normal weight (18.5-24.9)	2477 (33.7)	2785 (37.9)	2089 (28.4)	
Overweight (25.0-29.9)	2643 (31.0)	3251 (38.1)	2644 (31.0)	
Obese (\geq 30)	2466 (28.3)	3263 (37.5)	2975 (34.2)	
Comorbidities ^a				
None	3099 (30.5)	3860 (38.0)	3186 (31.4)	<.001
One	2822 (30.9)	3498 (38.3)	2814 (30.8)	
Two	1596 (31.3)	1905 (37.4)	1593 (31.3)	
Three	625 (29.4)	775 (36.4)	727 (34.2)	
Four or more	346 (29.8)	385 (33.1)	431 (37.1)	

Note: ^a this index includes an extensive list of comorbidities recorded