Improved obesity prevalence estimates for Atlantic Canada

Dear Editor:

According to the World Health Organization, with 500 million obese adults and over 42 million overweight children under the age of five, obesity is among the most serious public health challenges of this century.^{1,2} Most estimates of obesity rely on self-reported data, which are susceptible to error and biases. Canadian researchers demonstrated with correction equations based on measured data that error and bias result in an underestimation of obesity prevalence.³ The purpose of this study was to determine the prevalence of obesity in Atlantic Canada based on corrected Canadian Community Health Survey (CCHS) 2007-2008 Statistics Canada data.

To obtain corrected body mass index (BMI) estimates for the 17,126 eligible Atlantic Canadian CCHS respondents, we used Murray et al.'s correction method,⁴ which is based on Connor Gorber et al.'s Model 4 for the Canadian general population.³ Provincial-level BMI prevalence distributions for self-reported and corrected data are shown in Table 1. Without exception, corrected obesity estimates were higher than those self-reported, with most of the differences reaching statistical significance ($p < 0.05$). Pre-correction percentages of obesity ranged from 21.2% to 25.8% for men and 21.1% to 23.3% for women. The equivalent post-correction percentages were 30.1% to 33.5% for men and 27.0% to 29.2% for women. Both prior to and following the correction for bias and error, Newfoundland and Labrador (NL) had the highest provincial prevalence of obesity in the Atlantic region, but there was no statistical difference between NL and the other provinces of interest. There are a few limitations of the correction method used in this study, which are discussed elsewhere.⁴

The marked upward shift in the post-correction prevalence of obesity in Atlantic Canada for both sexes mirrors the same pattern seen in recent national and international studies.^{3,5-9} As compared to the country as a whole, corrected adult obesity estimates were very high in Atlantic Canada, reaching a peak of 33.5% for males and 29.2% for females. Using the same correction method as the current study, Shields et al.⁵ recently found corrected obesity estimates of 24.5% for Canadian men and 22.1% for Canadian women. The elevated estimates have important implications for researchers, who investigate prevalence trends and health consequences of obesity, as well as public health practitioners and policy-makers who rely on this research to provide evidence-informed practice. For example, if obesity prevalence rates are higher than previously believed, then the associations between obesity and chronic diseases may be inflated.^{3,10}

In closing, the use of correction equations has been recommended in Statistics Canada publications, although these equations need to be monitored and updated as needed.^{3,5} With the use of an effective correction equation⁴ that is based on a currently stable amount of bias⁵ and a very large sample size ($n = 17,126$), this study is the first of its kind to provide corrected obesity estimates for the Atlantic provinces of Canada. The study revealed a significant increase between existing self-reported obesity estimates and corrected estimates based on measured data, especially among men in all of the Atlantic provinces.

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Table 1. Self-reported and corrected BMI prevalence distribution, by province and sex, household population age 18 years or older

BMI category (range kg/m ²)	Newfoundland and Labrador		Nova Scotia		Prince Edward Island		New Brunswick	
	Self-reported %	Corrected %	Self-reported %	Corrected %	Self-reported %	Corrected %	Self-reported %	Corrected %
Both sexes								
Underweight (<18.5)	7.7	6.6	6.2	5.6	6.1	5.5	7.1	6.7
Normal weight (18.5 to 24.9)	32.4	33.4	35.5	37.1	36.6	36.9	36.0	36.0
Overweight (25.0 to 29.9)	36.0	39.4	36.3	37.7	35.0	39.2	35.6	36.8
Obese (30.0 or more)	23.9	30.3	22.1	29.7	22.3	28.5	21.4	29.1
Males								
Underweight (<18.5)	5.8	5.3	4.2	4.1	4.0	3.9	5.7	5.7
Normal weight (18.5 to 24.9)	28.4	28.4	31.0	31.5	29.0	29.7	29.4	29.4
Overweight (25.0 to 29.9)	40.0	41.8	43.6	44.2	45.8	46.3	43.3	43.2
Obese (30.0 or more)	25.8	33.5	21.4	30.2	21.2	30.1	21.6	30.4
Females								
Underweight (<18.5)	9.5	7.9	8.0	6.9	8.1	6.9	8.4	7.6
Normal weight (18.5 to 24.9)	36.1	37.6	39.7	32.2	43.7	33.5	42.2	33.9
Overweight (25.0 to 29.9)	32.3	37.1	29.6	31.7	24.9	32.7	28.3	30.6
Obese (30.0 or more)	22.2	27.4	22.7	29.2	23.3	27.0	21.1	27.9

Data source: 2007-2008 Canadian Community Health Survey, Statistics Canada.

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