

## **5 Food security status of Ontario households, in relation to key socio-demographic characteristics**

### **5.1 Introduction**

In June, 2007, Health Canada released a report entitled ‘Canadian Community Health Survey, Cycle 2.2, Nutrition (2004) - Income-Related Household Food Security in Canada’ (5). This was the first report in Canada to provide national and provincial estimates of income-related food security at the household, adult and child level, derived from a standardized multiple-indicator measure of food security. Accompanying the report were supplementary data tables that provide detailed information on the income-related food security status of households in each of the 10 Canadian provinces and the Atlantic and Prairie regions (58). Information on food security status was also presented according to selected socio-demographic variables.

As reported by Health Canada, 9.2% (CI: 8.6, 9.8) of all households in Canada in 2004 experienced food insecurity sometime within the previous 12 months. Of these households, 6.3% (CI: 5.8, 6.8) were moderately food insecure whereas 2.9% (CI: 2.6, 3.2) were severely food insecure. In Ontario, 8.4% (CI: 7.5, 9.2) of all households were food insecure; 5.6% (CI: 5.0, 6.3) were moderately so, and 2.7% (CI: 2.2, 3.2) were severely so (5).

Building on the findings for Ontario presented in the Health Canada report, we undertook three additional analyses. Using the data from the Ontario Share File of the CCHS 2.2 (2004), we examined the regional variation in household food security in the province, conducted multivariate analyses to identify key socio-demographic correlates of household food insecurity, and examined the relationship between household food security status and body weight status among adults and children.

In this chapter, we begin with a brief overview of the measurement of household food insecurity in CCHS 2.2 and the results presented for Ontario. We then outline the methods applied in our examination of the food security data collected in this survey, and present our findings.

### **5.2 Methods**

The analyses described here were intended to build on the descriptive statistics on the food security status of the Ontario population, published by Health Canada (58). We examined the regional variation in household food security in the province, conducted multivariate analyses to identify key socio-demographic correlates of household food insecurity, and examined the relationship between household food security status and body weight status among adults and children.

### 5.2.1 Determining Food Security Status:

The food security situation experienced by adults, children, and households overall was described using three categories: (i) food secure; (ii) food insecure, moderate; and (iii) food insecure, severe. Both the terminology applied and the thresholds used to determine food security status by Health Canada differ from the U.S. standard methods in a number of important ways. For a full discussion of this issue, refer to the Health Canada report, ‘Canadian Community Health Survey, Cycle 2.2, Nutrition (2004) - Income-Related Household Food Security in Canada’ (5). In this report, we have followed Health Canada’s system of analysis and interpretation.

The 10 adult-referenced questions (the ‘Adult Food Security Scale’) were used to determine the food security status among adults, and the 8 child-referenced questions (the ‘Child Food Security Scale’) were used to determine the food security status among children. If a household had no children, then the adult food security status was also household food security status. When both adults and children were present in a household, the results of the analysis of both scales were considered in determining the household food security status. The household was considered **food secure** if both adults and children in the household were food secure. The household was considered **moderately food insecure** if either adults or children, or both adults and children, in the household, were moderately food insecure, and neither was severely food insecure. A household was considered **severely food insecure** if either adults or children in the household were severely food insecure.

The food security status of child and adult members of the household was determined by the number of questions in the HFSSM that the respondent answered affirmatively on behalf of the household, giving an indication of the number of food-insecure conditions experienced by the household. Depending on the structure of allowable responses to the individual questions, a response was considered affirmative if the respondent indicated (i) “yes”; (ii) “often” or “sometimes”; or (iii) “almost every month” or “some months but not every month”. If no more than one item in the adult or child scale was affirmed, this resulted in a determination of **food secure**. Affirmation of 2 to 5 items in the adult scale or 2 to 4 items in the child scale resulted in a determination of **food insecure, moderate**. Affirmation of 6 or more items in the adult scale or 5 or more items in the child scale resulted in a determination of **food insecure, severe**. This coding scheme is illustrated in **Table 50**.

**Table 50. Determination of Food Security Status in CCHS 2.2 (2004).**

<b>Food Security Status</b>		
<b>Category Labels</b>	<b>Category Description</b>	
	<b>10-Item Adult Food Security Scale</b>	<b>8-Item Child Food Security Scale</b>
<b>Food Secure</b>	<b>No more than one indication of difficulty with income-related food access 0 or 1 affirmative responses</b>	<b>No more than one indication of difficulty with income-related food access 0 or 1 affirmative responses</b>
<b>Food Insecure, Moderate</b>	<b>Indication that the quality and/or quantity of food consumed has been compromised 2 to 5 affirmative responses</b>	<b>Indication that the quality and/or quantity of food consumed has been compromised 2 to 4 affirmative responses</b>
<b>Food Insecure, Severe</b>	<b>Indication of disrupted eating patterns and a reduction in food intake 6 or more affirmative responses</b>	<b>Indication of disrupted eating patterns and a reduction in food intake 5 or more affirmative responses</b>

### 5.2.2 Statistical Analysis:

In order to provide prevalence estimates representative of the Ontario population in 2004, survey expansion weights were applied in the analysis of the data. As the food security questions asked in the CCHS 2.2 refer to the situation in the household, weights designed for household level analyses were used to generate the findings (**Tables 51-54**). The use of these weights results in estimates of the *number of households* experiencing food insecurity. Weights designed for person-level analyses were used to generate the findings presented in **Table 55** which relate to the body weight status of the individual.

Building on the descriptive statistics presented for household food insecurity in relation to socio-demographic characteristics in Ontario (58), multivariate analyses were undertaken to identify the socio-demographic characteristics of households most likely to report food insecurity. Five household level variables were considered: health region, household type, household income adequacy, main source of household income, and home ownership (see Appendix B for definitions). Binary logistic regression was used to examine the odds of experiencing food insecurity, as opposed to food security, in relation to specific socio-demographic characteristics, when all of these characteristics were taken into consideration. Similar analytic approaches have been employed in previous analyses of indicators of food insecurity on other national surveys in Canada (59-61). For the logistic regression analyses presented here, the reference category for each variable was that category with the largest sample size. The adjusted odds ratios represent the effect of a given variable, after adjusting for all the other variables in the model (that is, taking all the other variables into consideration).

A bootstrap variance estimation method and weights, both supplied by Statistics Canada, were used to calculate 95% confidence intervals and coefficients of variation. Statistical significance of differences in proportions reported was determined by non-overlapping confidence intervals, considered statistically significant with 95% confidence. Statistical significance of odds ratios generated by logistic regression analyses, were determined by confidence intervals that did not include unity and are considered statistically significant with 95% confidence.

### **5.2.3 Treatment of missing values:**

For the purpose of the regression analysis presented in **Table 55**, missing values for variables other than ‘Household income adequacy’ were dropped from the analysis. Hence, these values were also dropped from the analysis of proportions of food secure and food insecure presented in this table. Approximately 3.6% of the values for the ‘main source of household income’, 0.03% of the values for ‘Home ownership’, and 0.5% of the values for ‘Household type’ were missing. The proportion of missing values for ‘Household income adequacy’ was 10.7% and therefore, the ‘not stated’ category was included in the analysis for this variable. (Note: This differs from the approach used in the section entitled ‘Examination of weight status of Ontario children and adults, in relation to key socio-demographic and lifestyle characteristics’, where for any variable with  $\geq 2\%$  of missing responses, a category for ‘missing’ was presented in the tables, and a footnote was included to indicate the percent of missing values. In the analyses presented here, small cell sizes would have precluded the presentation of data for ‘missing’ responses to major income source.)

### **5.2.4 Body Weight Status:**

Weight status has been defined using standard body mass index (BMI) categories for adults 18 years of age or older (50), and the Cole system of BMI classification for individuals aged 2 to 17 years (9), as described in the section entitled ‘Weight status of Ontario children and adults, in relation to key socio-demographic and lifestyle characteristics’. BMI is calculated as weight (kg)/height<sup>2</sup> (m<sup>2</sup>).

Our examination of weight status is based solely on measured data for height and weight. Measured data are available for 53.5% of respondents 2 years of age and older, and BMI is available for 53.1%. (BMI is not calculated for pregnant women). Data for BMI based on self-reported height and weight are available for almost all of the remaining participants, but such data are known to underestimate the prevalence of overweight and obesity (51-53). Thus, data from participants with only self-reported height and weight were not included in the analyses presented here.

### 5.3 Findings

In general, the prevalence of household food insecurity in Ontario (8.4%) reflects that at the national level (9.2%). Furthermore, with respect to socio-demographic variables for which a direct comparison between the provincial and national estimates can be made (household income adequacy, main source of household income, home ownership), the proportions of households experiencing food insecurity are similar, whether estimated at the national level or at the level of Ontario.

#### 5.3.1 Variation in Income-Related Household Food Security at the level of Health Region:

Although the prevalence of household food insecurity was 8.4% (CI: 7.5, 9.2) in the province overall, there is considerable regional variation (**Table 51**). The highest levels of household food insecurity were reported for the Toronto (**10.1%**; CI: 7.8, 12.5) and North Ontario (**9.7%**; CI: 7.4, 12.0) health regions and the lowest was reported in the South West (**6.9%**; CI: 5.4, 8.3) and Central East (**6.9%**; CI: 4.8, 9.0) health regions. In other words, 1 in 10 households in the Toronto and North Ontario health regions experienced some degree of income-related food insecurity during the year, whereas approximately 1 in 15 households in South West and Central East health regions experienced some degree of income-related food insecurity during this same period.

Similarly, adult-level food insecurity was highest in Toronto (**9.7%**; CI: 7.4, 12.0) and North Ontario (**9.6%**; CI: 7.3, 11.8) and lowest in the South West (**6.8%**; CI: 5.4, 8.3) and Central East (**6.8%**; CI: 4.7, 8.9) health regions. Estimates of child-level food insecurity by region and estimates of prevalence in the ‘severe’ category are either of marginal or unacceptable quality. Food security rates were also examined at the level of local health integration networks (LHIN) and these data are presented in Appendix J.

**Table 51. Income-related household food security, by health region, Ontario, 2004.**

		Income-Related Household Food Security Status											
		Food Secure			Food Insecure								
		All			All			Moderate			Severe		
		N	%	95% CI	N	%	95% CI	N	%	95% CI	N	%	95% CI
Ontario†	Household status	4,163,200	91.7	90.8, 92.5	379,100	8.4	7.5, 9.2	255,700	5.6	5.0, 6.3	123,400	2.7	2.2, 3.2
	Adult status	4,178,600	91.9	91.0, 92.7	370,600	8.2	7.3, 9.0	247,900	5.5	4.8, 6.1	122,700	2.7	2.2, 3.2
	Child status	1,507,800	95.1	94.2, 96.0	77,900	4.9	4.0, 5.8	73,000	4.6	3.7, 5.5	F	F	F
<b>Health Region</b>													
South West	Household status	540,800	93.1	91.7, 94.6	39,800	6.9	5.4, 8.3	27,000	4.7	3.5, 5.8	12,800	2.2 E	1.3, 3.1
	Adult status	541,000	93.2	91.7, 94.6	39,600	6.8	5.4, 8.3	26,800	4.6	3.5, 5.8	12,800	2.2 E	1.3, 3.1
	Child status	182,700	97.1	95.8, 98.3	5,600	3.0 E	1.7, 4.2	5,600	3.0 E	1.7, 4.2	--	--	--
Central South	Household status	430,600	92.1	90.1, 94.1	37,200	8.0	6.0, 10.0	28,600	6.1	4.5, 7.8	**	**	**
	Adult status	431,000	92.1	90.1, 94.1	36,800	7.9	5.9, 9.9	28,400	6.1	4.4, 7.7	**	**	**
	Child status	153,600	96.2	94.4, 97.9	6,100	3.9 E	2.1, 5.6	5,400	3.4 E	1.7, 5.1	F	F	F
Central West	Household status	685,200	92.2	90.4, 94.1	57,800	7.8	5.9, 9.6	43,300	5.8	4.2, 7.4	14,500	2.0 E	1.0, 3.0
	Adult status	685,800	92.3	90.5, 94.2	57,200	7.7	5.9, 9.5	42,900	5.8	4.2, 7.4	14,300	1.9 E	0.9, 2.9
	Child status	268,900	96.0	93.8, 98.2	11,300	4.0 E	1.8, 6.2	10,400	3.7 E	1.5, 5.9	F	F	F
Central East	Household status	715,900	93.1	91.0, 95.2	53,000	6.9	4.8, 9.0	33,400	4.3 E	2.9, 5.8	19,600	2.6 E	1.1, 4.0
	Adult status	716,800	93.2	91.1, 95.3	52,100	6.8	4.7, 8.9	32,500	4.2 E	2.8, 5.7	19,600	2.6 E	1.1, 4.0
	Child status	280,600	95.8	93.8, 97.9	12,200	4.2 E	2.1, 6.2	11,900	4.1 E	2.0, 6.1	F	F	F
Toronto	Household status	903,000	89.9	87.5, 92.2	101,900	10.1	7.8, 12.5	66,200	6.6	4.9, 8.3	35,700	3.6 E	2.1, 5.0
	Adult status	907,200	90.3	88.0, 92.6	97,800	9.7	7.4, 12.0	62,100	6.2	4.5, 7.8	35,700	3.6 E	2.1, 5.0
	Child status	325,800	92.9	90.4, 95.4	24,900	7.1 E	4.6, 9.6	23,300	6.7 E	4.3, 9.1	F	F	F
East Ontario	Household status	584,000	91.3	89.0, 93.6	55,500	8.7	6.4, 11.0	36,900	5.8	3.9, 7.6	18,500	2.9 E	1.7, 4.1
	Adult status	585,700	91.6	89.2, 94.0	53,800	8.4	6.0, 10.8	35,600	5.6 E	3.6, 7.5	18,200	2.9 E	1.6, 4.1
	Child status	203,000	94.7	92.3, 97.4	11,100	5.2 E	2.7, 7.7	**	**	**	F	F	F
North Ontario	Household status	314,700	90.3	88.0, 92.6	33,900	9.7	7.4, 12.0	20,200	5.8	4.2, 7.4	13,700	3.9 E	2.3, 5.5
	Adult status	315,300	90.4	88.2, 92.7	33,300	9.6	7.3, 11.8	19,700	5.6	4.1, 7.2	13,700	3.9 E	2.3, 5.5
	Child status	105,200	93.9	91.6, 96.3	6,800	6.1 E	3.7, 8.4	6,400	5.7 E	3.4, 8.1	F	F	F

† The estimates for the province of Ontario are from the report 'Income-Related household food Security in Canada' (ref).

\*\* Data with a cell size less than 25 has been suppressed.

Estimates accompanied by an **E** are considered of marginal quality. The reader is advised to 'use with caution'.

Estimates replaced by an **F** are considered of unacceptable quality. These estimates are 'too unreliable to be published'.

Sampling weights were used with the CCHS 2.2 data to produce population estimates.

### 5.3.2 Variation in Income-Related Household Food Security by Selected Socio-demographic Characteristics:

**Table 52** presents the percentages of Ontario households in 2004 that experienced food insecurity or food security, by various categories of household-level socio-demographic variables, and the odds of experiencing food insecurity associated with these categories, when all the other factors are taken into consideration. The adjusted analysis, also called multivariate analysis, permitted us to examine the simultaneous effects of these factors.

The adjusted odds ratios for being food insecure, based on residence in a specific health region, with reference to the Central West region, are close to unity for most regions. The two notable exceptions are the South West (OR=0.67; CI: 0.45, 0.99) and Toronto (OR=0.67; CI: 0.45, 1.02) regions. For the South West region this odds ratio is barely significant, whereas for the Toronto region it is not significant. Thus, although the Toronto region has some of the highest, and statistically significant, levels of household food insecurity of any health region (**Table 51**), once household type, household income adequacy, main source of household income, and home ownership were taken into consideration, the likelihood of experiencing food insecurity was no greater for a household in the Toronto region than one in the South West region (which reported some of the lowest levels of household food insecurity).

In this model, household type did not have a significant impact on the odds of experiencing household food insecurity. In spite of there being a significantly higher proportion of single parent households (**16.3%**; CI: 13.4, 19.3) than those of couples with children (**6.1%**; CI: 5.0, 7.2) that experienced food insecurity in 2004, there was no difference in the odds of experiencing food insecurity between these two categories, once the other variables were taken into consideration.

Similar to the picture nationally, the prevalence of food insecurity in Ontario increased as income adequacy declined (1). The proportions of households in Ontario that experienced household food insecurity in the highest, upper middle, middle, lower middle, and lowest categories of household income adequacy were **1.8%** (CI: 1.2, 2.5), **5.2%** (CI: 4.0, 6.3), **14.4%** (CI: 12.2, 16.7), **30.4%** (CI: 25.3, 35.6), and **47.2%** (CI: 37.8, 56.7), respectively. These estimates are very similar to those generated at the national level (**Table 53**). In support of these findings, the multivariate regression analysis of the Ontario data shows that household income adequacy continued to have an independent and statistically significant impact on the odds of experiencing household food insecurity in Ontario, that is, even while taking into account the other factors in the model (**Table 52**). In those analyses, as stated earlier, the reference, or comparison, category is the one with the largest number of respondents. (In the case of household income adequacy, the upper middle category had the most respondents). The strongest finding was that the odds of experiencing food insecurity for a household in the lowest category of income adequacy was seven times as high (OR=6.9; CI: 3.98, 11.96) as that of a household in the upper middle income adequacy category (OR=6.9; CI: 3.98, 11.96). The odds of experiencing food insecurity for a household in the lower middle category of income adequacy was five

times (OR=5.00; CI: 3.35, 7.44) and one in the middle category was two and a half times (OR=2.57; CI: 1.89, 3.50) that of a household in the upper middle income adequacy category. Conversely, the odds of experiencing food insecurity for a household in the highest category of household income adequacy was less than half (OR=0.40; 0.25, 0.63) that of a household in the upper middle category.

The odds of being food insecure differed significantly by main source of income, highlighting the particular vulnerability of some discrete subgroups. In Ontario, the highest prevalence of food insecurity occurred in households in which the main source of income was social assistance, a categorization that includes both Ontario Works and the Ontario Disability Support Program. This estimate is very similar to that generated at the national level (**Table 53**). In Ontario, over 60% of households where the main source of income was social assistance (**61.1%** (CI: 52.8, 69.5)) experienced food insecurity, and in Canada, this number was **59.7%** (CI: 54.8, 64.6). In Ontario, the proportion of food insecure households where the main source of income was social assistance was significantly higher than the proportions of food insecure households where the main sources of income were either salary or wages (**6.5%**; CI: 5.8, 7.3) or pensions or seniors' benefits (**5.1%**; CI: 3.6, 6.7) (**Table 52**). The multivariate regression analysis shows that the main source of household income continued to have a strong and statistically significant impact on the odds of experiencing household food insecurity in Ontario, even while taking the other factors into account (**Table 52**). A key finding of the regression analysis was that the odds of experiencing food insecurity for a household that was reliant on social assistance for its income was 3.69 (CI 2.33, 5.84) times that of a household that relied on salary or wages as its main source of household income. On the other hand, the odds of experiencing food insecurity for households where the main source of income was pension or seniors' benefits, was less than half (OR= 0.44; CI: 0.29, 0.67) that of a household that relied on salary or wages as its main source of household income.

An examination of the distribution of food secure and food insecure households in Ontario by income source provides another window into this problem (**Table 54**). Twenty-three percent of food insecure households were reliant on social assistance, compared to just 1% of food secure households, a finding that again highlights the extraordinary vulnerability of households reliant on these programs. However, it is also important to note that most food-insecure households (55%) were reliant on salaries or wages for their incomes.

In Ontario, not owning a dwelling was also related to higher rates of food insecurity, with approximately one in five (**19.9%**; CI: 17.7, 22.2) of these households considered food insecure, compared with only **3.5%** (CI: 3.0, 4.1) of households where the dwelling was owned. The provincial estimates were very similar to those generated at the national level (**Table 53**). As with household income adequacy and main source of household income, the multivariate analysis shows that home ownership continued to have a strong and statistically significant impact on the odds of experiencing household food insecurity in Ontario, even while taking the other factors into account (**Table 52**). For households in Ontario that did not own their dwellings, the odds of experiencing food insecurity was 2.94 (CI: 2.28, 3.79; **Table 52**) times that of a household that did own their dwelling.

In sum, the results of the multivariate analysis delineate three potent socio-demographic correlates of household food insecurity in Ontario: low income adequacy, social assistance as the main source of income, and not owning one's dwelling. These findings are consistent with other published examinations of the socio-demographic correlates of household food insecurity in Canada (59-61).

**Table 52. Selected socio-demographic characteristics of Ontario households by food security status, 2004.**

	N	% Food Secure	95% CI	% Food Insecure	95% CI	Adjusted OR for reporting food insecurity <sup>‡</sup>	95% CI
<b>Ontario</b>	4,553,500	91.7	90.8, 92.5	8.4	7.5, 9.2	---	---
<b>Health Region</b>							
South West	540,800	93.1	91.7, 94.6	6.9	5.4, 8.3	0.67*	0.45, 0.99
Central South	430,600	92.1	90.1, 94.1	8.0	6.0, 10.0	0.93	0.59, 1.45
Central West <sup>†</sup>	685,200	92.2	90.4, 94.1	7.8	5.9, 9.6	1.00	...
Central East	715,900	93.1	91.0, 95.2	6.9	4.8, 9.0	1.07	0.67, 1.70
Toronto	903,000	89.9	87.5, 92.2	10.1	7.8, 12.5	0.67	0.45, 1.02
East	584,000	91.3	89.0, 93.6	8.7	6.4, 11.0	0.96	0.62, 1.49
North	314,700	90.3	88.0, 92.6	9.7	7.4, 12.0	0.96	0.60, 1.54
<b>Main source of household income</b>							
Salary/Wages <sup>†</sup>	3,150,300	93.5	92.7, 94.2	6.5	5.8, 7.3	1.00	...
Social assistance	143,200	38.9	30.5, 47.2	61.1	52.8, 69.5	3.69*	2.33, 5.84
Worker's compensation /Employment insurance	33,000	74.1	59.7, 88.4	**	**	1.76	0.63, 4.98
Pensions/Seniors/ benefits	923,200	94.9	93.3, 96.4	5.1	3.6, 6.7	0.44*	0.29, 0.67
Other	159,100	88.1	83.6, 92.6	11.9 E	7.5, 16.4	0.94	0.55, 1.60
<b>Household income adequacy</b>							
Lowest	133,500	52.8	43.3, 62.2	47.2	37.8, 56.7	6.90*	3.98, 11.96
Lower middle	278,000	69.6	64.4, 74.7	30.4	25.3, 35.6	5.00*	3.35, 7.44
Middle	777,000	85.6	83.3, 87.8	14.4	12.2, 16.7	2.57*	1.89, 3.50
Upper middle <sup>†</sup>	1,404,900	94.8	93.7, 96.0	5.2	4.0, 6.3	1.00	...
Highest	1,513,900	98.2	97.5, 98.8	1.8 E	1.2, 2.5	0.40	0.25, 0.63
Not stated	446,200	95.7	94.4, 97.1	4.3	2.9, 5.6	0.81	0.49, 1.34

**Table 52 (continued). Selected socio-demographic characteristics of Ontario households by food security status, 2004.**

	N	% Food Secure	95% CI	% Food Insecure	95% CI	Adjusted OR for reporting food insecurity‡	95% CI
<b>Household Type</b>							
Couple with children < 25 years old, with or without others†	1,464,600	93.9	92.8, 95.0	6.1	5.0, 7.2	1.00	...
Single	1,304,600	88.5	86.4, 90.5	11.5	9.5, 13.6	0.98	0.68, 1.40
Single parent, children < 25 years old	368,100	83.7	80.7, 86.6	16.3	13.4, 19.3	0.99	0.68, 1.44
Couple alone	1,111,500	96.2	95.0, 97.3	3.8	2.7, 5.0	0.81	0.54, 1.19
Other household types	285,300	88.4	84.3, 92.5	11.6 <b>E</b>	7.5, 15.7	1.62	0.96, 2.71
<b>Home ownership</b>							
Own dwelling†	3,222,000	96.5	95.9, 97.1	3.5	3.0, 4.1	1.00	...
Do not own dwelling	1,329,900	80.1	77.8, 82.3	19.9	17.7, 22.2	<b>2.94*</b>	2.28, 3.79

Abbreviations: OR, odds ratio; CI, confidence interval.

\* Significantly different from estimate for reference category ( $p < 0.05$ ).

† Reference category. For each variable, the category with the largest sample size is designated as the reference category.

‡ Adjusted for other variables listed in table.

... Not applicable.

\*\* Data with a cell size less than 25 have been suppressed.

Estimates accompanied by an **E** are considered of marginal quality. The reader is advised to 'use with caution'.

Estimates replaced by an **F** are considered of unacceptable quality. These estimates are 'too unreliable to be published'.

Due to rounding, some confidence intervals for significant odds ratios may appear to include the null value (1.00).

Sampling weights were used with the CCHS 2.2 data to produce population estimates.

**Table 53. Rates of food insecurity by selected socio-demographic variables: Ontario and Canada<sup>1</sup>.**

	Ontario		Canada	
	% Food Insecure	95% CI	% Food Insecure	95% CI
<b>Overall</b>	8.4	7.5, 9.2	9.2	8.6, 9.8
<b>Household income adequacy</b>				
Lowest	47.2	37.8, 56.7	48.3	43.5, 53.2
Lower middle	30.4	25.3, 35.6	29.1	25.9, 32.3
Middle	14.4	12.2, 16.7	13.6	12.2, 14.9
Upper middle	5.2	4.0, 6.3	5.2	4.5, 5.9
Highest	1.8	1.2, 2.5	1.3	1.0, 1.7
Not stated	5.0	3.7, 6.3	4.3	2.9, 5.6
<b>Main source of household income</b>				
Salary/Wages	6.5	5.8, 7.3	7.3	6.7, 7.9
Social assistance	61.1	52.8, 69.5	59.7	54.8, 64.6
Worker's compensation /Employment insurance	**	**	59.0	20.7, 37.3
Pensions/Seniors/benefits	5.1	3.6, 6.7	4.9	3.9, 5.9
Other	11.9 E	7.5, 16.4	12.4	9.2, 15.6
<b>Home ownership</b>				
Own dwelling	3.5	3.0, 4.1	3.9	3.5, 4.3
Do not own dwelling	19.9	17.7, 22.2	20.5	19.0, 22.0

1. The national data is reproduced from the report entitled 'Canadian community Health Survey cycle 2.2, Nutrition (2004): Income-related household food security in Canada' (1).

\*\* Data with a cell size less than 25 have been suppressed.

Estimates accompanied by an **E** are considered of marginal quality. The reader is advised to 'use with caution'.

Sampling weights were used with the CCHS 2.2 data to produce population estimates.

**Table 54. Household food security status by main source of household income, Ontario, 2004.**

	<b>Food Secure</b>		<b>Food Insecure</b>	
<b>N</b>	4,163,200		379,100	
<b>Main source of household income</b>	<b>%</b>	<b>95% CI</b>	<b>%</b>	<b>95% CI</b>
Salary/Wages	70.5	(69.1, 71.9)	54.5	(49.5, 59.4)
Social assistance	1.3	(1.0, 1.6)	23.1	(18.2, 28.0)
Worker's compensation / Employment insurance	0.6 <b>E</b>	(0.4, 0.8)	**	**
Pensions/Seniors/ benefits	21.0	(19.7, 22.2)	12.6	(9.1, 16.0)
Other	3.4	(2.8, 3.9)	5.0 <b>E</b>	(3.1, 6.9)
Missing	3.2	(2.7, 3.7)	<b>F</b>	<b>F</b>

\*\* Data with a cell size less than 25 have been suppressed.

Estimates accompanied by an **E** are considered of marginal quality. The reader is advised to 'use with caution'.

Estimates replaced by an **F** are considered of unacceptable quality. These estimates are 'too unreliable to be published'.

Sampling weights were used with the CCHS 2.2 data to produce population estimates.

### 5.3.3 Variation in Body Weight Status by Income-Related Household Food Security:

Given concerns about the validity of self-reported weight and height data, the analysis of body weight status in relation to income-related household food security status was restricted to those survey participants for whom these variables had been measured. Imposing this restriction substantially diminished the sample size, however. The resultant estimates for all categories of food insecurity for men and women are of marginal or unacceptable quality, or suppressed due to small cell sizes. Only the category of ‘neither overweight nor obese’ for children and youth 2 to 17 years old yielded reliable estimates for overall food insecurity and moderate food insecurity (**Table 55**).

The results of this exploratory analysis indicate that the data available in the Ontario Share file from the CCHS 2.2 (2004) are too limited to draw conclusions about the relationship between body weight status and household food security status in Ontario. The prevalence estimates that are sufficiently reliable to report at all here do not suggest large differences in weight status between the food insecure and food secure groups, except perhaps in the case of men. However, no conclusions can be drawn in the context of such limited data.

**Table 55. Body weight status, based on measured height and weight, by categories of income-related household food security, Ontario, 2004.**

	Body Weight Status								
	Normal			Overweight			Obese		
	N	%	95% CI	N	%	95% CI	N	%	95% CI
<b>Men</b>									
<b>Secure</b>	1,403,100	32.6	27.9, 37.3	1,833,500	42.6	37.9, 47.3	1,003,100	23.3	19.3, 27.3
<b>Insecure</b>	172,300	<b>59.1 E</b>	38.4, 79.8	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>
Moderate	121,400	<b>56.1 E</b>	28.3, 83.8	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>
Severe	**	**	**	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>
<b>Women</b>									
<b>Secure</b>	1,889,200	44.3	40.0, 48.6	1,325,500	31.1	27.1, 35.1	923,900	21.7	18.6, 24.7
<b>Insecure</b>	178,400	<b>40.3 E</b>	26.6, 54.0	126,100	<b>28.5 E</b>	17.0, 40.0	119,100	<b>26.9 E</b>	16.4, 37.4
Moderate	160,100	<b>48.7 E</b>	32.2, 65.2	86,200	<b>26.2 E</b>	11.8, 40.6	67,900	<b>20.7 E</b>	10.2, 31.2
Severe	<b>F</b>	<b>F</b>	<b>F</b>	**	**	**	**	**	**
	<b>Neither overweight nor obese</b>			<b>Overweight</b>			<b>Obese</b>		
	<b>N</b>	<b>%</b>	<b>95% CI</b>	<b>N</b>	<b>%</b>	<b>95% CI</b>	<b>N</b>	<b>%</b>	<b>95% CI</b>
<b>Children and Youth</b>									
<b>Secure</b>	1,645,900	72.6	69.8, 75.3	436,000	19.2	16.8, 21.6	186,700	8.2	6.5, 9.9
<b>Insecure</b>	172,300	71.5	63.0, 80.1	40,500	<b>16.8 E</b>	9.4, 24.2	**	**	**
Moderate	136,900	71.4	61.8, 81.0	34,300	<b>17.9 E</b>	9.3, 26.5	**	**	**
Severe	**	**	**	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>

\*\* Data with a cell size less than 25 has been suppressed.

Estimates accompanied by an **E** are considered of marginal quality. The reader is advised to 'use with caution'.

Estimates replaced by an **F** are considered of unacceptable quality. These estimates are 'too unreliable to be published'.

Sampling weights were used with the CCHS 2.2 data to produce population estimates.

## 5.4 Summary and Conclusions

Based on the assessment of household food insecurity included in CCHS 2.2, an estimated 379,100 Ontario households (8.4%) were food insecure in 2004. Some insight into the factors that underpin this problem comes from the results of a multivariate analysis of household food insecurity in relation to a variety of household socio-demographic characteristics. Vulnerability to food insecurity is greatest among households with low income adequacy, those dependent on social assistance as the main source of income, and those who do not own their dwelling. The likelihood of food insecurity increased markedly as the adequacy of household income declined; almost half of those in the lowest category of income adequacy were food insecure. Further, 20% of households who did not own their dwellings were food insecure, and 60% of those on social assistance were food insecure. The multivariate analysis modified these relationships somewhat but they all remained strong, thus confirming that each has independent effects on household food insecurity. Compared to households where the main source of income was salary or wages, the odds of experiencing food insecurity was almost four times as high for households reliant on social assistance. That said, it is important to bear in mind that most food-insecure households in Ontario are not on social assistance – they are reliant on employment incomes.

The extraordinary vulnerability of households on social assistance to food insecurity suggests that further examination of the effects of the various component parts of this program is warranted. The way in which income source was coded on CCHS 2.2 made it impossible for us to differentiate social assistance recipients on Ontario Works (OW) from those on the Ontario Disability Support Program (ODSP). The higher benefit levels associated with ODSP might imply that households on this program are less vulnerable to food insecurity than those on OW, but further study is needed to establish this. It would also be valuable to assess the effect of the Special Diet Allowance on vulnerability to food insecurity.

Our initial examination of the prevalence of household food insecurity in relation to place, within the province of Ontario, indicated marked regional variation. The rate of households that experienced some degree of income-related food insecurity during 2004 ranged from 1 in 10 households in the Toronto and North Ontario health regions to 1 in 15 households in the South West and Central East health regions. Even more dramatic regional differences in prevalence appear when household food insecurity is considered in relation to the local health integration networks (LHINs), but the CCHS 2.2 survey was not designed to support analyses at that geographic level and sample size restrictions limit the reliability of the estimates derived. Furthermore, region of residence appeared less important when other socio-demographic characteristics were taken into consideration. In fact, the results of the multivariate analyses suggest that the observed regional variation in prevalence may be largely a function of the regional variations in income, income source, and home ownership.

While the provincial results from CCHS 2.2 appear similar to those for the country as a whole, it should be noted that as the most populous province, Ontario exerts a strong

influence on national statistics. An examination of the results for other provinces reveals considerable variation. It is noteworthy, for example, that only 48% of social assistance recipients in Quebec are food insecure, whereas 60% of those in Ontario are. While it is beyond the scope of this report to investigate inter-provincial differences, further exploration may be warranted as a means to identify effective policy and program responses.

The restriction of the foregoing examination of household food insecurity in relation to body weight status to the sub-sample of survey respondents with measured heights and weights limited our ability to generate reliable estimates of overweight and obesity among adults and children living in food insecure households. Thus while no striking differences in body weight status in relation to food security status are apparent from this exploration, no conclusions can be drawn from these estimates.

In summary, household food insecurity is a serious problem in Ontario, affecting as many as 1 in 10 households in some regions. These are low income households, but vulnerability is particularly acute among individuals and families relying on social assistance. This finding is consistent with the results of the income-expense comparisons that are routinely conducted in Public Health Units across the province. These comparisons, based on food costing data from the Nutritious Food Basket, consistently indicate that minimum wages and social assistance incomes are insufficient to cover the costs of basic needs for many recipients (62). Given the strong associations observed between household food security status and adults' and children's nutrient intakes in this survey (Chapter 3), there can be no question that household food insecurity is a serious public health concern in this province. The fact that this problem is so tightly linked to problems of income inadequacy highlights the need for a more thoughtful and effective alignment of both federal and provincial income support programs with basic living costs.

While some might argue that factors other than income could impact the food security status of low-income households, it is important to recognize that this has been a subject of extensive research (63-65). There is no evidence to support the contention, for example, that improved cooking skills or budgeting skills would enable families on very low incomes to avoid compromises in dietary quality or food deprivation. In addition, there is no indication that the use of community-based food support programs can alleviate problems of food insecurity rooted in inadequate incomes. While the charitable food assistance provided by food banks and other sorts of community programs is important for those who obtain it, the food provided is typically insufficient to compensate for the serious income deficits that lead people to seek charity in the first place. The solution to problems of household food insecurity resides in policy reforms to address the inadequacies of incomes for those reliant on social assistance or low-waged employment.

The use of different indicators of food security in earlier surveys makes it impossible to compare prevalence rates for household food insecurity over time, but this highlights the importance of repeating the measurement of household food insecurity on future population surveys, using consistent survey designs and identical measurement instruments. The only way to track progress on this important public health problem is with effective monitoring.