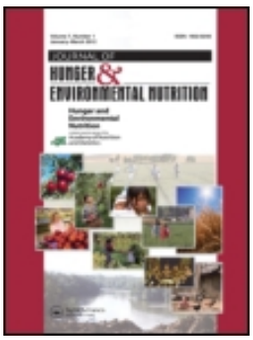

Taylor & Francis
Taylor & Francis Group

Journal of Hunger & Environmental Nutrition

ISSN: 1932-0248 (Print) 1932-0256 (Online) Journal homepage: https://www.tandfonline.com/loi/when20

Determinants of Food Insecurity in Higher-Income Households in Canada

Olayemi M. Olabiyi & Lynn McIntyre

To cite this article: Olayemi M. Olabiyi & Lynn McIntyre (2014) Determinants of Food Insecurity in Higher-Income Households in Canada, Journal of Hunger & Environmental Nutrition, 9:4, 433-448, DOI: 10.1080/19320248.2014.908450

To link to this article: https://doi.org/10.1080/19320248.2014.908450

Published online: 24 Nov 2014.

Journal of Hunger & Environmental Nutrition, 9:433–448, 2014

ISSN: 1932-0248 print/1932-0256 online
DOI: 10.1080/19320248.2014.908450

Taylor & Francis
Taylor & Francis Group

Determinants of Food Insecurity in Higher-Income Households in Canada

OLAYEMI M. OLABIYI[1] and LYNN MCINTYRE[2]

[1]*School of Business, Southern Alberta Institute of Technology Polytechnic, Calgary, Alberta, Canada*

[2]*Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada*

About 15% of all food insecure households in Canadian surveys are not income poor. Using pooled data from the nationally representative Canadian Community Health Survey, spanning the years 2005–2010, this study investigated risk factors for food insecurity in higher-income households. Food insecurity was increased among renters, single-parent households, and those with greater household size and where educational attainment was lower, unemployment benefits were received, chronic disease was present, and smoking and problem gambling occurred. Consideration of these factors may inform policies and programs that provide access to short-term income support for higher-income households as well as treatment for gambling and other addictions.

KEYWORDS food insecurity, high-income population, unemployment, smoking, gambling, Quebec

INTRODUCTION

Income-related household food insecurity, which is defined as the inadequate or insecure access to adequate food due to financial constraints,[1] has strong public health significance because of its well-recognized adverse physical and mental health effects on household members. One of the most perplexing issues related to household food insecurity is that not all poor

Address correspondence to Lynn McIntyre, Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, Teaching Research & Wellness (TRW), Building Room 3E14 (3rd Floor), 3280 Hospital Dr. NW, Calgary, AB, Canada T2N 4Z6. E-mail: lmcintyr@ucalgary.ca

households are food insecure, and not all food insecure households are poor. Specifically, a persistent finding in Canadian national household surveys is that about 15% of all food insecure households are not income poor.[2] This phenomenon is not exclusive to Canada. The recently released report on 2012 food security data in the United States shows that 29% of food insecure households had incomes higher than 185% of the federal poverty line (not counting households that did not report income).[3] The fact that a nontrivial proportion of higher-income Canadian households report food insecurity has policy importance, because it suggests the role of other determinants of health or of negative precipitating events within a causal pathway leading to a state of household food stress.

In the United States, Nord and Brent examined food insecurity in households with annual incomes above US$50 000 and concluded that the phenomenon was likely real and not due to problems of measurement.[4] They inferred that fluctuating household income, discretionary household spending, changes in household composition, presence of multiple economic units in the household, and unexpected events such as increases in housing costs, job loss, and chronic health condition contributed to measured food insecurity in higher-income households. This is the first study to empirically examine the risk factors related to food insecurity in higher-income households. Discerning factors that might contribute to presumably well-off households reporting food insecurity might identify household stressors that consume resources that could be otherwise available for food or circumstances that might precipitate such an adverse situation. The objective of this study was to examine the correlates of food insecurity in higher-income Canadian households generally and over a time period of economic downturn.

METHODS

Data for this study were derived from cycles 3.1 (2005–2006), 4.1 (2007–2008), and 5.1 (2009–2010) of the Canadian Community Health Survey (CCHS). The CCHS is a cross-sectional survey that collects information from a nationally representative sample of the Canadian population about health determinants, sociodemographic characteristics, and health status.[5] Each of these 3 CCHS cycles employed Health Canada's adaptation of the Household Food Security Survey Module (HFSSM), which has been adopted as the standard measure used in the United States and Canada for population-level income-related food insecurity since 1995 and 2004, respectively.[6–8] Adapted versions of the HFSSM have been routinely used in the international literature as well.[9–11] The HFSSM contains 18 questions relating to the household food security situation in the previous 12 months in a phased approach, with later phases indicating greater severity.[12] According to Health Canada's

dichotomous scoring of the module (ie, food insecure versus food secure), a household is considered food insecure if there is more than one affirmative response on either the 10-item Adult Food Security Scale or the 8-item Child Food Security Scale.

Though the food security module was part of the core content in CCHS cycle 4.1, the module was optional (i.e., only administered to residents of some provinces) in cycles 3.1 and 5.1.[5] Mindful of this limitation, we present data from cycle 4.1, which are nationally representative (41 852 observations), when we discuss general characteristics of food insecure versus food secure higher income households in Canada. For multivariate regression analyses conducted to determine independent contributors to food insecurity in Canada related to both rarer phenomena and the year of survey, we pooled the 3 CCHS cycles in order to produce a larger sample size for infrequent events (eg, the receipt of employment insurance) and to assess whether years of survey, concurrent with changing macroeconomic conditions such as the world economic crisis of 2008, might have contributed to food insecurity in these households over and above the usual sociodemographic correlates of household food insecurity.[13]

Because Statistics Canada has no definitive cutoff for what constitutes "higher income," we selected 60 000 Canadian dollars (CAD) as the threshold for higher-income households, because this represents the 60th percentile of the income distribution for all Canadian households. Figure 1 illustrates that our threshold appears to have face validity.

Covariates examined were based on well-established risk factors for household food insecurity reported in previous studies, including homeownership, number of members in the household, household structure, median and total household income, highest level of education in the household, main income source, seniors benefits (derived from private or public pensions), social benefits (social assistance, Workers' Compensation, child tax benefit), immigration status, off-reserve household with an aboriginal respondent, and region of Canada.[2,14–16] Year of survey was included as occurring before (CCHS 3.1 2005–2006), during (CCHS 4.1 2007–2008), or after (CCHS 5.1 2009–2010) the economic downturn of 2008.[13] Households with missing income data and households with an annual income less than 60 000 CAD were excluded from our analysis. Pooling produced a pooled sample size of 116 351 observations meeting these criteria.

Although food insecurity is measured at the household rather than the individual level, we considered additional covariates available for the respondent that would indicate that a least one member of the household reported the factor of interest, including presence of a chronic health condition in the respondent and 3 respondent behavioral variables—tobacco use, alcohol use, and gambling—to consider discretionary spending on activities that might compete with food purchases when budget constraints exist.

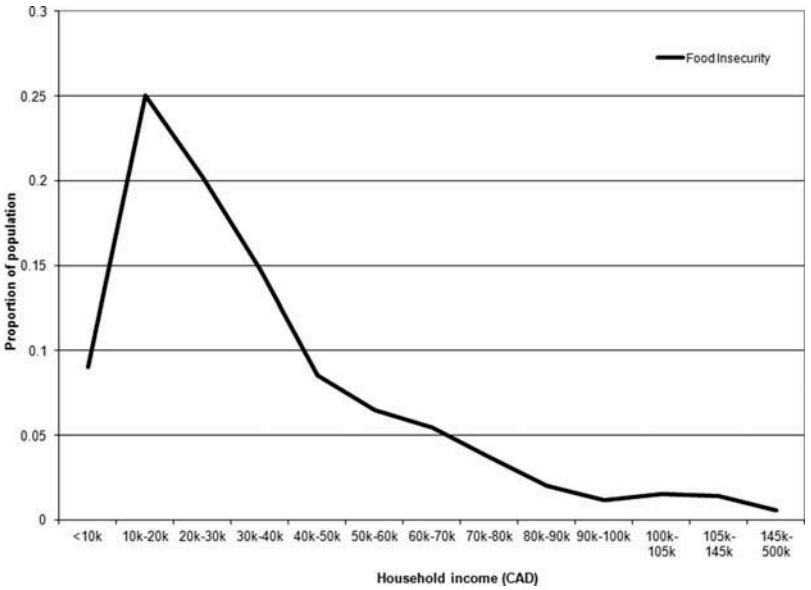

FIGURE 1 Prevalence of food insecurity by household income category, CCHS 4.1 (2007–2008).

Data Analysis

Data analysis was conducted using Stata Statistical Software Release 11 (Stata Corporation, College Station, TX) with statistical significance set at $P < .05$. Bootstrap variance estimation methods and household weights provided by Statistics Canada were used to account for unequal probabilities of selection, nonresponse bias, and population demographics across cycles.[17] Cross-tabulations, with bivariate analyses, were employed to examine and compare the prevalence of household sociodemographic and behavioral characteristics and potentially important income loss (as indicated by employment insurance being the main household income source) in food secure and food insecure households. These relationships were verified using multivariate logistic regression.

RESULTS

Approximately 7.7% of all Canadian households were food insecure in CCHS 4.l, and in this cycle, 16% of food insecure households reported household incomes over 60 000 CAD. Of note, even though provincial representation differed in CCHS 3.1 and 5.1, 15% and 18% of food insecure households, respectively, reported household incomes over 60 000 CAD in those cycles (data not shown). Table 1 presents the sociodemographic and behavioral

characteristics of food secure versus food insecure higher-income Canadian households for CCHS 4.1. Among higher-income households, households reporting food insecurity differed from those that did not on the basis of lack of homeownership, greater number of household members, and lower total household and median household incomes and were overrepresented by off-reserve aboriginal households. Other significant differences related to food insecurity included presence of a chronic condition in the respondent, high school and trade school education as the highest level of household education, and being a married/cohabiting couple living with children under 25 years of age or living in an "other" circumstance, such as having a roommate. Immigrant households living in Canada for more than 5 years were also more likely in this simple bivariate analysis to be food insecure. The behavioral characteristics revealed that regular smoking was elevated among food insecure households, but food secure households were more likely to have respondents report regular alcohol consumption versus occasional or nonconsumption of alcohol.

Food insecurity was significantly lower among households with baccalaureate education, among those whose main income source was self-employment, and in households reliant on seniors' benefits, for couples living without children, and residents of the province of Quebec (with residents of Ontario and three Northern Territories more likely to be food insecure than Canadians living elsewhere).

Table 2 presents the multivariate logistic regression analysis of food insecurity in Canadian households with incomes over 60 000 CAD. Similar findings to the bivariate analysis were found for several variables, such as increased odds of food insecurity among renter households, lower income households, households with more members, households reliant on employment insurance, those with the highest level of education less than baccalaureate, those with a chronic health problem, and smokers. With adjustment, aboriginal households and Territorial residents were no longer at higher risk, nor were couples without children; however, single-parent households led by either the mother or father were found to be at increased risk, as well as households with a problem gambler. The protective effect of self-employment, living in Quebec, and homeownership and the lower risk for regular drinkers remained, and being an immigrant in Canada less than 5 years and being a resident of Atlantic Canada relative to Ontario were newly found to be at lower odds of household food insecurity. Survey cycle was significant, with both surveys following 2005–2006 showing higher odds of food insecurity.

DISCUSSION

This is the first study to empirically examine drivers of food insecurity in higher-income households, which consistently represent a nontrivial

TABLE 1 Sociodemographic Characteristics of Food Secure and Food Insecure Canadian Households With Incomes Over 60 000 CAD in the Canadian Community Health Survey 4.1, 2007–2008 ($n = 41\ 852$)[a]

	CCHS 4.1 (2007–2008)				CCHS 4.1 (2007–2008)		
	Food secure	Food insecure	*P* value		Food secure	Food insecure	*P* value
General household characteristics				Highest level of education in household (%)			
Proportion of all households	0.60	0.16	**.0001**	Less than high school	1.33	2.33	.5287
Homeownership (%)	87.68	69.60	**.0001**	High school	6.67	11.18	**.0001**
Mean household members	3.16	3.82	**.0001**	Some postsecondary	4.06	6.34	.1260
Off-reserve Aboriginal household (%)	2.44	5.91	**.0001**	Trade school	10.29	15.10	**.0001**
Median household income (CAD)	90 000	72 000	**.0001**	Bachelor's degree or higher	45.73	29.34	**.0001**
Total household income (CAD)				Household structure (%)			
60 000–69 999	15.36	34.38	**.0001**	Single	5.74	4.04	.3472
70 000–79 999	13.59	23.29	**.0001**	Couple alone	28.00	10.75	**.0001**
80 000–89 999	12.74	12.72	.9920	Couple with children[d]	52.61	62.24	**.0001**
90 000–99 999	8.32	7.54	.6312	Male lone parent with children[d]	1.08	1.67	.4473
100 000–249 999	46.62	21.72	**.0001**	Female lone parent with children[d]	2.23	3.84	.1096
250 000–500 000	3.37	0.36	**.0001**	Other; eg, roommate	10.34	17.46	**.0001**
Sources of household income (%)				Respondent characteristics			
Wages and salaries	81.81	92.60	**.0001**	Respondent smoking status (%)			
Self-employment	10.75	4.54	**.0001**	Nonsmoker	81.45	66.80	**.0001**
Social benefits[b]	0.16	0.72	.1868	Occasional smoker	4.54	5.98	.3321
Senior benefits[c]	5.61	0.56	**.0001**	Regular smoker	14.01	27.21	**.0001**
Other	1.62	1.30	.4839				

Household immigration status (%)				Respondent alcohol use (%)			
Nonimmigrant	80.56	73.66	**.0001**	Nondrinker	15.87	23.86	**.0001**
Recent immigrant < 5 years	1.76	1.76	.9920	Occasional drinker	13.39	21.38	**.0001**
Nonrecent immigrant > 5 years	17.67	24.58	**.0001**	Regular drinker	70.57	54.66	**.0001**
Region (%)				Respondent gambling (%)			
Atlantic Canada	5.70	4.65	.1868	Nongambler	51.92	51.91	.4009
Quebec	20.53	6.68	**.0001**	Non-problem gambler[e]	45.30	43.42	.2077
Ontario	42.80	52.77	**.0001**	Problem gambler[f]	2.78	4.67	.4473
Western Canada	30.68	35.11	.0891				
Territories	0.28	0.79	**.0001**	Respondent with chronic health condition (%)	0.45	0.53	**.0001**

[a]CAD indicates Canadian dollars; CCHS indicates Canadian Community Health Survey.

[b]Social assistance, Workers' Compensation, child tax benefit.

[c]Canada or Quebec pension (CPP/QPP), retirement pensions, Registered Retirement Saving Plan (RRSP), Guaranteed Income Supplement (GIS), and Old Age Security (OAS).

[d]Children include those up to age 24 years.

[e]Health Canada classification of low-risk and moderate-risk gambler.

[f]Health Canada classification of problem gambler.

Bold indicates values that are statistically significant at 99% confidence level.

TABLE 2 Multivariate Logistic Regression Analysis of Food Insecurity in Canadian Households With Incomes Over 60 000 CAD for Pooled Samples (CCHS3.1, 2005–2006; CCHS 4.1, 2007–2008; and CCHS 5.1, 2009/2010; $n = 116\,588$)

Covariate	Odds ratio	95% CI	Covariate	Odds ratio	95% CI
Homeownership	0.44*	(0.36, 0.53)	Highest level of household education (reference bachelor's or higher)		
Number of household members	1.51*	(1.39, 1.63)	Less than high school	1.44	(0.87, 2.39)
Off-reserve Aboriginal household	1.29	(0.98, 1.69)	High school	1.49*	(1.13, 1.98)
			Some postsecondary	1.46	(1.03, 2.06)
			Trade school	1.56*	(1.19, 2.04)
Total household income (reference 60 000–69 999)			Cert or diploma	1.44*	(1.18, 1.76)
70 000–79 999	0.77*	(0.63, 0.94)			
80 000–89 999	0.57*	(0.45, 0.72)	Household structure (reference couple with children)[b]		
90 000–99 999	0.42*	(0.31, 0.57)	Single	1.28	(0.87, 1.86)
100 000–249 999	0.19*	(0.15, 0.24)	Others	2.02*	(1.57, 2.61)
250 000–500 000	0.08*	(0.03, 0.24)	Couple alone	0.77	(0.58, 1.02)
			Female lone parent with children[b]	2.16*	(1.39, 3.37)
Source of household income (reference wages/salaries)			Male lone parent with children[b]	2.63*	(1.48, 4.59)
Self-employment	0.48*	(0.35, 0.66)			
Employment insurance	3.22*	(1.27, 8.20)	Respondent smoking status (reference nonsmoker)		
Social benefits	1.19	(0.53, 2.68)	Occasional smoker	1.59*	(1.15, 2.20)
Senior benefits	0.34*	(0.13, 0.86)	Regular smoker	1.58*	(1.32, 1.88)
Other	0.55	(0.29, 1.07)			

Household immigration status (reference nonimmigrant)			Respondent alcohol use (reference nondrinker)		
Recent immigrant (<5years)	0.38*	(0.19, 0.77)	Occasional drinker	1.19	(0.94, 1.50)
Nonrecent immigrant (>5 years)	0.96	(0.77, 1.20)	Regular drinker	0.78*	(0.63, 0.95)
			Respondent gambling (reference nongambler)		
			Non-problem gambler	1.02	(0.81, 1.28)
			Problem gambler	1.75*	(1.06, 2.89)
Region (reference Ontario)			Respondent with chronic health condition	1.52*	(1.29, 1.78)
Atlantic Canada	0.66*	(0.49, 0.89)			
Quebec	0.33*	(0.26, 0.42)	Survey (reference CCHS 2005–2006)		
Western Canada	1.05	(0.88, 1.24)	CCHS 2007–2008	1.54*	(1.27, 1.88)
Territories	1.26	(0.93, 1.69)	CCHS 2009–2010	2.00*	(1.66, 2.41)

[a]CAD indicates Canadian dollars; CCHS indicates Canadian Community Health Survey; CI, confidence interval.

[b]Children include those up to age 24 years.

*$P < .05$.

proportion of food insecure households in both Canada and the United States. To an extent, Nord and Brent's conjecture that discretionary household spending and unexpected events such as increases in housing costs, job loss, and chronic health condition might contribute to the risk of food insecurity in higher-income households was correct.[4] We did indeed find evidence that discretionary spending related to tobacco and gambling, but not alcohol, increased the odds of food insecurity, as did presence of a chronic condition and job loss, likely inferred from the increased odds of receipt of employment insurance. We do not have information on increases in housing costs. Consistent with Nord and Brent,[4] we also found that higher-income food insecure households have similar risks factors for food insecurity as do lower-income households—lower income levels, renting, more mouths to feed as indicated by increased number of household members, lower educational status, and being a single-parent household. The fact that the income-adjusted (and other covariate-adjusted) model blunted the effects of off-reserve aboriginal status and living in the Territories, while at the same time revealing the increased odds of lone parenthood, problem gambling, and being immigrants living in Canada for more than 5 years, shows the importance of relative income for these groups.

Previous studies have shown that homeownership provides protection against the experience of food insecurity in both the United States and Canada.[18,19] The relatively high income of renters in this study would likely have made them eligible for a mortgage. The fact that they were not homeowners may be because they previously had to sell their home because of an adverse economic event or because of other limitations on their access to credit such as debt servicing or increased monthly expenditures such as child support—all areas worthy of further investigation but for which empirical data are sparse.

Existing studies on household food insecurity have consistently demonstrated that female-headed lone-parent households have a higher probability of food insecurity than other household structures.[2,20] This is generally deemed the result of gendered poverty.[21] Though Ratcliffe and McKernan found that female-headed and male-headed households were more likely than couple-headed households to be food insecure,[22] our dual-sex lone parenthood finding is interesting and indicates that even in the higher-income range, resources may be insufficient to stave off food insecurity, possibly due to lower absolute levels of income in this category as well as costs associated with child care, education, health, recreation, or housing expenses being borne primarily by the custodial parent.

The cross-sectional relationship between chronic health status and household food insecurity has been previously explored, but the causal relationship is unclear. Vozoris and Tarasuk revealed that chronic conditions such as heart disease, diabetes, high blood pressure, and food allergies moved in tandem with food insecurity.[23] Stuff et al found that living with

an adult reporting poorer self-reported health increased vulnerability to food insecurity.[24] More recently, Tarasuk et al have shown that chronic health conditions, particularly those associated with mental health problems, may precipitate food insecurity rather than the more conventionally accepted reverse association.[25]

It is interesting that immigrants to Canada who achieve annual household incomes of 60 000 CAD shortly after immigration likely represent economic class immigrants or those whose skills or education are most coveted by their adopted country's labor market. However, with adjustments for income and covariates such as family size for example, longer-term immigrants do not fare as well as recent immigrants, although their odds of food insecurity are similar to other members of the nonimmigrant community.

Education tends to play a significant role in the capacity of a household to avoid being food insecure.[2,16] The fact that the households in our study had incomes exceeding 60 000 CAD per annum may mean that less educated earners or those with more technical training may have had relatively well-paying but more precarious employment in occupations of higher job volatility than those with baccalaureate or higher education. When confronted with job loss, less educated workers may have also been less able to draw on savings, cope with ongoing debt, or manage with fewer resources.

Living with either an occasional or regular cigarette smoker was found to compromise food security status in higher-income Canadian households. This finding is consistent with the well-established observation that cigarette smoking increases the odds of household food insecurity.[25] One reason for the strong association between smoking and food insecurity is possibly that the financial burden of smoking incentivizes redistribution of household's financial resources away from the purchase of nutritionally healthy, more expensive food. As a result, the need to review the uptake and effectiveness of existing tobacco cessation programs should be considered alongside an analysis of the consequences of regressive tobacco taxation on highly addicted smokers. Of note, expenditures on alcohol have been previously shown to have an inconsequential effect on the likelihood of household food insecurity, as we also demonstrate.[26] We did not, however, have a measure of binge drinking or other unhealthy use of alcohol.

Our findings also reveal that food insecurity is strongly associated with problem gambling when relative income is adjusted. Beaumier and Ford demonstrated that gambling not only takes away money needed for purchasing food but also disrupts household dynamics and strains family relationships.[27] Even though problem gamblers represent a small percentage, estimated to be between 1.5% and 3% of the adult population in Canada, their activities can result in significant negative social and economic costs on the nongambling members of households and communities both in the short and long term.[28] Though gambling is a legal activity and is an important source of revenue for provincial and territorial governments' budgets, the

relevance of a well-rounded gambling policy that balances the trade-off between the harm and gain of gambling activities for the general public cannot be overemphasized.

Previous studies have demonstrated that sudden income losses lead to increased risk of food insecurity.[29,30] This is because income fluctuations tend to have a significant negative effect on food expenditure.[30] In the face of sudden income loss, such as we observed for households reliant on employment insurance, Tarasuk and Vogt remind us that none of the social safety nets such as employment insurance or Worker's Compensation are sufficient to achieve food security status in economically disadvantaged households.[19] This appears to be a concern as well for households with higher baseline incomes.

Another important finding of this study is that living in Quebec buffers against the experience of higher-income food insecurity, even after controlling for other sociodemographic factors. One possible explanation is that social and economic contexts of households in Quebec differ from most, if not all, provinces. In particular, Quebec has more social safety nets than the rest of Canada, notably subsidized daycare and longer paid parental leaves.[31] In 2002, the Government of Quebec passed legislation (Act to Combat Poverty and Social Exclusion) that made income and food security a top priority of the government.[32] This legislation requires the Government of Quebec to "facilitate dignified access, for persons and families living in poverty, to a food supply that is both sufficient and nutritious, at reasonable costs, and to simple and reliable information enabling those persons and families to make enlightened dietary choices" (Chapter II, Paragraph 9). Since then, the Government of Quebec has funded workshops on thrifty cuisine, budgeting, and programs that enable farmers to make nutritious foods more accessible at reasonable costs to Quebecers.[33] Possibly important as well is that the relative food cost in Quebec is one of the lowest in the country and that Quebec's food retail density per 10 000 is higher than all but one province, Saskatchewan, in Canada.[34]

In addition to household and regional characteristics, household food security status is also influenced by prevailing macroeconomic conditions. Coleman-Jensen et al documented that the recession of 2007–2009 was detrimental to household food security status in the United States.[35] Of policy significance in Canada, we found that even for higher-income households, changes in macroeconomic conditions over this time period had a significant effect on the likelihood of food insecurity. After controlling for household sociodemographic, discretionary spending, and sudden income loss factors, changes in macroeconomic conditions, as proxied by year of data collection, strongly contributed to the likelihood of food insecurity in higher-income households. Specifically, data collection for CCHS 4.1 (2007–2008) coincided with the onset of the recession (officially proclaimed in Canada in October

2008), and CCHS 5.1 (2009–2010) coincided with a period of continued recession through to early recovery.[13] The implication of this finding is that poor macroeconomic times can tip even the more economically advantaged population into food insecurity. Another implication is that higher income does not necessarily translate to a better household food security status. Therefore, this study calls for a blended approach that acknowledges the importance of access to short-term income support during income shocks, as well as smoking cessation programs and treatment for gambling and other addictions, as relevant supports for improving household food security status.

The findings of this study are subject to some limitations. First, our study is cross-sectional and, as a result, it is not certain that associations of sociodemographic, behavioral, and income characteristics with food insecurity represent causal relationships. Longitudinal research is needed to better understand the causal pathway of food insecurity in higher-income households. Second, the combined estimates do not represent the population of any specific year. Rather, they reflect the average high-income Canadian households' population across the 2005–2006 to 2009–2010 period. Third, the information on household highest level of education in the CCHS was truncated at a baccalaureate degree and higher. As a result, this study was unable to untangle the likelihood of food insecurity in high-income households where graduate or professional degrees are present. Fourth, this study was unable to tease out specific provincial (policy-related) versus regional effects on food insecurity in higher-income households other than to flag residence in one province, Quebec, as protective. Nevertheless, consideration of the determinants that were found to be associated with higher income food insecurity may be useful in designing policies and programs capable of addressing food insecurity among households with limited capacity to buffer income loss, including those with inadequate income in Canada as a whole.

FUNDING

Grant sponsor: Canadian Institutes of Health Research operating; Grant number: MOP-89731. O. M. Olabiyi undertook this work while a fellow at the University of Calgary where he was supported by a Canadian Institutes for Health Research Population Health Intervention Research Network (PHIRNET) Post-Doctoral Fellowship. L. McIntyre is supported by the Canadian Institutes for Health Research and held an Institute for Gender and Health Research Chair in Gender and Health when the research was conducted.

ACKNOWLEDGMENT

The authors thank Valerie Fleisch for manuscript assistance.

REFERENCES

1. Kirkpatrick S, Tarasuk V. Housing circumstances are associated with household food access among low-income urban families. *J Urban Health*. 2011;88:284–296.
2. Ledrou I, Gervais J. Food insecurity. *Health Rep*. 2005;16:47–51.
3. Coleman-Jensen A, Nord M, Singh A. *Household Food Security in the United States in 2012*. Washington, DC: USDA Food Assistance & Nutrition Research Program; 2013. Economic Research Report No. ERR-155.
4. Nord M, Brent CP. *Food Insecurity in Higher Income Households*. Washington, DC: USDA Food Assistance & Nutrition Research Program; 2002. Economic Research Service Report.
5. Statistics Canada. *Canadian Community Health Survey—Annual Component. User Guide 2010 and 2009–2010 Microdata files*; 2011. Available at: http://search2.odesi.ca/documentation/CCHS_2009-2010/cchs-escc2010_2009-2010gid-eng.pdf. Accessed August 16, 2013.
6. Bickel G, Nord M, Price C, Hamilton W, Cook J. *Guide to Measuring Household Food Security, Revised 2000*. Alexandria, VA: US Department of Agriculture, Food and Nutrition Service; 2000. Available at: http://www.fns.usda.gov/fsec/files/fsguide.pdf. Accessed August 16, 2013.
7. Health Canada. *Canadian Community Health Survey, Cycle 2.2, Nutrition* (2004): *Income-Related Household Food Security in Canada*. 2007. Available at: http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/income_food_sec-sec_alim-eng.php. Accessed December 11, 2013.
8. Hamilton WL, Cook JT, Thompson WW, et al. *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project*. Alexandria, VA: US Department of Agriculture, Food and Nutrition Service; 1997. Available at: http://www.fns.usda.gov/ora/menu/published/FoodSecurity/SUMRPT.PDF. Accessed August 16, 2013.
9. Gulliford MC, Nunes C, Rocke B. The 18 Household Food Security Survey items provide valid food security classifications for adults and children in the Caribbean. *BMC Public Health*. 2006;6:1–8.
10. Frongillo EA, Nanama S. Development and validation of an experience-based measure of household food insecurity within and across seasons in northern Burkina Faso. *J Nutr*. 2006;136:1409S–1419S.
11. Pérez-Escamilla R, Segall-Corrêa AM, Kurdian Maranha L, Archanjo Sampaio MF, Marin-Leon L, Panigassi G. An adapted version of the US Department of Agriculture Food Insecurity module is a valid tool for assessing household food insecurity in Campinas. *Braz J Nutr*. 2004;134:1923–1928.
12. Health Canada. *Income-Related Household Food Security in Canada*. Ottawa, Ontario, Canada: Office of Nutrition Policy and Promotion, Health Products and Food Branch; 2007. Available at: http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/supp_table_tableau-eng.php. Accessed August 16, 2013.
13. Guillén MF, Suárez SL. The global crisis of 2007–2009: markets, politics, and organizations. In: Lounsbury M, Hirsch PM, eds. *Markets on Trial: The Economic Sociology of the US Financial Crisis: Part A. Research in the Sociology of Organizations*. Bingley, United Kingdom: Emerald Group Publishing Limited; 2010:257–279.

14. McIntyre L, Glanville NT, Officer S, Anderson B, Raine KD, Dayle JB. Food insecurity of low-income long mothers and their children in Atlantic Canada. *Can J Public Health*. 2002;93:411–415.
15. Rainville B, Brink S. *Food Insecurity in Canada, 1998–99*. Hull, Quebec, Canada: Applied Research Branch Strategic Policy Human Resources Development Canada; 2001.
16. Tarasuk V. Households food insecurity in Canada. *Top Clin Nutr*. 2005;20:299–312.
17. Thomas S, Wannell B. Combining cycles of the Canadian Community Health Survey. *Health Rep*. 2009;20:53–58.
18. Bartfield J, Dunifon R. State-level predictors of food insecurity among households with children. *J Policy Anal Manage*. 2006;25:921–942.
19. Tarasuk V, Vogt J. Household food insecurity in Ontario. *Can J Public Health*. 2009;100:184–188.
20. Alaimo K. Food insecurity in the United States: an overview. *Top Clin Nutr*. 2005;20:281–298.
21. McIntyre L, Officer S, Robinson LM. Feeling poor: the felt experience of low-income mothers. *Affilia*. 2003;18:316–331.
22. Ratcliffe C, McKernan SM. *How Much Does SNAP Reduce Food Insecurity?* Washington, DC: The Urban Institute; 2009.
23. Vozoris NT, Tarasuk VS. Household food insufficiency is associated with poorer health. *J Nutr*. 2003;133:120–126.
24. Stuff JE, Casey PH, Szeto KL, et al. Household food insecurity is associated with adult health status. *J Nutr*. 2004;134:2330–2335.
25. Tarasuk VS, Mitchell A, McLaren L, McIntyre L. Chronic physical and mental health conditions among adults may increase vulnerability to household food insecurity: inferences from the Canadian Community Health Survey. *J Nutr*. 2013;143:1785–1793.
26. Duffy PA, Zizza C, Zhu M, Kinnucan H, Tayie FA. Food insecurity, diet quality, and body weight: inter-relationships and the effect of smoking and alcohol consumption. Paper presented at: American Agricultural Economics Association Annual Meeting; July 27–29, 2008; Orlando, FL.
27. Beaumier MC, Ford JD. Food insecurity among Inuit women exacerbated by socioeconomic stresses and climate change. *Can J Public Health*. 2010;101:196–201.
28. Marshall K, Wynne H. *Fighting the Odds*. Ottawa, ON: Statistics Canada. 2003. Catalogue No. 75-001-XIE.
29. Bania N, Leete L. Income volatility and food insufficiency in US low-income households, 1992–2003. In: Majchrowicz TA, ed. *RIDGE Project Summaries, 2006: Food Assistance and Nutrition Research Innovation and Development Grants in Economics Program*. Washington, DC: US Department of Agriculture; 2007.
30. Blundell R, Pistaferri L. Income volatility and household consumption: the impact of food assistance programs. *J Hum Resour*. 2003;38(S):1032–1050.
31. Lefebvre P, Merrigan P, Roy-Desrosiers F. *Quebec's Childcare Universal Low Fees Policy 10 years after: Effects, Costs, and Benefits*. 2011. Montreal, Quebec, Canada: CIRPÉE-UQAM Working Paper 1101.

32. An Act to combat poverty and social exclusion. R.S.Q., chapter L-7, 2002. Available at: http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=%2F%2FL_7%2FL7_A.htm. Accessed September 27, 2014.
33. Food Matters Manitoba & Manitoba Alternative Food Research Alliance. Provincial approaches to food security, 2011. Available at: http://foodsecurecanada.org/sites/bitsandbytes.ca/files/provincial%20policy%20scan.pdf. Accessed November 28, 2013.
34. Swiss Hub Canada. *The Canadian Food Retail Sector: Opportunities for Swiss Companies*. Toronto, ON: Office Suisse d'Expansion Commerciale; 2011.
35. Coleman-Jensen A, Nord M, Andrews M, Carlson S. *Household Food Insecurity in the United States 2010*. Washington, DC: USDA Food Assistance & Nutrition Research Program; 2011. Economic Research Service Report 125.