

Realities of Food Insecurity and Associations to Health

2015-11-18

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- What food insecure households experience and struggle with

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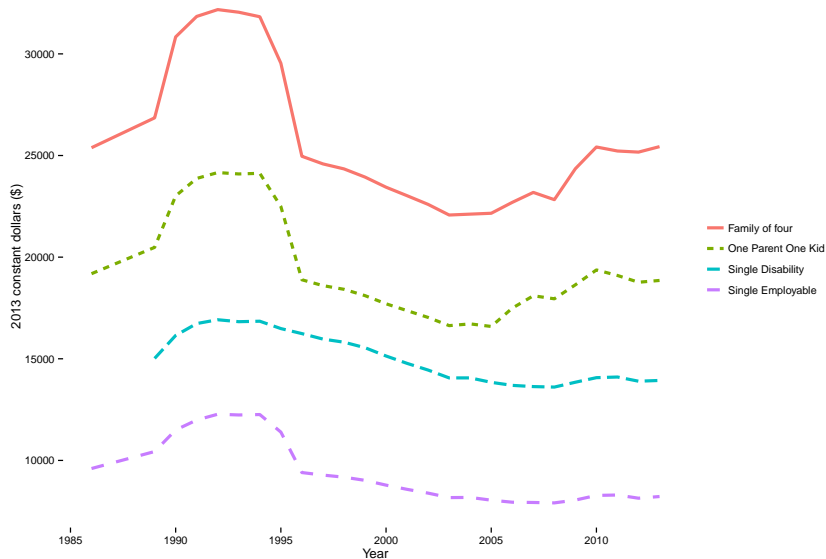
- Think *big* and *systemic* (this is *public* health nutrition), especially for possible interventions
- That food insecurity is **not** really about food
- What food insecure households experience and struggle with
- Which came first, poor health or food insecurity? Recognize feedback loop and health of food insecure households

Outline

- Realities of food insecurity
 - Welfare income vs inflation
 - Budgets for various groups
 - Strategies used
 - Experiences
- Health and food insecurity
 - Food intake and nutrient adequacy
 - Feedback loop, lower health, more food insecure
 - Inuit health
 - Obesity

Realities of food insecurity: Reflection of the imbalance between resources and expenses

Welfare income over the decades in Ontario¹

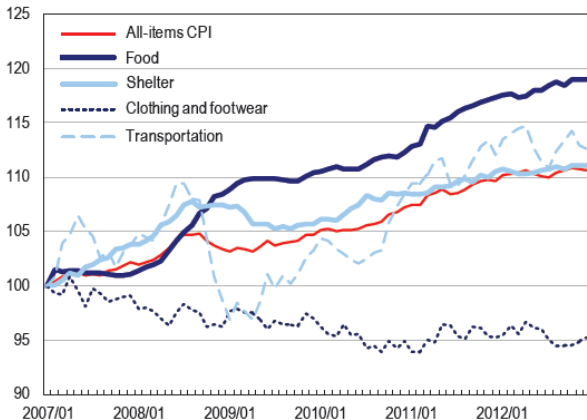


¹Welfare in Canada 2013, Caledon Institute of Social Policy

Cost of things (inflation)²

Monthly movements in selected major components of the Canadian Consumer Price Index, seasonally adjusted, January 2007 to December 2012

index, January 2007=100



Source: Author's calculations using Statistics Canada, CANSIM table 326-0022.

²A-M Rollin, Statistics Canada, Economic Insights, no. 027, June 2013.

Monthly budget for family of 4 (2 adults, boy 14yr, girl 8yr) on welfare ('Ontario Works') in Hamilton³:

Item	Dollar
Basic allowance	453
Shelter allowance	695
Child/family benefits	736
GST/HST Benefit	66
ON Trillium Benefit	139
Food	-741
Rent	-988

Income remaining: **360**

³From the City of Hamilton, Medical Officer of Health. Report to the Board of Health, Oct 21, 2013.

Monthly budget for one-parent family (boy 14yr, girl 8yr) on welfare ('Ontario Works') in Hamilton⁴:

Item	Dollar
Basic allowance	350
Shelter allowance	641
Child/family benefits	759
GST/HST Benefit	66
ON Trillium Benefit	111
Food	-560
Rent	-820

Income remaining: **547**

⁴From the City of Hamilton, Medical Officer of Health. Report to the Board of Health, Oct 21, 2013.

Monthly budget for one man (31-50 yr) on welfare ('Ontario Works') in Hamilton⁵:

Item	Dollar
Basic allowance	230
Shelter allowance	376
GST/HST Benefit	22
ON Trillium Benefit	60
Food	-249
Rent (bachelor)	-543

Income remaining: **-104**

⁵From the City of Hamilton, Medical Officer of Health. Report to the Board of Health, Oct 21, 2013.

Monthly budget for one man (31-50 yr) on Ontario Disability Support Program in Hamilton⁶:

Item	Dollar
Basic allowance	596
Shelter allowance	479
GST/HST Benefit	29
ON Trillium Benefit	63
Food	-249
Rent (1 bedroom)	-694

Income remaining: **224**

⁶From the City of Hamilton, Medical Officer of Health. Report to the Board of Health, Oct 21, 2013.

Monthly budget for one man (70+ yr) on Old Age Security/Guaranteed Income Supplement⁷:

Item	Dollar
Old Age Security/GIS	1287
Income System	83
GST/HST Benefit	33
ON Trillium Benefit	96
Food	-238
Rent (1 bedroom)	-649

Income remaining: **612**

⁷From the City of Hamilton, Medical Officer of Health. Report to the Board of Health, Oct 21, 2013.

When working is not enough: food insecurity in the Canadian labour force⁸

Compared to workers in food-secure households, primary earners in food-insecure households were more likely to:

⁸McIntyre et al, Public Health Nutrition 2012.

When working is not enough: food insecurity in the Canadian labour force⁸

Compared to workers in food-secure households, primary earners in food-insecure households were more likely to:

- Report multiple jobs
- Report higher job stress
- Have not completed high school
- Be visible minorities

⁸McIntyre et al, Public Health Nutrition 2012.

Budgeting in the context of limited resources⁹:

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- Rent was prioritized over everything else.
- Bills were paid only enough to avoid losing services.
- Participants stretched their food dollars via:
 - Thrifty shopping (using lists, coupons, sales, etc)
 - Cooking with less.

⁹Dachner et al, Can J Diet Pract Res. 2010; 71(3)

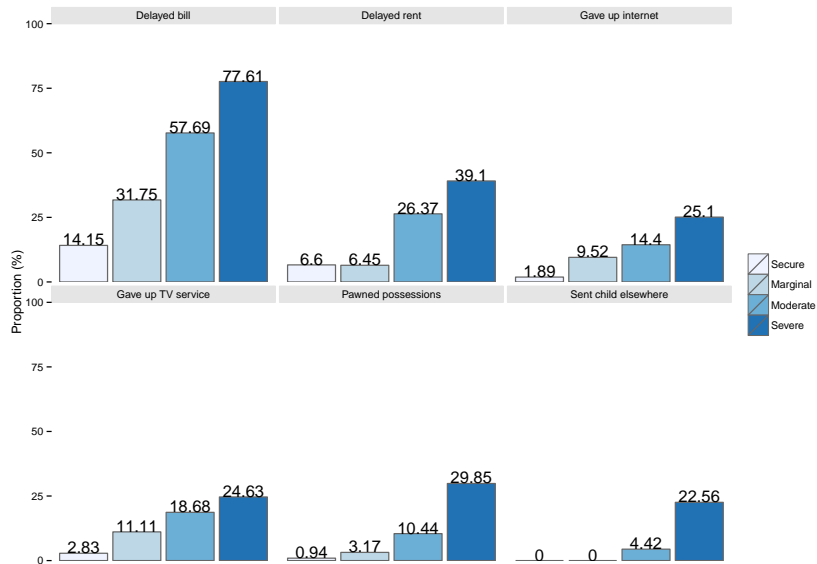
Budgeting in the context of limited resources⁹:

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 - Cooking with less.

As food insecurity intensified, price became the sole consideration in food purchases.

⁹Dachner et al, Can J Diet Pract Res. 2010; 71(3)

Strategies families used in the past 12 months, when facing food shortages:



Food is not the only problem facing food-insecure households.

Food insecure households face multiple challenges:

- Inadequate and insecure housing
- Compromises in spending on other necessities:
 - Prescription medications
 - Telephone
 - Transportation
 - Clothing
- Debt
- Stress
- Marginalization
- Social isolation

Experiences of food insecurity in Quebec¹⁰

Quebec adults' accounts of their experiences of food insecurity:

- Profound lack of food choice
- Monotony of diet disruptions to familial dining patterns
- Need to engage in highly stigmatized means of food acquisition
- Strong feelings of powerlessness, inequity, frustration, alienation

¹⁰Hamelin et al., Soc Sci & Medicine, 2002

Food insecurity and food intake

Dietary intakes of Canadians living in food insecure households¹¹:

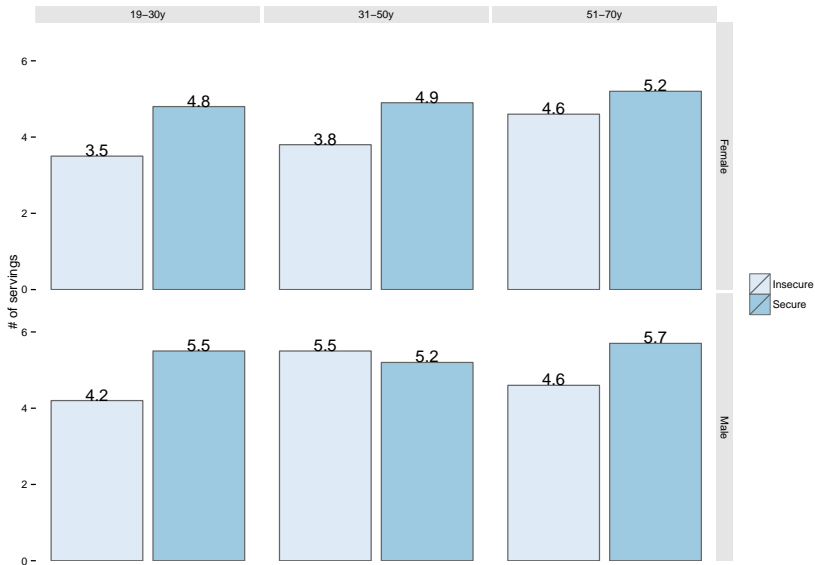
Little evidence of dietary inadequacies among young children in Canada, and few differences in relation to household food security status.

Adults and adolescents in moderately or severely food insecure households had:

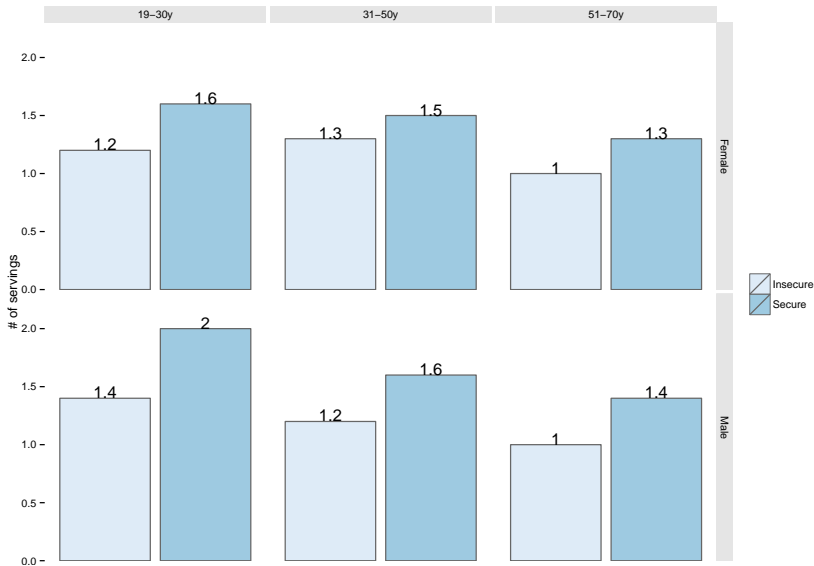
- Poorer quality diets (i.e., fewer servings of milk products, fruits and vegetables, and for some groups, meat and alternatives)
- Higher risk of inadequate intakes for protein, vitamin A, folate, magnesium, phosphorus, zinc, iron (women), vitamin B6 (adults), vitamin B12 (adults)

¹¹Kirkpatrick & Tarasuk, J Nutr 2008; 138: 604-612; Danyliw et al, Public Health Nutrition 2011; 14: 1961-69; Mark et al, Can J Public Health 2012; 103(2): 94-99

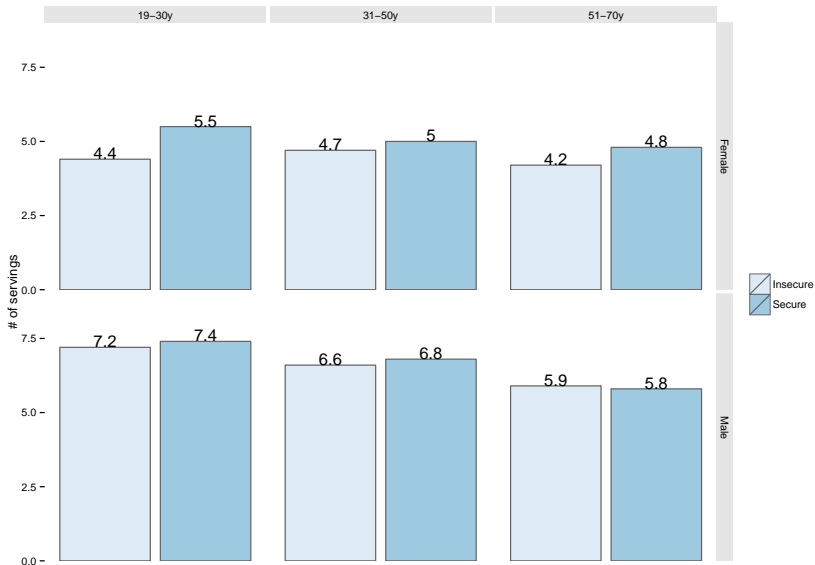
Adults' fruit and vegetable consumption by food security status



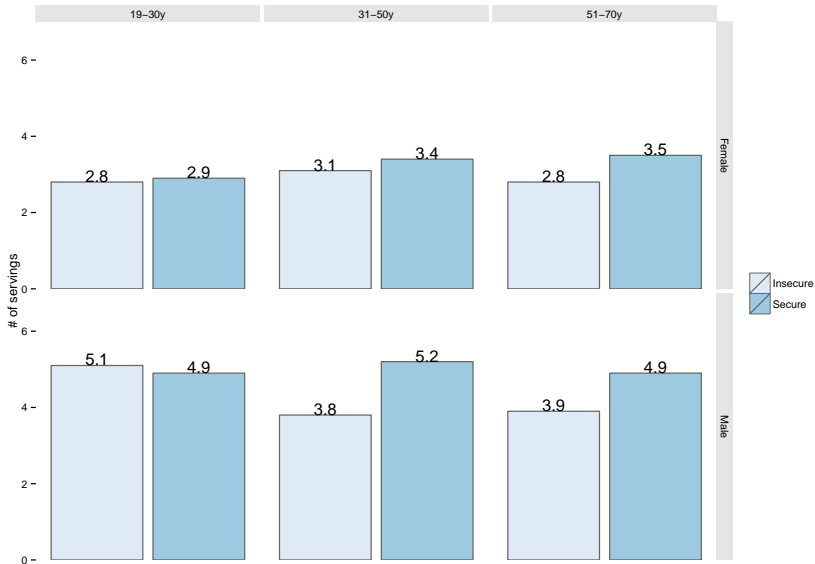
Adults' milk & milk product consumption by food security status



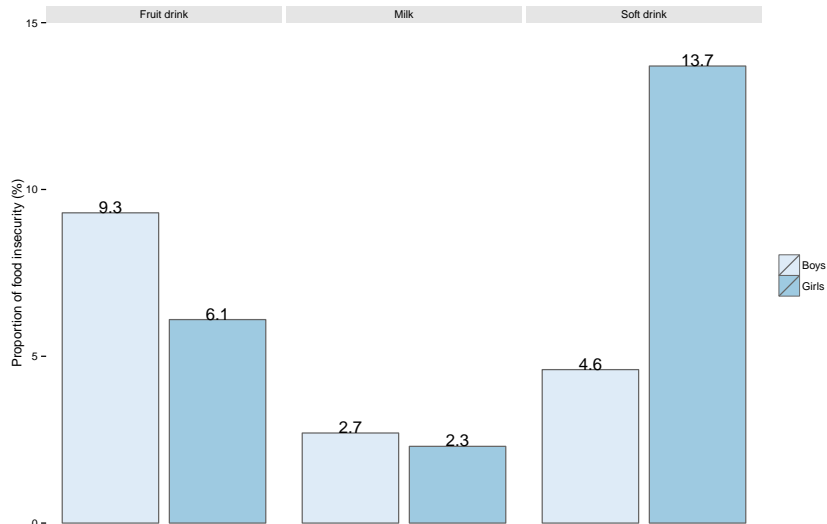
Adults' grain product consumption by food security status



Adults' meat and alternative consumption by food security status

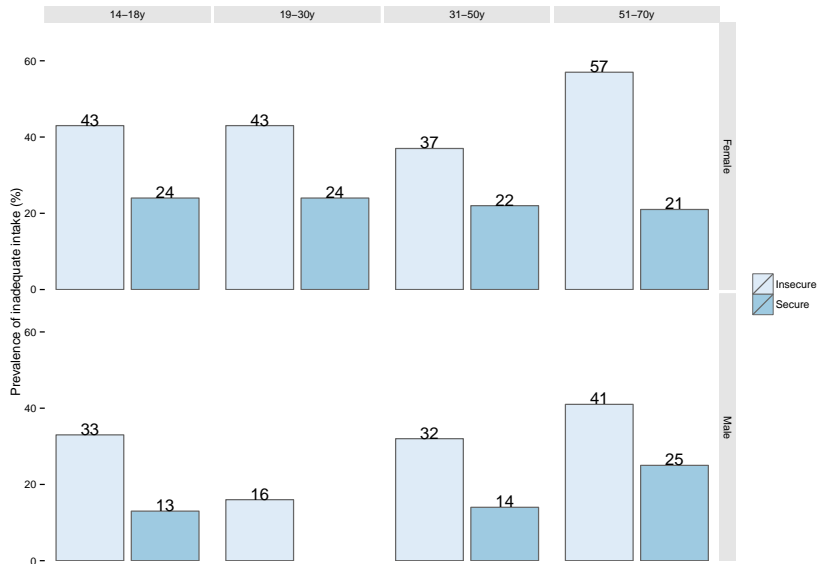


Analysis of beverage intake patterns among Canadian children and adolescents¹²



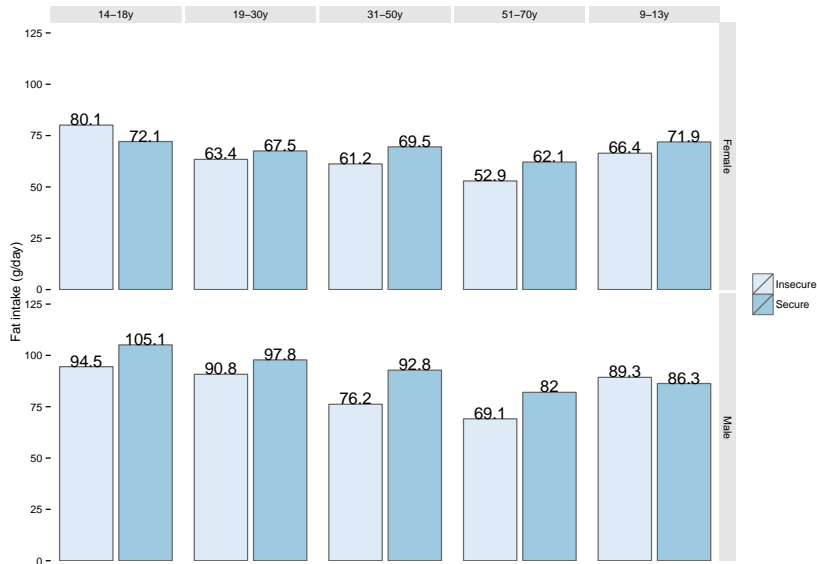
¹²Danyliw et al, Public Health Nutrition 2011; 14: 1961-69.

Prevalence of inadequate protein intake (g/kg/day)¹³



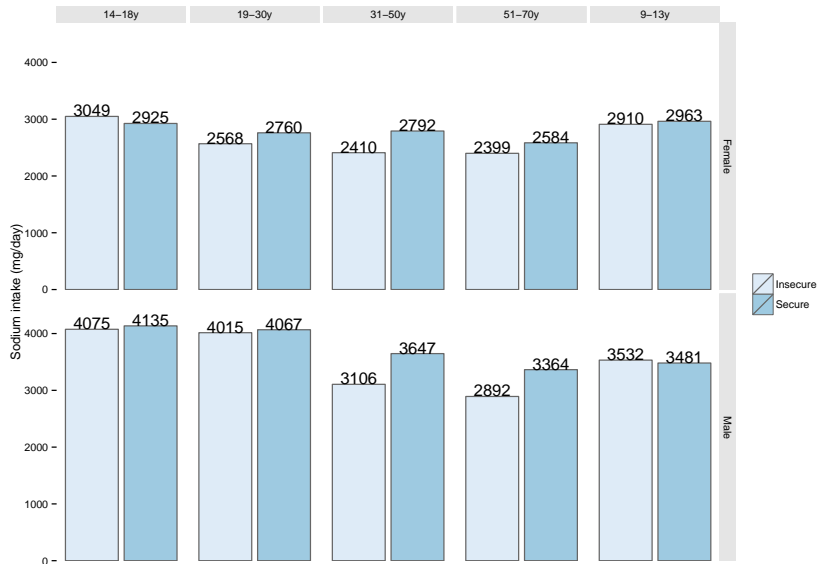
¹³Kirkpatrick & Tarasuk, J Nutr, 2008: 138: 604-612

Mean total fat intake (g/day)¹⁴



¹⁴Kirkpatrick & Tarasuk, J Nutr, 2008: 138: 604-612

Mean sodium intake (mg/day)¹⁵



¹⁵Kirkpatrick & Tarasuk, J Nutr, 2008: 138: 604-612

Nutrient adequacy in adults¹⁶

Higher prevalence of inadequacy among food-insecure subgroups for:

- Protein
- Magnesium
- Vitamin A
- Zinc
- Vitamin B6
- Iron (women)
- Vitamin B12
- Folate

Inadequacy > 10% for thiamin, riboflavin, and phosphorus, only among food-insecure subgroups.

No inadequacy for niacin, irrespective of food security status.

¹⁶Kirkpatrick & Tarasuk, J Nutr, 2008: 138: 604-612

Nutrient adequacy in children¹⁷

¹⁷Kirkpatrick & Tarasuk, J Nutr, 2008: 138: 604-612

Nutrient adequacy in children¹⁷

No prevalence of nutrient inadequacy > 10% for children 1-3 yr and 4-8 yr, irrespective of household food security status.

Substantial levels of inadequacy among those 9-13 yr and 14-18 yr for:

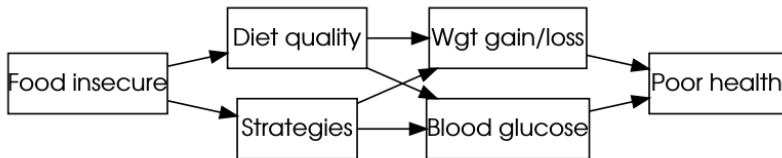
- Protein
- Vitamin A
- Magnesium
- Phosphorous
- Zinc
- Folate (females)

Prevalences were typically higher among food-insecure subgroups

¹⁷Kirkpatrick & Tarasuk, J Nutr, 2008: 138: 604-612

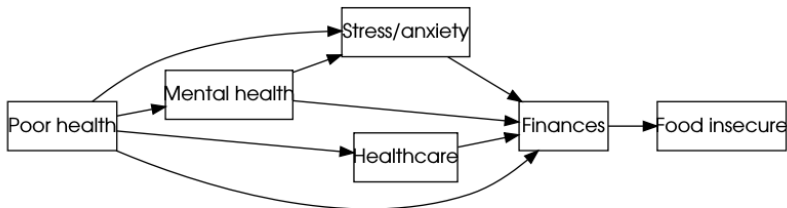
Intimate relationship between food insecurity and health (and vice versa)

A complicated relationship...¹⁸



¹⁸Parker et al, Ann Epidemiol 2010; Seligman et al, J Gen Intern Med 2007; Seligman and Schillinger, N Engl J Med 2010; Whitaker et al, Pediatrics 2006; Seligman & Schillinger, NEJM 2010

...or the other way around?¹⁹



¹⁹Parker et al, Ann Epidemiol 2010; Seligman et al, J Gen Intern Med 2007; Seligman and Schillinger, N Engl J Med 2010; Whitaker et al, Pediatrics 2006; Seligman & Schillinger, NEJM 2010

Youth, hunger, and chronic diseases²⁰

Analyses of National Longitudinal Survey of Children and Youth (10+ years of follow-up):

- Children and youth who experienced hunger (ever) were more likely to have poorer health.
- Child hunger predicted depression and suicidal ideation in late adolescence and early adulthood.
- Multiple episodes of hunger were associated with higher odds of chronic conditions, including asthma.

²⁰Kirkpatrick et al., Archives of Pediatric and Adolescent Medicine 2010; McIntyre et al., Journal of Affective Disorders 2013.

Cross-sectional associations between household food insecurity and adults' health²¹

Independent of other social determinants of health, adults with some indication of household food insecurity have higher odds of

- Poor self-rated health
- Poor mental, physical, and oral health
- Multiple chronic conditions, e.g., diabetes, heart disease, hypertension, depression, fibromyalgia

²¹Che & Chen, Health Rep 2001; Fuller-Thompson et al, Rheumatol Int 2011; Gucciardi et al, Diabetes Care 2009; Muirhead et al, Community Dent Oral Epidemiol 2009; Vozoris & Tarasuk, J Nutr 2003; Willows et al, Health Reports, 2011

Relationship between adult's disease status²² and the presence and severity of household food insecurity?²³

Analysis of CCHS 2007-08:

- n=77,053 adults
- 18–64 years

Key findings:

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- Independent of other socio-demographic correlates of household food insecurity, a strong dose-response relationship between adult's number of chronic conditions and odds of household food insecurity.

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- Higher odds of food insecurity and more severe food insecurity among adults with most conditions assessed.

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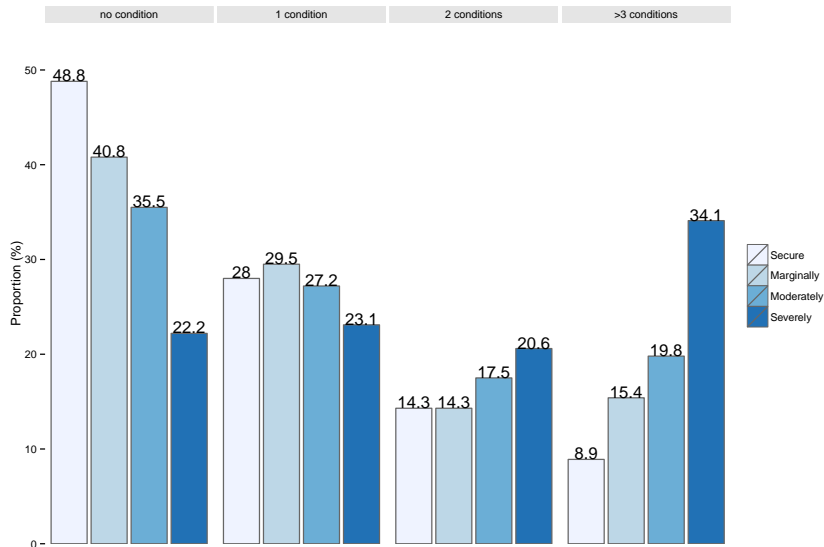
Key findings:

- Independent of other socio-demographic correlates of household food insecurity, a strong dose-response relationship between adult's number of chronic conditions and odds of household food insecurity.
- Higher odds of food insecurity and more severe food insecurity among adults with most conditions assessed.
- The pairing of a mood or anxiety disorder with any other condition heightened risk.

²²Conditions include asthma, arthritis, back and bowel problems, diabetes, heart disease, hypertension, migraines, mood/anxiety disorder, ulcers

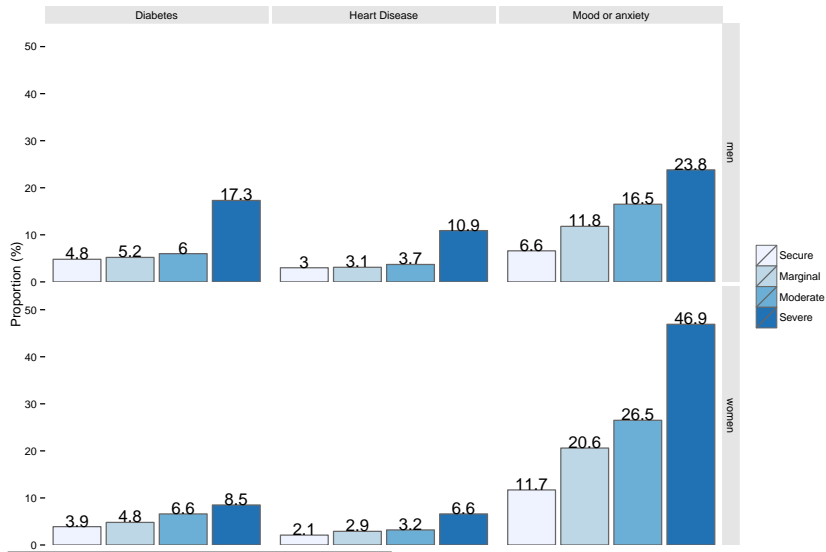
²³Tarasuk et al, Journal of Nutrition, 2013

Prevalence of chronic conditions among adults by household food security status²⁴



²⁴Tarasuk et al, Journal of Nutrition, 2013

Proportion of Canadian adults (18 - 64 years) reporting selected chronic conditions²⁵



²⁵Tarasuk et al, Journal of Nutrition, 2013

Prevalence of food insecurity is high and the diet quality poor in Inuit communities²⁶

Inuit Health Survey: 1901 Inuit households, 2007-08

- 33.6% moderately food insecure.
- 29.1% severely food insecure.

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- Food insecurity was associated with household crowding, income assistance, public housing, single adult household, home in need of major repair, and having **no active hunter** in the home.
- Adults from food insecure households had a significantly lower Healthy Eating Index score; consumed fewer vegetables and fruit, grains, and dairy products; and consumed a greater percent of energy from high-sugar foods.

²⁶Huet, Rosol & Egeland, J Nutr 2012.

Food insecurity and nutritional biomarkers in relation to stature in Inuit children from Nunavik²⁷

Survey of 294 school-aged children drawn from 2 birth cohorts:

- Food insecurity assessed with 3 questions (enough to eat; adults/children cut size of meals)
- Nutritional biomarkers measured

Results:

- 49.7% classed as food insecure.

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- Prevalence of short stature: 18.7%
 - Food insecure children on average 2 cm shorter than food secure ($p < 0.01$)

²⁷Pirkle et al, CJPH 2014.

Potential mechanisms by which chronic illness can heighten risk of food insecurity²⁸:

²⁸Tarasuk et al, Journal of Nutrition, 2013

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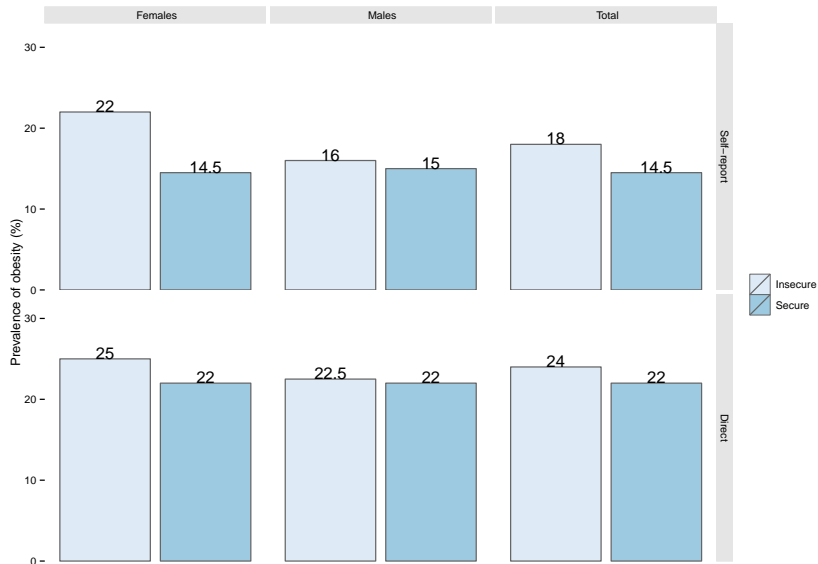
- Chronic disease can diminish adults' earning power, but findings persist after accounting for household income, income source, home ownership.
- Adult's chronic ill-health may pose additional demands on household's financial resources.
- Adults' ill-health may constrain their ability to cope in situations of scarce financial resources.

²⁸Tarasuk et al, Journal of Nutrition, 2013

Food insecurity and obesity

Firstly, what are some myths?

Obesity rates between food secure and insecure²⁹



²⁹Lyons et al, Am J Public Health 2007

Adjusted odds³⁰ of obesity (95%) with household food insecurity³¹

Status	Men	Women
Food secure	1.0	1.0
Insecure without hunger	1.02 (0.55–1.88)	0.95 (0.60–1.50)
Insecure with mild hunger	1.77 (0.74–4.27)	2.72 (1.43–5.16)
Insecure with severe hunger	1.18 (0.31–4.48)	2.04 (0.74–5.59)

Note: including adults with measured height and weight

³⁰Adjusted for age, household income, education, ethnicity, marital status, and place of residence.

³¹Lyons et al, Am J Public Health 2007

Obesity association most consistently seen for adult women—not men or children

Some limitations of existing research:

- Cross-sectional
- Food insecurity measured for last 12 months—what is relevant period of exposure?
- Self-reported height and weight data
- Confounding by parity, chronic physical or mental health problems, family structure, etc.

Are changes in women's food security status associated with changes in their body weight?³²

Design:

- 2 yr follow-up of 1707 mothers of preschool children
- Measured height and weight
- Food security status assessed with HFSSM.

Results:

- Changes in food security status over 2 yr were not significantly associated with changes in weight.
- No evidence of a causal association between food insecurity and obesity.

³²Whitaker & Sarin, J Nutr 2007; 137: 2134-2139.

Confronting myths about household food insecurity and excess body weight³³

³³EA Frongillo, Cad Saude Publica, 2013.

Confronting myths about household food insecurity and excess body weight³³

Food insecurity is a measure of material deprivation, but not necessarily manifested as **starvation**.

Hunger and malnutrition (i.e., undernutrition and obesity) are potential, but not necessary, consequences of household food insecurity.

- Severe food insecurity: weight deficit
- In some contexts, moderate food insecurity weight excess.
- Material deprivation leads to bad outcomes across multiple domains; that one of these should be excess weight is not a 'paradox'.

³³EA Frongillo, Cad Saude Publica, 2013.

For next week, please read:

Loopstra R, Tarasuk V. The relationship between food banks and household food insecurity among low-income Toronto families. Canadian Public Policy 38.4 (2012): 497-514.

Tarasuk V. Donating 'edible waste' to food banks in exchange for tax credit? Now that's a rubbish idea. The Globe and Mail. Published Nov. 02, 2015. <http://www.theglobeandmail.com/globe-debate/donating-edible-waste-to-food-banks-in-exchange-for-tax-credit-now-that/article27064689/>

Graham Riches and Valerie Tarasuk . (September 2014). Canada: Thirty Years of Food Charity and Public Policy Neglect. In First World Hunger Revisited, 2nd edition. (pp.42–56). Retrieved from <http://www.palgraveconnect.com.myaccess.library.utoronto.ca/pc/doi/10.1057/9781137298737.0009>