Risk of obesity among First Nations, Métis, and Inuit children living off-reserve

Martin Cooke
Department of Health Studies and Gerontology
University of Waterloo

Piotr Wilk
Department of Paediatrics
The University of Western Ontario
Introduction

• First Nations, Inuit, and Métis are at higher risk to overweight and obesity.
  – Off-Reserve adults: 24.8% vs 16.6% Canadian
  – On-Reserve First Nations: 31.8% adult men, 41% adult women (PHAC, 2009)

• Childhood obesity has potential implications for health in childhood and older ages, and therefore contributes to the overall poorer health outcomes of Aboriginal populations

• More than half of the Aboriginal population in Canada lives outside of discrete Aboriginal communities
Research programme

- To better understand the multiple, interrelated factors that affect various health outcomes of Aboriginal children, including obesity
- To identify culturally and contextually appropriate intervention frameworks, in partnership with community organizations and members
- To pilot these interventions in several contexts
- Currently supported by CIHR Catalyst Grant
Theoretical frameworks

- **Determinants of Aboriginal Health**
  - Aboriginal peoples are, on average, disadvantaged on many of the typical “social determinants” of health
  - However, some of these determinants may also have different effects or meaning, in the case of Aboriginal peoples.
  - SDH frameworks may also not adequately include important determinants unique to Aboriginal peoples (Richmond, 2009, Wilson and Rosenberg, 2002).
Theoretical frameworks

• Ecological approaches to health
  – Health outcomes are determined at multiple contextual levels
  – Families, neighbourhoods and communities, and broader social and economic structures
  – The effects of place are distinct and separable from the characteristics of those who inhabit them (Boyle and Willms, 1999)
  – Particularly important to childhood obesity may be characteristics of: families, schools, and neighborhoods (built and social environments).
Theoretical frameworks

• The Lifecourse
  – Focuses on lives as lived: longitudinally
  – Multiple, interrelated domains: health, work and education, family
  – Shaped by agency, social structures, history, linked lives
  – Outcomes at early ages have life-long effects
  – First Nations, Métis and Inuit lives may follow different trajectories, be shaped by different institutions and structures
The present paper

• Investigating the cross-sectional predictors of childhood obesity among off-reserve First Nations, Inuit, and Métis children.
• Outcomes: obesity, measured by parental-reported height and weight, IOTF BMI cut-offs (Cole et al. 2000).
• Four groups of predictors:
  – Identity/control variables (Sex, age, Aboriginal identity group)
  – Family characteristics (family type, income status, age, education of PMK)
  – Geography (rural/urban, region)
  – Behaviours (playing sports, eating with family, time with elders, cultural activities, screen time)
The present paper

• Dataset: 2006 Aboriginal Peoples Survey Children and Youth Master File
  – The data used are provided by Statistics Canada, but all inferences are made by the authors and do not necessarily reflect the views of Statistics Canada.
  – Off-reserve people self identifying as members of an Aboriginal group in 2006 Census
  – 12,481 children aged 6-14 (212,833 weighted)
  – Final N = 9568

• Strategy
  – Binomial logistic regression and generalized additive models of obesity
  – Separate models for boys and girls, rural and urban

Source: APS 2006 (authors’ calculations)
Estimated percent of Aboriginal and Canadian children obese at ages 6 to 11, APS 2006 and CCHS 2007 data

Source: APS 2006 (authors’ calculations), PHAC (2009)
Identity variables: Predicted odds ratios of being obese, Off-reserve Aboriginal children age 6-14 by identity/status

- Status First Nations children were at significantly higher risk for obesity than Non-Status or Métis, controlling for age and sex.
- This remained true controlling for region and rural/urban residence, family characteristics, and behavioural variables.

Source: APS 2006 (authors’ calculations)
Family variables: effects of educational characteristics of Person Most Knowledgeable (PMK) on odds of child being obese (ORs)

- Children whose PMK (most often parent) had less than high school education were at significantly greater risk of obesity.
- Children whose PMK had attended residential school were also at greater risk (O.R. = 1.4).
- This independent effect remained significant, controlling for other family and region variables.

Source: APS 2006 (authors’ calculations)
Family variables: effects of age of PMK, low-income family status, and lone parent family type on odds of child being obese (ORs)

- As expected, lone parenthood and low income status (income below the LIM) had independent effects on the likelihood of a child being obese.

- Age of the PMK had no significant independent effect

Source: APS 2006 (authors’ calculations)
Geographic variables: effects of region and rural/urban status on odds of child being obese (ORs)

- Children living in rural, off-reserve areas were at higher risk of obesity than children living in urban areas (O.R. = 1.17)
- Aboriginal children living off-reserve in Atlantic and Prairie provinces were at highest risk
- Effects are independent of identity/status variables

Source: APS 2006 (authors’ calculations)
Behavourial variables: effects of reported activities on odds of child being obese (ORs)

- Children playing sports and having supper with their families more than once a week were at significantly lower risk of obesity.
- Screen time variables (watching TV, playing computer games >2h/day) had significant independent effects.
- Surprisingly, children spending time with Elders, participating in cultural activities, were at higher risk.

Source: APS 2006 (authors’ calculations)
Conclusions

• Identity, family characteristics, geography, and behavioural variables were all useful in predicting child obesity.
  – Most effects were in the directions expected, previously found for other Canadian children
  – Some of these risk factors are experienced more by Aboriginal children and families (Low income, lone parenthood, lower educational attainment)

• Some effects are particular to the experiences of Aboriginal peoples
  – Independent effects of Status
  – Intergenerational effects of residential schooling

• Significant geographic differences remained, controlling for other variables in the models
Future research

• Improving understanding of the geographic differences
  – aspects of the built and social environments
  – how contextual aspects may affect individual-level effects

• Focus on trajectories of obesity, longitudinal aspects

• Qualitative understanding of the lived experiences of Aboriginal families and children, and how this affects obesity

• Working with partners to find mechanisms and sites for interventions in different contexts