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Socioeconomic inequalities in health among Indigenous peoples living off-reserve in Canada: Trends and determinants

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ABSTRACT

Using three nationally representative Aboriginal Peoples Surveys (2001, 2006 and 2012, n = 68,040), we examined income-related inequalities in self-perceived poor/fair general health status among Indigenous adults (18+) living off-reserve in Canada. We used the relative and absolute concentration indices (*RC* and *AC*, respectively) to quantify income-related inequalities in health for men and women, within the three Indigenous populations (First Nations, Métis, and Inuit), and in different geographic regions. Moreover, we performed decomposition analysis to determine factors that explain income-related inequality in health within the Indigenous peoples living off-reserve in Canada. The prevalence of poor/fair health status among the Indigenous population living off-reserve increased from 18% in 2001 to 22% in 2012. The extent of pro-rich relative (absolute) income-related inequalities in health increased by 23% (42%) from 2001 to 2012. Income-related inequalities in health increased statistically significantly within First Nations and Métis populations as well as in Atlantic provinces, Ontario, Alberta, British Columbia and Territories. Decomposition analyses indicated that, besides income itself, occupational status and educational attainment were the most important factors contributing to the pro-rich distribution of health among Indigenous peoples living off-reserve. Growing socioeconomic inequalities in health among Indigenous peoples should warrant more attention. Policies designed to address the broader array of social determinants of health may mitigate the continuing inequalities in health among Indigenous peoples living off-reserve in Canada.

1. Introduction

There is great interest in reducing health inequalities across different social groups in Canada [1,2] and globally [3]. This interest was further invigorated by the work of the World Health Organization's Commission on the Social Determinants of Health and the subsequent Rio Political Declaration in 2011 [4], in which participating countries, including Canada, committed to reducing health inequalities [1,5]. In fact, achieving health equity – eliminating unfair inequalities in health – is now considered as one of the strategic priorities for many jurisdictions across Canada [6,7].

Notwithstanding several federal and provincial initiatives and political commitments to reduce health inequalities, several studies [8–11] have documented persistent differences in health by socioeconomic status (SES) among the general population in Canada. The extent of the SES-health gradient was found to be significantly higher in Canada compared to most European countries [12]. A recent report from the Canadian Institute for Health Information (2015), *Trends in Income-Related Health Inequalities in Canada*, showed that inequalities are persistent between richer and poorer Canadians for a broad set of health indicators and health risk factors (e.g., chronic disease, measures of well-being, access to housing and food, smoking and obesity) [10]. Additionally, work by Hajizadeh and colleagues [11] suggested that socioeconomic inequality in health has widened over the past one and half decades in Canada, especially among women.

Indigenous peoples in Canada currently experience the poorest level of health status, and their health indicators are often similar to that of developing countries [13]. The persistent inequalities in health between Indigenous and non-Indigenous peoples in Canada are pervasive for a range of health measures, including life expectancy, incidence of chronic diseases (e.g., diabetes

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and obesity) [14], rates of infectious diseases (in particular tuberculosis and childhood Respiratory Syncytial Virus bronchiolitis), and prevalence of substance abuse, suicide and addiction [15–18]. A growing body of research has demonstrated how these inequalities are linked with various historical and contemporary aspects of colonization that discriminate against Indigenous groups in Canada [19,20]. In 2015, the federal government committed to implementing the Calls to Action outlined by the final report of Truth and Reconciliation Commission (TRC) of Canada [21], including calls to "close the gaps in health outcomes" between Indigenous and non-Indigenous peoples.

In addition to facing the disproportionate burden of health issues, Indigenous peoples also continue to be the most socioeconomically disadvantaged and marginalized [22,23]. In 2006, non-Indigenous Canadians had higher income, employment and education levels compared to the three main Indigenous groups in Canada, with Métis faring better than First Nations or Inuit [24]. With the exception of the increased number of Indigenous women who had completed a university degree between 1996 and 2006, these socioeconomic inequalities had not diminished over the previous 10 years [24]. Similar to the health issues faced by Indigenous peoples, socioeconomic outcomes have also been linked with various aspects of colonization. For example, analyses of 2006 data of Indigenous peoples living off-reserve revealed that income, employment status, and educational attainment mediated the effect of personal attendance at Indian residential school attendance on health [25]. Likewise, analyses of the same 2006 data set showed that the intergenerational effects of parental residential attendance on their children's school success was also mediated by socioeconomic status [26]. The Indian residential school system was only one key aspect of the governments' explicit goal of assimilation, and numerous other past and ongoing policies have also contributed to the socioeconomic and health gaps Indigenous peoples in Canada face [21,24].

The monitoring of socioeconomic inequalities in health plays a significant role in the assessment of progress toward the commitments made by governments to reduce socioeconomic inequalities in health [27]. Furthermore, identifying the factors accounting for socioeconomic inequalities in health is essential to implementing effective interventions and policies to address these inequalities [27,28]. While there is much documented information about inequalities between Indigenous and non-Indigenous populations [14–18], the extent of socioeconomic-related inequalities *between* Indigenous groups have not been examined. It is important to explore such between-group inequalities within Indigenous populations, considering the significant differences in cultures, collective histories, and present-day circumstances between First Nations, Métis, and Inuit peoples [15,29]. Even within each of these three main Indigenous groups in Canada, there is significant variation across tribal groups, communities, and/or regions. While some Indigenous peoples are thriving despite their collective history of colonization, others are still struggling to heal and regain wellness [30,31]. Keeping such variation in mind, a critical first step to addressing ongoing inequities is identifying risk and resilience factors that influence the health and well-being of Indigenous peoples. Using information from three waves of a nationally representative Aboriginal Peoples Survey (APS, 2001, 2006 and 2012), we aim to contribute to filling the gaps in the literature by studying the extent and socioeconomic factors accounting for inequalities in self-perceived poor/fair health status (the most widely-used and well-validated measure of health status [32]) among First Nations, Métis, and Inuit adults living off-reserve over the period between 2001 and 2012.

2. Methods

2.1. Data

Our analysis is based on data from confidential master files of three waves of the Aboriginal Peoples Survey (APS, 2001, 2006 and 2012) conducted by Statistics Canada. The APS is a large national cross-sectional survey that collects unique and detailed data on the social and economic conditions (e.g., education, employment, health, language, income, housing and mobility) from Indigenous peoples (i.e., First Nations, Métis, and Inuit), aged 6 years and older, mainly living off-reserve in urban, rural and northern locations throughout Canada. The overall response rates of the 2001, 2006 and 2012 cycles of the APS were 84%, 80% and 76%, respectively [33–35]. The APS provides reliable information to policymakers about the well-being of Indigenous peoples. It contains valuable sources of information for a variety of stakeholders including Indigenous organizations, service providers, communities and researchers [36,37]. Detailed information on the surveys design and data collection can be found elsewhere [33–35]. Since the APS mainly focuses on off-reserve populations, the sample used in the current analyses were restricted to Indigenous adults (aged 18 and older) living off-reserve (n = 84,320). After dropping 10,740 observations with missing and multiple Indigenous identity and 5540 missing variables in any of explanatory variables, our final sample consisted of 68,040 observations.

2.2. Measures

The main outcome variable is self-perceived general health, a widely-used and well-validated measure of health status [32]. The APS survey asked respondents to rate their general health status as poor, fair, good, very good or excellent. In line with past research [38–42], we dichotomized self-perceived fair or poor health status to compare those with good, very good, or excellent health. We considered a variety of demographic, socioeconomic and geographic characteristics as explanatory factors known to be associated with our outcome variable [9,43,44]. We used a variety of socioeconomic and demographic variables available in all survey data sets including age, sex, marital status, ethnicity, income, education and occupation status. We used income measured at the household level because it has been shown to be a better measure of SES than individual level income [45,46]. Household annual income was equivalised to account for household size. Similar to the Organisation for Economic Co-operation and Development (OECD) publications (e.g., [47]), we employed the square root scale which divides household income by the square root of household size to equivalise household annual income. Additionally, we used regional fixed effects to control for unobserved heterogeneity across eight different regions: Atlantic provinces (AT: Newfoundland and Labrador, New Brunswick, and Nova Scotia, and Prince Edward Island), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC) and Territories (TR: Yukon, Northwest Territories, and Nunavut). Tables A.1 and A.2 in the Appendix report the definition and summary statistics of variables used in the study.

2.3. Statistical analysis

2.3.1. Measuring income-related inequalities

Several indices have been suggested to measure inequalities in health including the index of dissimilarity, the Gini coefficient, the relative index of inequality and the concentration (C) index [48]. We used the C index approach to measure income-

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