

Social Determinants of Community Wellbeing in Ontario First Nations Communities

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Abstract

The community wellbeing (CWB) of Ontario First Nations communities is below that of their Ontario non-First Nations counterparts (Moazzami, 2011). Wellbeing is a state of welfare that exists on social, emotional, psychological, physical, environmental, and spiritual dimensions (Chretien, 2010). This study evaluated the association between social determinants and CWB scores in 99 Ontario First Nations communities. Social determinants include factors such as safe and affordable housing, education attainment, labour, and employment. Specifically, this study had focused on the social determinants surrounding education and housing. Regression analyses had demonstrated that social determinants (i.e., possession of a high school diploma, possession of a university degree, school located within the community, and labour force participation) had predicted CWB in Ontario First Nations communities. In addition, regression analyses had demonstrated that geographic zone and multi-family households had predicted a decrease in CWB in Ontario First Nations communities. Results of one hierarchical regression analysis had indicated that, when controlling for schools located within the community, geographic zone decreased CWB. These findings are important for decision makers of policy and funding, as they suggest specific social determinants which have an effect on community wellbeing.

Keywords: First Nation, social determinants, community wellbeing, Ontario

Social Determinants of Community Wellbeing in Ontario First Nations Communities

Aboriginal people, defined in the Constitution Act of Canada as including all First Nation, Inuit, and Metis peoples, are one of the fastest growing populations in Canada (Aboriginal Affairs and Northern Development Canada [AANDC], 2012; Canadian Charter of Rights and Freedoms, 1982; Sookraj, Hutchinson, Evans, & Murphy, 2010), currently comprising approximately 2 percent of the Ontario population (Statistics Canada, 2006). While 52 percent of Ontario First Nations people live in urban centres, 48 percent live on reserves (Ontario Ministry of Aboriginal Affairs, n.d.). Unfortunately, the wellbeing of First Nations communities relative to Ontario non-First Nation communities has been steadily deteriorating (Moazzami, 2011). Wellbeing is a state of welfare or overall quality of life, characterised by factors such as health, happiness, and security. It exists on various dimensions, some of which include social, emotional, psychological, physical, environmental, and spiritual dimensions (Chretien, 2010). Compared to the Ontario population as a whole, First Nations people face many unique challenges which may affect their wellbeing or quality of life. Some of these challenges are achieving an adequate level of education, health disparities, and inequalities of income and employment (Loppie & Wien, 2009). Other challenges Ontario First Nations people face include difficult living conditions, lack of availability or suitability of community services, and limited access to education, nutritious food, and necessary resources (Finlay, Hardy, Morris, & Nagy, 2009; Loppie & Wien, 2009). The impacts of these social determinants are reflected in the overall community wellbeing in many Ontario First Nations communities. Similarly, according to Statistics Canada (2006), First Nations communities represent 96 of the bottom 100 Canadian communities in terms of wellbeing (Indian and Northern Affairs Canada [INAC], 2010). For these reasons, the wellbeing of First Nations people living in rural communities is of substantial concern.

Canadian Index of Wellbeing

The Canadian Index of Wellbeing (CIW) is a representational index designed to measure the multidimensional construct of wellbeing, or overall quality of life. With the subtitle *Measuring what matters*, the CIW analyses the eight most significant dimensions which influence overall Canadian wellbeing. These are; community vitality, democratic engagement, education, environment, healthy populations, leisure and culture, living standards, and time use. Within each of these eight domains are eight subcomponents of wellbeing (CIW, 2012). These components of wellbeing are examined annually, providing comparable wellbeing scores by province and over time. Scores are represented yearly as either positive or negative, indicating whether the component had improved or declined that year (CIW, 2012).

One focus of the CIW is the correlation of Canada's economic productivity (as measured by Gross Domestic Product per capita; CIW, 2012) with changes in the eight domains (i.e., community vitality, democratic engagement, education, environment, healthy populations, leisure and culture, living standards, and time use). Following the CIW's slogan *Measuring what matters*, it is important to note that economic productivity does not determine wellbeing in itself (Chretien, 2010). One recent concern which illustrates this point is Canada's 2008 economic recession. Namely, not all spending is good spending. While spending on organizations or services may aid wellbeing, such as education or leisurely activities, spending on other services imply a reduction in wellbeing; for example, spending on crime, incarceration, and repairing damages of natural or man-made disasters (CIW, 2012). Spending on seemingly beneficial services, such as health care, may also be misleading. That is, an increase in spending towards services such as addiction treatment centres does not specify whether a population is improving (more individuals are seeking help) or declining (more individuals are addicted).

As a multidimensional construct, the eight dimensions of wellbeing examined by the CIW (Michalos et al., 2011) exist as an interconnected web or mandala, whereby a change on one domain impacts all others. Wellbeing is at the core of this mandala, and is surrounded by three concentric circles or rings. Each ring represents different concepts of wellbeing. These are: personal resources, public resources, and ecosystem resources, respectively (Michalos et al., 2011). To increase content validity, the 2012 CIW has changed the *Mandala of Wellbeing* to the *Canadian Index of Wellbeing Framework*. This revised framework incorporates the various ideas about happiness, wellbeing, and quality of life (Michalos et al., 2011). When visually illustrated, the eight domains surround wellbeing and are represented as equally spaced circles. Further, these eight circles are themselves surrounded by eight additional circular subcomponents. This visual framework illustrates the complexity of wellbeing, and how it is affected by an interconnection of various social determinants.

While the CIW provides a practical model of wellbeing, this definition of wellbeing may differ significantly from the definition held by many First Nations people. For this reason, it has been argued that social determinants in First Nations communities should be examined separately from typical urban Canadian communities (McHardy & O'Sullivan, 2004).

Social Determinants

Social determinants are factors which directly, and indirectly, impact health and wellbeing. They are the circumstances that an individual experiences throughout their life, which are shaped by factors such as the environment in which they are born and raised, as well as the conditions in which they grow, age, and work (WHO, 2008). Social determinants may be either beneficial or harmful to a community and its members. When social determinants contribute positively to a community, they include sustainable income, adequate education, safe and affordable housing, health and mental health services. Loppie and Wien (2009) present the social

determinants of First Nations peoples health in three levels; proximal, intermediate, and distal. Proximal social determinants are those which impact an individual emotionally, psychologically, physically, and spiritually. They directly influence health, and exist in both the physical and social environment. For example, chronic illness, food insecurity, education, employment and income are all included among proximal determinants. Intermediate social determinants exist more broadly in the community, and include individuals' feelings of connectedness with their community, as well as the availability of community systems and services such as education and health care. Finally, distal social determinants are the social, political, and economic conditions of a community. They include cultural identity, language knowledge, colonialism, and social exclusion. Of these three levels, distal social determinants have the most profound impact on health because they influence both proximal and intermediate circumstances alike (Loppie & Wien, 2009). For example, a distal determinant could include the cultural needs of a community, and whether these needs are incorporated into services such as education and health care (Kanu, 2005; Schiff & Moore, n.d.; Wyrostok & Paulson, 2000).

Wellbeing

Social determinants of health largely affect wellbeing. Wellbeing is a state of welfare, represented by various concrete behaviours and events. For this reason, wellbeing is both subjective and objective. As a subjective concept, individuals hold different values and perspectives about what shapes their wellbeing or quality of life. For some, wellbeing includes perceived health, happiness, and wealth. For many First Nations, however, wellbeing may be more significantly rooted in culture and language (Canadian Wellbeing Index [CWB], 2001). To objectively measure wellbeing across groups, an empirical and quantitative approach must be taken. That is, the social determinants which interact to shape wellbeing must be collectively measured and analysed.

One determining factor in individual and community wellbeing is living conditions which, for many Ontario First Nations communities, are below the National standard in terms of housing, resources, and services. According to Loppie and Wien (2009), these difficult living conditions are a consequence of low income rates, which are associated with individual and family levels of education, quality of learning institutions, availability of jobs, and physical and/or mental health or ability to work. According to the Ontario Ministry of Aboriginal Affairs (2012), the average, annual income of Canadian First Nations people living in urban centers is 14 percent lower than Non-First Nations people. Of even greater concern is the annual income of First Nations people living in First Nations communities, which is 21 percent lower than Canadian Non-First Nations, averaging about \$17,000. Poverty is the combination of low income and social exclusion, defined in terms of *absolute* poverty or *relative* poverty (“Poverty Stats”, 2008). Absolute poverty occurs when an individual or community is unable to meet their basic needs. Relative poverty occurs when an individual or community is below the norm of their majority counterpart population. Under these conditions, many Ontario First Nations communities are relatively poor, with some rural communities experiencing absolute poverty. Low income, poor and overcrowded living conditions, and limited access to health care contribute to bad health and disable individuals who would otherwise be capable of working (Loppie & Wien, 2009). In small communities such as rural First Nations communities, this does not only reduce the individuals’ quality of life, but has a negative effect on the wellbeing of the community as a whole.

Another concern regarding community income was raised by Bakhtiar Moazzami (2011), who questioned the method used by the Canadian Census in their data collection process. Namely, income data is collected on the basis of the population, aged 15 and older, who report an annual income. This is problematic for First Nations people, who have a large population

under the age of 15 (Moazzami, 2011). In Ontario, individuals under the age of 15 account for approximately 29 percent of the First Nations population (Ontario Ministry of Aboriginal Affairs, 2012). Furthermore, in collecting income data, the Canadian Census excludes the population who do not report an annual income. This overestimates the income of many First Nations communities and ignores the economic issue at large.

Compared to their urban counterparts, food insecurity among Ontario First Nations communities is about 2 to 4 times higher (Finlay et al., 2009). For many First Nations communities, choice of food is extremely limited due to the higher costs, and nutritious alternatives are seldom available (Finlay et al., 2009). Unfit drinking water is also problematic among some rural communities, putting them in conditions comparable to those of Third World countries (Fontaine, 2007; Loppie & Wien, 2009; Pinstrup-Anderson, 2009). Further, research indicates that poverty and food insecurity lead to chronic health conditions such as obesity, diabetes, and depression (Gates et al., 2012; Loppie & Wien, 2009). Whereas Ontario urban communities receive funding and support from various levels of government, for services such as programs, shelter houses, food banks, etcetera, First Nations communities are under federal jurisdiction (Lavoie & Forget, 2011). This limits the flexibility for community based programs and services, since government funding is determined by the population size, and is not relative to or sensitive of social and health conditions (Sookraj et al., 2010).

Many Ontario First Nation children living in rural communities come from low-income families (North-South, 2007a,b; as cited in Finlay et al., 2009). Compared to their majority population counterparts, children from low-income families typically face greater academic challenges (Benzies et al., 2011). For instance, amongst the entire Ontario population in possession of a high school diploma, First Nations are largely underrepresented (Sookraj et al., 2010). Many explanations have been offered regarding the poor education provided to First

Nations children living in rural communities. One of these explanations, suggested by Loppie and Wien (2009), is physical lack of spaces to play or study. That is, the cramped living quarters and absence of public libraries and coffee shops. More significantly, educational institutions in Ontario First Nations communities are substandard, lacking basic supplies and textbooks and often do not exceed the elementary level (Finlay et al., 2009). To receive an adequate education at the high school or University level, children from many rural communities must relocate to an urban community. This creates a cultural issue as the public education system neglects First Nations languages and worldview, which are a fundamental aspect of culture (Battiste, 1998; Finlay et al., 2009; Kanu, 2005). Furthermore, this threatens cultural identity, and can have detrimental impacts on individual and community wellbeing (Hallett, Chandler, & Lalonde, 2007; McCarty, 2003).

As recognized by the CIW (Michalos et al., 2011), the social and physical environment of a community influences the overall wellbeing and quality of life of its members. Unfortunately, in many First Nations communities housing conditions are poor and unfit, with 44 percent requiring major repairs (Finlay et al., 2009). With extreme unemployment rates, often reaching 90 percent, much of a family's income is collected from social assistance and, as most of these families fall below the poverty line, financial resources for these major repairs are not feasible (Loppie & Wien, 2009). Further, appropriate supplies and services are less accessible than in urban communities. For example, some rural First Nations communities do not have heat and hydro facilities, police detachments, and fire halls (AANDC, 2012). The lack of affordability of housing forces individuals to share a dwelling which, on many First Nations communities, leads to situations of extreme overcrowding (Loppie & Wien, 2009). Moreover, according to Statistics Canada, First Nations people are 5 times more likely to live in overcrowded dwellings than Non-First Nations people (2006). A dwelling is considered overcrowded when the number

of occupants exceeds the number of available rooms (Statistics Canada, 2006). These dwellings are not built to withstand such crowded conditions and create dangerous health hazards such as exposure to excessive mould and chronic stress. Inability or shamefulness¹ to work has also been reported. Aside from physical discomfort, cramped living arrangements generally cause a decline in health and wellbeing (Loppie & Wien, 2009).

The effects of substandard living conditions on First Nations people living in rural communities are more extreme, as supportive community services, such as friendship centres and mental health services, are less available than in urban communities. Friendship centres, generally located in urban areas, offer public cultural services and programming to First Nations people. They help to facilitate the transition of individuals moving from rural to urban communities (National Association of Friendship Centres, 2012). Further, friendship centres are supportive outlets that help to guide First Nations people towards additional services to fulfill their needs, help them to develop skills, and improve their quality of life. Consequently, these services are respectful towards First Nation culture and languages. Knowledge of First Nations language is a major factor in keeping traditional practices alive (Battiste, 1998; Hallett et al., 2007; McCarty, 2003). As with any language, words used to describe different phenomena may exist in one language and not in another. More so, language is necessary for culture to exist (Hurley, 2000; McCarty, 2003). This is especially true for most First Nations cultures, whereby oral history is an important method for conveying traditional practices and worldviews to future generations (Hurley, 2000; McCarty, 2003).

Friendship centres also offer mental health and treatment services (“Ontario Federation of Indian Friendship Centres”, n.d.). As cultural traditions are particularly important to First

¹ The living conditions of First Nations communities are described here as shameful; this was how an individual from the Third World Canada Film Tour (2012) had described their experience while growing up in an Ontario First Nation community. The lack of running water had prevented them from showering, and they were socially excluded as a result.

Nations, research shows that language knowledge and culturally appropriate services protect against mental health conditions and suicide (Dickie, 2009; Hallett et al., 2007). As suicide rates among First Nations adolescents are 5 to 7 times higher than the general Canadian population, access to friendship centres and their culturally appropriate services may be associated with wellbeing (Statistics Canada, 2006).

Relative to the general Canadian population in 2000, life expectancy for First Nations people was 8.1 years shorter for males and 5.5 years shorter for females, at 68.9 years and 76.6 years, respectively (INAC, 2001). However, some literature suggests that these figures may be underestimated (Canadian Medical Association, 2012). Among the Ontario population, First Nations people are also more susceptible to developing chronic health problems. These include, but are not limited to, oral disease (Regional Health Survey [RHS], 2008/10), digestive system disease (Tjepkema et al., 2010), obesity, type 2 diabetes, sleep apnea, cardiovascular disease and cancers (Dickie, 2009; Leavitt, Tonniges, & Rogers, 2003; Loppie & Wien, 2009). Because First Nations people are more susceptible to chronic illness, they require higher levels of care and have shorter life expectancies compared to the majority Ontario population. With many First Nations communities rurally located, it is difficult for First Nations people to access health care facilities. Although the Canadian Health Act (CHA, 2010) ensures that all Canadian citizens are entitled to basic health benefits and insurances, Ontario First Nations communities fall short of these expectations. This inequality in access to health care is a consequence of location and accessibility, as well as cultural, financial, and language barriers (CHA, 2010).

Evidently, social determinants of health and wellbeing at the proximal, intermediate, and distal level shape an individuals' overall quality of life. As social determinants have such a profound impact on community wellbeing, scales have been developed to measure this construct.

Community Wellbeing Index

The Community Wellbeing (CWB) Index categorizes social determinants into four main components: Income, Education, Housing, and Labour force activity. These components are then averaged together to produce an overall wellbeing score ranging from 0 to 100 (CWB, 2006). Although CWB scores vary by region, on average First Nations CWB scores are 20 points lower than non-First Nations CWB scores, and portray a greater range of variability (AANDC, n.d.). To better understand this discrepancy between Canadian urban communities and rural First Nations communities, Indian and Northern Affairs Canada (INAC) has developed the Community Wellbeing Index (CWB). This index is a quantitative measure of a community's social and economic wellbeing, providing a tool to determine whether wellbeing is improving, declining, or remaining the same. Using Statistics Canada's data of Population, the CWB index uses four main community indicators: income, education, housing, and labour force. Since Statistics Canada is updated every 5 years, the CWB is also revised every 5 years. Categorizing these social determinants helps to clarify what community indicators are problematic among First Nations communities, and where improvements are necessary.

Income. The first component, income, is calculated in three steps. To achieve per capita income, the total community income is first divided by the total population. Second, to correct for the variability of income within a community which cannot be accounted for, the "per capita income is transformed into its logarithm" (CWB, 2012, "Defining the CWB Index"). The third step is to determine a theoretical range to indicate the community's income score. For scores ranging from 0 to 100, the CWB used \$2,000 to \$40,000 as the theoretical range for Canadian communities.

Education. The education component of wellbeing is divided into two subcomponents; high school plus and university. High school plus is the proportion of a population, 20 years and older, with a high school diploma (CWB, 2012). Subsequently, university is the proportion of the

population, 25 years and older, with a Bachelor's degree or higher. In Canada, the level of education that an individual achieves has become increasingly important in determining their future career options and potential earnings available. Thus, university is a more recent subcomponent of education. This may explain why students who have completed a bachelor's degree before the age of 25 have been excluded at the time of data collection. Of these two subcomponents of education, high school plus receives two-thirds the weight on the overall education score, as high school completion has a more profound impact on a community and its members.

Housing. The housing component score for community wellbeing is obtained on the basis of housing quantity and quality. Housing quantity is the proportion of the community who live in dwellings with at least one room per person. This ratio is calculated by dividing the number of individuals in one dwelling by the number of rooms in that dwelling (CWB, 2012). This is a problematic component for many Ontario First Nations communities, with 26 percent experiencing extremely overcrowded living conditions (Finlay et al., 2009). That is, the number of individuals exceeds the number of available rooms, making living conditions tight and uncomfortable. For instance, at least one Ontario First Nations community has been recognized for these overcrowded living conditions, with two-bedroom dwellings accommodating as much as 20 individuals (Fairbairn, 2012). On the other hand, housing quantity is the proportion of the community who live in dwellings which "are not in need of major repairs" (CWB, 2012). That is, those which meet the essential living standards, such as proper plumbing, safe electric wiring, and stable ceilings, walls, and flooring. Often, housing in First Nations communities are of poor quality and face issues of affordability (Sookraj et al., 2010). As in any large scale census, it is not practical to account for every individual component, such as room size, aesthetics, or minor

repairs such as cracked or broken windows. For this reason, many relevant components are not included.

Labour Force Activity. The labour force component of wellbeing is based on Labour force participation and Employment. Labour force participation is the proportion of the population, ranging from 20 to 65 years old, who are involved in the labour force and are capable of working (CWB, 2012). Alternatively, employment is the proportion of those involved in the labour force and who are currently employed and earning an income. High unemployment rates are characteristic of Ontario First Nations communities for reasons such as accessibility and availability (Sookraj et al., 2010).

While some research claims that the relative wellbeing of Ontario First Nations communities has improved (INAC, n.d.), other research has determined the opposite. For instance, Moazzami (2011)'s research reveals that the economic and social wellbeing of some Ontario First Nations communities has actually declined from 2001 to 2006. Whichever the case, the socio-economic wellbeing of most Ontario First Nations communities remain well below the standards of their majority population counterparts. Ultimately, this discrepancy in wellbeing between many First Nations communities and non-First Nations communities in Ontario is unacceptable. As a Nation, it is critical that Canadians acknowledge this inequality, and understand how social determinants impact community wellbeing.

The Present Study

While these four components add together to create a composite score for community wellbeing, the present study will focus more specifically on education and housing. Education is an important social determinant of wellbeing because it has a substantial impact on various levels of an individual's quality of life (Chretien, 2010; CWB, 2010; Li et al., 2009; Loppie & Wien, 2009; Sookraj et al., 2010; WHO, 2008). Following Loppie and Wien's (2009) categorization,

education exists mostly at the proximal level, and directly influences an individual's sense of self-worth and future opportunities. Further, this component extends into the intermediate level in terms of access to institutions and possible communal benefits (what skills are developed and does it improve the community as a whole), as well as the distal level (language and cultural knowledge learned outside of the institution). Safe and affordable housing is also an important social determinant of wellbeing, as it is where individuals spend the majority of their time, raise their children, and keep their possessions.

Compared to the educational institutions in urban centers, those located on many Ontario First Nations communities are substandard, typically lack basic supplies and textbooks, and do not exceed the elementary level (Finlay et al., 2009). Compared to their majority population counterparts, Ontario First Nations peoples in possession of a high school diploma are largely underrepresented (Sookraj et al., 2010). Therefore, it is hypothesized that among Ontario First Nations communities, having a high school diploma or university degree will predict wellbeing. To receive an adequate education and increase the likelihood of receiving a high school diploma or university bachelor's degree, First Nations people from many rural communities must relocate to an urban community (Finlay et al., 2009). Unfortunately, the public education system neglects the languages of First Nations people and does not incorporate them into the curriculum (Battiste, 1998). With the growing need for culturally appropriate community services, it is hypothesized that among Ontario First Nations communities, having a school located within the community will predict community wellbeing (Kanu, 2005). Similarly, it is hypothesized that the geographic zone of a community will be correlated with community wellbeing.

With high unemployment rates, many families fall below the poverty line (Loppie & Wien, 2009). As a result, housing shortages and affordability may obligate families to share dwellings, leading to overcrowding (RHS, 2008/10). Therefore, it is hypothesized that among

Ontario First Nations communities, multi-family dwellings will decrease community wellbeing. Finally, labour force participation represents the proportion of the population who are capable of working, and is separate from current employment status (CWB, 2012). While job availability is an issue in itself, it is predicted that labour force participation will increase a community's wellbeing.

Method

Participants

Of the 152 First Nations communities in Ontario, statistics data and community wellbeing scores are unavailable for 53 of these communities. To account for this, listwise deletion was used to remove those communities which provided no or insufficient information. In total, there are community wellbeing scores for 99 of these Ontario First Nations communities.

Data Sources

Census Data (AANDC, 2006)

Aboriginal Affairs and Northern Development Canada (AANDC) provides Census data on Canadian First Nations communities. These profiles are a compilation of community-level data from various subdivisions within AANDC, which include: Band Governance Management System (BGMS), Indian Lands Registration System (ILRS), First Nations and Inuit Transfer Payment (FNITP) system, the Band Name System, and the Indian Register System (IRS). In addition, AANDC includes Statistics Canada Census data, as well as the Aboriginal Canada Portal. While some sectors of these First Nations Profiles are updated on a regular basis, Statistics Canada collects data every 5 years. To ensure that the Census data used was the latest available, this study used data from 2006.

The Community Wellbeing Index (INAC, 2006)

The Community Wellbeing (CWB) Index was developed by Indian and Northern Affairs Canada (INAC), and provides a quantitative measure of a community's social and economic well-being or quality of life. Specifically, the CWB Index is concerned with the wellbeing of Canada's First Nations and Inuit communities. Using Statistics Canada's Census data of Population, the CWB Index uses four main community indicators (income, education, housing, and labour force) to determine community wellbeing scores. Consequently, CWB scores are also calculated every 5 years. This index provides a tool to measure the state of a community's wellbeing, and determine whether it is improving, unchanging, or declining.

Predictors

Predictor variables were selected from AANDC's census data. They include: possession of a high school diploma (i.e., proportion of the population age 20 and over who had attained a high school diploma by 2006), possession of a university degree (i.e., proportion of the population age 25 and over who had attained a university degree by 2006), school located within the community (i.e., whether there was a school located within the community, independent of its condition), multi-family dwellings (i.e., dwellings which accommodate more than one family, often leading to situations of overcrowding; that is, the number of individuals exceeds the number of available rooms), labour force participation (i.e., proportion of the community population age 20 to 65 involved in the labour force and independent of current employment status), and geographic zone. Geographic Zone refers to the distance of a community to its nearest service centre. Communities are grouped into one of four Zones, ranging from more closely located with year-round road access (Zone 1), to less closely located with no year-round road access (Zone 4) (AANDC, 2012b). Following AANDC (2012b)'s definitions of Geographic Zone, Zone 1 to 3 have year-round road access, with Zone 1 representing communities that are located within 50 kilometers of a service centre, Zone 2 representing communities that are

located within 50 to 350 kilometres of a service centre, and Zone 3 representing communities that are located over 350 kilometres from a service centre. Alternatively, Zone 4 represents communities that have the greatest distance to a service centre, as they do not have year-round road access. Therefore, the higher the number for Geographic Zone, the greater the travel distance to a service centre, and consequently, the higher the costs of transportation (AANDC, 2012b).

Procedure

Using data from 2006, researchers at Lakehead University have organized a database for Canadian First Nations Reserves. Data has been compiled and entered manually from online tables and PDFs from the Aboriginal Affairs and Northern Development Canada (AANDC) and The Community Wellbeing (CWB) Index.

Statistical Analyses

Bivariate correlations were used to examine the relationships between age, sex, and CWB scores. After controlling for age and sex, regression analyses were computed to test the impact on CWB from six predictor variables: possession of a high school diploma, possession of a university degree, school located within the community, geographic zone, multi-family households, and labour force participation. An additional hierarchical regression analysis was computed to test whether schools located within First Nations communities, and the communities' geographic location combined, had an impact on CWB. In the latter regression analyses, the predictor variable representing schools located within First Nations communities was entered in Step 1. Geographic Zone was then entered in Step 2 of this analysis to determine whether geographic zone has an impact on CWB, while controlling for the presence of a community school.

Results

Bivariate correlations

Bivariate correlations of age and Community Wellbeing (CWB) scores are presented in Table 1. Sex was not included in the bivariate correlation because no significant effects between sex and CWB scores had emerged. The age group 0 to 19 had accounted for 40.67 percent of the overall population living in Ontario First Nations communities in 2006, and was negatively related to CWB. Specifically, this proportion of the population was negatively related to the labour force component of CWB. Next, the age group 20 to 64 had accounted for 53.55 percent of the overall population, and was not related to overall CWB. However, the 20 to 64 age group is positively related to the education and housing component of CWB. Lastly, the 65 and above age group accounted for 5.78 percent of the population and was positively related to overall CWB, and all of its components, excluding labour force.

Social determinants as predictors of Community Wellbeing

Regression analyses are presented in Table 2. Consistent with the hypotheses, attainment of a high school diploma and university degree significantly and independently predicts CWB. Results also show that, consistent with the hypothesis, having a school located within the community predicted community wellbeing (CWB). Regression analyses indicate that geographic zone was a significant predictor of decreased CWB. Moreover, when geographic zone was analysed after controlling for schools located within the community, results indicated that 35% of the variance was accounted for and there was a significant decrease in CWB ($R^2 = .368$, $\Delta F(1, 75) = 12.625$, $p < .001$). Additionally, multi-family households predicted a decrease in CWB, and labour force participation significantly predicted an increase in CWB. These results were all consistent with the hypotheses.

Discussion

Wellbeing is a holistic view of a community's overall health, wellness, and quality of life (Chretien, 2010). In Canada, there is a large discrepancy between community wellbeing (CWB) scores of First Nations communities (23 point range; 39 to 77) and non-First Nations communities (38 point range; 64 to 87) ("First Nation and Inuit Community Well-being", 2010). According to the World Health Organization (2008), among the various social determinants that contribute to a community's health and wellbeing are access to schools and education, quality of homes, and living conditions. These determinants directly and indirectly relate to community members' ability to work and participate in the labour force. Unique to First Nations communities and worldviews, wellbeing is a balance of social, emotional, psychological, physical, environmental, and spiritual dimensions (Chretien, 2010). Although quantitative measurements cannot wholly define and encompass the subjective aspects of wellbeing, empirical measurements from the Canadian Index of Wellbeing (CIW) and Community Wellbeing (CWB) Index used in this research contribute to a better understanding of the socio-economic situation of Ontario First Nations communities.

In the present study, analyses indicate that the age group 0 to 19 is negatively correlated with Community Wellbeing (CWB) scores. This is an important finding, as nearly half of the Ontario First Nations population fall into this age group (40.67 percent). As wellbeing is affected by factors such as health, happiness, and security, this may suggest that the social needs of this proportion of the population are not being met within the community (e.g., proper education, nutrition, safe living arrangements) (Finlay et al., 2009; Gates et al., 2012). Further, a negative correlation was shown between this age group and the labour force component of CWB. This may indicate that those communities with higher youth populations have a lower proportion of the population that are employed or able to participate in the labour force. According to Statistics Canada (2011), in 2006 the average age of the Canadian First Nations population ($M =$

27) was 13 years younger than the average age of the Canadian non-First Nations population ($M = 40$). This shows a large discrepancy in population age which, for various reasons, may be associated with reduced CWB.

Interestingly, the proportion of the population above the age of 65 was positively correlated to overall CWB on 3 of its 4 components. Typical among First Nations communities, Elders are highly respected teachers of cultural knowledge and traditions. Although they represent only a small percentage of the overall First Nations population, the presence of Elders is often recognized as a positive influence on the wellbeing of a community and its members. Several explanations may account for this relation, such as their influence on family and community members. For instance, many fluent speakers of First Nations languages are elderly (McCarty, 2003). As First Nations cultural history is heavily rooted in oral tradition, presence of language speakers may support their community by preserving cultural continuity (Dickie, 2009; Hallett et al., 2007; Hurley, 2000).

The present study was designed to evaluate social determinants of community wellbeing (CWB) in Ontario First Nations communities, with a focus on education and housing. Regression results were consistent with hypotheses, showing that among Ontario First Nations communities, attainment of a high school diploma and university degree independently predicts CWB. These results add to the previous literature that examine the association of education attainment and wellbeing (CIW, 2012; Hull, n.d.; Kanu, 2009; Loppie & Wien, 2009; WHO, 2008). As First Nations languages and worldviews are often not recognized by the public education system, results had supported the hypothesis that schools located within First Nations communities predict CWB (Battiste, 1998; Finlay et al., 2009; Kanu, 2005). Consistent with the hypothesis, results indicate that as geographic zone increases (and the community becomes more rural), CWB decreases. These are appropriate findings, as the higher the geographic zone, the greater

the distance the First Nations community is to a service centre. Additionally, the more rurally located the community is, the fewer the resources that are available. These may include food resources (e.g., grocery stores which offer a selection of nutritious and affordable food) health services (e.g., hospitals and counselling services), and leisurely resources (e.g., coffee shops, movie theatres, and libraries). Interestingly, as education facilities are more frequently located within urban communities (and may create difficulties of relocation to those living in more rural First Nations communities), results were consistent with the hypothesis that when controlling for schools located within the community, geographic zone had decreased the CWB score (Finlay et al., 2009). That is, regardless of a school being located within the community, the more rurally located the Ontario First Nations community is (the less access it has to valuable resources and services) the lower its CWB score.

The aspect of housing analysed in the present study was the proportion of the Ontario First Nations population living in dwellings shared by multiple families. In accordance with the literature, results show that multi-family households decrease CWB. Similarly, overcrowded living conditions negatively impact health and may reduce an individuals' ability to work (Loppie & Wien, 2009). Separate from employment, labour force participation is the proportion of the population who are capable of working (CWB, 2006). Supporting the hypothesis, increased labour force participation predicts increased CWB.

Consistent with the present research education is a strong social determinant of CWB. As outlined in the Constitution Act of Canada, all people have the right to education (Canadian Charter of Rights and Freedoms, 1982). Unfortunately, First Nations communities are less likely than the majority population to possess a high school diploma. (Sookraj et al., 2010). Further, research shows that First Nations people are less likely graduate from high school and to subsequently proceed to attain a post-secondary degree (Hull, n.d.). One possible explanation for

this is the quality of education offered in First Nations communities, and its failure to prepare students for post-secondary educational studies (Hull, n.d.). Alternatively, when community members of Ontario First Nations communities achieve a high school diploma or university degree, it is positively reflected in their CWB scores. As Loppie & Wien (2009) indicate, education is an important social determinant on all levels of health (i.e. proximal, intermediate, and distal). Therefore, attainment of an adequate education profoundly impacts employment opportunities, income, and living conditions (Loppie & Wien, 2009). An interesting future direction would be to explore how attainment of a university degree predicts CWB more specifically. That is, if and how those First Nations people who attain a university degree contribute their knowledge back to the community. It would also be interesting to analyse the cultural support services and traditional language courses offered in university settings, to determine whether they are associated with CWB.

As results demonstrate, education is a significant predictor of community wellbeing (CWB). Research done by Hull (n.d.) had indicated that First Nations students who had attended programs or schools close to their community had higher completion rates than those who traveling farther distances. By remaining in their own community, First Nations students grow up surrounded by their own culture, languages, family, and community members. This helps to preserve cultural continuity and family support. As hypothesised, schools located within First Nations communities predict increased CWB (Battiste, 1998; Finlay et al., 2009; Kanu, 2005). Unfortunately, for many rural First Nations communities, appropriate schools may not be located within the community. This creates a difficulty of access to adequate education institutions, which is increasingly apparent for Ontario First Nations communities with higher ranked geographic zones (which represents a more rural location). Since zones are geographically categorized by the distance to their nearest service centre (AADC, 2012b). Zones 1, 2, and 3 (50,

50 to 350, and over 350 kilometers from a service centre, respectively) have year-round road access, while zones 4 are accessible only seasonally by winter roads on frozen lakes or by fly-in charter aircrafts (AANDC, 2012b; North-South, 2007a,b; as cited in Finlay et al., 2009).

Therefore, the geographic zone of a community contributes to the accessibility and availability of resources and services, as it represents the distance to the nearest service centre. These also include leisurely resources and services that are not included in the data, such as movie theatres, restaurants, and other activities which contribute to wellbeing. As higher geographic zones represent more rurally located communities, cost of transportation to necessary services and resources is increased. This creates a disparity from urban communities in terms of what is available to the community. Consistent with the hypothesis, geographic zone decreases CWB.

Similarly, relocating from a rural First Nations community to a non-First Nations urban community to participate in mainstream education may pose social hardships to First Nations peoples. As hypothesised, when controlling for schools located within the community, geographic zone had decreased CWB. This indicates that, independent of the presence of a school, First Nations communities located geographically farther from service centres decrease CWB. Since results also indicate that schools located within Ontario First Nations communities predict CWB, communities that are more rurally located may experience barriers that are not statistically accounted for (e.g., safe facilities, comfortable study spaces, competent and professional staff members, and appropriate supplies). Another future direction would be to look at the quality of these schools located within rural First Nations communities.

On average, community wellbeing (CWB) scores for First Nations communities are 20 points lower than that of their non-First Nations counterparts (AANDC, n.d.). In addition to education, the present study had explored the impact of multi-family households and labour force participation on CWB. High unemployment rates are characteristic among many Ontario First

Nations communities, leaving many families to rely heavily on social assistance (Finlay, et al., 2009; Loppie & Wien, 2009). Perhaps related, housing quality among many rural Ontario First Nations communities are in need of major repair (Finlay, et al., 2009). For reasons of affordability, families may resolve this by sharing a dwelling. While some benefits may result from multi-family dwellings, such as shared income and greater family ties, this leads to conditions of overcrowding. A dwelling is considered overcrowded when the number of occupants exceeds the number of available rooms (Statistics Canada, 2006). In First Nations communities, many households are not able to withstand these overcrowded conditions. As a result of overcrowding, poor ventilation can lead to health hazards and conditions such as mould, allergies, and asthma (Loppie & Wien, 2009). Further, living in these cramped conditions may cause psychological stress or illness, where one family member's negative mood or habits may influence another. Results confirmed the hypothesis that multi-family dwellings contribute to a reduction in CWB.

As wellbeing is made up of a network of various social determinants (CIW, 2012), these social determinants are not independent and may influence additional others. For instance, higher education attainment may increase one's likelihood of employment, resulting in an increased annual income. Similarly, housing conditions may be a good representation of socio-economic status, health, and wellbeing. Although high unemployment rates are characteristic of Ontario First Nations communities, they are measured separately from labour force participation (Loppie & Wien, 2009; CWB, 2006). Labour force participation is the ability to work, and does not reflect current employment status (CWB, 2006). Consequently, high rates of labour force participation may be associated with variables such as having received an adequate education or skills training, being literate, and being in good health. When Ontario First Nations communities

are able to participate in the labour force, as hypothesised, it positively impacts the overall CWB score.

Community wellbeing (CWB) scores vary by region. However, the discrepancy between CWB scores of First Nations communities and their non-First Nation counterparts has provoked public attention and concern. Two current areas of discussion for First Nations communities in Canada are housing quality and education attainment. Since its conception in 2003, the Annual First Nations Northern Housing Conference (n.d.) has facilitated innovative workshops that bring together First Nations community leaders, housing professionals and various stakeholders. *Planning Today... Building Tomorrow* workshops enable collaboration between housing professionals and First Nations communities. Through these workshops, attendees share knowledge, create networks, and develop skills and strategies for building and maintaining safe homes. Recognition is also given at these workshops to First Nations communities that demonstrate innovative housing achievements, ultimately empowering First Nations people at the community level. The success of this program may be attributed in large part to its participatory approach to working with First Nations communities.

Social determinants of CWB are not independent issues. Rather, social determinants are shaped by various forces such as the community members and geographic zone, the federal and municipal governments, policy makers and allocation of funding, and the surrounding social, environmental, and historical contexts. For change to be successful, transformation must occur on various levels. Most importantly, communities must be involved in negotiation and the decision-making processes. This is a current issue in education for First Nations people, as demonstrated by the recent protest of the proposed federal education act (Krasowski, 2013). While this act intends to address the education concerns of Canadian First Nations peoples, consultation has not yet included representatives of these First Nations communities. If First

Nations people are not consulted on First Nations concerns, adequate legislation is not possible. In light of current and outstanding issues surrounding First Nations on policy and funding decisions, this research highlights an important social determinant (i.e., education) that ought to be addressed to improve the wellbeing of Ontario First Nations people and communities.

Overall, results of the present study suggest that social determinants of wellbeing associated with education (i.e., possession of a high school diploma, possession of a university degree, school located within the community, and labour force participation) predict community wellbeing in Ontario First Nations communities. Correspondingly, social determinants relative to housing (i.e., high geographic zone or location, and multi-family households) decrease CWB in Ontario First Nations communities.

Implications

Results of the present study contribute to the literature of social determinants of community wellbeing (CWB) in Ontario First Nations communities. These results suggest that access to education, and higher levels of education attainment, are important to the overall CWB of Ontario First Nations communities. To date, most research involving social determinants of wellbeing in First Nations communities pertain to the negative effects on wellbeing.

Alternatively, the present research provides insight into the social determinants which may improve CWB scores. These findings are useful for guiding decision makers of policy and funding for Ontario First Nations communities.

Limitations and future direction

This study used community-level data available from online tables and PDFs available from Aboriginal Affairs and Northern Development Canada website and the Community Wellbeing Index. While there are 152 First Nations communities in Ontario, CWB scores were only available for 99 First Nations communities. A limitation of this study is that First Nations

communities that do not have sufficient data may be those which demand the most attention.

Future research should obtain and analyse CWB data for First Nations communities in Ontario that are currently lacking adequate statistical data.

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Table 1. *Bivariate Correlations*

Variable	CWB Score	Income Score	Education Score	Housing Score	Labour Force Score
Age 0-19	-.226	-.196	-.090	-.050	-.412**
Age 20-64	.097	.234	.325*	.328*	-.104
Age 65 +	.259*	.418*	.393**	.443*	.064

Note. * $p < .05$ ** $p < .01$

Table 2. *Regression Analysis of Community Wellbeing*

Predictors	R^2	Adj. R^2	β	ΔF	df
High School Diploma	.142	.131	.060	12.720***	1, 77
University Degree	.146	.135	.229	13.174***	1, 77
Community School	.114	.104	6.031	11.803***	1, 92
Geographic Location	.348	.340	-4.585	40.592***	1, 76
Multi-family Households	.212	.196	-.503	18.363***	1, 49
Labour Force Participation	.539	.533	.704	90.132***	1, 77

Note. *** $p < .001$