

REFEREED ARTICLE

Food Insecurity in Indigenous and Northern Communities

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Abstract

School nutrition programs are integral to academic success. To support the whole child, teachers must appreciate what role nutrition plays in academic success. Studies of food insecurity reveal there are degrees of severity. Although the key determinate of food security is poverty, employment is not necessarily a shield. One can eat and still be malnourished by high starch low nutrient food. In northern communities, severe costs result in food insecurity reaching higher up the income pyramid. Co-occurring measures of poverty, food insecurity, obesity and diabetes within Manitoba's Indigenous communities are high. Schools are ideally positioned as supports within our communities.

In Canada, our first world society needs to evolve how we think of food insecurity. One can be fed and still be malnourished. Obesity is often a co-occurring measure. Lack of financial resources lead to purchasing energy dense, inexpensive, processed foods high in sugar, fat, and salt (Farrell, 2014). A simple illustration would be deciding between a \$7.50 head of cauliflower or a frozen pizza for \$3.99. Our food system has created a processed food environment, wherein natural nutrients are priced much higher than calorie dense, nutrient poor foods. Households that regularly consume high calorie, low nutrient meals can be simultaneously overweight and under nourished. Food insecurity in a first world country like Canada looks very different from conventional starving stereotypes.

Food insecurity in Indigenous communities can be said to be linked to colonialism. Residential schools scaffold assimilation, which included a transition between traditional foods and market foods (Skinner et al., 2013). Economic disadvantages, environmental change, and geographic isolation coalesce into persistent modern food insecurity in Indigenous communities (Drachner & Tarasuk, 2018). There are no simple solutions. School buildings, staff, and the policies that rule them can be a strong force of support in the face of food insecurity for our youth. Schools, a manifestation of colonialism, can be used as a supportive, healing tool to address food security in our communities.

Food Insecurity and Its Correlates

Various definitions of food security circulate between organizations, regions, and countries. The World Health Organization (WHO, 2018) breaks food security down into four aspects: availability, access, utilization, and stability of access. A basic understanding details "limited or uncertain availability of nutritionally adequate and safe foods" (Ansief et al., 2017). A deeper study reveals that, like many conditions, there are degrees of severity. Health Canada's model of food insecurity is defined by three levels: (1) food secure – no (or only one) indication of difficulty with access to food because of inadequate income, (2) moderately food insecure – the quality and/or quantity of food consumed were inadequate, (3) severely food insecure – reduced food intake and/or experienced disrupted eating patterns (Statistics Canada, 2012). As we evolve our concept food security within a first world country, we must differentiate between simple availability and nutritional adequacy.

Statistics Canada does not collect conclusive data on First Nation communities. To acquire accurate statistics for Indigenous communities, research must be conducted in co-operation

with Indigenous communities, such as the First Nations Food, Nutrition and Environment Study (FNFNES), (2012), and A portrait of First Nations and education. Chiefs Assembly on Education, (2012). Collaborative studies with Indigenous communities are key to ecological validity, as “most available statistics understate the true prevalence of food insecurity in Canada [because] First Nations communities are not covered in the Canadian Community Health Survey from Statistics Canada” (Dachner & Tarasuk, 2018, p. 231).

Through an overexposure to poverty, Indigenous communities are disproportionately vulnerable to food insecurity. Indigenous and northern communities report drastically high food insecurity in comparison to Health Canada surveyed communities. For example, Nova Scotia carries the highest rates in Canadian provinces, identifying 17.5% of households as food insecure, against a national average of 8.3% (Dachner & Tarasuk, 2018, p. 232; Roshanafshar & Hawkins, 2018). Indigenous communities participating in the First Nations Food, Nutrition and Environment Study (FNFNES) reported an extensive 38% of households identified as food insecure, increasing as one travels north to a shocking 73% (p. 2, para. 3). Higher rates of poverty in Indigenous communities manifest in greater exposure to food insecurity.

Income

Northern communities are the most disadvantaged in Canada's food supply chain. Low income, common to northern, isolated communities, compounds the challenge. Shipping costs are severe. The price of store (market) food may be five times what southern communities pay. A study comparing a basic grocery list based on the Canada Food Guide priced a family of four's groceries for one month at \$1909.01 in Attiwapiskat, \$1831.76 in Fort Albany, and \$1056.35 in Timmins, Ontario (Veeraraghavan et al., 2016). One month worth of similar groceries in a Manitoba First Nation communities study was \$1032.00 per month, compared to \$623.50 in Winnipeg (Chan et al., 2012, p. 173). At such high costs, food insecurity reaches much higher up the income pyramid in northern communities.

Demographically, Indigenous communities are over exposed to poverty and the repressive shadow it casts. Many organizations have recognized a relationship between race, poverty, education, and food insecurity (Ansief et al., 2017; Assembly of First Nations, 2012; Chan et al., 2012). 40% of Indigenous children live in poverty (Canadian Poverty Institute, 2019, “A Few Facts,” para. 2) compared to the national poverty rate of 9.5% in 2017 (Statistics Canada, 2019). Co-occurring measures of low academic achievement, food insecurity, obesity, and diabetes within Manitoba's Indigenous communities are disproportionately high. This also correlates with high rates of food insecurity. Poorer health outcomes, lower education outcomes, and its ensuing short term and generational effects are the result of a complex system, to which poverty is deeply connected. Over exposure to poverty results in an overrepresentation of poverty's negative effects.

Intriguingly, conventional income and poverty measures alone do not provide a definitive measure of food insecurity. It is primarily a product of household income (Dachner & Tarasuk, 2018; Leet & Bania, 2010), and costs of living (Dachner & Tarasuk, 2018; Gregory & Coleman-Jensen, 2013). Low-income households can be food secure, whereas working households are not (Bickel et al., 2000). A study of main sources of food insecure household income revealed that 16.1% relied on social assistance, while 62.2% were employed (Dachner & Tarasuk, 2018, p. 234). Although the key determinate of food security is poverty (Skinner et al., 2013), these numbers signal that employment does not necessarily shield a family from this burden.

Education

Academic achievement for Indigenous students in Manitoba is dramatically low. Indigenous high school graduation rates hover around a dismal 48.5% compared to 87.9% for their non-Indigenous peers (Manitoba Education and Training. n.d., *Four-Year “On-Time” High School*

Graduation Rates). Causes of this achievement gap are complex and interconnected (Ferguson, 2019), but there is no questioning its consequences. A quarter of a million Manitobans are Indigenous (Statistics Canada, 2017, Figure 1.3). Our education system is underserving a large portion of our Indigenous community.

Following Maslow's Pyramid of Needs, food is our students' first and most fundamental requirement (Salkind, 2008). Poor nutrition can lead to cognition and behavioural problems in children (Ansief et al., 2017; Benton, 2008). It has direct, detrimental effects on overall physical and mental health in both students and families (FRAC/Children's Health Watch, 2015). Research correlates food insecurity with multiple negative, debilitating conditions such as; "restricted physical activity, long-term physical and/or mental disabilities that limit activity at home, work, and school, multiple chronic conditions, and major depression" (Roshanafshar & Hawkins, 2018. p.1). These behaviours clearly interfere with skills acquisition. Low food security is strongly associated with poor academic progress (Faught et al., 2017; Fung et al., 2012). Within Maslow's Pyramid of Needs, to expect a student exposed to food insecurity to become a self-actualizing learner, we must support the whole child than simply providing a nice lesson plan. Food is a fundamental requirement.

Health

Food insecurity has long-term health consequences. Matching high rates of food insecurity, rate of Indigenous diabetes and obesity show extreme disparity with national and provincial averages. Diabetes rates are a shocking 68% vs. 8.7% nationally, and obesity between 64% - 89% vs 30.8% average in Manitoba (Chan et al., 2012, Figure 10). Epigenetics and interactions with environment play a key role in the development and progression of diabetes (Canadian Diabetes Association, 2013). However, there is no denying that Manitoba's Indigenous population scores a devastating incidence rate of this diet-related illness which is the leading cause of heart disease, circulatory failure leading to amputations, failing eyesight, and premature deaths (Asif, 2014; Panagiotakos et al., 2008). Positive correlations between food insecurity and obesity commute to high risks for obesity-related illness and disease as adults (Farrell, 2014; Fung et al., 2012). Poor diet leading to diabetes and obesity is a significant health hazard.

Nutrition Support

Food Delivery Programs

Providing breakfast, especially a frequent and nutritious one, has a marked, positive effect, on both classroom behaviour and academic performance (Adolphus et al., 2013; Ansief et al., 2017; Burrows et al., 2017; FRAC/Children's Health Watch, 2015). Positive food availability correlates with improved attendance, productivity, and decreased tardiness (Colley et al., 2019; Critch, 2020). Research indicates a dramatic, positive influence on participating students showing better relationships and higher trust levels with school staff (Child Nutrition Councils, 2019; Rodgers & Milewska, 2007). Better nutrition behaviours have positive health benefits. Consistently positive correlations between nutrition, achievement and behaviour outcomes show a clear path to the value of structuring breakfast support within our schools.

The focus for nutrition support programs in Manitoba schools rests firmly with vegetables, fruit, and unprocessed food (Manitoba Education and Training, 2016, p. 27). This is in alignment with science that shows fruits and vegetables have the strongest effects in preventing many chronic and serious illnesses (Wallace et al., 2019). Collective studies have reported compelling associations between consumption of fruit and vegetables and academic achievement (Burrows et al., 2017).

School nutrition programs today are a patchwork quilt of arrangements, some with paid employees, most without, run by teachers, volunteers, parents, or supported by students alone. Programs range from grab-and-go carts to breakfast and lunch. Some schools send food home with students for weekends when they have no nutrition support from the school, such as a fascinating program involving school backpacks packed with food, called *Food for Kids* (Rodgers & Milewska, 2007). Programming, delivery and intervention are diverse.

School food programs are an invaluable component of community schools. A community food bank is an important cornerstone, but cannot be seen as the only solution. The number of food insecure Canadians is 4-5 times higher than the number reported accessing food banks (Loopstra & Tarasuk, 2015). Barriers exist for families in accessing food banks, including unwillingness to accept donations, time constraints due to jobs, and transportation (Rodgers & Milewska, 2007). Relying solely on the single support of a community food bank may disregard some social behaviours around food, and underutilize the institutional asset of the school itself.

Schools, as bricks and mortar institutions in every community, are uniquely positioned to have direct influence supporting child nutrition. Food insecurity will remain a pressure on our society. This undercurrent influences serious consequences for students, families, and communities. Structuring food supports to enable all students to learn, unfettered by the restrictions poor nutrition imposes, should be an integral part of every school plan.

The Role of Government

Canada is the only G8 nation without a national food policy. Effective policy requires data driven directives. In the absence of a national plan, diverse regional and provincial food programs have emerged (Colley et al., 2019). Manitoba has had a school nutrition policy since 2006 (Manitoba Education and Training, 2016). A national policy could strengthen nutrition supports against the severity of food insecurity, enacting a code for best practice, engaging three levels of government support with common policy objectives, and creating impetus for policy and programs to have a measurable influence (Dachner & Tarasuk, 2018). Building a competent, unified response to nutrition deficits requires an alignment and adherence to policy at local, provincial and national levels.

Governing policy and a long-term plan require long-term funding. Delivery of supports requires a dedicated, consistent financial plan. Government engagement has been largely framed by supporting food charity organizations (McIntyre et al., 2016). The majority of funding for school programs comes from community groups and corporate sponsors (Child Nutrition Council of Manitoba, 2019), involving endless grant applications with a multiplicity of qualification and reporting criteria. Today, navigating Manitoba's era of austerity, food security increases in need, while funding resources diminish. Provincial government policy needs a diverse approach to funding nutrition programs, as we look to make our supports sustainable year to year.

Government has provided small pathways for industry to better manage food waste, freeing up resources for food programs. Public funding for food bank infrastructure, tax credits for farm donations and new laws absolving liability for donated food have been implemented provincially (The Food Donations Act, 1994), but more can be done. Tax incentives, making donating food financially attractive to retailers, need development. Efficient use of the resources we already have is of equal value to more purchasing power.

A Call for Research

A call is made for continued research in best practice for Canadian school nutrition programs. More studies are necessary for development of proven systems. The diversity of effort directed across Canadian schools can be honed into the best, most effective use of our meager resources. Owing to the regional and ethnic diversity of our Canadian population,

external and ecological validity must be deeply considered. Attention must be paid to individual community needs at a local level, strengthening the school's supportive roll in students' individual success. Information exchange and development of best practice in nutrition programs will strengthen effective delivery of programs.

Research into community-generated solutions to food security in Indigenous and northern communities should expand. Creating a solution, in direct consultation with the communities experiencing the challenge, shows respect of experiential knowledge while facilitating self-determination. Who better to ask about problems of practice than the people who live it? Supported community generated solutions acquire utmost sustainability when framed and administered by the members of the communities themselves.

Research needs to continue on the relationship between food insecurity, poverty, academic success, and school nutrition support programs as experienced in northern and Indigenous communities. Statistics reveal these numbers are co-occurring at much higher incidence rates. Analyses on effective interventions with the goal of directing resources in a targeted, efficient response are required.

Summary

Various definitions of food security exist, differentiating between simple availability and nutritional adequacy. It is principally a product of household income and cost of living, however, employment does not necessarily remove a family from risk. Food insecure households can simultaneously be both over weight and malnourished, due to high starch/low nutrient diets. Obesity, a major health concern, is often a co-existing condition. Food insecurity is a function of poverty. Through poverty, northern and Indigenous communities are over exposed to food insecurity and its effects. Northern communities are significantly disadvantaged in Canada's food supply chain. Costs are severe, pushing the threshold for food insecurity much higher up the income pyramid. Poor diet has direct, detrimental effects on overall physical and mental health. It can lead to cognition and behavioural problems in children, and is strongly associated with poor academic progress. Providing breakfast, especially a frequent and nutritious one, has a marked, positive effect, on both classroom behaviour and academic performance.

There is a relationship between race, poverty, food insecurity, health, and education. Demographically, Indigenous communities are over exposed to poverty and the repressive shadow it casts. Co-occurrence exists between low academic achievement, food security, obesity, and diabetes within Manitoba's Indigenous communities. These rates show extreme disparity with national and provincial averages. Food insecurity, strongly linked to colonialism, has long term consequences associated with health and education. Structuring food supports to enable all students to learn, unfettered by the restrictions poor nutrition imposes, should be an integral part of every school plan. Building a competent, unified response to nutrition deficits requires an alignment and adherence to policy at local, provincial and national levels. Research into community-generated solutions to food security in Indigenous and northern communities should expand. Supporting community generated solutions that acquire sustainability requires a plan framed and administered by the members of the communities themselves. Research and development on demographically and ecologically relevant school nutrition support programs are called for, in order to respond to this enduring student need.

Closing Comment

My role as a foods and nutrition teacher engenders an intimate knowledge of what students consume and know about food. I grew up in a small northern community. I run a food cart program for my secondary school, and teach food and nutrition all day. I apply for grants, attend professional development, co-ordinate with public health. The emphasis of my program is rooted in local, accessible, traditional, unprocessed food. Personal bias toward unprocessed,

local food shapes what I teach and how I view meal preparation and nutritional evaluation. My commute to work in southwest Manitoba takes me past miles of farms, producing foods that ship across the globe. In a country as rich as Canada, where we export and waste so much food, no one should go hungry.

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