



HUNGRY FOR KNOWLEDGE:

Assessing the prevalence of
student food insecurity on
five Canadian campuses

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Meal Exchange is a national registered charity that empowers youth to engage, educate, and mobilize their communities to develop just and sustainable food systems.

To learn more or to donate go to: <http://mealexchange.com>

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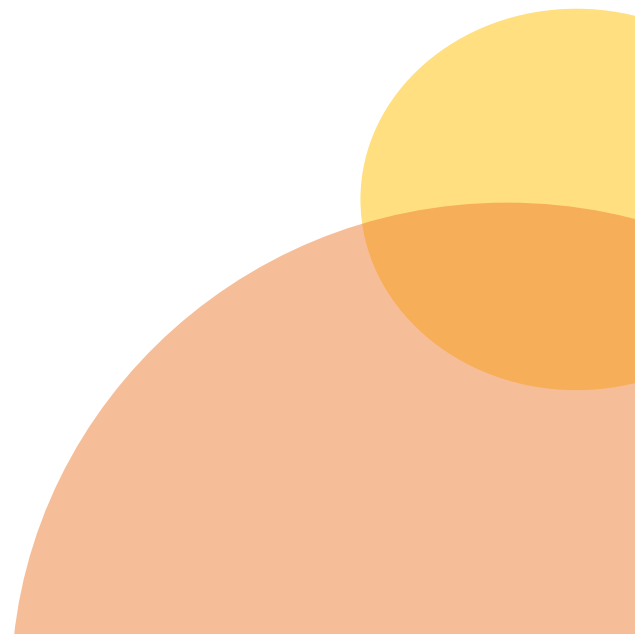
To Anita Abraham, Sarah Archibald, Dana Lahey, Merryn Maynard, Kendall Lee, Timmie Li, and all the Meal Exchange staff and volunteers past and present, I cannot give you enough praise. The work you do is inspiring, and I could not have asked for a more fertile environment to learn and grow in.

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Letter from the Executive Director

The time has come to call attention to what students are facing on campuses across our country. For more than 20 years, Meal Exchange has been supporting students to develop innovative responses to increase food security and sustainability on their campuses and in their communities. Over that time we have been hearing anecdotal stories about how the rising costs of tuition, housing and food have impeded students' ability to be successful at school, and are putting their future success after graduation at risk. While these stories were compelling, we have not had the evidence to back it up. That is why I am so pleased to see this research report ready for public release. For the first time ever, we have academically rigorous research at 5 campuses across Canada to point to some of the trends that are emerging around student food insecurity. The results point to stark realities that urge us to confront some difficult questions surrounding the state of being a post-secondary student today. While much more research is needed, this report is intended to be the beginning of a conversation. We hope you will join us in that conversation.

To imagine a Canada where our students are physically, emotionally, and financially stable should not be a difficult thing. Yet we now have evidence that demonstrates that vision is far from our current reality. Universities and colleges in Canada are seen as a key investment in the future of our youth and our country. If that investment is not responding to the fundamental need of ensuring access to good food for students, what more can we hold ourselves accountable to? The increasing complexity of these issues demands bold responses and cross-sectoral collaboration if we are going to have a chance of setting our students and our country up for economic prosperity and well-being.

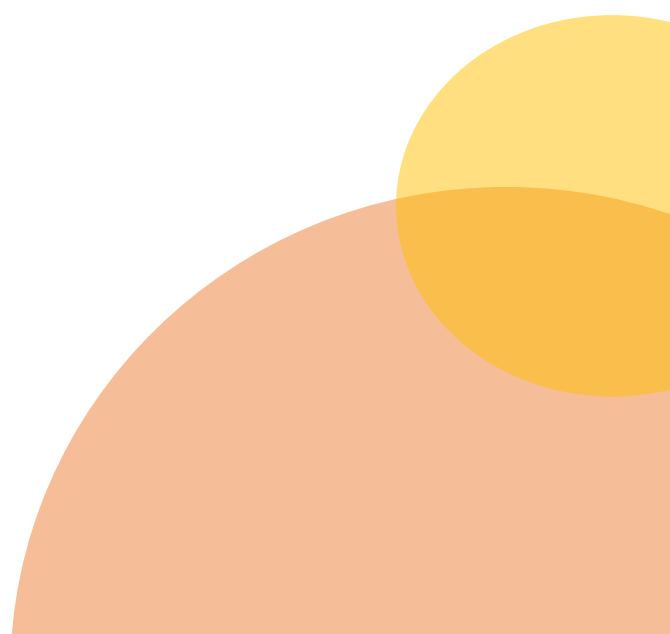
This research is the product of many brilliant, committed, and passionate heads and hearts. In particular, I would like to thank the author, Drew Silverthorn, for his unprecedented leadership and dedication to this project. Drew, without you, I can say with the utmost certainty that we would not have been able to produce this important work. Thank you for continually pushing forward and pushing boundaries.

Meal Exchange eagerly anticipates the steps that lie ahead as the result of this report. I invite organizations and individuals interested in collaborating on these goals to reach out to us. We look forward to working with a diversity of partners to better understand and respond to these challenges and invest in future generations that will help us build a prosperous and resilient Canada.

In good food for all,

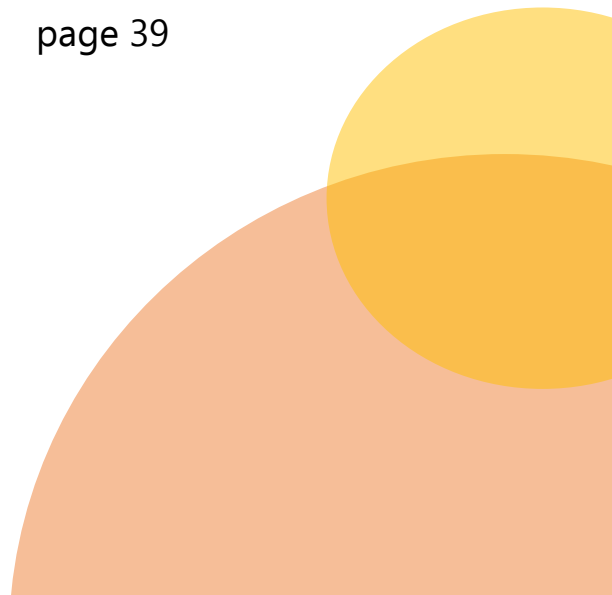
A handwritten signature in grey ink, appearing to read 'Anita Abraham', is positioned above the printed name.

Anita Abraham
Executive Director
Meal Exchange



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Executive Summary

Virtually every college and university campus in the country is home to a student food bank, yet relatively little is known about food insecurity among post-secondary students. Understood to be limited or inadequate access to food due to insufficient finances, food insecurity has serious health and social impacts for individuals and their households. Guided by a desire to better understand how students were impacted by this issue, Meal Exchange embarked on the largest initiative in Canada to collect data from post-secondary students regarding their financial access to food, the barriers that limit access, and the physical, emotional, and social impacts of food insecurity.

Food insecurity among post-secondary students

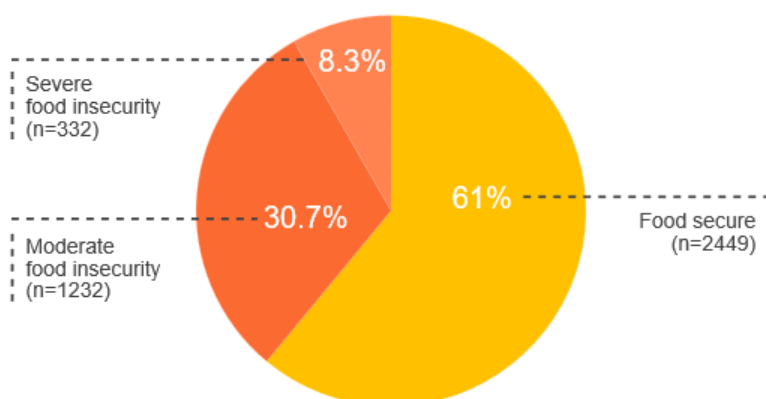
Our findings suggest that food insecurity is a serious issue for post-secondary students in Canada. Nearly two in five (39%) of students surveyed in this study experienced some degree of food insecurity. At 30.7%, most students who faced food access issues were moderately food insecure, while another 8.3% experienced severe food insecurity.

Nearly two in five students surveyed experienced some form of food insecurity.



The geographic patterning of student food insecurity across the country varied by province and institution. Dalhousie University and Lakehead University experienced the highest rates of food insecurity at 46%. Lakehead University also experienced the highest rate of severe food insecurity at 14.7%. University of Calgary experienced the lowest rate of food insecurity with 30% of respondents experiencing some form of food insecurity. Although food insecurity was a significant issue for all types of students, some students experienced food access issues to a higher degree. Our findings indicate that Aboriginal and racialized peoples, off campus dwellers, and students that primarily fund their education through government student financial assistance programs experience exceptionally high rates of food insecurity.

Student food insecurity across all five campuses



Barriers contributing to food insecurity

Food insecure students reported on a variety of barriers that limited the quality and quantity of food they consumed. The cost of food (52.7%), tuition fees (51.2%), and housing costs (47.5%) were the most commonly self-reported contributors to food insecurity. As the cost of education, food and housing has continued to climb in Canada, post-secondary students have been impacted much like the general public, stretching their pay checks and credit to meet

the demands of an unforgiving economic climate. Almost one third (31.9%) reported that they also experienced limited access to traditional and cultural foods, suggesting that many barriers to food security exist for post-secondary students.

Impacts of food insecurity

One in four (23.7%) food-insecure students reported that their physical health was affected by food insecurity, while slightly less (20.1%) reported that their mental health had been impacted. Additionally, nearly half all respondents (49.5%) reported that they had to sacrifice buying healthy food in order to pay for essential expenses such as rent, tuition, and textbooks. Although more research is required, it is clear that students must make financial and health tradeoffs in order to afford their education.

Policy recommendations

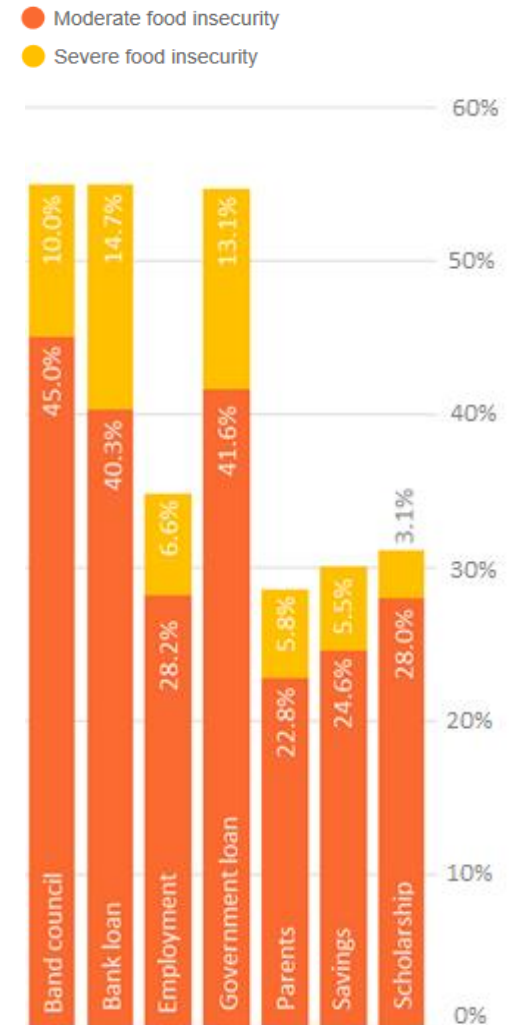
In order to address the issue of student food insecurity, we encourage provincial governments, academic institutions, and community partners to adopt the following policies and programs:

1. Implement a periodic national food and housing security survey for university and college students in Canada
2. Analyze and assess the potential inclusion of post-secondary students in a guaranteed annual income
3. Commit to Truth and Reconciliation calls to action to reduce barriers to education for Aboriginal Peoples
4. Develop local programs and policies aimed at providing post-secondary students with affordable housing

Conclusions

The experiences and impacts of food insecurity on Canadian post-secondary students are still not well known, and more research is required to fill gaps not addressed by the literature, including this report. However, as the cost of tuition and living continues to increase, along with the demand for highly educated and skilled workers, food insecurity among post-secondary students will continue to be an important health, social, and economic issue. With some provincial governments now implementing 'free' tuition through financial assistance programs and conducting studies on the plausibility of a guaranteed annual income, there has never been a more appropriate time to devote and develop institutional resources, research dollars, and partnerships to better understand and develop solutions to this issue.

Student food insecurity by primary source of income for education related expenses



Introduction

The importance of obtaining a university or college education has been well documented. Canadian university and college graduates have been estimated to earn between 15% and 50% more than high school graduates (Berger & Parkin, 2009). By 2031, 80% of new jobs in Canada are expected to require some form of post-secondary education (Miner, 2014).

As stable, full-time, and good paying jobs in the primary and secondary sectors continue to decline, employment growth is expected to be highly dependent on the production of knowledge (Gera, 1996). These emerging jobs, as part of the growing 'knowledge economy', require highly skilled and technologically-savvy workers. For existing jobs, especially those in the tertiary sector, the increasing trend of credential inflation¹ will only solidify the need for higher educational attainment among new and seasoned workers alike.

For the past 15 years, federal and provincial governments have implemented a variety of policy initiatives aimed at ensuring Canada's labour market is equipped with adequate skills and knowledge for the modern economy. Efforts by the federal government, such as Canada's Innovation Strategy implemented in the early 2000s, demonstrate a push to provide "opportunities for all Canadians to learn and to develop their skills and abilities" to foster economic growth, inclusion, and prosperity (Human Resources Development Canada, 2002). Provincial governments have also enacted policies such as Ontario's Student Access Guarantee to prevent qualified Ontarian



students from attending a college or university because of financial constraints.

These policies primarily focus on skill development, educational attainment, and financial access, yet it is unclear whether they adequately address the needs of current and future students who are increasingly burdened with the financial, academic, and social costs of obtaining a postsecondary education (PSE) in Canada.

The average cost of tuition for an undergraduate degree in 1993/94 was \$3,192 compared to \$6,191 in 2015/16.

Although a common narrative suggests that post-secondary students should not expect a 'free ride' on the public purse, the numbers suggest a very different reality. When adjusted for

inflation, the average cost of tuition per semester for an undergraduate degree in 1993/94 was \$3,192 compared to \$6,191 in 2015/16 (Statistics Canada, 2004; Statistics Canada, 2015a). While the costs of all goods and services increase over time, rising tuition fees continue to outpace inflation.

Although multiple factors influence tuition fee increases, the Canadian Association of University Teachers (CAUT) note that there has been a significant reduction in government funding for post-secondary education over the past two decades. CAUT calculates that federal cash transfers to post-secondary education declined by 50% between 1992/93 and 2013/14 when measured as a proportion of the gross domestic product (CAUT, 2015). As a result, students have had to shoulder the

¹ Credential inflation is a process whereby educational attainment and credentials are devalued due to a surplus of highly educated workers. As this surplus expands, employers compete for employees with the highest credentials (Van de Werfhorst & Andersen, 2005). This can be seen by the increasing demand for employees with graduate degrees.

burden to compensate for decreasing government funding as post-secondary institutions now rely on tuition fees to cover approximately 25% of their operating costs (CAUT, 2015).

As the cost of tuition has risen in Canada, so too has student debt. Whereas the average undergraduate student debt was \$20,500 in 2000, undergraduate students graduated with an average debt of \$26,500 in 2014 (Statistics Canada, 2014). Although debt owed to government sources dropped by 6% between 2000 and 2010, debt owed to non-government sources increased by 7% in this same period.

The majority of research examining the affordability of PSE in Canada has focused on access and attainment. However, this research has missed several crucial components, namely the health and social costs of obtaining a PSE in Canada. The Canadian Association of College and University Student Services (CACUSS) is one of the few organizations that examines the health of post-secondary students in Canada. CACUSS recently adapted the National College Health Assessment from the American College Health Association, and administered it at 34 Canadian post-secondary institutions. This survey found that 57.6% of students reported experiencing more than average or tremendous stress and 15.8% had accessed mental health services from their university or college (American College Health Association, 2013). The survey also found that 45% of students consumed only one to two vegetables or fruits a day. This survey tool lacks any further questions related to food literacy² or food security, resulting in an incomplete understanding of students' financial and physical access to food.

To address this gap in knowledge, Meal Exchange embarked on the largest assessment of post-secondary student food insecurity in Canada. This report is the culmination of the work of student activists, food security advocates, and academics who witnessed countless students struggling to make ends meet, yet had no empirical evidence to support their personal and professional knowledge.

After two decades of coordinating student-led programs to address hunger across the country, Meal Exchange is now turning its lens towards the very students we work with. In doing so, we aim to better support Canadians to reach their academic and career goals without sacrificing their health and wellbeing. This work contributes to the push towards progressive policy changes aimed at addressing education, health, and economic inequalities. A broad approach to social and economic transformation is needed to ensure that no one has to go hungry to be successful.

“Students have had to shoulder the burden to compensate for decreasing government funding as post-secondary institutions now rely on tuition fees to cover approximately 25% of their operating costs.”

² Food literacy can be defined as the “the positive relationship built through social, cultural, and environmental experiences with food enabling people to make decisions that support health.” (Cullen, Hatch, Martin, Wharf Higgins, & Sheppard, 2015). Newer understandings of food literacy also consider the influence of environmental and social contexts.

Food Insecurity in Canada

Food security occurs when “all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (Food and Agriculture Organization [FAO], 2008). This definition can be broken down into five components known as the Five A's of Food Security. The Centre for Studies in Food Security (n.d.) at Ryerson University defines these component as:

- **Availability** - sufficient food for all peoples at all times
- **Accessibility** - physical and economic access to food for all at all times
- **Adequacy** - access to food that is nutritious and safe, and produced in environmentally sustainable ways
- **Acceptability** - access to culturally acceptable food, which is produced and obtained in ways that do not compromise people's dignity, self-respect, or human rights
- **Agency** - the policies and processes that enable the achievement of food security

These concepts, along with the FAO's definition, can be applied to households, communities, regions, and nations.

The way food security is understood may differ depending on the region or country. For example, in some countries, problems of food access may arise from limited regional or national food supplies linked to a drought or high international food costs. In other cases, poor access may be the result of a crisis such as war or a natural disaster. In Canada, food security refers to physical and economic access to food; 'economic' referring to the ability to earn money to purchase enough food to meet household needs, and 'physical' referring to one's proximity³ to adequate food sources.



Approximately 4 million Canadians, including 1.5 million children, experience food insecurity to some degree.

Food insecurity arises due to financial constraints that limit the ability of an individual or household to purchase adequate amounts and types of food. Tarasuk, Mitchell, & Dachner (2016) note that food insecurity can be experienced in a variety of ways, including feeling anxious about running out of money to buy food, not having the money needed to eat balanced meals, skipping meals, and not eating for prolonged periods of time because of a lack of money.

In Canada, food insecurity is a serious economic, public health, and political issue. Approximately 4 million Canadians, including 1.5 million children, experience some level of food insecurity in 2014 (Tarasuk, Mitchell, & Dachner, 2014). Annual healthcare costs for food-insecure households have been estimated to be 16% to 76% higher than the costs incurred by food-secure households (Tarasuk et al., 2015). As the severity of food insecurity increases for adults, so does vulnerability to numerous chronic health conditions (Vozoris & Tarasuk, 2003). Health outcomes are particularly

³ Food deserts are areas of a country, province/state, or city where there is a low availability of fresh fruits, vegetables, and other whole foods. Usually found in low-income neighbourhoods, food deserts are the result of a lack of healthy food retailers such as grocery stores and farmers' markets (Ontario Healthy Communities Coalition, 2012).

adverse for children and youth, as food insecurity can increase the risk of a child experiencing asthma and depression (Kirkpatrick, McIntyre, & Potestio, 2010; McIntyre, Williams, Lavorato, & Patten, 2013).

Food insecurity is different from hunger, in that all people who are hungry are food-insecure, but not all food-insecure people are hungry (FAO, 2008). For example, a person can experience food insecurity by reducing the quality of food they eat or relying on low cost foods in order to stretch food dollars. This person may not experience physical hunger, but they would experience food insecurity. Food insecurity is not static over time, and can be chronic or transitory depending on fluctuations in labour markets, domestic and global food production, food prices, and other elements that influence the ability to access food.

Student Food Insecurity

There is very limited Canadian research on the extent and experiences of food insecurity among postsecondary students. This is due in part to the association of food insecurity with poverty and marginalized populations. However, while many students have economically and socially advantaged backgrounds, a growing proportion of the students filling lecture halls across the country hail from less affluent families. The experience of being a student seldom exists in a vacuum, and only now have researchers started to explore food insecurity among postsecondary students.

The United States

Several small and large scale attempts to assess the prevalence of food insecurity among university and college students have been conducted in the United States. These studies have found food insecurity rates ranging from 14% to 59% depending on the institution, state, and method of analysis (Gaines, Robb, Knol & Sickler, 2014; Patton-Lopéz, Lopez-Cevallos, Cancel-Tirado, & Vazquez, 2014).

In a study that assessed two community colleges, food-insecure students were more likely to report lower GPAs than food-secure students (Maroto, Snelling, & Linck, 2015). In addition, students who were single parents and those who lived alone were at the highest risk of being food-insecure, along with those who identified as African American or multiracial.

In another study, food-insecure students were more likely to report low levels of energy and concentration (Maroto, 2013). In the largest study to date, food-insecure students from ten community colleges were found to experience higher rates of depression, anxiety, disordered eating, and suicidal thoughts than their food-secure peers (Goldrick-Rab, Broton, & Eisenberg, 2015).

Australia

Similar to Canada, few studies on student food insecurity have been conducted in Australia. Two studies found food insecurity rates of 12.7% to 46.5% depending on the institution, state, and method of analysis (Hughes, Serebryanikova, Donaldson & Leveritt, 2011; Micevski, Thornton, & Brockington, 2014). Both studies found an association between food insecurity, receipt of government financial assistance, and living away from home. As with the American findings, food-insecure students were more likely to rate their overall health as poor when compared to food-secure students.

South Africa

One published study in South Africa found that 20.8% of students at the University of KwaZulu-Natal experienced food insecurity (Munro, Quayle, Simpson, & Barnsley, 2013). Similar to American and Australian findings, food insecurity was significantly associated with students receiving government financial assistance.

Canada

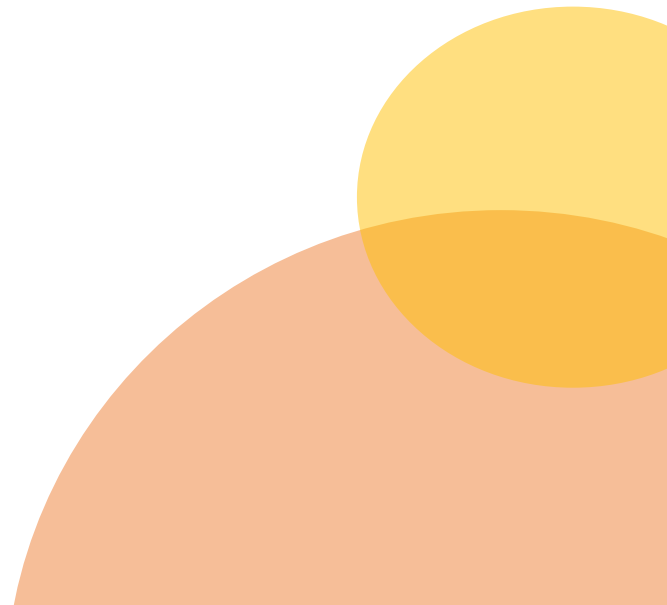
Until recently, most of the research on student food insecurity in Canada has focused on nutrition and

campus food banks. Findings from this research indicate that:

- Students in Alberta who were reliant on financial aid were unlikely to have the financial resources to afford a nutritionally adequate diet and were at risk for experiencing food insecurity (Meldrum & Willows, 2006)
- Time, food costs, food skills, media influences, and the availability of processed foods were barriers to healthy eating among undergraduate students (Garcia, Sykes, Matthews, Martin, & Leipert, 2010)
- Economic pathways leading students to a campus food bank included chronically insufficient funds, unanticipated costs despite careful planning, and decreases or delays in expected income (Nugent, 2012)
- Food available through a campus food bank in Alberta was nutritionally inadequate and did not meet its members' needs (Willows & Au, 2006; Jessri, Abedi, Wong, & Eslamian, 2014)
- Students accessing a campus food bank in Alberta employed various strategies to cope with food insecurity, including "applying for a loan or bursary (86.2%), seeking employment or working more hours (84.5%), and purchasing food using credit card (77.6%)" (Farahbakhsh et al., 2015)

Although these studies indicate that student food access may be an issue, many were small in scope and did little to shed light on the pervasiveness of student food insecurity. However, recent efforts have been undertaken by several researchers to fill this knowledge gap. Studies within the last year from Acadia University, the University of Saskatchewan, and the University of Northern British Columbia have found student food insecurity rates of 38.1%, 28.6%, and 39% (Frank, Engler-Stringer, Power, & Pulsifer, 2015; Booth & Anderson, 2016). At Acadia University, students who had jobs or student loans were more likely to be food-insecure (McMillian, 2016), suggesting that Canadian students may experience similar risk factors to those in other countries.

Despite the recent uptake in student food insecurity research in Canada, this issue has existed for many years. A survey administered in 1994 at Ryerson Polytechnic (now Ryerson University) found that 17.3% of Ryerson students experienced difficulties with accessing food "fairly often, most times, and constantly", while 49.8% experienced some degree of difficulty accessing food at one time or another (Borsutzky, 1995). Food insecurity may still be a considerable issue at Ryerson University and at multiple other campuses across the country.



Rates of student food insecurity on campuses across the country



Qualitative Experiences of Student Food Insecurity

Findings from The Experience of Food Insecurity among Post-Secondary Students: Barriers, Coping Strategies, and Perceived Health and Academic Outcomes.

Merryn Maynard, Samantha Meyer, Christopher Perlman, Sharon I. Kirkpatrick

*School of Public Health and Health Systems
University of Waterloo*

Relatively little research exists on the qualitative experiences of food insecurity among Canadian students. Concerned by this, researchers from the University of Waterloo conducted a recent qualitative study to explore perceived barriers and facilitators to food security, the strategies used to manage shortages of food and money for food, and perceptions regarding implications for health and academic achievement. Suggestions for improving food security for post-secondary students were also explored.

This study, undertaken in late 2015 and early 2016, employed a mixed methods design that included semi-structured in-depth interviews with undergraduate students (n=14). Interviews were complemented by demographic and health surveys. The adult items from the Household Food Security Survey Module were used to allow further characterization of food security status. Eligible participants included undergraduate students who lived off campus and provided an indication of compromised food access based on financial constraints in response to a screening questionnaire.

Findings from the study suggest that students encounter financial barriers including consistent money shortages, which create vulnerability to

income shocks. Students who were financially independent, and/or international students experienced particular financial difficulties. Other barriers to food access included food literacy, the on and off-campus food environment, and a lack of time.

Students adopted a range of coping strategies to manage their food supply, including accessing emergency food programs, finding free meals, food sharing, borrowing food or money for food, normalizing their situation, and demonstrating resiliency. Students also recognized and internalized the starving student 'norm', which is the commonality of eating unhealthy foods due to lack of money. However, food insecurity was also perceived to have negatively impacted their academic achievement and health and wellbeing.

In conclusion, obtaining a better understanding of the lived experiences of students struggling with food insecurity is an important starting point for informing policies and programs to alleviate this problem. These findings add to the argument that Canadian financial support for post-secondary students is inadequate for the maintenance of food security during university.

"Canadian financial support for post-secondary students is inadequate for the maintenance of food security during university."

Campus Food Banks

As of August 2016, Meal Exchange is aware of 104 campus-based hunger relief programs in Canada. These programs range from physical food banks or pantries, anonymous food lockers⁴, free grocery store gift cards, and hunger-related financial aid. This marks an increase from 2004, when the Canadian Association of Food Banks (now Food Banks Canada) and The Canadian Alliance of Student Associations counted 51 programs across the country (Ferguson, 2004). South of the border, campus food banks have become such an ingrained part of student life that the College and University Food Bank Alliance (CUFBA) was created to alleviate “food insecurity, hunger, and poverty among college and university students in the United States” (CUFBA, 2013).

Although postsecondary students are not typically considered a priority population for hunger relief services, food bank usage is not uncommon. In 2014, Food Banks Canada (2014) reported that 3.2% of all food bank users (approximately 27,000 people) who utilized a food bank in March 2014 were postsecondary students. This number, although alarmingly high, is likely an underestimation as many campus food banks do not submit usage data to larger food bank associations or distribution agencies.

In an attempt to better capture campus food bank usage, Ferguson (2004) contacted a survey of 46 campus food banks and found that they collectively served 3,121 students



over a one-month period. Since the number of campus-based food banks and hunger relief programs has doubled since 2004, this number is likely to be significantly higher today. Based on these numbers, Meal Exchange estimates that over 30,000 post-secondary students access food banks in Canada.

Over the past several years, Meal Exchange has worked with students across the country who coordinate these campus food banks. Many of these

students are nothing but tireless, and work unpaid hours to manage daily operations, fundraising, program development, volunteer management, and advocacy responsibilities. Others, concerned with intersecting issues, split their time between sustainability, food security, social justice, and student politics initiatives. These students are leaders and innovators who collaborate with their campus administrations, food service providers, and local communities to transform food systems both

In 2014, Food Banks Canada (2014) reported that 3.2% of all food bank users (approx. 27,000 people) who utilized a food bank in March 2014 was

on and off-campus. Many have moved on to become leaders in their communities, and Meal Exchange would not be the same without them. Despite these students' best efforts, campus food banks have been found

to be ineffective food insecurity interventions for several reasons. The most significant issues are related to food quality and quantity.

Findings from a study on the nutritional quality of hampers offered through a campus food bank in Alberta found that the food distributed had inadequate levels of Vitamin A, zinc, fat, and protein (Jessri, Abedi, Wong, & Eslamian, 2014). Although more research is needed, students who rely on

⁴ Anonymous food lockers are programs where students in need of food may submit an online application to receive free food assistance. Once approved, the student is directed to a locker on campus where they can retrieve their food. These programs are most common on college campuses and at small and/or more rural universities.

nutritionally inadequate foods from both their personal food budget and campus food bank shelves may experience nutritional deficiencies and other negative health implications.

Another study at the same campus food bank found that members could only access the service twice a month, leaving members with unmet food needs (Willows & Au, 2006). Similar findings have been found in food banks serving the general community. In a review of 15 food banks in Southern Ontario, researchers found that the food provided was often “substandard, outdated, or otherwise undesirable” (Tarasuk & Eakin, 2005, p. 182). These researchers also found that food banks often restricted the quantity and frequency of food assistance, which prevented these services from adequately meeting members’ food needs (Tarasuk & Eakin, 2003).

None of these issues are endemic to campus food banks in Alberta. The Good Food Centre, the campus food bank at Ryerson University, wrote in a recent research publication, “while our dedicated staff works diligently to provide solutions to hunger on campus, our efforts are outpaced by the need for the service. We simply cannot provide the level and quality of food we know every hungry student deserves” (Silverthorn, Labonté, & Nguyen, 2015). Through Meal Exchange’s work with campus food banks across Canada, it is clear that increasing clients and limited resources are common barriers for adequately assisting food-insecure students.

Although food bank data is a poor indicator of food insecurity in Canada (Loopstra & Tarasuk, 2015), campus food banks across the country have reported on some compelling findings. For example,

a study conducted at the Dalhousie University food bank found that 68% of members prioritized tuition costs over food and other essential costs (Abbott et al., 2015). The same study found that students who were Indigenous, Black, international, or had dependents were disproportionately represented among food bank members. In a separate study, the food bank at Ryerson University found that students from the faculty of Engineering & Architectural Science were also overrepresented among food bank members (Silverthorn, Labonté, & Nguyen, 2015). Interestingly, Engineering and Architectural Science students pay the highest rates of tuition at Ryerson University, suggesting that there could be a relationship between program costs and food security.

“Through Meal Exchange’s work with campus food banks across the country, it is clear that increasing members and limited time, space, food, and finances are common barriers for adequately assisting food insecure students.”

Methods

The design of this study was influenced by many factors and stakeholders. Initially funded as a year-long program to support campus food banks in conducting internal research, the focus shifted to assessing student food insecurity on five university campuses across the country. As the project evolved, new focal points emerged to ensure all perspectives and voices were included in the research design.

The survey tool administered in this study was informed by existing student food insecurity studies, researchers from the School of Social Work at Ryerson University and Lakehead University, and students from the Meal Exchange network. Demographic, food access, and self-reported social and health questions were included. Selected questions from the Household Food Security Status Module (HFSSM) found in the Canadian Community Health Survey (CCHS) were used as the primary food insecurity assessment tool.

Questions used to determine food security status and severity	Count	%
I/we worried whether my/our food would run out before I got money to buy more.	1514	37.7
The food that I bought just didn't last, and I didn't have money to buy more	1141	28.4
I/we couldn't afford to eat balanced meals.	1780	44.4
I/we regularly relied on a few low-cost foods in order to avoid running out of money to buy more food.	2327	58.0
I/we skipped meals because there wasn't enough money to buy food.	1100	27.4
I/we did not eat for a whole day because there wasn't enough money for food	442	11.0

After securing research ethics approval at Ryerson University, four other post-secondary institutions were selected as data collection sites: Brock University, Dalhousie University, Lakehead University, and the University of Calgary. Each institution was chosen based on geographic location, the absence of existing or planned student food insecurity studies, academic and student relationships, and regional differences. These

regional differences include variables such as the high rates of food insecurity in Nova Scotia where Dalhousie University is located, and Lakehead University's vulnerable location in a remote area of Northern Ontario. After securing research ethics approval at each institution, student outreach assistants were secured to perform local recruitment duties on their respective campuses.

To avoid bias, survey participants were recruited during the first half of the winter semester. Recruiting students too early in the academic year may result in underreported levels of food insecurity, as students tend to have robust finances from summer employment and new loan installments. Similarly, recruiting at the end of the semester when finances run thin may also result in an inflated levels of food insecurity. To mitigate this, survey respondents were asked to reflect on their food access experiences within the past 12 months.

Data collection commenced in the second half of the winter semester at Lakehead University due to unplanned delays. As a result, there is a possibility that the levels of food insecurity at Lakehead University are inflated, as survey respondents may have been more likely to reflect on more recent financial difficulties associated with dwindling finances.

Students were recruited via social media advertising, institutional survey committees, student associations, university health promotion

departments, and paper flyers distributed across each campus. Participants were offered an optional inclusion in a draw for a \$100 gift card at each institution as incentive.

Analysis

Food security status was calculated by coding the responses to the six food access questions (see page 31). Affirmative responses were coded as 1 while negative responses were coded as 0. A tallied score was then assigned to each participant. A score of 0 - 1 was coded as food secure, 2 - 4 as moderately food insecure, and 5 - 6 as severely food insecure. The following table details how we defined each of these statuses.

Status	Definition
Food secure Score: 0 - 1	Sufficient and adequate access to food that meets quality and quantity needs.
Moderate food insecurity Score: 2 - 4	Significant food access issues, including income-related concerns and reduced quality and/or quantity.
Severe food insecurity Score: 5 - 6	Extreme food access issues, including income-related concerns and reduced quality and/or quantity.

Although marginal food insecurity is often reported in food insecurity research, we excluded it for several reasons. Firstly, our initial analysis included a score of 1 to 2 for marginal food insecurity, and revealed that over 60% of participants fell into a food-insecure category. After revisiting the methods employed in other Canadian studies on student food insecurity, the scoring scale was adjusted to more closely align with the literature. Second, only a few questions queried financial anxiety related to food access; a traditional indicator of marginal food security. As it is clear that students experience exceptionally high degrees of anxiety and stress in other areas of their lives, it was felt that such questions would significantly inflate the rates of food insecurity.

After calculating the food security status of each participant, descriptive statistics and cross tabulations were employed to compare various demographic markers against food security status. Finally, percentages were calculated for remaining data, including access to traditional and cultural foods and self-reported social and health implications associated with food insecurity, and contributing factors to food insecurity.

Survey sample

Nearly 4,500 students responded to the online survey. Upon reviewing the food access module, 4013 responses were deemed valid for analysis. The number of responses from each campus varied according to recruitment methods available, the timing of research ethics approval, and local partnerships with various campus groups and departments.

Response rates were highest among students who were female (77.3%), between the ages of 20 and 24 (57.3%), from White/European backgrounds (66.0%), enrolled in full-time studies (95.2%), and from Canada prior to studying (91.4%).

Students who identified their gender as trans or other (0.7%), were 50+ years old (0.5%), and were from an Indigenous or Hispanic/Latino backgrounds (1.4%) had the lowest response rates. Due to these low numbers, findings associated with these demographic groups should be considered with caution.

See the appendixes for a more detailed breakdown of the sample demographics.

Limitations

This research faces some significant limitations.

The voluntary nature of the survey means that food insecure students may have been more likely to respond to the survey. As a result, the percentage of food insecure students in this study may be over reported.

Another limitation of this study is that the full food security module from the Canadian Community Health Survey (CCHS) was not utilized. This was done for several reasons, including concerns over survey participant completion rates due to the length of the survey, testing new food insecurity indicators, and the pilot nature of this project. As a result, comparisons to national statistics should be made with caution.

Lastly, student food insecurity is very different from food insecurity in the general population. While individuals and households in the general population may experience chronic food insecurity for extended periods of times, students most likely experience transitory food insecurity that may or may not last beyond their time in school. Additionally, students may experience food insecurity due to issues unrelated to post-secondary education, especially if the student comes from a household that is already food insecure or is at risk of food insecurity.

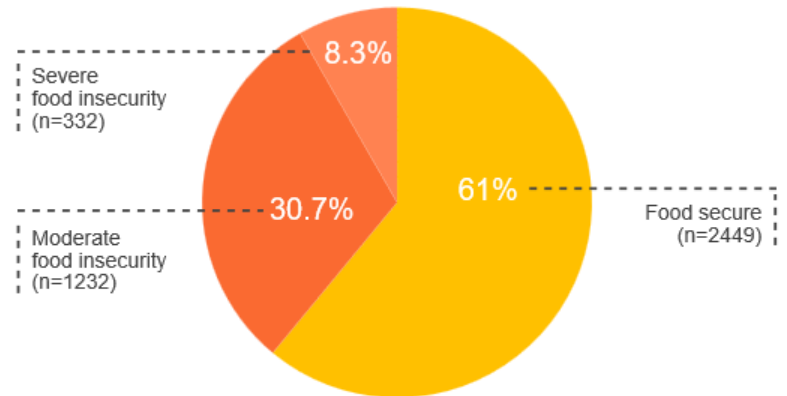
Results

Our findings indicate that food insecurity is a significant issue for university students in Canada. Across all five campuses, we found an overall food insecurity rate of 39% (n=1564). This is in line with the previously mentioned Canadian research that found rates ranging from between 28.6% and 39%. Of the students surveyed, 30.7% (n=1232) experienced moderate food insecurity while 8.3% (n=332) experienced severe food insecurity.

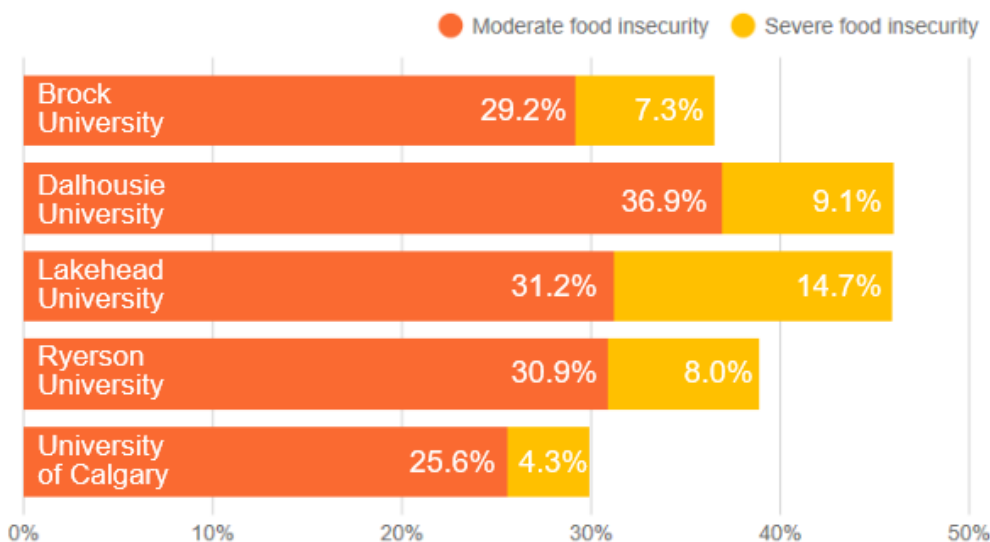
Certain campuses experienced higher rates of food insecurity than others. Lakehead University and Dalhousie University experienced the highest rates of food insecurity at 46%. Dalhousie experienced the highest rate of moderate food insecurity at 36.9%, while Lakehead experienced the highest rate of severe food insecurity at 14.7%. Ryerson University experienced slightly higher rates of food insecurity than Brock University at 38.9% versus 36.5%. The University of Calgary experienced the lowest rate of food insecurity with 30% of respondents experiencing some form of food insecurity.

Student food insecurity by campus and severity

Student food insecurity across all five campuses



Food insecurity among survey participants was most commonly experienced by relying on low-cost foods (58%), not eating balanced meals (44.6%), and worrying about running out of food before securing money to buy more (37.7%). Experiences related to hunger such as skipping meals (27.4%) and not eating for a whole day (11%) were the least common experiences of food insecurity. However, these numbers are still high when compared to national household statistics of 3.8% for skipping meals and 0.9% for not eating for a whole day (Tarasuk, Mitchell, & Dachner, 2016).





32% of participants reported experiencing limited access to important cultural and traditional foods.

Of those students who were identified as food insecure, 16.8% reported utilizing a food bank or hunger relief service because they had run out of money to buy more food. Using statistics on the national rate of food insecurity (Tarasuk, Mitchell & Dachner, 2014) and food bank usage (Food Banks Canada, 2012) from 2014, it appears that approximately 22% of food insecure Canadians access food banks, putting post-secondary students slightly below the national average.

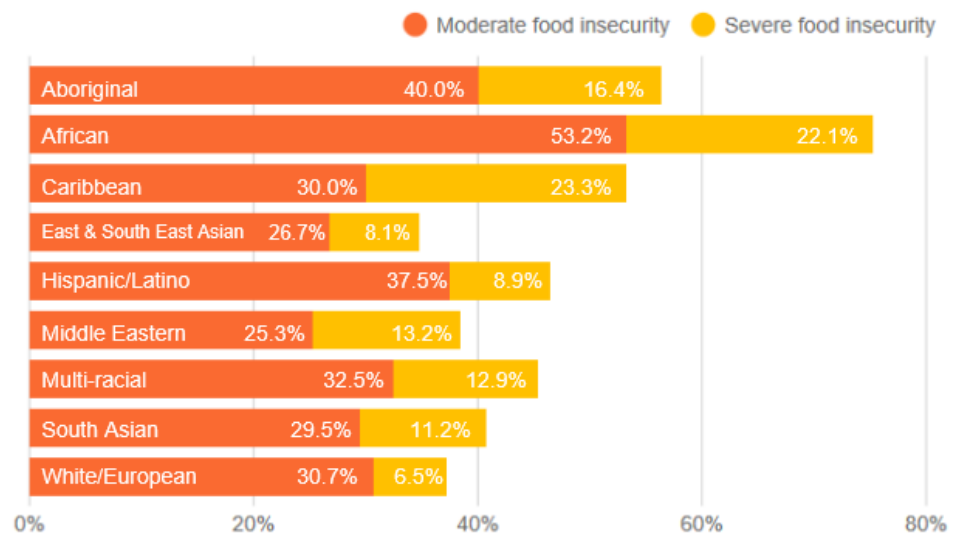
When asked about important cultural and traditional foods, 32% of respondents reported experiencing limited access. This was particularly high among students from Aboriginal (60.0%), African (70.1%), and Caribbean (74.1%) backgrounds.

Traditional measures of food insecurity, while focused primarily on financial access to food, typically do not contain questions relating to the accessibility of cultural and traditional foods. However, access to culturally appropriate food deserves serious consideration. As the definition of food security from the Food and Agriculture Organization of the United Nations (n.d.) states, “dietary needs and food preferences”, along with economic and physical access, are important elements of food security. The Centre for Studies in Food Security (n.d.) at Ryerson University takes a more direct approach, stating that “access to culturally acceptable food, which is produced and obtained in ways that do not compromise people's

dignity, self-respect or human rights” is crucial for achieving food security.

Food insecurity was felt particularly hard by students from certain demographic groups. Three quarters (75.3%) of students who reported their primary racial/ethnic background as African were found to experience some form of food insecurity. Aboriginal students experienced the second highest rate of food insecurity at 56.4%, while 53.3% of students from Caribbean backgrounds also experienced food insecurity. Those who identified as Caribbean or African also experienced the highest rates of severe food insecurity at 23.3% and 22.1%. These findings, although alarming, should be considered with caution due to the small sample size of respondents from Aboriginal (n=55), African (n=77), and Caribbean (n=60) backgrounds. More research is required to understand how pervasive food insecurity is for these ethno-cultural groups.

Student food insecurity by racial/ethnic background



Overall, visible minority students appear to experience higher rates of food insecurity at 41.9% when compared to students from White/European backgrounds (37.3%) but lower rates when compared to Aboriginal students (56.4%).

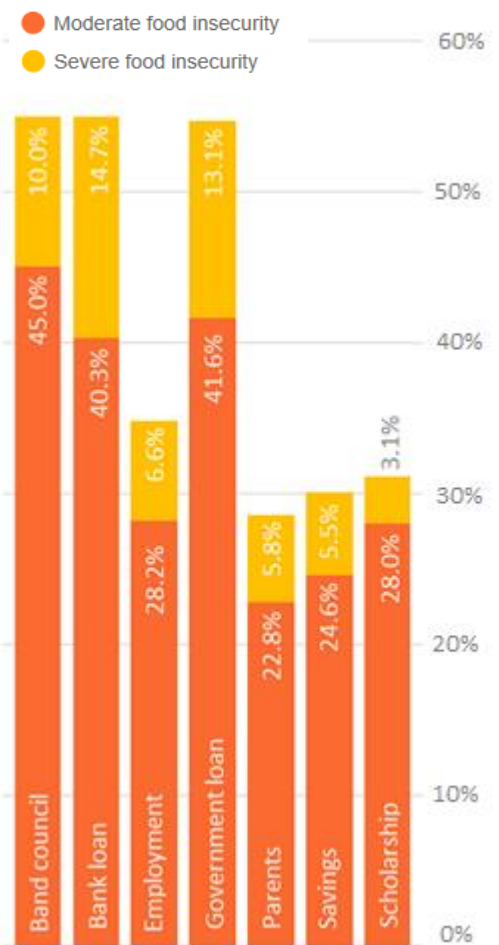
As with Aboriginal and visible minority students, off-campus dwellers also experienced disproportionately high rates of food insecurity. Students who were single parents living with their children, living alone, or living with roommates experienced the highest rates of food insecurity at 71.0%, 54.4%, and 47.9%. As discussed later, these students may be struggling with the compounding repercussions of increasing housing and food costs, inadequate financial aid, and a summer job market characterized by low-paying jobs.

Students who lived with extended family or lived at home with their parents were the least likely to experience food insecurity at 15.9% and 23.0%. Although low compared to students living in other arrangements, the rate of food insecure students living with their parents is still 10.3% higher than the national household average (12.7%). This is most likely a reflection of food insecurity experienced by these students' entire household as a result of inadequate household income. Considering this, general household food insecurity may have serious implications for post-secondary students that requires further research.

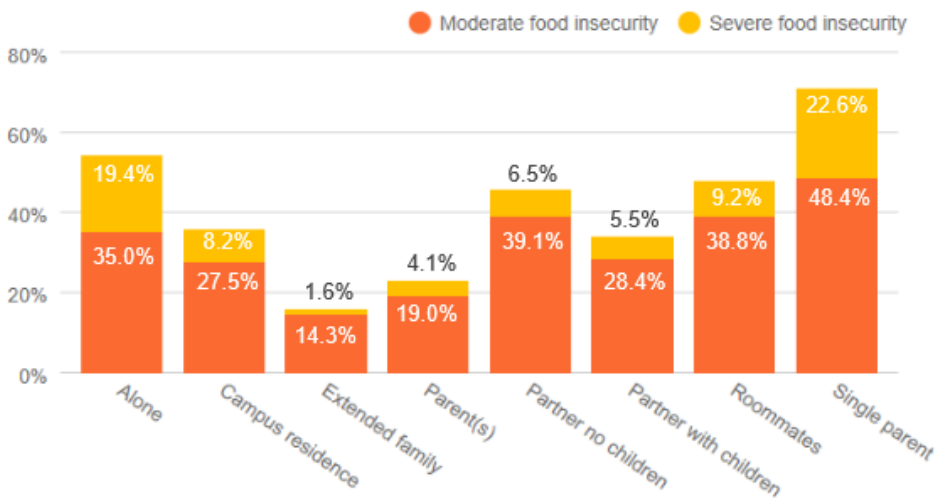
Significant differences in food security status also existed according to how students funded their education. Over half (55.0%) of students who reported band council funding, bank loans, or

government student loans/grants as their primary source of income were food insecure. These students also experienced the highest rates of severe food insecurity at 10.0%, 14.7%, and 13.1% respectively. As the least food insecure group by income source, less than one-third (28.7%) of students who reported their parents as their primary source of income were food insecure. This may suggest that significant financial contributions from family is a protective factor against food insecurity.

Student food insecurity by primary source of income for education related expenses



Student food insecurity by living arrangement



Contributing factors to food insecurity

Among food insecure students, the cost of food (52.7%), tuition fees (51.2%), and housing costs (47.5%) were the most commonly self-reported contributors to food insecurity. Concerns about the cost of food are not uncommon, especially considering that the food inflation rate has exceeded the general inflation rate in the past several years (Charlebois et al., 2015). Similarly, the cost of comparable two-bedroom apartments in Canada has also increased quicker than inflation in recent years (Canada Mortgage and Housing Corporation, 2015). Considering this, it is clear that students are not immune from macro-economic issues such as global, national, and local fluctuations in food prices and lack of affordable housing across the country.

Impacts of food insecurity

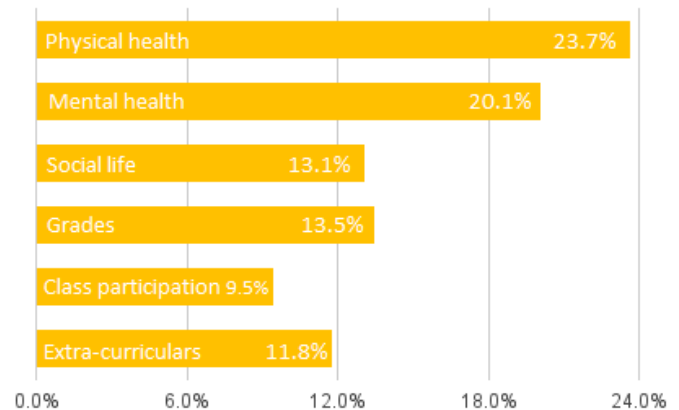
One in four (23.7%) food insecure students reported that their physical health was affected by food insecurity, while slightly less (20.1%) reported that their mental health had been impacted. As mentioned previously, Canadian research indicates that physical and mental health can be significantly affected by food insecurity. This is particularly alarming for students who were parents and whose children may have also experienced food insecurity. As Ke & Ford-Jones (2015) note, food insecure children experience increased risks for developing asthma and mental health struggles, along with other negative health issues.

Nearly half all respondents (49.5%) reported that they had to sacrifice buying healthy food in order to pay for essential expenses such as rent, tuition, and textbooks. The high percentage of students reducing the quality of food they purchase as a cost-saving strategy may shed some light on the low-rates of fruit and vegetable consumption among Canadian university students as reported by CACUSS.

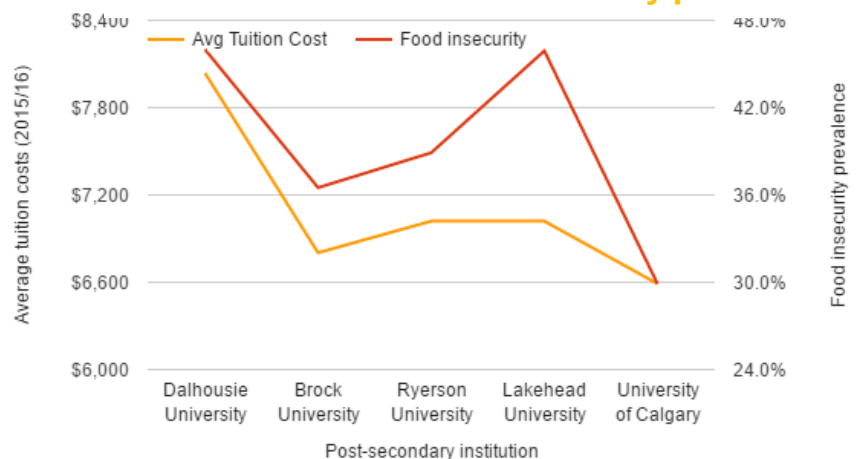
Barriers to food security as reported by food insecure students

Contributing factor/barrier	Count	%
Food costs	824	52.7
Housing costs	743	47.5
Inadequate income supports (i.e. student loans and grants)	589	37.7
Limited facilities/equipment to prepare food	118	7.5
Limited food knowledge/skills	176	11.3
Limited physical access to food	176	11.4
Limited time to prepare food	503	32.2
Transportation costs	429	27.4
Tuition fees	800	51.2

Areas of life impacted by food insecurity as reported by food insecure students



Average undergraduate tuition fees (2015/16) vs. food insecurity prevalence



Discussion

Understanding the driving factors behind student food insecurity requires an analysis of multiple and sometimes intersecting stressors. Among the general population, food insecurity is often influenced by income level, employment status, geographical location, and other socio-economic realities. Likewise, the food insecurity among postsecondary students is equally nuanced. Although blaming any single policy or social issue in isolation as the culprit behind student food insecurity would result in an incomplete understanding of the issue, our findings highlight several factors that influence students' financial stability and wellbeing.

As discussed in the results section, certain demographic groups appear to experience higher rates of food insecurity than others. This is most likely a reflection of intersecting barriers connected to larger social, economic, historical, and geographic issues. Among these issues, we believe that the high rates of poverty among Aboriginal and racialized peoples in Canada, lack of affordable housing, and inadequate and punitive student financial assistance programs play significant roles in fostering food insecurity among Canadian post-secondary students.

Poverty among Aboriginal Peoples in Canada

Poverty and food insecurity are urgent issues for Aboriginal Peoples and communities across Canada. When median incomes are compared, Aboriginal peoples earn 30% less than non-Aboriginal people (Wilson & Macdonald, 2010). This income discrepancy has resulted in a disproportionately high rate of income-related food insecurity among Aboriginal Peoples, with 25.7% of Aboriginal households experiencing food insecurity (Tarasuk, Mitchell, & Dachner, 2016). Several risk factors have been connected to food insecurity among Aboriginal Peoples, including inadequate incomes and education attainments of high school or less (Willows, Veugelers, Raine, & Kuhle, 2009). Due to these challenges, Aboriginal Peoples who experience food insecurity are more likely to report adverse health outcomes, including poor physical and mental health and a weak sense of community belonging (Willows, Veugelers, Raine, & Kuhle, 2011).

Similar to national household findings, Aboriginal students experienced the highest level of food insecurity after Black students. Over half (54.8%) of Aboriginal students who were food-insecure lived with roommates or by themselves. Fifty-eight percent reported government funding or band council

funding as their primary source of income to pay for school. These findings indicate that Aboriginal students who support themselves through loans and grants are particularly vulnerable to food insecurity, and suggests that current financial assistance programs are not meeting their financial needs. Despite the small sample size of Aboriginal students in this study, these findings are particularly important. When factors such as the low participation rate of Aboriginal youth in post-secondary education (Statistics Canada, 2011) are considered, it becomes clear that governments and post-secondary institutions have not done enough to that post-secondary education is accessible to Aboriginal Peoples in Canada.

Although the response rate from students who reported band council funding as their primary source of income for education-related expenses was quite low (n=20), it is important to highlight that the present eligibility criteria for this funding excludes a significant portion of Aboriginal Peoples in Canada. Currently, non-status First Nations, Métis, and Inuit students are not eligible for band council funding, leaving these students vulnerable to similar financial stressors, such as restrictive student financial assistance programs and precarious summer employment, as non-Aboriginal students.

Additionally, band council funding rarely covers all the living and education expenses incurred by eligible students, leaving many status Aboriginal students with financial shortfalls (C. Baskin, personal communication, October 23, 2016). As a result, Aboriginal students in Canada are caught between two systems of financial assistance, band council funding and provincial student assistance programs, which likely leaves them in a financially unstable state.

As climate change and environment pollution continue to wreak havoc on the traditional food systems of Aboriginal Peoples, access to traditional and cultural foods remains an important component often left out of conceptualizations of food security (Power, 2008). Although this study primarily looked at income-related barriers to food insecurity, the high percentage of Aboriginal students who experienced limited access to traditional foods is concerning. Findings from research on urban Aboriginal conceptualizations of food security demonstrate that food, culture, and health are intertwined, and that cultural food is an important aspect of ceremony, spirituality, and reciprocal exchanges between community members and the land (Cidro, Peters, & Sinclair, 2014). Wilson (2003) also notes the strong connection between food and medicine for Aboriginal Peoples. As post-secondary institutions look to increase enrolment rates among Aboriginal students, special considerations will be necessary to facilitate access to traditional and cultural foods and food gathering practices.

Poverty among racialized peoples in Canada

As mentioned, students who identified their primary racial/ethnic background as African or Caribbean experienced the highest rates of food insecurity. Recent research from the United States found similar findings with 54% African American students experiencing low or very low food insecurity (Goldrick-Rab, Broton, & Eisenberg, 2015). The same American study found that housing security was also an issue among African American students with over

half (52%) experiencing housing insecurity and 18% experiencing homelessness. Unfortunately, no similar numbers are available in Canada.

National results indicate that food insecurity is a major issue for Black households in Canada. According to the latest results, Black households experience the highest rate of food insecurity in the country at 29.4% (Tarasuk, Mitchell, & Dashner, 2016). This comes as no surprise considering that 22% of racialized people in Canada live in poverty compared to 11% of the overall population (National Council of Welfare, 2012). This disparity is due in part to employment trends that show racialized men are 24% more likely to be unemployed when compared to non-racialized men, and that first generation immigrant men earn 68.7 cents for every dollar non-racialized first generation immigrant men earn (Block & Galabuzi, 2011). The data is even worse for women, suggesting that racialized women are 48% more likely to be unemployed when compared to non-racialized men, and that first generation immigrant women earn 48.7 cents for every dollar non-racialized first generation immigrant men earn.

Such statistics may seem irrelevant to student food insecurity when government financial aid, campus jobs, and scholarship opportunities are considered. After all, governments and academic institutions have put such program and opportunities in place for all students, including racialized ones. However, students who are not eligible for these programs and opportunities are at a significant disadvantage. After isolating their demographic characteristics, it was revealed that 25.6% Aboriginal and racialized participants who were food-insecure lived with their parents or extended family, while another 21.4% reported their parents as their primary source of income for education related expenses. These findings may point to food insecurity experienced by the entire household, suggesting that racialized poverty can have serious implications for post-secondary students.

As noted previously, the sample sizes for students from African and Caribbean backgrounds, along with students from Aboriginal backgrounds, were relatively small. As a result, further investigation is required to expand on these findings.

Housing insecurity and affordability

Similar to food insecurity, housing insecurity or instability can be experienced through a continuum of challenges. These challenges can include difficulty paying rent, frequent moves, living in overcrowded conditions, and doubling up with friends or family (Kushel, Gupta, Gee, & Haas, 2006). Connected to housing insecurity is housing affordability. In Canada, housing is considered affordable when less than thirty-percent of a household's before tax income goes to covering shelter costs (Canadian Mortgage & Housing Corporation [CMHC], n.d.). As CMHC note, the term 'affordable housing' should not be confused with 'social housing'. Whereas affordable housing includes rental and privately owned housing provided by the public, private, and non-profit sectors, social housing typically refers to rental housing that is subsidized by the government.

Although no research exists on housing insecurity among Canadian post-secondary students, recent research from the United States has started to explore the issue. According to a study conducted by Goldrick-Rab, Broton, and Eisenberg (2015), 22% of students experience difficulty paying rent, while another 22% experience difficulty paying for utilities and 18% resort to not paying their full rent amount. The same authors also found high levels of housing insecurity, particularly among students from African American, Hispanic/Latino, and Asian backgrounds. More research is required to determine if similar results exist in Canada.

Part of the housing challenge for students is that post-secondary institutions have not prioritized student housing needs. In the United States, the Department of Housing and Urban Development notes that construction for on-campus housing has

not increased to match surging enrolment rates (Sackett, 2015). No similar research in Canada exists. However, recent stories in the Canadian media suggest that even extreme housing situations such as homelessness occur among Canadian students (Gold, 2016; S.J., 2015). As a result, more rigorous data collection is required to better understand housing issues among Canadian students.

One significant housing issue for recipients of student financial assistance who live away from home or who supported themselves prior to their studies is how living allowances are calculated. In 2015/16, OSAP allotted students without dependents who lived away from home in Ontario \$563 to cover rent for 1 bedroom in a two-bedroom apartment (OMTCU, 2015). However, during the same year in Toronto, the average cost for sharing a two-bedroom apartment was \$785 (Canadian Mortgage and Housing Corporation [CMHC], 2016a). Similarly, in the same year, students in Alberta were allocated \$450 for rent (Student Aid Alberta, 2015) while the average for sharing a two-bedroom apartment was \$660 (CHMC, 2016b). While a more in depth analysis of student financial aid funding formulas is needed to fully assess gaps, it appears that 'one size fits all' funding models do not meet the needs of students vulnerable to financial instability and shortfalls.

Student financial assistance

Pinpointing how student financial assistance (SFA) impacts food insecurity is a complex challenge. Research on food insecurity among students receiving financial assistance in Alberta found that "even for students following an economical diet, food costs will be high in relation to the money received from loans" (Meldrum & Willows, 2006). However, with financial assistance being delivered through multiple levels of government that all offer differing types of awards and supports according to varying guidelines, it is difficult to pin student food insecurity on any single financial aid policy. However, characteristics of student aid may be unintended drivers of financial insufficiency.

In most provinces and territories, SFA is delivered through a mix of federal and provincial loans (repayable) and grants (non-repayable) based on intertwining and often changing policies determined by the federal and provincial/territorial governments. Although each provincial/territorial government delivers SFA according to different guidelines, a common needs assessment equation is used across all SFA programs to determine a student's eligibility and funding entitlement. Through this equation, allowable costs (tuition fees, textbooks and supplies, and living allowances) are subtracted from a student's financial resources (employment income, savings, RESPs) to determine the assessed financial need that the provincial/territorial financial assistance program will cover.

Typically, the federal government covers 60% of a student's assessed needs through the Canada Student Loans Program (CSLP). The remaining 40% is covered by the province/territory up to a set weekly maximum. It is assumed that this financial assistance, in combination with assumed and predetermined financial contributions from students and their families, will cover most of a student's expenses related to tuition, textbooks, and living costs. However, as the Canadian Centre for Policy Alternatives notes, these weekly maximums require careful consideration for students' whose expenses exceed what is provided by their respective SFA program (MacLaren, 2014).

Many SFA programs are quick to highlight that government assistance is meant to supplement a student's financial resources rather than cover all incurred expenses. For example, the Ontario Student Assistance Program (OSAP) states that it is intended to "supplement, not replace your resources" (Government of Ontario, 2012). The Nova Scotia Student Assistance Program takes a similar stance, stating that the purpose of SFA is "to supplement, not to replace, the financial resources that you are expected to contribute" (Province of Nova Scotia, 2012). Although a discussion regarding what party

should be responsible for funding a student's education is beyond this report, it is clear that some students may be vulnerable to experiencing financial shortfalls that go unmet by SFA programs.

There are several possible reasons why a student receiving SFA may face a shortfall a financial shortfall. These reasons could range from program costs or living expenses that exceed maximum funding allowances, an unexpected financial crisis, underemployment or unemployment during the summer, unemployment during the academic year, and/or program demands that reduce a student's ability to work during the academic year.

One significant drawback of SFA programs is that they provide no room for financial planning. A strong argument can be made that financial assistance should not be used to cover a student's expenses while they are not in school. After all, why should the government, and therefore taxpayers, cover students' expenses when they are not studying? The reality of the student experience is much more nuanced. Uncertainty regarding summer or post-graduation employment may result in students undertaking various financial planning strategies, including limiting spending on food and other living expenses and/or working increased hours in order to save. Such actions would seem responsible. However, in some circumstances, these saving strategies can trigger steep financial penalties.

According to the Ontario Ministry of Training, Colleges, and Universities [OMTCU] (2015), an overaward, also commonly referred to as an overpayment, exists when "the student has been issued loans in excess of his/her current OSAP loan entitlement" (p. 34). An overaward is triggered when a student's loan application has been reassessed to consider a reduced course load or underreported income during the summer of academic year. Alberta and Nova Scotia employ similar policies.

How a student is impacted after an overpayment is issued differs by province. In Ontario, students must

pay back the overpayment amount before any future funding will be released. In Alberta, future funding may be reduced or even cancelled. In Nova Scotia, overpayments can result in deductions from future funding or the conversion of non-repayable grants to loans.

Some leniency with overpayments does exist. In Ontario, first time overpayments are forgiven. Across all provinces, students who feel that they were unfairly issued an overpayment can attempt to appeal the decision. However, the appeal process can be lengthy, arduous, and even costly. In a recent example, a fourth year student at Ryerson University paid out \$300 in fees to initiate an appeal with OSAP (Tucci, 2016). For other students, they may not be aware that an appeal process even exists.

The problem with issuing overpayments to students that underreport their income is that students in financially precarious circumstances become penalized for building a financial cushion. According to how assessed needs and funding is calculated, students must meet all their financial needs within a certain threshold. If a student earns more than what is deemed appropriate, their funding is reduced. As a result, the student's finances remains stagnant as they will need to use their earnings to pay off their overpayment fee or to compensate for reduced funding in a future term. This no doubt has serious repercussions for mature students, low-income students, and students who support themselves and/or their families.

Student employment factors

Employment issues among post-secondary students are particularly important to consider. In the summer prior to this survey, 16.8% of students aged 15 to 24 were unemployed compared to 7% of the general population (Statistics Canada, 2015d). Of the students who were employed, 24.1 hours were worked per week on average, indicating that summer student jobs are predominantly part-time. Considering these

numbers, some students may have a particularly difficult time saving for school.

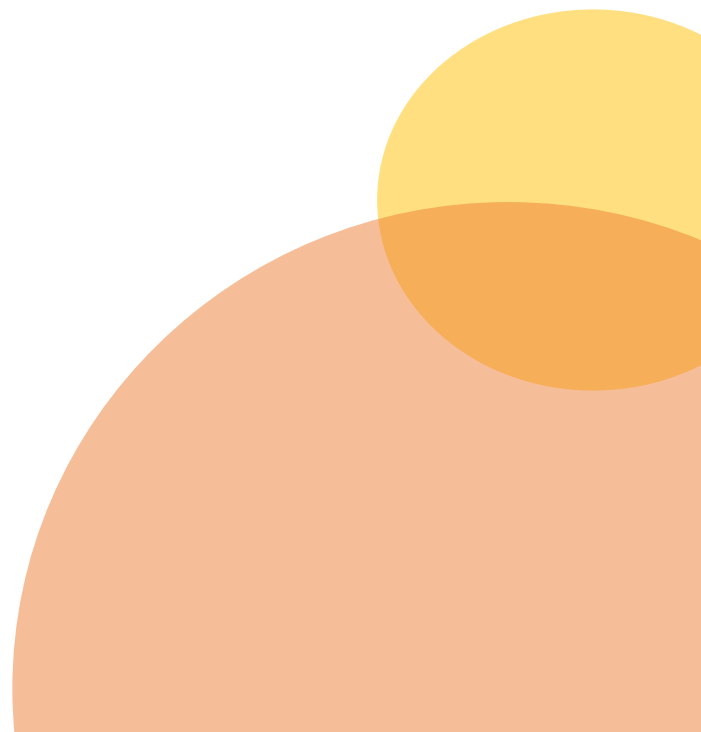
The most obvious remedy to this issue is for students to work throughout the academic year. At 46.2%, nearly half (n=1853) of survey participants in this study were employed, mirroring the national average of approximately 45% (Statistics Canada, 2010b). Many benefits can be derived from working while in school, including learning new skills, developing healthy work habits, and expanding one's professional network. Yet, the vast majority of students (96%) employed during the school year work in low-skilled service sector jobs (Statistics Canada, 2010b).

Employment during the school year may have serious academic repercussions. Over one-third (39.4%) of survey respondents who were student-workers reported that working negatively impacted their studies. In comparison, just 12.3% said that working had a positive impact. National findings collected from the College Student Survey (CSS) found equally concerning numbers with 55% of Canadian student-workers being very or moderately concerned over how employment was impacting their academic performance (Prairie Research Associates, 2009).

Health considerations

There are important health implications to consider when exploring student food insecurity. For example, the availability of time may also be an important factor on food choices. Both Borsutzky (1995) and Garcia et al. (2010) found that along with financial barriers, time limitations were also a barrier for healthy eating among post-secondary students. According to their research, demanding course loads and time outside of class spent studying appeared to reduce students' availability to grocery shop, prepare healthy foods, and clean. Considering that 32.2% of food-insecure students in this study indicated time as a barrier, the structure of academic programs may have unique implications that impact eating and cooking habits, and ultimately, health outcomes.

Students may also engage in cost-saving strategies in order to stretch their food dollars that can adversely impact health. A 2010 study at Brescia University College in London, Ontario found that students often turned to processed convenience foods as a coping strategy for dealing with the high cost of whole foods (Garcia, Sykes, Matthews, Martin, & Leipert, 2010), suggesting that students must make financial and health tradeoffs in order to cover their non-negotiable expenses. Although a full analysis of the health impacts of food insecurity on post-secondary students is beyond this report, it is clear that student food insecurity may result in an increased risk of nutritional deficiencies as they turn to cheaper processed foods in order to stretch their budgets.



Policy Recommendations

The following policy recommendations are based two main pillars:

- The need for more research on the root causes, effects, and solutions to post-secondary student food insecurity, and
- Reducing food insecurity for the most vulnerable students, including students who are Aboriginal Peoples and/or racialized persons, live off-campus, and fund their education through student financial assistance programs.

1 Implement a periodic national food and housing security survey for university and college students in Canada

Despite the existence of multiple national surveys aimed at post-secondary students in Canada, there is current no survey that assess food and housing security among Canadian university and college students. Although some information is captured by the Canadian Community Health Survey and food bank organizations, this data is most likely incomplete due to the transitory experience of being a student. Data collected through these mechanisms are also not specific to students, meaning that certain data specific to the student experience is not captured.

Much like the National College Health Assessment (NCHA) survey administered by the Canadian Association of College and University Student Services (CACUSS), a national food and housing security survey would require the support of many stakeholders. These stakeholders would include campus health promotion departments, college and university administrations, student unions/associations, student advocacy organizations, and a national coordination body with ample resources, among many others.

The benefit of such a survey would be that provincial governments, college and university administrations, and education lobby groups could track the impacts of various policy initiatives on student food insecurity, including upcoming changes to provincial student assistance programs.

2 Analyze and assess the potential inclusion of students in a Guaranteed Annual Income

Canadian research on a guaranteed annual income (GAI) has produced some compelling results. Between 1974 and 1978, the Manitoba government ran a “mincome” experiment in Winnipeg and small town Dauphin where a refundable tax credit was given to eligible low-income earners. Although the project’s funding ended before the results could be analyzed, a recent analysis by Forget (2011) found that hospital admission rates dropped while the number of young people in school increased. In more recent years, Emery, Fleisch & McIntyre (2013) found that that increased federal pension benefits for low-income seniors reduced food insecurity among adults 65 years of age and older by fifty percent. Many Canadian researchers and advocacy organizations now agree that a guaranteed minimum income will have the most significant impact for reducing food insecurity in Canada.

As the Ontario government begins to assess the viability of guaranteed annual income, an important question arises: how will post-secondary students be affected? The simple answer to this question may be that students would be ineligible. However, a GAI that included students could mitigate several significant hurdles. These hurdles include:

a. The financial penalization of current or potential low-income students

Students who lack the financial resources to pay for their education upfront have two primary options: incur large amounts of debt to finance their education or delay pursuing a post-secondary education in order to save. Although delaying may seem like a responsible decision, this student will take longer to catch up to their peers in terms of career status and earning potential. Therefore, either route significantly disadvantages low-income students.

b. Personal and economic impacts of student debt

Canadian research on the financial impacts of student debt have found that loan borrowers were less likely to own a home or have savings and investments when compared to non-borrowers (Statistics Canada, 2010c). Furthermore, loan borrowers were found to have lower assets and net worth. It reasons then that graduates with student debt do not move their money through the economy to the degree of non-borrowers. As a result, student debt has wider implications for the economy as a whole.

c. Financial barriers to post-secondary education

There are many reasons for people do not pursue a post-secondary. Family background and parental education, along with personal aspirations and readiness, have all found to be contributing factors (Statistics Canada, 2010d). However, financial barriers continue to be a significant deterrent as evidenced by the recent “free” tuition initiatives to be implemented by the provinces of New Brunswick and Ontario. However, a minimum income could significantly reduce financial barriers to post-secondary education for all Canadians.

For more information on a guaranteed annual income, take a look at Community Food Centres Canada’s [Basic Income Backgrounder](#).

3 Commit to Truth & Reconciliation calls to action for increasing access to education for Aboriginal Peoples in Canada

As noted previously, participation in post-secondary education among Aboriginal Peoples is alarmingly low. For Aboriginal Peoples, including First Nations, Métis Inuit, the majority of those who do obtain a post-secondary do so through college or a trades school (Assembly of First Nations, n.d.; Statistics Canada, 2013). Despite the diverse career possibilities provided by these education institutions, the low participation rate in university has important earnings and career progression implications. Therefore, universities and various levels of government need to devote considerable resources in order to combat this disparity.

Truth and reconciliation initiatives designed for Aboriginal post-secondary learners also require a connection to larger initiatives for Aboriginal communities as a whole. For example, the high rates of food insecurity experienced by Aboriginal students in this study is also a reflection of the high rates of food insecurity experienced by non-student Aboriginal peoples in Canada. Although anti-poverty policy considerations, such as a guaranteed annual income, are a good starting place, it is crucial that food security policies designed for Aboriginal communities also include an understanding for the importance of traditional foods and food

gathering practices. Such a framework also requires a commitment to environmental justice and resolving land claims in order to fully realize food security from Aboriginal worldviews.

Other important policy considerations for Aboriginal Peoples' food security include access to affordable childcare and transportation and child welfare services that are culturally-sensitive and focused on prevention rather than reaction (Baskin, Guarisco, Koleszar-Green, Melanson, & Osawamick, 2009). This is particularly important for Aboriginal students who are also parents, highlighting that facilitating increased access to post-secondary education for Aboriginal Peoples will require support from all levels of governments, local agencies and programs, post-secondary institutions, and Aboriginal communities and community leaders.

See items 6 to 12 in the [Truth & Reconciliation Commission of Canada: Calls to Action](#) report for specific education policy recommendations for increasing access to education for Aboriginal Peoples in Canada.

4 Develop local programs and policies aimed at providing post-secondary students with affordable housing

Many colleges and universities offer some kind of emergency housing service. These services are often focused on securing temporary housing rather than safe, long-term, and affordable housing. In the United States, services such as Single Stop and Tacoma Community College Housing Assistance Program provide students with rental assistance or affordable housing. Not only would similar services ensure housing security for Canadian students, but they would also increase access to education by ensuring that students could focus on their education rather than worrying about housing.

As mentioned previously, post-secondary institutions have failed to match increasing student enrolment with student housing needs. Therefore, colleges and universities should consider implementing long-term strategic plans to compensate for increased housing demands, especially in communities where the demand for affordable housing is already high among the general population.

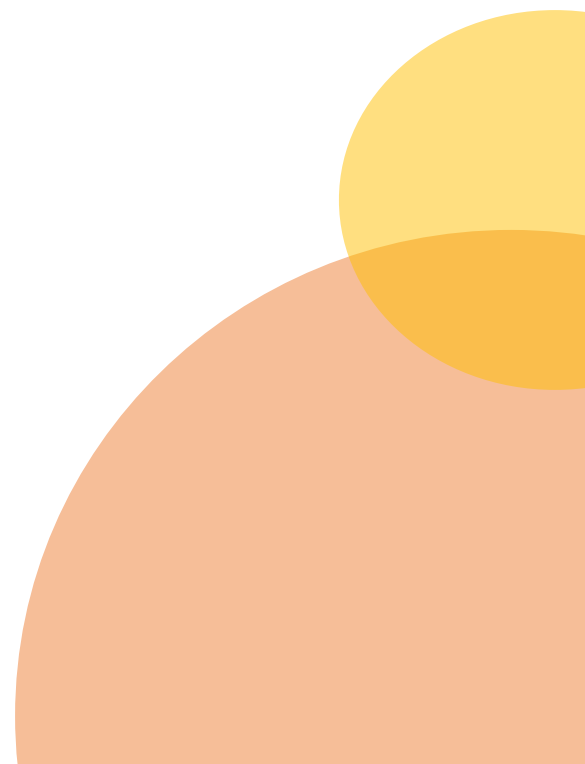
Research suggests that a significant benefit for students living on campus is that their likelihood of graduating increases (Pascarella & Terenzini, 2005). This is especially true for first-generation students who may experience strained relationships at home due to the significant lifestyle changes associated with pursuing a post-secondary education (Engle & Tinto, 2008). However, students may choose to live off-campus for a variety of reasons, including to reduce their living expenses. As residence fees and meal plans are notoriously expensive, future on-campus housing projects need to be planned with affordability as a central and guiding tenet.

Conclusions

The findings in this study demonstrate that food insecurity is a serious issue among post-secondary students in Canada. In particular, Aboriginal and racialized students, off-campus dwellers, and student loan recipients seem to be hard hit by micro and macro inequalities in government policy and labour and housing markets.

Understanding the experiences and impacts of food insecurity on post-secondary students is still understudied, and more research is required to fill gaps not addressed by the literature, including this report. Particularly, filling the knowledge gap on the relationship between academic success and food insecurity among Canada post-secondary students will better equipment governments and academic institutions with the incentive to address food insecurity with more immediacy than previously expressed. What is clear is that students are not immune to the many physical and emotional effects of food insecurity, and that very few institutions and governments have implemented strategies to mediate this.

As the cost of tuition and living continues to increase along with the demand for highly educated and skilled workers, food insecurity among post-secondary students will remain an important health, social, and economic issue. With some provincial governments now implementing 'free' tuition through financial assistance programs and conducting studies on the plausibility of a guaranteed annual income, there has never been a more appropriate time to devote and develop institutional resources, research dollars, and partnerships to better understand this issue.



Appendixes

Sample of demographic, gender identity and age group

Demographic characteristic	Count	%
Gender identity		
Female	3101	77.3
Male	865	21.6
Trans	13	0.3
Other (nonbinary, genderfluid, etc.)	15	0.3
Unknown (did not disclose or skipped question)	19	0.5
Age group		
16 - 19	1014	25.3
20 - 24	2299	57.3
25 - 29	421	10.5
30 - 34	134	3.3
35 - 39	64	1.6
40 - 49	50	1.2
50 +	20	0.5
Unknown (did not disclose or skipped question)	11	0.3

Demographics of sample, racial/ethnic background

Racial/ethnic background	Count	%
Aboriginal	55	1.4
African	77	1.9
Caribbean	60	1.5
East/South East Asian	469	11.7
Hispanic/Latino	56	1.4
Middle Eastern	91	2.3
Multiracial	191	4.8
South Asian	285	7.1
White/ European	2651	66.0
Unknown (did not disclose or skipped question)	78	1.9

Demographics of sample, living arrangement

Living arrangement	Count	%
Alone	320	8.0
Campus residence	449	11.2
Extended family	63	1.6
Parent(s)	1157	28.8
Partner no children	353	8.8
Partner with children	109	2.7
Roommates	1494	37.2
Single parent w/ children	31	0.8
Unknown (did not disclose or skipped question)	37	0.9

Demographics of sample, marital status

Marital status type	Count	%
Common law relationship	141	3.5
Divorced/separated	32	0.8
Married/engaged	239	6.0
Single	3541	88.2
Other arrangement	38	0.9
Unknown (did not disclose or skipped question)	22	0.6

Demographics of sample, enrolment type, level of study, and meal plan status

Demographic characteristic	Count	%
Enrolment type		
Part-time	164	4.1
Full-time	3820	95.2
Unknown (did not disclose or skipped question)	29	0.7
Level of study		
Graduate	460	11.5
Undergraduate	3479	86.7
Certificate	16	0.4
Unknown (did not disclose or skipped question)	58	1.4
Meal plan status		
Yes, has a meal plan	373	9.3
No, does not have a meal plan	3581	89.2
Unknown (did not disclose or skipped question)	59	1.5

Demographics of sample, origin prior to studying, primary source of income, and employment status

Demographic characteristic	Count	%
Origin prior to studying		
Domestic student	3668	91.4
International student	320	8.0
Unknown (did not disclose or skipped question)	25	0.6
Primary source of income for education related expenses		
Band council	20	0.5
Bank loan	129	3.2
Employment	1264	31.5
Government loan/grants	1031	25.7
Parent(s)	850	21.2
Savings	346	8.6
Scholarship	254	6.3
Unknown (did not disclose or skipped question)	119	3.0
Employment status		
Full-time employment	244	6.1
Part-time employment	1853	46.2
Precarious employment	247	6.2
Unemployed	1632	40.7
Unknown (did not disclose or skipped question)	37	0.8

Food access questions used to determine food security status and severity

Items	Affirmative response		Negative response	
	Count	%	Count	%
I/we worried whether my/our food would run out before I got money to buy more.	1514	37.7	2499	62.3
The food that I bought just didn't last, and I didn't have money to buy more.	1141	28.4	2872	71.6
I/we couldn't afford to eat balanced meals.	1780	44.4	2233	55.6
I/we regularly relied on a few low-cost foods in order to avoid running out of money to buy more food.	2327	58.0	1686	42.0
I/we skipped meals because there wasn't enough money to buy food.	1100	27.4	2913	72.6
I/we did not eat for a whole day because there wasn't enough money for food.	442	11.0	3571	89.0

* Based on 4013 complete cases from the food access module

Other food access questions

Items	Affirmative response		Negative response	
	Count	%	Count	%
I/we experienced limited access to important cultural and/or traditional foods.	1200	31.9	2558	68.1
I had to sacrifice buying healthy food in order to pay for essential expenses such as rent, tuition, textbooks, etc.	2127	49.5	2166	49.5
I/we thought about going to a food bank or hunger relief program but was too embarrassed to actually go.	656	15.6	3559	84.4
I/we went to a food bank or hunger relief service because I did not have the money to buy enough food.	330	7.7	3932	92.3

* Based on 4377 cases, including those with incomplete questions in the food access module

Limited access to cultural and/or traditional foods by racial/ethnic background

Racial/ethnic background	Affirmative response		Negative response	
	Count	%	Count	%
Aboriginal	30	60.0	20	40.0
African	54	70.1	23	29.9
Caribbean	43	74.1	15	25.9
East/South East Asian	225	49.3	231	50.7
Hispanic/Latino	33	60.0	22	40.0
Middle Eastern	43	50.6	42	49.4
South Asian	152	53.7	131	46.3
White/European	525	21.4	1927	78.6

Food insecure respondents that visited a food bank within the past 12 months

Item	Affirmative response		Negative response	
	Count	%	Count	%
Food insecure and visited a food bank	237	16.8	1173	83.2

Food (in)security by severity

Status	Count	%
Food secure	2449	61%
Moderately food insecure	1232	30.7%
Severely food insecure	332	8.3%
Total	4013	100%

*Based on 4013 complete responses from the food access module

Food (in)security by campus

Campus	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
	Count	%	Count	%	Count	%	Count	%
Brock University	1004	63.5	578	36.5	462	29.2	116	7.3
Dalhousie University	370	54.0	315	46.0	253	36.9	62	9.1
Lakehead University	243	54.1	206	45.9	140	31.2	66	14.7
Ryerson University	526	61.1	335	38.9	266	30.9	69	8.0
University of Calgary	306	70.0	131	30.0	112	25.7	19	4.3

Food (in)security by gender identity

Gender identity	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
	Count	%	Count	%	Count	%	Count	%
Female	1933	62.3	1168	37.7	947	30.5	221	7.1
Male	500	57.8	365	42.2	268	31.0	97	11.2
Trans	0	0.0	13	100.0	5	38.5	8	61.5
Other	5	33.3	10	66.7	8	53.3	2	13.3

* 19 cases excluded

Food (in)security by age group

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
Age group	Count	%	Count	%	Count	%	Count	%
16 - 19	673	66.4	341	33.6	267	26.3	74	7.3
20 - 24	1373	59.7	926	40.3	733	31.9	193	8.4
25 - 29	235	55.8	186	44.2	149	35.4	37	8.8
30 - 34	79	59.0	55	41.0	44	32.8	11	8.2
35 - 39	35	54.7	29	45.3	22	34.4	7	10.9
40 - 49	29	58.0	21	42.0	14	28.0	7	14.0
50 +	17	85.0	3	15.0	0	0.0	15	16.7

* 11 cases excluded

Food (in)security by racial/ethnic background

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
Racial/ethnic background	Count	%	Count	%	Count	%	Count	%
Aboriginal	24	43.6	31	56.4	22	40.0	9	16.4
African	19	24.7	58	75.3	41	53.2	17	22.1
Caribbean	28	46.7	32	53.3	18	30.0	14	23.3
East/South East Asian	306	65.2	163	34.8	125	26.7	38	8.1
Hispanic/Latino	30	53.6	26	46.4	21	37.5	5	8.9
Middle Eastern	56	61.5	35	38.5	23	25.3	12	13.2
Multiracial	106	55.5	85	44.5	62	32.5	23	12.0
South Asian	169	59.3	116	40.7	84	29.5	32	11.2
White/European	1663	62.7	988	37.3	815	30.7	173	6.5

* 78 cases excluded

Food (in)security by visible minority status

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
Visible minority status	Count	%	Count	%	Count	%	Count	%
Aboriginal	24	43.6	31	56.4	22	40.0	9	16.4
Non-visible minority	1663	62.7	988	37.3	815	30.7	173	6.5
Visible minority	714	58.1	515	41.9	374	30.4	141	11.5

* 78 cases excluded

Food (in)security by living arrangement

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
Living situation	Count	%	Count	%	Count	%	Count	%
Alone	146	45.6	174	54.4	112	35.0	62	19.4
Campus residence	289	64.4	160	35.6	123	27.4	37	8.2
Extended family	53	84.1	10	15.9	9	14.3	1	1.6
Parent(s)	889	76.8	268	23.2	220	19.0	48	4.1
Partner no children	192	54.4	161	45.6	138	39.1	23	6.5
Partner with children	72	66.1	37	33.9	31	28.4	6	5.5
Roommates	778	52.1	716	47.9	579	38.8	137	9.2
Single parent w/ children	9	29.0	22	71.0	15	48.4	7	22.6

* 37 cases excluded

Food (in)security by marital status

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
Marital status	Count	%	Count	%	Count	%	Count	%
Common law	79	56.0	62	44.0	53	37.6	9	6.4
Divorced/ separated	17	53.1	15	46.9	10	31.3	5	15.6
Married/ engaged	152	63.6	87	36.4	76	31.8	11	4.6
Single	2167	61.2	1374	38.8	1073	30.3	301	8.5
Other arrangement	22	57.9	16	42.1	15	39.5	1	2.6

* 22 cases excluded

Food (in)security by meal plan status

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
Meal plan status	Count	%	Count	%	Count	%	Count	%
Meal plan	227	60.9	146	39.1	107	28.7	39	10.5
No meal plan	2167	60.5	1414	39.5	1123	31.4	291	8.1

* 59 cases excluded

Food (in)security by enrolment status

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
Enrolment status	Count	%	Count	%	Count	%	Count	%
Part-time	105	64.0	59	36.0	41	25.0	18	11
Full-time	2329	61.0	1491	39.0	1183	31.0	308	8.0

* 29 cases excluded

Food (in)security by level of study

	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
	Count	%	Count	%	Count	%	Count	%
Graduate	299	65.0	161	35.0	136	29.6	25	5.4
Under-graduate	2101	60.4	1378	39.6	1075	30.9	303	8.7

* cases excluded

Food (in)security by origin prior to studying

Origin	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
	Count	%	Count	%	Count	%	Count	%
Domestic	2263	61.7	1405	38.3	1113	30.3	292	8.0
International	172	53.7	148	46.2	111	34.7	37	11.6

* 25 cases excluded

Food (in)security by primary source of income for educational expenses

Income source	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
	Count	%	Count	%	Count	%	Count	%
Band council	9	45.0	11	55.0	9	45.0	2	10.0
Bank loan	58	45.0	71	55.0	52	40.3	19	14.7
Employment	824	65.2	440	34.8	357	28.2	83	6.6
Government loans/grants	467	45.3	564	54.7	429	41.6	135	13.1
Parent(s)	607	71.4	243	28.6	194	22.8	49	5.8
Savings	242	69.9	104	30.1	85	24.6	19	5.5
Scholarship	175	68.9	79	31.2	71	28.0	8	3.1

* 119 cases excluded

Food (in)security by employment status

Employment status	Food secure		Food insecure		Moderately food insecure		Severely food insecure	
	Count	%	Count	%	Count	%	Count	%
Full-time	156	63.9%	88	36.1%	64	26.2%	24	9.8%
Part-time	1144	61.7%	709	38.3%	587	31.7%	122	6.6%
Precarious	129	52.2%	118	47.8%	87	35.2%	31	12.6%
Unemployed	993	60.8%	639	39.2%	486	29.8%	153	9.4%

* 37 cases excluded

Contributing factors to food insecurity as reported by respondents coded as food insecure

Factor	Count	%
Food costs	824	52.7
Housing costs	743	47.5
Inadequate income supports (student loans and grants)	589	37.7
Limited facilities/equipment to prepare food	118	7.5
Limited food knowledge/skills	176	11.3
Limited physical access to food	176	11.4
Limited time to prepare food	503	32.2
Transportation costs	429	27.4
Tuition fees	800	51.2

Impacts of food insecurity as reported by respondents coded as food insecure

Factor	Count	%
Class participation	325	20.8
Extra-curricular activities	401	25.6
Grades	445	28.5
Mental health	665	42.5
Parenting responsibilities	51	3.3
Physical health	756	48.3
Social life	442	28.3

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