

*Full Length Research Paper*

# Analyzing determinants shaping access to and perceptions of campus food banks in maritime university settings

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**This research delves into the pervasive issue of food insecurity among university students, with a specific focus on Canada's Maritime Provinces. The study elucidates the intricate relationship between household food insecurity and critical factors that influence a student's academic performance, financial stability, and overall well-being. Additionally, it reveals a disconcerting underutilization of Campus Food Banks (CFBs), particularly among students facing severe food insecurity. This emerging trend is worrisome, given the crucial role that CFBs play in addressing this crisis. Various factors significantly impact a student's likelihood of utilizing CFBs, including stigma, awareness, perception, and the governance structure of these food banks.**

**Key words:** Food security, university students, Canadian universities, student success.

## INTRODUCTION

Canadian university campuses have hosted Campus Food Banks (CFBs) for many years. In 2006, there were 52 CFBs in the country, with the first one appearing in 1991. Today, numerous CFBs operate across Canada's 100 universities. Despite their growing presence, there is a lack of research exploring how these resources are used, their impact, and the characteristics of the students who rely on them. While the term "food bank" is well-defined, the definition of a CFB varies in academic discussions, posing a common drawback in existing literature. This study does not aim to establish a definitive CFB definition. Instead, it expands on the Merriam-Webster definition of a "food bank," considering any non-profit initiative situated on a university campus that

gathers and distributes food to students as falling within this category.

In general, food banks strive to address and ideally prevent food insecurity, which occurs when people struggle to access nutritious and safe food through socially accepted means. In wealthy countries like Canada, the presence of food banks underscores the insufficiency of government and community assistance programs in meeting the population's food security needs. Ironically, many food banks grapple with combating food insecurity due to limitations in the nutritional quality and quantity of the food they provide. Furthermore, the number of food-insecure individuals in Canada surpasses the utilization of food banks,

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emphasizing the complexity of comprehensively addressing this issue.

### **How food insecure is Canadian students?**

In our analysis of Canadian studies examining food security among university students, a consistent pattern emerges, revealing a substantial prevalence of food insecurity among the surveyed population (Azurdia et al., 2011; Blundell et al., 2019; Farahbakhsh et al., 2016; Frank, 2018; Hamilton et al., 2020; Hanbazaza et al., 2016; Hanbazaza et al., 2015; Maynard et al., 2018; Nugent, 2011; Pereira, 2020). A comprehensive national investigation conducted by Meal Exchange estimated that approximately 40% of Canadian university students confront food insecurity (Blundell et al., 2019). However, it is noteworthy that these statistics exhibit considerable variation across different academic institutions. For instance, one study conducted at the University of Alberta reported that over 90% of respondents acknowledged experiencing moderate to severe food insecurity (Farahbakhsh et al., 2016), whereas research conducted at Memorial University indicated a prevalence of over 60% (Blundell et al., 2019). Additionally, a study conducted in 2015 within our home province of Nova Scotia found that 38% of respondents had encountered moderate to severe food insecurity within the preceding year (Frank, 2018).

### **Impacts of food insecurity**

Food security, as expounded by Farahbakhsh et al. (2016) and Hanbazaza et al. (2016), constitutes a salient social determinant of health. A wealth of empirical evidence substantiates the assertion that food insecurity exerts disproportionately adverse effects on segments of the population grappling with pronounced socioeconomic disadvantages, as posited by Bazerghi et al. (2016), Blundell et al. (2019), Farahbakhsh et al. (2016), Frank (2018), Hamilton et al. (2020), and Hanbazaza et al. (2016). Furthermore, scholarly inquiry illuminates that food insecurity among Canadian university students surpasses prevalence rates within the general populace, an observation articulated by Blundell et al. (2019). This phenomenon signifies that students facing socioeconomic impediments are predisposed to heightened levels of food insecurity. Indeed, a mosaic of Canadian studies, including those by Blundell et al. (2019), Frank (2018), Hamilton et al. (2020), Hanbazaza et al. (2016), Hanbazaza et al. (2015), Maynard et al. (2018), Murphy et al. (2022), and Nugent (2011), elucidates that students in stable financial circumstances tend to exhibit greater food security, whereas students reliant on financial assistance and student loans exhibit an increased

vulnerability to food insecurity. Noteworthy, the elevated cost associated with pursuing a university education emerges as a significant contributory factor to students' susceptibility to food insecurity, as substantiated by Farahbakhsh et al. (2016), Frank (2018), Hamilton et al. (2020), and Maynard et al. (2018).

Furthermore, compelling evidence indicates that students carry the burden of their food insecurity into the classroom. Empirical investigations, including those by Blundell et al. (2019), Frank (2018), Hamilton et al. (2020), Hanbazaza et al. (2016), Hanbazaza et al. (2015), Maynard et al. (2018), and Murphy et al. (2022), elucidate that food-insecure students manifest a propensity for suboptimal academic performance, a phenomenon inversely correlated with food security. Additionally, food-insecure students are predisposed to adverse health outcomes, as highlighted by Farahbakhsh et al. (2016), Frank (2018), Hamilton et al. (2020), and Maynard et al. (2018). It is noteworthy, however, that extant research has provided only limited exploration of the intricate interplay among students' health, academic performance, and nutritional status in the context of food insecurity, as underscored by Farahbakhsh et al. (2016) and Frank (2018). This lacuna in knowledge warrants further scholarly investigation.

### **Who is using campus food banks?**

In light of compelling empirical evidence concerning the prevalent issue of food insecurity among university students, the current scholarly landscape reveals a dearth of comprehensive data elucidating the precise demographics of beneficiaries of food banks situated within Canadian academic institutions. The extant literature predominantly delves into the attributes of food bank users at discrete campuses, yet regrettably neglects the imperative task of delving into the overarching determinants that either incentivize or deter the utilization of campus-based food banks within a broader contextual framework.

To date, extant scholarship fails to present a uniform portrayal of the demographic characteristics characterizing food bank patrons in the Canadian context. For instance, an investigation conducted at the University of Alberta posits that a preponderance of food bank beneficiaries are female, Canadian citizens, enrolled as full-time undergraduates, and reside independently (Hanbazaza et al., 2016). In stark contrast, research conducted at the University of Guelph contends that two-thirds of food bank beneficiaries at its campus comprise international graduate students (Pereira, 2020). In a nuanced vein, Price et al. (2020) postulate that the labyrinthine nature of university administrative processes erects a formidable barrier to the effective functioning of campus food banks. Conversely, other studies intimate

that factors such as feelings of shame or societal stigma may act as deterrents, compelling students to forgo the utilization of campus food banks (Farahbakhsh et al., 2016; Maynard et al., 2018; Osei, 2019; Pereira, 2020).

Within the ambit of extant research scrutinizing the utilization patterns of Canadian university students' vis-à-vis campus food banks, a conspicuous deficiency manifests itself in the form of an absence of a standardized set of evaluative criteria to gauge utilization. A surfeit of studies underscored this absence as a limitation, compounded by a paucity of food literacy among respondents and the glaring absence of universally accepted operational definitions within this realm. These extant inquiries adumbrated multifarious facets of food bank usage, ranging from user satisfaction (Azurdia et al., 2011; Bazerghi et al., 2016), nutritional quality (Maynard et al., 2018), income levels, and residential arrangements (Bazerghi et al., 2016; Farahbakhsh et al., 2016; Frank, 2018), to the ease of access for students to avail themselves of these indispensable services (Bazerghi et al., 2016). However, it is noteworthy that a preponderance of these investigations remained ensconced within the precincts of specific campuses, rendering the distillation of overarching trends and findings from individual food banks a considerably intricate endeavour. This underscores the intricate challenges attendant to the utilization of single-campus-centric studies in the endeavour to proffer comprehensive insights. Consequently, it underscores the imperative nature of conducting a multi-institutional study that can encapsulate and demarcate the universe of campus food bank users while affording a more profound understanding of the multifarious factors that may impel or dissuade students from availing themselves of these indispensable resources.

## METHODOLOGY

### Study design

This research endeavor employed a cross-sectional survey design as its foundational methodology, with the primary objective of amassing comprehensive data about various facets of university students' profiles and experiences. The research instrument was meticulously constructed to encompass inquiries related to students' demographic characteristics, academic backgrounds, self-assessments of academic achievement, financial stability, and overall well-being. Additionally, the survey incorporated queries concerning students' living arrangements, employment status, income levels, factors indicative of potential food insecurity, and their encounters with, as well as perceptions of, Community Food Banks (CFBs). The formulation of survey questions was predicated upon a meticulous review and analysis of extant studies concerning Canadian university students and their interactions with CFBs. This process ensured that the questionnaire was theoretically grounded and attuned to the specific context of the study population. Data collection transpired during the month of April in the year 2023, employing an online questionnaire as the data collection

instrument, facilitated through the Qualtrics survey tool. This digital survey platform was chosen for its accessibility and utility in reaching a diverse and geographically dispersed student population efficiently.

### Sampling design

Participants for this research endeavor were systematically sought from a total of 13 academic institutions, spanning 11 distinct campuses within the Maritime region of Canada. These institutions encompassed a spectrum of renowned universities, namely Acadia University, Cape Breton University, Dalhousie University, Mount Saint Vincent University, Saint Mary's University, St. Francis Xavier University, and the University of King's College in Nova Scotia; Mount Allison University, St. Thomas University, and the University of New Brunswick in New Brunswick; as well as the University of Prince Edward Island on Prince Edward Island. These selections were made judiciously by a predefined set of criteria, which included, but were not limited to, the primary use of the English language as the medium of instruction, status as a publicly funded educational establishment, geographical location within the Maritime provinces, provision of on-campus accommodation facilities, availability of a campus-based food bank, and possession of a sufficiently sizable student populace conducive to soliciting responses.

The investigative approach employed within this study adhered to a volunteer sampling methodology. The recruitment of student participants was predominantly facilitated through the dissemination of promotional materials via social media channels, incorporating both QR codes and direct hyperlinks to access the electronic survey. Subsequently, respondents who completed the survey were enrolled in a randomized drawing for the opportunity to secure a \$50 grocery store gift card. It is noteworthy that one such drawing was conducted for each campus under consideration.

Moreover, in a concerted effort to maximize outreach and ensure the comprehensive representation of Campus Food Banks (CFBs) users, proactive outreach was undertaken. Specifically, both the student unions/associations and CFBs, situated within each respective campus, were formally contacted utilizing publicly accessible contact information. These entities were subsequently furnished with the requisite recruitment materials and duly requested to distribute the materials among their respective student populations. However, it is important to acknowledge that the extent of engagement and cooperation rendered by the CFBs and student organizations in facilitating recruitment endeavours were not quantified within the scope of this research.

### Measures

Food security levels were evaluated through the utilization of an adapted iteration of the Household Food Security Survey Model (HFSSM) adult scale. This version of the scale, crafted by Health Canada in 2020, was derived from its U.S. counterpart. Participants were presented with a series of 8 inquiries probing their experiences with food insecurity, both personally and within their households, over the past year. Each affirmative response was assigned a point value, contributing to an overall score that served as an indicator of the degree of food security within the respondent's household. A score of zero denoted a state of food security for the respondent, while a score of one signified marginal food insecurity. Scores ranging from two to five were indicative of moderate food insecurity and a score of six or higher pointed to severe food insecurity within the respondent's household.

In addition to the food security assessment, socio-demographic

queries were incorporated into the survey instrument. These inquiries sought information concerning the respondents' age, gender, relationship status, parental status, and self-identification within the 2SLGBTQIA+ or BIPOC communities. Further elements of the survey encompassed assessments of financial stability, academic performance, and overall well-being, gauged through the application of 7-point Likert scales. The survey also delved into the academic profiles of respondents, their living arrangements, and their financial circumstances. A noteworthy component of the survey was dedicated to probing respondents' experiences with accessing Community Food Banks (CFBs). The intent was to elucidate the factors that either motivate or deter access to these resources, thereby enhancing our comprehension of the demographic groups that rely on CFBs.

### Participants

This sample ( $n = 134$ ) represents 0.204% of the population of students enrolled in the institutions studied ( $n = 65287$ ) based on the Maritime Provinces Higher Education Commission's (2022) publicly available enrollment data for the 2021-22 academic year. Discrepancies in totals are due to non-responses for some questions and perhaps respondent fatigue. When reviewing this data, it was noted that the sample appears to over or underrepresent certain subgroups of the population. Female identifying respondents are overrepresented, at 70.7% of the sample compared to the estimated 56% of the population, based on enrollment data from the previous year. International student representation in the sample is almost twice as much as the population estimate for the previous year, at 40.6% of the sample compared to 21.5% of the population. The sample slightly overrepresents full-time students in the sample by 4.5%, while graduate and PhD students were overrepresented in the sample by 5.9%. It should be noted that these are limited assumptions of over or under-representation, as the corresponding dataset for the 2022-2023 academic year, during which this study has taken place, was not available at the time this study was finalized in July 2023.

## RESULTS

### Food insecurity

Tables 1 through 6 herein exhibit a comprehensive exposition of household food insecurity levels across diverse demographic subgroups. Among the surveyed students, a discernible pattern emerges whereby 13 individuals, constituting 9.78% of the sample, were found to possess an HFSSM score of 0, denoting a state of household food security. In contrast, 9 respondents (6.77%) exhibited an HFSSM score of 1, signifying marginal household food insecurity. A substantial contingent of 50 participants (37.59%) registered scores between 2 and 5, indicative of moderate household food insecurity. Remarkably, 61 individuals (45.86%) disclosed scores ranging from 6 to 8, the maximum attainable score on the HFSSM scale, signifying severe household food insecurity. Consequently, it becomes evident that a staggering 90.2% of the respondents in this study reported some degree of household food insecurity, with an overwhelming 83.46% of them confronting moderate

or severe manifestations of this issue.

It is imperative to underscore the critical distinction between the HFSSM and the corresponding food security score, which predominantly pertains to the collective food security status within a household rather than the individual food security status of each respondent. Cautionary guidance provided by PROOF (2018) warns against the common pitfall of conflating household figures with individual figures when scrutinizing food security data. Nevertheless, it is essential to recognize that members residing within food-insecure households are susceptible to personal encounters of food insecurity, a vulnerability that escalates concomitantly with the increasing severity of household food insecurity, as elucidated by Tarasuk (2001). Ergo, the HFSSM scores reported by respondents may not necessarily align with their experiential realities of food insecurity. It is also noteworthy that the potential exists for an underestimation of food insecurity prevalence, given the proclivity for students to cohabitate with one another during the academic year. Consequently, it is plausible to posit that the reported levels of household food insecurity scores encapsulate a broader segment of the population than the 133 respondents constituting this sample.

### Demographic characteristics

Table 1 presents an overview of sample demographics, rendering a discerning examination of key demographic characteristics. Notably, a substantial contingent of respondents, constituting 80.5% of the cohort, fell within the age bracket of 18 to 25 years. The central tendency of the respondent age distribution revealed a mean age of 22.68, complemented by a median age of 21 years. Predominantly, the survey populace leaned towards individuals identifying as female, encompassing 70.7% of the cohort. It is noteworthy that within this female-identifying demographic, preponderance was found among households categorized as food secure, accounting for 84.6% of such households. Marginally food insecure households also exhibited a similar trend, with 77.8% of them predominantly occupied by female-identifying respondents. Conversely, male-identifying respondents were predominantly situated within households characterized by moderate and severe food insecurity, comprising 89.2% of such households. Concerning marital status, the cohort's relational configurations revealed that the majority, 59.4%, identified as single, followed by 32.3% in a relationship, and 8.3% who declared their marital status as married. It is pertinent to note that the marital status of being single or in a relationship appeared to yield negligible differentials in terms of food security outcomes.

However, a significant observation arises from the fact that 87.5% of married respondents found themselves

**Table 1.** Demographic characteristics compared to levels of household food insecurity.

	All respondents (n = 134)	Level of household food insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
<b>Age</b>					
18 to 21	69 (51.9)	7 (54.8)	8 (88.9)	26 (52)	28 (45.9)
22 to 25	38 (28.6)	3 (23.1)	0 (0)	16 (32)	19 (31.1)
26 to 29	18 (13.5)	2 (15.4)	1 (11.1)	3 (6)	12 (19.7)
30+	8 (6)	1 (7.7)	0 (0)	5 (10)	2 (3.3)
<b>Gender identity</b>					
Female	94 (70.7)	11 (84.6)	7 (77.8)	37 (74)	39 (63.9)
Male	37 (27.8)	2 (15.4)	2 (22.2)	13 (26)	20 (32.8)
Transgender	1 (0.75%)	*	*	*	*
Non-binary	2 (1.5%)	*	*	*	*
<b>Relationship status</b>					
Single	74 (55.6%)	8 (61.5)	4 (44.4)	30 (60)	32 (52.5)
In a relationship (not married)	43 (32.3%)	3 (23.1)	5 (55.6)	16 (32)	19 (31.1)
Married	11 (8.3%)	1 (7.7)	0 (0)	2 (4)	8 (13.1)
<b>Experiences of marginalization</b>					
Identifies as BIPOC	32 (24.1%)	2 (15.4)	1 (11.1)	9 (18)	20 (32.8)
Identifies as 2SLGBTQIA+	37 (27.8%)	2 (15.4)	3 (33.3)	16 (32)	16 (26.2)

ensconced within households manifesting moderate to severe food insecurity.

Incorporating an ethnic dimension, the study identified that 24.1% of respondents self-identified as BIPOC (Black, Indigenous, or Person of Color). Notably, a substantial 62.5% of BIPOC students encompassed the category of severely food insecure households, juxtaposed with 41.24% of students who did not identify as such. This demarcation underscores the heightened prevalence of food insecurity within the BIPOC demographic. Conclusively, a staggering 90.63% of BIPOC students were ensnared within the

spectrum of moderate to severe food insecurity. A salient facet of the demographic spectrum pertains to the identification of 27.82% of respondents as members of the 2SLBTQIA+ community. Strikingly, an overwhelming 86.49% of 2SLBTQIA+ students faced the harsh realities of moderate to severe food insecurity within their households, in contrast to 83.33% of non-2SLBTQIA+ students. This divergence alludes to the exacerbated food security challenges encountered by members of the 2SLBTQIA+ community, warranting a more profound examination of the underlying factors contributing

to this phenomenon.

### Academic profile

Table 2 presents an overview of the academic demographics within the study sample. Of the surveyed students, 58.6% identified themselves as domestic students, while 40.6% identified as international students. Notably, a substantial proportion of international students, specifically 85.2%, reported experiencing moderate to severe levels of food insecurity within their households. In

**Table 2.** Academic profile compared to levels of household food insecurity.

	All respondents (n = 134)	Level of household food insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
<b>Student status</b>					
Domestic	78 (58.6)	8 (61.5)	5 (55.6)	29 (58)	36 (59)
International	54 (40.6)	4 (30.8)	4 (44.4)	21 (42)	25 (41)
Full-time	118 (88.7)	12 (10.2)	9 (7.6)	47 (94)	50 (82)
Part-time	13 (9.8)	0 (0)	0 (0)	3 (6)	10 (16.4)
<b>Level of study</b>					
Bachelor's Degree	101 (75.9)	11 (84.6)	9 (100)	36 (72)	45 (73.8)
Master's Degree	24 (18)	0 (0)	0 (0)	10 (20)	14 (23)
PhD / Doctorate	7 (5.3)	1 (7.7)	0 (0)	4 (8)	2 (3.3)
<b>Field of study</b>					
Arts, Humanities, or Social Sciences	41 (30.8)	2 (15.4)	5 (55.6)	13 (26)	21 (34.4)
Sciences	63 (47.4)	6 (46.2)	3 (33.3)	22 (44)	32 (52.5)
Business / Management	12 (9)	1 (7.7)	1 (11.1)	7 (14)	3 (4.9)
Professional Program	5 (3.8)	1 (7.7)	0 (0)	5 (10)	3 (4.9)
<b>Academic performance</b>					
Very poor	3 (2.3)	0 (0)	0 (0)	0 (0)	3 (4.9)
Somewhat poor	3 (2.3)	0 (0)	0 (0)	1 (2)	2 (3.3)
Slightly poor	10 (7.5)	0 (0)	0 (0)	2 (4)	8 (13.1)
Neither poor nor good	8 (6)	0 (0)	0 (0)	3 (6)	5 (8.2)
Slightly good	15 (11.3)	1 (7.7)	1 (11.1)	3 (6)	10 (16.4)
Somewhat good	58 (43.6)	8 (61.5)	4 (44.4)	24 (48)	22 (36.1)
Very good	35 (26.3)	3 (23.1)	4 (44.4)	17 (34)	11 (18)

comparison, 83.3% of domestic students reported similar challenges. The data suggests that, in relative terms, domestic students appear to encounter slightly lower levels of food insecurity compared to their international counterparts.

Furthermore, the survey revealed that 88.7% of respondents were enrolled as full-time students, whereas 9.8% pursued their studies on a part-

time basis.

Remarkably, all part-time students reported experiencing moderate to severe food insecurity in their households, in contrast to 82.2% of full-time students facing similar circumstances.

Regarding academic classification, the distribution among students was as follows: 75.9% identified as undergraduate students, 18%

as master's students, and 5.3% as pursuing a Ph.D. Interestingly, every master's student and most Ph.D. students, comprising 85.71%, resided in households grappling with moderate to severe food insecurity. Notably, the data does not reveal any discernible disparities in food security based on academic discipline.

Lastly, a section of the survey assessed

**Table 3.** Household characteristics compared to levels of household food insecurity.

	All respondents (n = 133)	Level of food insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
<b>Living on/off campus</b>					
Living on campus (residence/dorms)	19 (14.3)	3 (23.1)	2 (22.2)	8 (16)	6 (9.8)
Living off campus	113 (85)	9 (69.2)	7 (77.8)	42 (84)	55 (90.2)
<b>Household</b>					
Living alone	18 (13.5)	2 (15.4)	0 (0)	5 (10)	11 (18)
Living with friend(s) or roommate(s)	54 (40.6)	2 (15.4)	4 (44.4)	21 (42)	27 (44.3)
Living with a partner or spouse	25 (18.8)	2 (15.4)	0 (0)	7 (14)	16 (26.2)
Living with relatives	21 (15.8)	3 (23.1)	3 (33.3)	12 (24)	3 (4.9)

students' self-perceived academic performance. Approximately 12% of respondents expressed a negative evaluation of their academic performance, while 81.2% rated their performance positively. Intriguingly, all students who rated their academic performance negatively or neutrally were found to be experiencing moderate to severe food insecurity in their households, in contrast to 87% of those who assessed their academic performance positively. These findings underscore the potential link between food security and self-perceived academic achievement within the student population.

### Household characteristics

Table 3 presents an analysis of household food security levels among the survey respondents, categorized based on their residential arrangements. It is noteworthy that a substantial proportion of the surveyed individuals (85%) chose to reside off-campus. Amongst this cohort, a noteworthy 85.8% reported experiencing moderate to severe food security issues within

their households. In contrast, students residing within on-campus housing, such as residences or dormitories, exhibited a comparatively lower prevalence of moderate to severe food security challenges, with 73.7% falling into this category.

Further examination of the data reveals that students dwell alone or with friends or roommates encountered household food insecurity at a relatively uniform rate, with approximately 88.9% facing moderate to severe issues in this regard. Conversely, students cohabiting with a spouse or partner exhibited a higher prevalence of household food insecurity, with a staggering 92% reporting moderate to severe levels of insecurity. In contrast, students residing with relatives experienced a significantly lower incidence of moderate to severe food insecurity, with only 71.4% grappling with these challenges.

### Employment status

Table 4 presented herein furnishes a comprehensive exposition of household food security in relation to varying employment

statuses. Among the surveyed student population, 16.5% were gainfully engaged in full-time employment, 54.1% were participating in part-time employment, and the remaining 27.1% were categorized as unemployed. Notably, individuals engaged in full-time employment exhibited the most pronounced incidence of severe household food insecurity, with a staggering 68.2% experiencing this dire circumstance. In contrast, 41.7% of students engaged in part-time employment or classified as unemployed found themselves confronted with severe household food insecurity.

### Well-being and financial stability

During our survey, it was observed that a notable proportion of the student respondents, specifically 24.8%, expressed a negative evaluation of their overall well-being. Amongst this subgroup, a striking 92.9% reported experiencing either moderate or severe food insecurity within their respective households. In stark contrast, when examining students who reported a positive

**Table 4.** Employment status compared to levels of household food insecurity.

	All respondents (n = 134)	Level of Household Food Insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
<b>Employment status</b>					
Employed full-time	22 (16.5)	0 (0)	2 (22.2)	5 (10)	15 (24.6)
Employed part-time	72 (54.1)	5 (28.5)	5 (55.6)	32 (64)	30 (49.2)
Unemployed	36 (27.1)	6 (46.2)	2 (22.2)	13 (26)	15 (24.6)

appraisal of their overall well-being, the prevalence of moderate to severe household food insecurity was notably lower, at 67.5%. Furthermore, our investigation revealed that a significant segment of the student population, amounting to 40.6%, assigned unfavourable ratings to their perceived financial stability. Among these students, an overwhelmingly substantial 96.3% acknowledged encountering moderate or severe food insecurity within their households. In contrast, among students who provided affirmative assessments of their financial stability, the prevalence of moderate to severe household food insecurity was comparatively lower, standing at 69.2%. For a comprehensive overview of these findings, please refer to Table 5.

### Awareness and reliance

Table 6 delineates the discernment of students regarding Community Food Banks (CFBs) and the proportion of students reliant upon CFBs for the sustenance of either themselves or their respective households. Among the surveyed student populace, a noteworthy 53.4% exhibited an awareness of the existence of their associated CFB and possessed the requisite knowledge for accessing it. In contrast, a segment constituting

26.3% demonstrated awareness of their CFB's presence but expressed uncertainty regarding the procedures for accessing its services. Intriguingly, a cohort comprising 19.5% remained entirely unapprised of the presence of a CFB catering to their needs. It is remarkable to note that merely 63.9% of students dwelling in households experiencing severe food insecurity possessed the requisite knowledge for accessing their affiliated CFB. This percentage experienced a decline to 52% for students inhabiting moderately food-insecure households. Further analysis reveals that almost half, specifically 49.1%, of students hailing from severely food insecure households, along with a substantial 70% of students from moderately food insecure households, conveyed that their reliance on CFBs for provisioning for themselves or their households was infrequent, with many indicating that they seldom or never resorted to this resource.

### Frequency of access

In the examination of the cumulative rates of access to Campus Food Banks (CFB) across various demographic groups, it was discerned that 9 students, constituting 6.8% of the cohort,

reported accessing their CFB on a weekly basis. Furthermore, 33 students, amounting to 24.8% of the sample, indicated that they accessed their CFB at least once per month, whereas 54 students, representing 40.6% of the population, reported accessing their CFB at least once per semester. A noteworthy observation is that 60 students, equivalent to 45.1% of the total, asserted that they had never accessed their CFB. It is pertinent to emphasize certain demographic characteristics of students whose self-reported frequency of monthly access surpasses the aggregate sample rate of 24.8%. Specifically, students falling within the age bracket of 26 to 29 exhibit a monthly access rate of 38.9%. Male-identifying students demonstrate a monthly access rate of 35.1%, while BIPOC-identifying students report a monthly access rate of 37.5%. International students record a monthly access rate of 40.7%, and part-time students notably exhibit a high rate of 46.2%. Likewise, students cohabiting with friend(s) and/or roommate(s) and students engaged in full-time employment denote monthly access rates of 31.8%. Notably, students residing with relatives evince an exceedingly low CFB access rate of 4.8%. For further elucidation and detailed demographic breakdowns, please refer to Table 7, which furnishes the access rates corresponding to each demographic identifier.



**Table 5.** Self-rated well-being and self-rated financial stability compared to levels of household food insecurity.

	All respondents (n = 134)	Level of Household Food Insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
<b>Overall well-being</b>					
Very poor	11 (8.3)	0 (0)	0 (0)	1 (2)	10 (16.4)
Somewhat poor	13 (9.8)	1 (7.7)	0 (0)	4 (8)	8 (13.1)
Slightly poor	9 (6.8)	0 (0)	1 (11.1)	1 (2)	7 (11.5)
Neither poor nor good	16 (12)	0 (0)	1 (11.1)	9 (18)	6 (9.8)
Slightly good	34 (25.6)	3 (23.1)	2 (22.2)	15 (30)	14 (23)
Somewhat good	35 (26.3)	6 (46.2)	2 (22.2)	14 (28)	13 (21.3)
Very good	14 (10.5)	1 (7.7)	0 (0)	0 (0)	0 (0)
<b>Financial stability</b>					
Very poor	10 (7.5)	0 (0)	0 (0)	2 (4)	8 (13.1)
Somewhat poor	18 (13.5)	0 (0)	1 (11.1)	6 (12)	11 (18)
Slightly poor	26 (19.5)	1 (7.7)	0 (0)	12 (24)	13 (21.3)
Neither poor nor good	26 (19.5)	2 (15.4)	1 (11.1)	10 (20)	13 (21.3)
Slightly good	23 (17.3)	3 (23.1)	1 (11.1)	7 (14)	12 (19.7)
Somewhat good	16 (12)	3 (23.1)	1 (11.1)	10 (20)	2 (3.3)
Very good	13 (9.8)	3 (23.1)	5 (55.6)	3 (6)	2 (3.3)

**Table 6.** Levels of CFB awareness and dependence compared to levels of household food insecurity.

	All respondents (n = 134)	Level of food insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
<b>Awareness</b>					
Aware of CFB	71 (53.4)	3 (23.1)	3 (33.3)	26 (52)	39 (63.9)
Aware but not sure how to access	35 (26.3)	4 (30.8)	3 (33.3)	15 (30)	13 (21.3)
Unaware of CFB	26 (19.5)	5 (38.5)	3 (33.3)	9 (18)	9 (14.8)
<b>Dependence on food banks to provide for self or household</b>					
All of the time	3 (2.3)	0 (0)	0 (0)	0 (0)	3 (4.9)
Most of the time	11 (8.3)	1 (7.7)	1 (11.1)	2 (4)	7 (11.5)
Sometimes	28 (21.1)	0 (0)	0 (0)	11 (22)	17 (27.9)
Rarely	28 (21.1)	0 (0)	1 (11.1)	13 (26)	14 (23)
Never	56 (42.1)	11 (84.6)	7 (77.8)	22 (44)	16 (26.2)

**Table 7.** Demographic, academic, household, and economic characteristics compared with CFB access.

	All respondents (n = 134)	Frequency of CFB access				
		At least once per week (n = 9)	At least monthly, less than weekly (n = 24)	Every semester, less than monthly (n = 21)	Less than once per semester (n = 14)	Have not accessed (n = 60)
<b>Age</b>						
18 to 21	69 (51.9)	6 (66.7)	11 (45.8)	5 (23.8)	7 (50)	38 (63/3)
22 to 25	38 (28.6)	2 (22.2)	5 (20.8)	9 (42.9)	4 (28.6)	16 (26.7)
26 to 29	18 (13.5)	0 (0)	7 (29.2)	6 (28.6)	2 (14.3)	3 (5)
30+	8 (6)	1 (11.1)	1 (4.6)	1 (4.8)	1 (7.1)	3 (5)
<b>Gender Identity</b>						
Female	94 (70.7)	8 (88.9)	12 (50)	12 (57.1)	11 (78.6)	48 (80)
Male	37 (27.8)	1 (11.1)	12 (50)	8 (38.1)	3 (21.4)	11 (18.3)
<b>BIPOC</b>						
Identifies as BIPOC	32 (24.1)	6 (66.7)	6 (25)	2 (9.5)	5 (35.7)	12 (20)
Does not identify	96 (72.7)	3 (33.3)	18 (75)	18 (85.7)	8 (57.1)	47 (78.3)
<b>2SLGBTQIA+</b>						
Identifies as 2SLGBTQIA+	37 (27.8)	1 (11.1)	4 (16.7)	5 (23.8)	3 (21.4)	23 (38.3)
Does not identify	90 (68.2)	8 (88.9)	20 (83.3)	16 (76.2)	11 (78.6)	33 (55)
<b>Student status</b>						
Domestic	78 (58.6)	1 (11.1)	10 (41.7)	13 (61.9)	6 (42.9)	47 (78.3)
International	54 (40.6)	8 (88.9)	14 (58.3)	8 (38.1)	8 (57.1)	13 (21.7)
Full-time	118 (88.7)	9 (100)	18 (75)	17 (81)	14 (100)	56 (93.3)
Part-time	13 (9.8)	0 (0)	6 (25)	4 (19)	0 (0)	2 (3.3)
<b>Living on/off campus</b>						
Living on campus (residence/dorms)	19 (14.3)	3 (33.3)	2 (8.3)	0 (0)	0 (0)	13 (21.7)
Living off campus	113 (85)	6 (66.7)	22 (91.7)	21 (100)	14 (100)	47 (78.3)
<b>Living arrangements</b>						
Living alone	18 (13.5)	0 (0)	4 (16.7)	5 (23.8)	1 (7.1)	7 (11.7)
Living with friend(s) or roommate(s)	54 (40.6)	5 (55.6)	12 (50)	12 (57.1)	9 (64.9)	15 (25)
Living with a partner or spouse	25 (18.8%)	1 (11.1%)	5 (20.8%)	4 (19%)	3 (21.4)	12 (20)
Living with relatives	21 (15.8)	0 (0)	1 (4.2)	0 (0)	2 (14.3)	17 (28.3)
<b>Employment status</b>						
Employed full-time	22 (16.5)	1 (11.1)	6 (25)	5 (23.8)	3 (21.4)	6 (10)
Employed part-time	72 (54.1)	3 (33.3)	13 (52.2)	15 (71.4)	7 (50)	32 (52.2)
Unemployed	36 (27.1)	5 (55.6)	5 (20.8)	1 (4.8)	3 (21.4)	21 (35)

**Table 8.** Comparing household food insecurity and frequency of CFB access among identified groups.

	All respondents (n = 134)	Rate of moderate to severe household food insecurity (% of group)	Access CFB at least once per month (% of group)	% of students in moderate to severe food insecure households not accessing CFBs at least monthly
Age 26 to 29	18 (13.5)	15 (83.3)	7 (38.9)	44.4
Male	37 (27.8)	33 (89.2)	13 (35.1)	54.1
BIPOC Identifying	32 (24.1)	29 (90.6)	12 (37.5)	53.1
International Students	54 (40.6)	46 (85.2)	22 (40.7)	44.5
Part-time Students	13 (9.8)	13 (100)	6 (46.2)	53.8
Living with friend(s)/roommate(s)	54 (40.6)	48 (88.9)	17 (31.5)	57.4
Living with relatives	21 (15.8)	15 (71.4)	1 (4.8)	66.6
Full-time Employment	22 (16.5)	20 (90.9)	7 (31.8)	59.1

Our investigation has revealed a noteworthy disjunction between the frequency of monthly access and the extent of moderate to severe food insecurity within cohorts possessing monthly CFB (Commodity Food Bank) access rates exceeding the established mean. This discernible discrepancy is expounded upon in Table 8 presented herein. Contrary to expectations arising from their relatively elevated access rates, our analysis underscores a substantial occurrence where a range of 44% to 66% of individuals within these aforementioned cohorts, who are contending with moderate or severe household food insecurity, do not avail themselves of their monthly CFB entitlements.

The present investigation encompassed an examination of individual and household income as integral facets of the research inquiry. Table 9 has been devised to expound upon the median income levels contingent upon the parameters of household food security and the frequency of access to community food banks (CFB). Amongst the student cohort hailing from households characterized as food secure or marginally food insecure (n = 22), the computed median for individual income amounted to \$10,000 annually,

whereas the median for household income stood at \$60,000 per annum. Noteworthy, however, is the discernible variance in the financial circumstances of students dwelling within households experiencing moderate to severe food insecurity (n = 111); here, the median individual income reached \$15,000 per annum, albeit juxtaposed against a lower median household income of \$35,000 per year.

Among the cohort of students subjected to examination in the context of this survey, specifically those individuals who availed themselves of Community Food Banks (CFBs) every month (n = 33), a notable 42.4% expressed a negative evaluation of their prevailing financial stability, juxtaposed against a somewhat lower proportion of 30.3% who affirmed a positive assessment of their financial well-being. Furthermore, it was observed that a majority comprising 51.6% of students who engaged with CFBs every month reported a discernible deterioration in their perceived level of food security over the preceding 12 months. A minority of 18.2% articulated a sentiment of stagnation in this regard, while a non-trivial proportion of 30.3% reported amelioration in their food security status

during the same time frame. Detailed tabulated data corroborating these findings are presented in Table 10.

Table 11 presents a comprehensive analysis of the frequency at which surveyed students availed themselves of Community Food Banks (CFBs) and off-campus food banks, distinct from those situated within their respective academic institutions. Concurrently, this table associates their patterns of utilization with their respective household food security statuses. It was discerned that an equivalent proportion of students, namely 6.8%, engaged with CFBs and off-campus food banks every week. Notwithstanding this parity, a pronounced disparity emerges when scrutinizing the cumulative percentage of monthly food bank utilization.

Specifically, while 24.8% of students exhibit monthly engagement with CFBs, a notably lower proportion of 12% is observed with regard to off-campus food bank utilization. This discrepancy underscores a substantial preference for the former. It is noteworthy that an overarching majority, accounting for 57.7% of students classified under the categories of moderate or severe food insecurity, have engaged with CFBs

**Table 9.** Median income compared with level of household food insecurity and frequency of CFB access.

	Annual individual income		Annual household income	
	$\bar{x}$	Med	$\bar{x}$	Med
<b>Level of household food security</b>				
Food Secure to Marginally Food Insecure (n = 22)	11.868.42	10.000	70.333.33	60.000
Moderate to Severe Food Insecurity (n = 111)	20.265.15	15.000	52.405.64	35.000
<b>Frequency of campus food bank access</b>				
At least once per week	4.685.82	3.000.00	9.687.50	10.250.00
At least monthly but less than weekly	21.966.33	15.000.00	31.599.64	25.500.00
At least once per semester but less than monthly	34.116.61	41.500.00	44.970.00	55.500.00
Less than once per semester	24.500.00	22.000.00	68.333.00	60.000.00
Never	14.555.30	10.000.00	73.741.30	40.000.00

at some juncture. In stark contrast, only 27% of such students have sought assistance from food banks situated off their academic campuses. This observation substantiates a significant predilection for on-campus food bank services among food-insecure students.

### Comfort, satisfaction, and preference

In this investigation, respondents, primarily comprising students, were invited to evaluate their comfort levels with regard to accessing Community Food Banks (CFBs) managed by fellow students vis-à-vis those administered by their respective academic institutions. The ensuing analysis reveals noteworthy insights into the perceptions and preferences concerning these CFBs. The data unveiled that an appreciable proportion, specifically 47.4%, of the student cohort under scrutiny expressed a sense of unease when contemplating the utilization of CFBs supervised by fellow students. In stark contrast, a considerably smaller fraction, quantified at 23.3%, exhibited discomfort in accessing CFBs operated by their respective universities. Conversely, a majority of respondents, comprising 50.4%, conveyed their comfort in accessing CFBs run by students, while a more substantial cohort, accounting for 59.4%, indicated their comfort in availing CFBs operated by their academic institution. It is noteworthy that this pattern remained consistent across all demographic strata, albeit with variations in the degrees of comfort experienced by each subgroup. Notably, among students who confronted moderate to severe levels of food insecurity within their households, a notable 37.8% expressed discomfort in accessing CFBs run by fellow students, and a relatively smaller cohort, representing 21.6%, manifested unease in accessing CFBs managed by their university. On the contrary, 54.1% of students hailing from households experiencing moderate to severe food insecurity

conveyed their comfort in accessing student-operated CFBs, while a more substantial majority, comprising 63.1%, reported their comfort in engaging with CFBs under the aegis of their academic institution.

Furthermore, when presented with the opportunity to exercise a preference between student-operated and university-operated CFBs, it was observed that 46.6% of the surveyed students articulated a preference for CFBs administered by their respective universities. In contrast, 21.4% of respondents exhibited a preference for student-managed CFBs, while a significant contingent, denoted by 30.5%, expressed no particular preference. Remarkably, the level of household food insecurity among respondents exhibited negligible influence on these preferences. Regarding the satisfaction levels with CFB utilization, a notable 64.3% of the surveyed students who had engaged with CFBs reported overall satisfaction with their experiences, while a relatively smaller cohort, constituting 24.3%, conveyed dissatisfaction. It is noteworthy that students who confronted moderate to severe food insecurity within their households reported marginally higher rates of satisfaction, quantified at 67.8%, although these disparities did not attain statistical significance.

### Barriers to access

Participants were requested to identify factors impeding their utilization of their College Food Bank (CFB), and these factors are presented in Table 12. A noteworthy 45.9% of respondents articulated that they perceived the CFB as unsuited for individuals of their student demographic. Furthermore, 36.8% of participants disclosed discomfort with the notion of utilizing their CFB, while 26.3% expressed self-sufficiency in not requiring assistance from the CFB. A considerable fraction, amounting to 24.8%, pinpointed their deficiency in

**Table 10.** Perceived change in food security and self-rated financial stability compared to frequency of CFB access.

	All respondents (n = 134)	Frequency of CFB Access				
		At least once per week (n = 9)	At least monthly, less than weekly (n = 24)	Every semester, less than monthly (n = 21)	Less than once per semester (n = 14)	Have not accessed (n = 60)
<b>Perceived change in food security</b>						
Significantly worse	17 (12.8)	1 (11.1)	1 (4.2)	2 (9.5)	2 (14.3)	10 (16.7)
Somewhat worse	25 (18.8)	1 (11.1)	9 (37.5)	3 (14.3)	2 (14.3)	10 (16.7)
Slightly worse	35 (26.3)	2 (22.2)	3 (12.5)	5 (23.8)	5 (35.7)	29 (33.3)
Has not changed	27 (20.3)	3 (33.3)	3 (12.5)	1 (4.8)	2 (14.3)	16 (26.7)
Slightly better	15 (11.3)	2 (22.2)	5 (20.8)	6 (28.6)	1 (7.1)	1 (1.7)
Somewhat better	8 (6)	0 (0)	3 (12.5)	3 (14.3)	1 (7.1)	0 (0)
Significantly Better	4 (3)	0 (0)	0 (0)	1 (4.8)	1 (7.1)	2 (3.3)
<b>Financial stability</b>						
Very poor	10 (7.5)	0 (0)	1 (4.2)	0 (0)	1 (7.1)	8 (13.3)
Somewhat poor	18 (13.5)	1 (11.1)	3 (12.5)	5 (23.8)	3 (21.4)	6 (10)
Slightly poor	26 (19.5)	4 (44)	5 (20.8)	2 (9.5)	3 (21.4)	9 (15)
Neither poor nor good	26 (19.5)	1 (11.1)	8 (33.3)	8 (38.1)	2 (14.3)	7 (11.7)
Slightly good	23 (17.3)	2 (22.2)	3 (12.5)	4 (19)	3 (21.4)	11 (18.3)
Somewhat good	16 (12)	1 (11.1)	4 (16.7)	2 (9.5)	1 (7.1)	8 (13.3)
Very good	13 (9.8)	0 (0)	0 (0)	0 (0)	1 (7.1)	11 (18.3)

**Table 11.** Frequency of food bank access compared with level of household food insecurity.

	All respondents (n = 133)	Level of Household Food Insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
<b>Accessing a food bank on your campus</b>					
At least once per week	9 (6.8)	1 (7.7)	0 (0)	4 (8.2)	4 (6.6)
At least monthly, less than weekly	24 (18.2)	0 (0)	0 (0)	9 (18.4)	15 (24.6)
Every semester, less than monthly	21 (15.9)	0 (0)	2 (22.2)	6 (12.2)	13 (21.3)
Less than once per semester	14 (10.6)	1 (7.7)	0	7 (14.3)	6 (9.8)
Have not accessed	60 (45.5)	10 (76.9)	7 (77.8)	21 (42.9)	22 (36.1)
<b>Accessing a food bank not on their campus</b>					
At least once per week	9 (6.8)	0 (0)	0 (0)	1 (2.1)	8 (13.3)
At least monthly, less than weekly	7 (5.4)	0 (0)	0 (0)	1 (2.1)	6 (10)

**Table 11.** Cont'd

Every semester, less than monthly	10 (7.7)	0 (0)	1 (11.1)	1 (2.1)	8 (13.3)
Less than once per semester	5 (3.8)	0 (0)	0 (0)	1 (2.1)	4 (6.7)
Have not accessed	97 (74.6)	12 (92.3)	8 (88.9)	44 (91.7)	33 (55)

**Table 12.** Self-reported barriers discouraging respondents' access to CFBs.

	All respondents (n = 133)	Level of household food insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
I do not feel that I need assistance from the food bank on my campus	35 (26.3)	6 (46.2)	5 (55.6)	17 (34)	7 (11.5)
I do not feel comfortable accessing the food bank on my campus	49 (36.8)	1 (7.7)	2 (22.2)	14 (28)	32 (52.5)
I do not feel eligible or that to service is meant for students like me	61 (45.9)	6 (46.2)	3 (33.3)	28 (56)	24 (39.3)
I do not know how to access the food bank on my campus	33 (24.8)	5 (38.5)	4 (44.4)	10 (20)	14 (23)
I am unable to access the food bank on my campus	2 (1.5%)	0 (0)	0 (0)	0 (0)	2 (3.3)
I do not feel there is anything discouraging me from accessing the food bank on my campus	23 (17.3)	3 (23.1)	2 (22.2)	11 (22)	7 (11.5)

understanding the procedural intricacies of accessing their CFB as a barrier. Moreover, a minority of 1.5% reported an outright inability to access their CFB. Interestingly, 17.3% of participants conveyed a perceived absence of barriers to their CFB access. In a separate analysis, it was observed that among students hailing from households experiencing moderate to severe food insecurity, 46.8% exhibited a sense of ineligibility to access the CFB. Additionally, 21.6% of these students expressed self-reliance and thus did not perceive a need for assistance from the CFB, while a notable 41.4% articulated discomfort in availing themselves of the CFB services.

**Likelihood of future access**

Table 13 details the respondents' reported likelihood of accessing their CFB in the coming

months. 45.9% of students surveyed reported they were likely to access their CFB in the next few months. 70.5% of students in severely food insecure households, and 34% of students in moderately food insecure households reported they were likely to access their CFB in the next few months.

**DISCUSSION**

The principal objective of this scholarly inquiry was to ascertain the multifarious determinants that shape the perceptions of Campus Food Banks (CFBs) within the Maritime Provinces of Canada. In tandem, this study endeavoured to illuminate the motivations and impediments that exert influence upon the utilization of these CFBs among the student populace. This pursuit involved an exhaustive scrutiny encompassing the

demographic characteristics, motivating factors, experiential dimensions, and discerned preferences of 133 students hailing from 11 academic institutions. A noteworthy revelation emanating from this analysis was that a striking 90.2% of the surveyed students reported experiencing various degrees of food insecurity within their respective households. This finding, while consistent with analogous levels reported in a study conducted at the University of Alberta (Farahbakhsh et al., 2016), contrasts markedly with the substantially lower incidence of household food insecurity documented in Frank's investigation (2018) pertaining to universities situated in the rural environs of Nova Scotia.

The outcomes of this inquiry have significantly contributed to an enriched understanding of the distinctive attributes and prevailing trends characterizing CFB users within the Maritime region. Notably, it was observed that students

**Table 13.** Likelihood of accessing CFBs in the next few months.

	All respondents (n = 133)	Level of Food Insecurity			
		Secure (n = 13) 9.78%	Marginally (n = 9) 6.77%	Moderately (n = 50) 37.59%	Severely (n = 61) 45.86%
Not at all likely	34 (25.6)	9 (69.2)	4 (44.4)	17 (34)	4 (6.6)
Somewhat unlikely	19 (14.3)	2 (15.4)	3 (33.3)	8 (16)	6 (9.8)
Slightly unlikely	6 (4.5)	0 (0)	0 (0)	2 (4)	4 (6.6)
Neither likely nor unlikely	10 (7.5)	1 (7.7)	1 (11.1)	5 (10)	3 (4.9)
Slightly likely	18 (13.5)	0 (0)	0 (0)	5 (10)	13 (21.3)
Somewhat likely	16 (12)	0 (0)	1 (11.1)	1 (2)	14 (23)
Very likely	27 (20.3)	0 (0)	0 (0)	11 (22)	16 (26.2)

self-identifying as BIPOC (Black, Indigenous, and People of Color) and/or 2SLGBTQIA+ (Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Asexual) experienced heightened levels of food insecurity when juxtaposed with their counterparts outside these identity groups, thereby corroborating the prevailing body of research on food security (Bazerghi et al., 2016; Blundell et al., 2019; Farahbakhsh et al., 2016; Frank, 2018; Hamilton et al., 2020; Hanbazaza et al., 2016). Additionally, a salient nexus emerged between food security and key domains of academic attainment, financial stability, and general well-being. These congruences further affirm the congruence with extant scholarship (Blundell et al., 2019; Farahbakhsh et al., 2016; Frank, 2018; Hamilton et al., 2020; Hanbazaza et al., 2016; Hanbazaza et al., 2015; Maynard et al., 2018; Murphy et al., 2022). While these outcomes may not be entirely unexpected, they serve to validate our comprehension of the studied population and the representativeness of our sample vis-à-vis the larger surveyed cohort. Of particular note, a conspicuous peculiarity manifested when evaluating the economic dimensions of the sample population. Specifically,

students stemming from more food-insecure households exhibited elevated median individual incomes; however, a converse pattern was evident when assessing the overall median household income for this demographic. Conversely, students hailing from more food-secure households displayed lower median individual annual incomes but demonstrated a superior median household income compared to their counterparts in households characterized by moderate to severe food insecurity. This apparent incongruity merits further investigation and suggests that reliance solely on individual and household income as metrics may be insufficient in delineating the nuances of resource allocation and financial stability within a sample marked by diverse household compositions.

The element of awareness emerged as a pertinent issue potentially hindering access to CFBs, with approximately two in five students from households grappling with moderate to severe food insecurity reporting either a lack of knowledge regarding the means to access CFBs or an absence of awareness concerning their existence. Strikingly, a mere 64% of students facing severe household food insecurity

possessed the requisite knowledge to access their CFBs, as opposed to a mere 23% among students hailing from food-secure households. This phenomenon accentuates the imperative for a more nuanced exploration of the nexus between food insecurity among students and their cognizance of CFBs. From the perspective of CFB administrators, these findings underscore the potential exigency for intensified marketing and promotional endeavours, particularly when the objective is to extend the reach of these crucial services to a greater number of students grappling with food insecurity within their households.

Furthermore, our analytical foray encompassed an assessment of the frequency of CFB utilization. The findings disclosed that twice as many students accessed CFBs on a monthly basis in comparison to off-campus food banks. However, when delving into weekly access, the proportions between CFBs and off-campus food banks were equivalent, and the differential between the two progressively widened with decreasing frequency of access. This distinctive pattern implies that students in need of food resources will procure them wherever they are available. Even among the cohort of students who availed themselves of

CFBs, it is striking to note that less than one-third of students emanating from severely food-insecure households accessed their CFB on a monthly basis. Furthermore, more than a third of students from these households had never utilized a CFB, and over half had never sought the services of an off-campus food bank. Intriguingly, nearly one-fifth of food-secure respondents had engaged with CFBs in the past, prompting queries regarding the potential efficacy of such prior engagement in mitigating or ameliorating food insecurity.

In the course of our analysis, we undertook a comparative evaluation, juxtaposing the extent of food insecurity with the frequency of CFB access to discern any noteworthy gaps or trends. This entailed a thorough examination of the prevalence of moderate to severe household food insecurity and its alignment with rates of monthly CFB utilization.

Marginal distinctions were discernible in the rates of CFB access between students residing on and off campus. Most notably, students cohabiting with family members exhibited the most conspicuous differential between food insecurity and CFB access. Surprisingly, while more than 70% of students dwelling with relatives contended with moderate to severe food insecurity within their households, less than 5% availed themselves of CFBs every month. This inference raises the possibility of a relationship between household composition and a student's motivation to access CFBs.

It is also noteworthy that students identifying as male or BIPOC, along with individuals falling within the age bracket of 26 to 29, international students, students cohabiting with friends or roommates, those engaged in full-time employment, and those pursuing part-time studies, all reported disproportionately high levels of food insecurity vis-à-vis their access to food resources. Interestingly, self-reported financial stability did not appear to exert a significant influence on CFB access, challenging conventional assumptions and suggesting that other social determinants may exercise a more pronounced impact on a student's inclination to engage with CFB services.

The principal objective of this scholarly inquiry was to discern the motivating factors that drive student engagement with Campus Food Banks (CFBs). To elucidate these motivators, a comprehensive exploration of diverse social indicators was undertaken.

It is noteworthy that a substantial segment of the surveyed student population revealed varying degrees of discomfort associated with accessing CFBs, with a nuanced observation indicating that individuals grappling with heightened levels of household food insecurity exhibited a slightly greater degree of comfort in comparison to their counterparts. Notably, over fifty percent of students confronting severe household food insecurity expressed reservations about accessing their respective CFBs. This phenomenon suggests that the

stigmatization of CFBs may serve as a potential demotivating factor for these particular students, consistent with extant scholarship that identifies stigma as a significant impediment to students' utilization of food resources (Farahbakhsh et al., 2016; Maynard et al., 2018; Osei, 2019; Pereira, 2020).

In addition to the matter of comfort, an intriguing pattern surfaced in the findings, namely, the issue of CFB perception among the survey respondents. Remarkably, despite the conspicuous prevalence of food insecurity within the sampled cohort, a substantial proportion, specifically two-fifths of students contending with moderate to severe household insecurity, indicated that they did not perceive themselves as eligible to access their respective CFBs. Furthermore, one-fifth of respondents asserted that they did not deem it necessary to access these resources.

Our findings postulate that the governance model of CFBs may wield a discernible influence over a student's propensity to engage with these services. While the majority of surveyed students uniformly expressed discomfort in relation to CFB utilization, they exhibited a lower level of discomfort when interfacing with CFBs administered by their academic institutions, in stark contrast to their sentiments towards CFBs operated by fellow students. This propensity held true across respondents from diverse household food security strata.

Intriguingly, students grappling with severe household food insecurity appeared to be relatively more at ease with the concept of accessing CFBs in a general sense, a phenomenon potentially attributable to their perception of personal need or prior experiences with CFBs. Noteworthy among our findings is the revelation that nearly half (46.6%) of the surveyed students expressed a preference for university-administered CFBs, whereas less than a quarter (21.4%) indicated a preference for student-led CFBs.

In conclusion, the insights gleaned from this investigation pertaining to student perceptions and preferences offer a noteworthy opportunity for administrators of CFBs to engage in informative and strategic initiatives aimed at reshaping the prevailing attitudes towards CFBs among the student body. Furthermore, this study underscores the significance of the governance model employed by CFBs in influencing students' proclivity to access these essential services. Thus, it is incumbent upon CFB administrators to consider the implications of their governance model on student motivation and access patterns, with the ultimate goal of expanding their outreach to a greater number of students in need.

## Limitations

The primary objective of this investigation was to discern



the factors that potentially influence a student's motivation to engage with their Campus Food Bank (CFB). This inquiry was pursued through a focused sub-analysis of the amassed data. It is worth noting that the intersectionality inherent in the demographic inquiries directed at the respondents, encompassing aspects such as gender identity, BIPOC (Black, Indigenous, and People of Color) and 2SLGBTQIA+ (Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Asexual) status, well-being, and living arrangements, inherently exhibits a dynamic and multifaceted character (Hamilton et al., 2020). It is also pertinent to acknowledge that within certain subgroups, the sample size did not reach a level deemed statistically significant, with  $n < 30$  in some instances.

An additional nuance that warrants consideration lies like certain survey questions, which relied upon the respondents' perceptions and thus remained susceptible to interpretation. The utilization of non-validated questions constitutes a noteworthy limitation, as it hinged upon the participants' capacity to faithfully represent their circumstances during their engagement with the survey instrument.

Furthermore, it is imperative to acknowledge that external third-party entities were enlisted to facilitate the recruitment process for this study. Consequently, the extent of uniformity and the potential ramifications of this recruitment strategy remain unknown, introducing an element of uncertainty into the data collection process.

Another pertinent consideration pertains to the likelihood that respondents experiencing heightened levels of food insecurity or those who actively accessed CFBs might have been more inclined to participate in the study due to their vested interest and personal familiarity with the subject matter. This self-selection bias represents a potential source of distortion in the study's findings.

Lastly, a substantial limitation arises from the dearth of available tools to measure individual food security. The study exclusively gauged the respondents' level of household food insecurity using the Household Food Security Survey Module (HFSSM). Consequently, the study lacks insights into the specific degree of food insecurity experienced by individual respondents, which constitutes a notable lacuna in comprehending the nuanced aspects of food security within the sampled population.

## Conclusion

In light of the comprehensive investigation presented in this study, a compendium of compelling evidence emerges, buttressing the disconcerting observations surrounding the pervasive issue of food insecurity within the university student population. This predicament is

notably pronounced among students hailing from marginalized communities. Our empirical findings substantiate a nexus between household food insecurity and a student's individual well-being, financial stability, and academic attainment.

Moreover, it becomes apparent that Campus Food Banks (CFBs) situated in Maritime universities are experiencing a significant underutilization, with a considerable proportion of students inhabiting severely food insecure households remaining either oblivious to or abstaining from engaging with the food banks available on their respective campuses. A myriad of salient factors surfaces as pivotal determinants shaping a student's propensity to access their campus food bank. These encompass the often-pernicious influence of stigma, the crucial role of awareness or lack thereof, the nuanced dynamics of perception, and the governance model underpinning the operations of these CFBs. It is discernible from our findings that these multifarious factors collectively exert a substantial impact on a student's comfort level and, consequently, their likelihood to avail themselves of the food bank services afforded by their institution.

Of particular note is the discernible preference exhibited by students for a university-administered governance model for campus food banks. This predilection, as evidenced by our research, carries profound implications for the custodians of these institutions and the decision-makers tasked with charting a course forward. The imperative, it appears, is to proactively address these multifaceted challenges to foster a more conducive environment for students to access the vital resources available to them.

This endeavour necessitates a concerted effort to heighten awareness surrounding the presence and operations of campus food banks, dismantle the pernicious specter of stigma and discomfort associated with their utilization, and enhance clarity regarding eligibility criteria and the availability of these resources. In so doing, a pivotal aim is to empower students to surmount the barriers that impede their access to the sustenance requisite for their academic and personal success. Ultimately, this study underscores the pressing need for Maritime universities to meaningfully confront student food insecurity by catalyzing an increase in both the utilization and efficacy of their campus food banks.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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