

University of British Columbia

Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Justice-Centred Emergency Preparedness: Food Security at UBC During COVID-19

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Prepared for:

Course Code: FNH 497

University of British Columbia

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Disclaimer: "UBC SEEDS Sustainability Program provides students with the opportunity to share the findings of their studies, as well as their opinions, conclusions and recommendations with the UBC community. The reader should bear in mind that this is a student research project and is not an official document of UBC. Furthermore, readers should bear in mind that these reports may not reflect the current status of activities at UBC. We urge you to contact the research persons mentioned in a report or the SEEDS Sustainability Program representative about the current status of the subject matter of a report".



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**Justice-Centred Emergency Preparedness:
Food Security at UBC During COVID-19**

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Executive Summary

Over the past four years, research has estimated 40% of students in Canadian post-secondary institutions experience some level of food insecurity. In early 2020, the novel coronavirus (COVID-19) created a shock to the public health system across the globe, putting vulnerable populations within our community at even higher risk. Historically, students in higher education, especially international, graduate, Indigenous, and other racialized students, have been disproportionately affected by food insecurity. This research aimed to gain a baseline understanding on how student experiences of food security at The University of British Columbia (UBC) have been impacted by COVID-19.

Through collaboration with the UBC Emergency Management Team (UBC EMT) and UBC Climate Hub as part of the UBC SEEDS (Social Ecological Economic Development Studies) Sustainability Program, an undergraduate student project team was formed to examine the institution's COVID-19 response along the themes of food security, financial opportunities, and community care and wellbeing. By amplifying student voices, this project aimed to provide student perspectives to guide future planning and student engagement processes regarding emergency preparation and disaster mitigation. This directed study project specifically focused on student experiences of food security and findings in this report aimed to shed light on the accessibility and pertinence of existing campus resources in the event of a crisis. In conclusion, this study did not detect a significant difference in the prevalence of food insecurity before and during COVID-19 in the sample population. This may be in part due to the low sample size and underrepresentation of students who are at higher risks of food insecurity in our study population. However, through a chi-square analysis examining various demographic variables with food security statuses before and during COVID-19, housing was found to have a statistically significant relationship with food security status during COVID-19 ($p=0.011$). This finding suggests that students who

live off-campus, compared to those in on-campus housing, may have protective factors from food insecurity such as increased access to affordable food and financial resources, especially when paired with living with family or a partner. Overall, student recommendations reflect opportunities for the University to increase affordability for on-campus food services enhance communication of available food security and financial resources, and target consultation with affected students. Future research can better characterize the lived experiences of food insecurity by targeting specific student communities through focus group research. In order to equitably prepare for future emergencies, campus stakeholders should prioritize the inclusion of students in decision-making and planning processes at the institutional level.

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Introduction

Food security “exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Food and Agriculture Organization of the United Nations [FAO], 2008, p.1). Specific to the dimension of economic accessibility is the concept of food insecurity, which is defined as “the inadequate or insecure access to food due to financial constraints” and based on Canadian Community Health Survey (CCHS) data, it currently affects over 12.7% of Canadian households (Tarasuk & Mitchell, 2020, p.3). Food insecurity has been a complex and longstanding public health issue in Canada that intersects with various socioeconomic factors, as suggested by the disproportionately greater prevalence in low-income households, lone-parent families, and Black and Indigenous communities (Tarasuk & Mitchell, 2020).

In early 2020, the outbreak of the novel coronavirus disease (COVID-19) caused a series of major disturbances globally. Since being declared a pandemic by the World Health Organization on March 11, 2020 (World Health Organization [WHO], 2020), Canada implemented nation-wide restrictions to prevent and control the spread of the virus, including the shutdown of institutions and businesses, travel restrictions, mandated quarantine and the prohibition of public gatherings (Government of Canada, 2020). In the province of British Columbia (BC), a state of public health emergency was declared on March 17, 2020 (Government of British Columbia, 2020a). COVID-19 introduced a shock to the national economy and food system (Hobb, 2020), contributing additional burden to groups who were experiencing or at-risk of household food insecurity (Deaton & Deaton, 2020; Statistics Canada, 2020a). The economic implications of COVID-19, such as reduced working hours, increased unemployment and closed businesses, agitated valid concerns of exacerbated food insecurity among Canadians. In May 2020, Statistics Canada administered a nation-wide

survey to gauge food insecurity prevalence during the pandemic. Indeed, the results suggested a higher prevalence of food insecurity of 14.6% in Canadians during COVID-19, compared to previous results from CCHS (Statistics Canada, 2020a).

Post-secondary students in Canada are identified as a group susceptible to household food insecurity due to the elevated risk of unstable income from factors such as unemployment and high costs of tuition and rent (Maynard et al., 2018; Silverthorn, 2016). Recent research has documented dire implications of food insecurity experiences for other domains of student life, including academic performance, physical health, and mental health (Farahbakhsh et al., 2016; Hattangadi, Vogel, Carroll & Côté, 2019; Martinez et al. 2016; Maynard et al., 2018; Raskind, Payne-Sturges, Tjaden & Caldeira, 2018; Haardorfer & Berg, 2019). Yet, lived experiences of food insecurity within the higher education context is an area that has been inadequately explored. In late April 2020, Statistics Canada conducted an online crowdsourcing survey of more than 100,000 post-secondary students and found significant disruptions in academic activities and employment plans as a result of COVID-19 in the participants (Statistics Canada, 2020b). However, given the recency of the event, there is limited literature exploring the effects of the pandemic on university students and their experiences with food security.

Project Context

In 2019, The University of British Columbia (UBC) conducted an Undergraduate Experience Survey (UES) which estimated 38.5% of respondents having low to very low food security (UBC, 2019). This number closely corresponds with the statistics from a national study conducted by Meal Exchange Canada, which identified 39% of students experiencing some degree of food insecurity across five Canadian university campuses (Silverthorn, 2016). The primary knowledge source of food insecurity at UBC are student-led research projects, which have provided a basic understanding of topics such as lived

experiences (Dela Cruz, Bravo Vela, Udeze & Ahmed, 2020), affordability (Lin, Jiao & Gangbar, 2020), sociodemographic predictors (James & Rideout, 2017), and food skills and knowledge (Nozadi, Hozar, Viljoen & Umuhza, 2019). Although contributing valuable insights to this topic, these studies have had small sample sizes and are limited in generalizability. Thus, food insecurity is an issue that warrants proactive plans to further investigate at UBC.

Within UBC, COVID-19 stipulated rapid decisions across administrative, housing, and food service units on campus. By mid-March, UBC had fully adjusted to online learning. All non-essential activities on campus were curtailed, with dramatically reduced campus food operations and a large proportion of on-campus students vacating residences (The Ubyyssey, 2020; UBC Broadcast, 2020). This transition period generated constantly evolving and unprecedented changes for communities. For the student population, diverse challenges surfaced across the domains of academics, finance, living situation, and health. During this time, mobilization of aids and resources for students in need as well as clear communication of executive decisions from the administrators with the student community became more critical than ever. Aligned with the core values of UBC (UBC Strategic Plan, 2018), the institution's emergency response unit saw opportunities for increased equity and inclusion in the provision of resources for diverse student communities. This includes international students, graduate students, Black, Indigenous, and People of Colour (BIPOC), and students in the 2SLGBTQIA+ community.

Project Rationale

Purpose

To understand the gaps and opportunities for student support, building from UBC's COVID-19 response, along the three major themes of food security, financial opportunities, and community care and wellbeing.

Goal

To collect experiences from a broad and diverse student population at UBC in order to propose relevant recommendations on emergency preparedness and inform future student engagement initiatives within the UBC Climate Hub and UBC Emergency Management Team.

Objectives

Table 1

Short-term, medium-term and long-term objectives of SEEDS project

Timeline	Objectives
Short-term (<1 year)	<ol style="list-style-type: none"> 1. Improve understanding of student experiences in food security, finance, and community care and wellbeing during COVID-19 by gathering data from survey and in-depth interviews. 2. Identify gaps of support in current food security, finance and community care and wellbeing resources and initiatives based on analyzed data. 3. Use collated findings to propose recommendations on future student engagement initiatives and emergency planning for clients in a SEEDS report and presentation.
Medium-term (1-5 years)	<ol style="list-style-type: none"> 1. Utilize findings for advocacy and program evaluation with other student bodies (ex. UBC AMS) and working groups (ex. Food Security Initiative). 2. Conduct follow-up consultations with focus groups with specific student communities, including international students, graduate students, Indigenous students, and more. 3. Implement audits of current UBC EMT emergency protocols based on student experiences impacted by COVID-19. 4. Establish student engagement and feedback processes in UBC EMT's operations.
Long-term (>5 years)	<ol style="list-style-type: none"> 1. Provide a source of reference for the creation of an updated pandemic response plan (UBC EMT). 2. Inform the development of a climate emergency preparation and mitigation plan (UBC Climate Hub).

Research Question

The main research question was collectively determined by the project team in alignment with the expectations of the project clients. Specific to this individual report, I have proposed three subtopic research questions.

Main research question: What are the best practices that can be proposed for future emergency preparation and response strategies at UBC, including, but not limited to climate emergencies?

Subtopic research questions:

1. What is the range of student experiences and understanding of food security at UBC?
2. How has COVID-19 changed or impacted domains of the student life, including food security and finance?
3. Are food security initiatives at UBC known, accessible, and inclusive to students in need of support, especially in a time of emergency?

Methodology

Overview

This research project was implemented by a mixed methods approach. Quantitative data was collected through a digital survey (see Appendix B). Qualitative data was derived primarily from in-depth interviews, but also in the open-ended portion of the survey. All survey and interview participants provided informed consent through a signed consent form prior to partaking in the study (see Appendix C).

Participants were recruited using convenience sampling through digital communication platforms across emails, newsletters, and social media channels. Clients and campus partners, such as student clubs and constituencies, were also contacted for assistance

in distribution and promotion (see Appendix D). All current and recently graduated (i.e. in May 2020) UBC students were eligible to participate.

Primary Data Collection and Analysis

Survey

Surveys were administered anonymously through Qualtrics, a Canadian-based online survey platform. It included basic socio-demographic questions such as student program, status, ethnic identity, and gender identity. Beyond the scope of food security, questions along the themes of financial resources and community care and wellbeing were also asked in the same survey. Results from these two sections will not be discussed in this report but can be found in the UBC SEEDS Library and cIRcle UBC. A group summary report can be found in Appendix A.

To establish a baseline understanding of the food security status of the sample population, the questionnaire utilized the Six-Item Short Form of the US Household Food Security Survey Module (HFSSM) over two time periods: the 9 months prior to the COVID-19 pandemic (June 2019 – March 2020) and during COVID-19 (March 2020 – June 2020). This was deemed an appropriate choice as the most relevant validated tool, in consideration of the survey length. Following the two modules of questions on the Short Form HFSSM, participants were asked various checkbox and Likert-type scale questions about their knowledge, use, and ratings on various food security resources and initiatives on campus. Students who lived on campus prior to COVID-19 and/or currently (i.e. in residence or non-residence housing within campus) were prompted to rate campus food options by various dimensions (see Appendix E).

Upon completion of the survey, students were redirected to a separate survey to ensure that data collected maintains anonymity. In this second survey, students were asked to

indicate interest for participation in an in-depth interview. All interested students were contacted and invited to the interview process.

In-Depth Interviews

Interviews were conducted through Zoom, a video communications service hosted in the United States. Student interviews were structured, with predetermined questions until the end of the interview when project members asked follow-up questions and accepted follow-up questions from the participants. Interview questions included basic demographic questions, followed by questions gauging perspectives on food security, financial opportunities, and community care and wellbeing during COVID-19. Students were also asked to share their experiences with UBC's emergency response, communication, and student engagement during COVID-19. All interviews were recorded, transcribed verbatim, then verified for accuracy.

Data Analysis

Quantitative survey questions were analyzed on Microsoft Excel using descriptive statistics. Qualitative components, including responses to the open-ended survey questions and interview questions, were analyzed using thematic analysis (Hawkins, 2018). For triangulation purposes, themes were derived by two project members who independently analyzed the data. Findings were then compared to converge on the final themes. Interview participants were also offered the opportunity to review the draft research report as a form of member checking the themes and findings presented.

Secondary Data Collection

Stakeholder Interviews

Stakeholders were identified in collaboration with UBC SEEDS and the project team. Contacts include representatives from campus groups including UBC Wellbeing, UBC Food Services, AMS Student Services, and Student Housing & Hospitality. Stakeholders provided

information on current and past initiatives and projects relevant to food security, as well as insights on how priorities have been changed or affected by COVID-19. Interviews were led by a semi-structured format, with questions being personalized to each individual's role within their organization (see Appendix E).

Literature Review

As another source of secondary data, a literature review was conducted through the UBC Library and cIRcle UBC. Scholarly and peer-reviewed articles and previous UBC SEEDS research reports were reviewed. Keywords used to locate relevant literature included food security, COVID-19, food insecurity, post-secondary students, higher education, college students, and university students.

Results

Survey

Over a data collection period of two weeks, the online survey garnered a total of 181 entries with 150 acceptable responses, after the removal of 31 entries due to their incompleteness beyond the initial demographic section. For the food security modules, there were 131 fully completed responses (dropout rate = 27.6%) that were considered for this data analysis. The sample population captured a range of student statuses including undergraduate (88.5%) and graduate (11.5%), domestic (75.6%) and international (24.4%), and full-time (98.5%) and part-time students (1.5%). The majority of respondents identified as being female (70.7%), followed by male (16.5%). The distribution of ethnic groups included East Asian (42.0%), White (17.6%), and mixed race (15.3%). Out of the participants, 8.4% identified as being part of the LGBT2SQIA+ community and 3.1% reported having a form of disability (see Appendix E).

Survey questions asking about financial situation showed that a substantial proportion of our sample population experienced a partial loss in income (38.9%), with slightly more

experiencing no change in income (42.0%), and a smaller proportion experiencing a complete loss in income (7.6%) during COVID-19. In terms of housing circumstances over the two time periods, there was a decrease in students living on campus for both student housing (26.0% to 9.9%) and non-student housing (9.16% to 4.6%), paralleled with increases in students moving off campus in the Lower Mainland (58.0% to 64.9%), rest of Canada (3.8% to 10.8%), and internationally (3.8% to 10.7%). We observed decreases in students living alone (15.3% to 10.7%) and living with roommates (35.9% to 15.3%) but increases in students living with their family (38.9% to 62.6%) and partner (11.5% to 15.3%; see Appendix E).

Within the sample population, 79.4% of respondents were classified as food secure prior to COVID-19, as indicated by their HFSSM scores during the first time period, and this proportion increased to 82.4% during COVID-19 (Table 2). However, the results from a paired t-test comparing the HFSSM affirmative scores between the two time periods showed this difference was not statistically significant ($p=0.287$), as presented in Table 3.

Table 2

Food security status of sample proportion, before and during COVID-19 (n=131)

Food Security Status	Before COVID-19		During COVID-19	
	n	%	n	%
Food Secure	104	79.4	108	82.4
Food Insecure	27	20.6	23	17.6

Table 3

HFSSM affirmative scores, before and during COVID-19 comparison

Value	Before COVID-19	During COVID-19
Mean	0.794	0.702
Variance	2.07	2.07
Observations	131	131
Pearson Correlation	0.768	
Hypothesized Mean Difference	0	
df	130	

Value	Before COVID-19	During COVID-19
t Stat	1.07	
p	0.287	
t Critical	1.98	

A chi-square test of independence was conducted to explore the relationship between demographic dimensions and food security status, both before (Table 4) and during COVID-19 (Table 5). The investigated variables of interest included gender, level of studies, domestic vs international status, and housing situation. The only variable that was found to have a statistically significant relationship with food security status was housing ($p=0.011$) during COVID-19, as shown in Table 5.

Table 4

Food Security Status by demographic factors, before COVID-19

Demographic	Food Secure		Food Insecure		χ^2	p
	n	%	n	%		
<i>Gender</i>						
Female	73	77.7%	21	22.3%	4.66	0.198
Male	16	72.7%	6	27.3%		
Non-binary	1	100.0%	0	0.0%		
Prefer not to say	14	100.0%	0	0.0%		
<i>Level of studies</i>						
Graduate Student	13	86.7%	2	13.3%	0.548	0.459
Undergraduate Student	91	78.4%	25	21.6%		
<i>Domestic/ International</i>						
Domestic Student	77	77.8%	22	22.2%	0.643	0.423
International Student	27	84.4%	5	15.6%		
<i>Housing</i>						
On campus in student housing	24	70.6%	10	29.4%	1.99	0.510

Demographic	Food Secure		Food Insecure		χ^2	p
	n	%	n	%		
On campus, not in student housing	10	83.3%	2	16.7%		
Off campus, Lower Mainland	62	81.6%	14	18.4%		
Off campus, rest of Canada	3	75.0%	1	25.0%		
Off campus, international	5	100.0%	0	0.0%		
Prefer not to say	0	0.00%	0	0.00%		

Table 5

Food Security Status by demographic factors, during COVID-19

Demographic	Food Secure		Food Insecure		χ^2	p
	n	%	n	%		
<i>Gender</i>						
Female	77	81.9%	17	18.1%	1.69	0.640
Male	17	77.3%	5	22.7%		
Non-binary	1	100.0%	0	0.0%		
Prefer not to say	13	92.9%	1	7.1%		
<i>Level of studies</i>						
Graduate Student	14	93.3%	1	6.67%	1.39	0.239
Undergraduate Student	94	81.0%	22	19.0%		
<i>Domestic/ International</i>						
Domestic Student	83	83.8%	16	16.2%	0.545	0.460
International Student	25	78.1%	7	21.9%		
<i>Housing</i>						
On campus in student housing	8	61.5%	5	38.5%	14.8	0.011
On campus, not in student housing	2	33.3%	4	66.7%		
Off campus, Lower Mainland	73	85.9%	12	14.1%		
Off campus, rest of Canada	12	92.3%	1	7.6%		
Off campus, international	10	76.9%	3	23.1%		
Prefer not to say	1	100.0%	0	0.0%		

UBC targets food security through a variety of initiatives. One question of the survey contains a list of existing initiatives and students were asked to identify the resources that they knew about (see Appendix C). The resources with the highest recognition among our respondents are the UBC Farm (87.0%) and the AMS Food Bank (85.5%). Low-cost student cafes such as Sprouts (75.6%) and Agora Café (70.2%) also appeared to be widely known. The proportions of individuals identifying awareness for each initiative are presented in Table 6. Only one individual each had reported having accessed the AMS Food Bank and an off-campus food bank since COVID-19 (Table 7).

Table 6

Food security resources known to students

Resource	n	%
UBC Farm	114	87.0%
AMS Food Bank	112	85.5%
Sprouts	99	75.6%
Agora Cafe	92	70.2%
Seedlings	67	51.1%
LFS US Wednesday Night Dinner	66	50.4%
Community Eats	46	35.1%
Foood	45	34.4%
CHOMP Meal Plan	35	26.7%
Emergency Food Card Program	1	0.8%

Table 7

Food bank usage, since COVID-19

Location	n
<i>AMS Food Bank</i>	
Students who have visited	1
Students who have not visited	130
Max number of visits	4
Min number of visits	0
<i>Off-campus food banks</i>	
Students who have visited	1
Students who have not visited	130
Max number of visits	1
Min number of visits	0

The open-ended question in the survey asked how UBC can better support student food security. With 54 responses, the major themes of responses observed were affordability, education, accessibility, and student involvement. The most prevalent sub-themes included affordability of food on campus in general (n=18, 33.3%), communication and advertisements of available resources (n=9, 16.7%), affordability of food in residence halls and meal plans (n=6, 11.1%), partnership with grocers for student discounts (n=5, 9.3%), and affordability of nutritious options (n=5, 9.3%). Student comments are presented verbatim in Table 8 below.

Table 8

Suggestions for how UBC can better support student food security (n=54)

Categories	Themes	Survey Comments
Affordability	Food on campus, in general	Offer more student budget friendly meals on campus.
	n=18	Making meals more affordable at on campus dining spots.
		Small portions of low-quality food for ridiculously high prices.
	Food in residence halls, meal plans	Lower food prices in first year residence dining halls, extend period of activity of meal plan dollars.
	n=6	Making meals in residence cheaper so that those forced to purchase meal plans can afford to use them for the full winter semester.
	Partner with on-and off-campus grocers	Provide discounts on food purchased on campus.
	n=5	Facilitate student discounts with grocers off-campus.
	Nutritious food	Need more healthy options with comparable prices.
	n=5	Cheaper food options that are healthy and not chicken tenders.

Categories	Themes	Survey Comments
	Discounted cafes and pay-it-forward options (e.g. Fooood) n=3	Expand the Fooood concept to other food outlet. More places like Fooood. Pay it forward options
	Tuition n=2	Stop increasing tuition. Decrease tuition.
Education	Communication and promotion of available resources n=9	Spread the words. Let more people know about the resources that they have. Promote these options more, I only heard of some of the above programs through friends.
	Learning opportunities n=4	Provide education on how to budget/plan cheap but nourishing meals. I think the LFS faculty is really educated on this stuff but other faculties may not be. I think implementing programs that cover all faculties to cover the resources available and the concepts of food security, food literacy, etc. would be beneficial.
	Awareness on the issue food insecurity n=3	Increase awareness of the prevalence of food insecurity. Have better understanding to the root cause of food insecurity. Reach out more regarding food security.
Accessibility	Low-barrier resources n=4	Create low-barrier resources for students. More accessible options.
	Delivery for campus services n=1	Offer delivery services for food provided by existing services.
	Food vendor location n=1	More food place at the centre of the campus so that they're not far away from each other.
Student involvement	Opportunities to grow food (e.g. community	More ability for students to grow food on campus (personal + community plots).

Categories	Themes	Survey Comments
	gardens, personal plots)	Community gardens accessed/supported by students.
	n=2	
	Student-run initiatives (e.g. Sprouts, Roots on the Roof)	Work with and source ingredients from student run initiatives such as Sprouts and Roots on the Roof.
	n=2	
	Inclusion of students in discussion	Having the community eats program in residence. Talk to students.
	n=1	
Other suggestions	Variety and diversity of food options	Very few halal options.
	n=2	Variety and should serve more balanced food groups.
	Mutual aid	Community kitchen.
	n=2	Bulk buying groceries program: buying as a group and split the foods afterwards.

Students who indicated living on campus, both in student residence and non-student housing, were asked to rate UBC food options before and during COVID-19. Food options at UBC were defined as UBC Food Services (UBC restaurants, cafes, residence dining, retail stores), AMS food and shopping outlets (e.g. Blue Chip Cafe, Grocery Checkout), University Village, and Wesbrook Village. Among the dimensions of availability, physical accessibility, affordability, quality, meeting dietary preferences, and meeting nutritional needs, affordability was the factor that received the most unsatisfactory responses for both time periods (45.7%, before COVID-19; 47.4%, during COVID-19). Availability was another dimension that had a noticeable number of negative ratings (52.6%) during the COVID-19 period (see Appendix E).

In-Depth Interviews

A total of nine students, comprising eight undergraduate students and one graduate student, were interviewed. The majority of respondents identified as female (n=5), followed by male (n=2). Most interviewed students lived off campus in the Lower Mainland before COVID-19 (n=7) with the remaining who lived on-campus outside of student housing (n=2). However, since the onset of COVID-19, two students had moved to on-campus student housing (n=2). None of the interviewed students had lived outside of the Lower Mainland during the past academic year (see Appendix E).

In terms of finance, a large proportion of interviewed students reported a change in income (n=7). Mainly, students experienced a partial loss in income (n=5), but there was also an instance of a job offer cancellation (n=1) and an increase in income (n=1). For two students, income levels did not change since COVID-19. The financial circumstances of interview participants are presented in Table 9.

Table 9

Financial situation, changes since COVID-19 (n=9)

Categories	Themes	Quotes
Change in income n=7	Partial loss in income n=5	<p>“Prior to COVID, I worked around once a week, which is part time work. And after COVID for the first three months, I didn't work at all.”</p> <p>“I was working part time before COVID and then had all my hours cut, but I wasn't ever let go, so I was still employed, I just had no hours. Now it's slowly starting to build back up to a couple hours a week, but not enough to be full-time or even part-time I'd say.”</p> <p>“Before COVID started I was working, and then when COVID started I was still getting hours and stuff, things were starting to gradually be reduced.”</p>
	Cancellation of job offer n=1	<p>“I actually had an internship lined up before COVID-19, but then that internship opportunity was cancelled because of COVID-19.”</p>

Categories	Themes	Quotes
	Increase in income n=1	“My co-op was in-person starting in May.”
No change in income n=2	Replacement of income source n=1	“I was working part time before, and now I’m still working part time, but at another job.”
	Did not work before/ since COVID-19 n=1	“I was not working prior to COVID. I’ve been applying to jobs here and there, without much success.”

Through thematic analysis, student understandings of campus food security were categorized as perspectives on the state of food security on campus (before COVID-19 and during COVID-19) and identified factors associated with food insecurity (before COVID-19 and during COVID-19). In Table 10, the themes of each category are presented.

Table 10

Understanding of campus food security before and during COVID-19

Categories	Themes	Quotes
Perspective on the state of food security on campus, before COVID-19	Food insecurity as an issue among post-secondary students n=4	“Food security has always been an issue especially for post-secondary students.” “Food insecurity is a big issue in all universities.” “I know there’s a few streams of students who lack food security.”
	UBC has available resources n=2	“I know there are several resources like UBC Food Bank, Vancouver Food Bank, I know the UBC Farm has discounts for students.” “Before the pandemic, I’d say things are pretty much standard, like everything was going normally with a lot of different food outlets available, whether it be the residence dining halls or student led cafes.”

Categories	Themes	Quotes
	Don't know n=2	<p>"I don't really know much about how food insecure UBC students are."</p> <p>"I don't know anyone personally so I can't really say."</p>
Factors associated with food insecurity, before COVID-19	Affordability of food on campus n=4	<p>"Everything is jacked up in terms of the prices here."</p> <p>"If you do want to get something that is good and healthy on campus, it's extremely expensive and people can't afford to pay that. It's not sustainable. I think that's a really big thing - pricing for quality of food."</p> <p>"I know a lot of my friends will just choose not to eat cause either they hate the food on campus or its too expensive."</p>
	Affordability of housing in Vancouver n=2	<p>"...especially in Vancouver where housing is so expensive."</p> <p>"I feel like the biggest thing that personally I think is a big factor that plays into food insecurity is what people are allocating their monthly earnings towards. Like, housing is so extremely expensive."</p>
	Challenges for students in residence n=1	"I think it is [an issue], especially if you are in first year [residence]... I feel like the way that it's set up in residence, it's not necessarily the optimal situation for people to be in if all their money is. They're paying all this money that's just put into an account, and there's not really a lot of freedom outside of the dining hall and select other stores."
	Tuition n=1	"Students may have less money to allocate to food, tuition is also expensive. Most money would go to main expenses, wouldn't necessarily go to food."
Perspective on the state of food security on campus, during COVID-19	Negative impacts from COVID-19 (i.e. increase in food insecurity) n=5	<p>"I think in a way, [food insecurity has] always been an issue and COVID just exacerbated it... [It has] definitely made food security worse on campus."</p> <p>"COVID has increased severity of food insecurity."</p>

Categories	Themes	Quotes
		“The pandemic has definitely impacted food security and the accessibility aspect of it all.”
	Don't know n=3	“I haven't heard a lot about food insecurity after [COVID].”
Factors associated with food insecurity, during COVID-19	Challenges for students in residence n=3	“... I think there's less access to food, so that just makes food security worse especially for the [students] who are still on [residence].” “Residence dining halls are operating at limited hours, or they weren't operating and are just slowly re-integrating themselves.”
	Challenges for immunocompromised students n=1	“I can imagine if you're [an] immunocompromised or an at-risk person, then leaving your room to go access food would definitely impact your food security.”
	Student-run cafes and programs are unable to operate n=2	“... if a lot of the programs on campus aren't open right now...I think there's less access to food.” “Student led cafes haven't been able to provide affordable options for students.”
	Loss of income (loss of employment, reduced hours, cancellation of opportunities) n=1	“Many maybe worked part time jobs that were cancelled cause of COVID, may be currently access government support. Most money would go to main expenses, wouldn't necessarily go to food.”

Student experiences were also explored in terms of identified personal experiences and those of friends and close others, as shown in Table 11. Although none of the interviewed students had experienced food insecurity, a couple of students expressed having friends who are food insecure (n=2). Behaviours related to accessibility of food included limited budget (n=3, self; n=2, friend), skipping meals (n=1, self; n=1, friend), time restraint (n=1, self), and compromising diet quality (n=1, self).

Table 11
Student experiences of food insecurity

Categories	Themes	Quotes
Identified experiences	Have no personal experiences of food insecurity n=9	“Luckily, I’ve never experienced food insecurity.”
		“I’m definitely fortunate enough to not have to worry about whether or not food will be on my table or not.”
		“I’ve always felt food secure during my time at UBC.”
		“I’m not really in a food insecure position.”
		“I wasn’t food insecure prior to COVID, and after COVID I’m still not.”
		“Food security hasn’t been a problem for me before or during COVID.”
	Have friends with experiences of food insecurity n=2	“Definitely some of my friends are food insecure so they have to kind of budget on campus.”
	Don’t know of anyone with food insecurity n=1	“I don’t really know of someone who is really food insecure.”
Behaviours, self	Limited budget n=3	“I would have this rough mental budget of \$30 to spend on food and that would mean I’m allocating about \$10 per meal.”
		“Food is a necessity, but everything else is already so expensive. A lot of people here, if you want to live somewhere that’s safe and clean, a much higher proportion of your monthly earnings are going towards your rent, and that’s compensating what you’re able to spend on other things that you really need. You obviously need food, you can’t just not buy it, but if you don’t pay your rent then you’re [going to] get kicked out and have nowhere to live.”
		“I have a chronic digestive issue that I’ve had for 10 years or so and it definitely requires me to spend more on certain types of food that is very expensive

Categories	Themes	Quotes
		or hard to get. There were definitely periods where it was tricky to find certain things for my special diet. My food expenses are probably what costs the most outside of rent.”
	Skipping meals n=1	“... I would sometimes skip a meal such as my lunch, just so I can order more expensive meals for dinner.”
	Time restraint n=1	“I feel like time constraints have been in the way of preparing meals for myself and properly meal planning.”
Behaviours, friend	Limited budget n=2	“...cause they feel they don't have the means to buy a proper meal.”
	Skipping meals n=1	“I know some of my friends just skip meals cause it's easier.”
	Compromising quality of diet n=1	“Sometimes some of my friends will choose to just eat granola bars all day, which is like not adequately good food, not good for their health at all.”

The impact of COVID-19 were organized into various domains of the student life (Table 12). Most students had expressed experiencing a negative impact in areas of their student life since COVID-19 (n=6) which included challenges in academics (n=5), mental health (n=5), social connection (n=4), financial difficulties (n=2), physical health (n=2), and obtaining supplies (n=1). There were fewer respondents who identified experiencing neutral (n=2) or positive impacts (n=1) of COVID-19.

Table 12*Impact of COVID-19 on aspects of student life*

Categories	Themes	Quotes
Negative impact n=6	Challenges in academics n=5	<p>“In terms of academics, I definitely have felt less supported, and a bit less motivated in my classes.”</p> <p>“It did impact my academics very roughly, academically I dropped a lot.”</p> <p>“Academically, I know a lot of people who were struggling. I was struggling a lot.”</p> <p>“When we did exams online for the last semester, I think that was definitely tough on a lot of people.”</p>
	Mental health n=5	<p>“My basal stress levels have gone up significantly, has tapered off now but I feel like it’s the same for everyone. Personally, it affected my stress levels which impacted my mental health.”</p> <p>“I think for everybody I spoke to and myself, it would be like mental health.”</p> <p>“I think definitely mental health was a big thing with me for COVID... so definitely an adjustment period, and I think that probably had a toll on everyone’s wellbeing and anxiety for a time that is already kind of anxiety filled.”</p> <p>“I would say the biggest impact of COVID19 would be my mental health.”</p>
	Social connection n=4	<p>“I think having less social interactions with friends in the first few months was pretty hard, but I think I kind of learned to adapt and reach out for help when I need it.”</p> <p>“...not being able to see my friends, so there’s that.”</p> <p>“I’ve really felt sort of lost, I’ve lost contact with those that I would normally see.”</p>
	Financial difficulties n=2	<p>“It’s been really hard as an international student to get funding both from the States and Canada and I would say, overall, financially, it’s been very difficult and definitely feels really tenuous financially.”</p>

Categories	Themes	Quotes
		“I thought that the best way for me was to apply for the CESB, unfortunately it’s only for Canadian students and because of that, I’ve just been frankly relying on money that my family has been sending over.”
	Physical health n=2	“Physically I’ve also been doing not so well, because I’ve been staying inside all day looking at Tiktoks and doing nothing else. Physically been deteriorating as well.”
	Obtaining supplies n=1	“I think the main challenge has been some of the things I need to get, I need to order online and that is challenging because as you know, all the supply chains are pretty backed up and also just certain things are super expensive now so I’ve had to forego certain things.”
Neutral impact n=2	Academics n=1	“I’d definitely say I was lucky that as far as academics go, at least it was late enough in the semester that it didn’t affect me too too much.”
	Financial circumstances n=1	“Personally, I don't think it has affected any of those aspects all too much, because the amount that I’m getting from CESB is around the amount I would be getting if I was in school working.”
	Mental health n=1	“Wellbeing I think I've probably been around the same, I think prior to COVID I was always just a bit stressed about school and everything, so it’s been the same.”
Positive impact n=1	Physical health n=1	“In terms of health, there isn't much changes, although I probably exercise more because there was a period where I had no work and no study, and there was no shopping around, so I just went and started exercising and I kept on with that.”
	Mental health n=1	“I’d say my wellbeing is probably better now that I’m at home and have people to talk to.”

Finally, suggestions specific to UBC’s COVID-19 response were collected based on student experiences and feelings of the response (Table 13) and their recommendations for improvement in future emergency response initiatives (Table 14). Recurring themes from

both questions including communication, advertisement of resources, and support for international students.

Table 13

Student experiences of UBC's COVID-19 response

Categories	Themes	Quotes
Positive	Good communication of updates n=1	“Classes just kind of stopped in quite an unexpected way, all classes were just going to be over by the end of this week, everything’s going to move online. I was updated on that, I can’t think of a better solution to this kind of situation. I feel now that everything is just distanced but I felt pretty supported.”
	Online fitness classes n=1	“One thing I think was good was they released free virtual gym classes over zoom, so I’d say props to them.”
Neutral	Don’t know n=1	“I’m not really sure. I feel like they have taken action, but I feel like I haven’t been super involved in any of the activities that have been presented.”
Negative	Poor communication n=3	“I personally haven’t heard much of anything that’s being done to help people... the fact that I don’t know about any of the resources or anything that they’re doing, it kind of makes me think they’re not doing the best job at responding.”
		“Even if they do have things implemented I think it’s important to release them on mailing lists, social media... I feel like if they would have brought more information to us, rather than us having to go look for it, that would’ve been one big thing that could’ve been done differently.”
		“I guess it’s typical PR stuff really. Like the letters on how UBC will be approaching classes, are pretty much as standard as it can get, where most of the largest classes will be online, which would be quote unquote pretty much all the classes, except for a very small number.”
	Lack of support for international students n=2	“I feel like it’s been especially hard for international students I guess everywhere now and not having enough financial resources and also it always feels like we’re on the receiving end of news and not part

Categories	Themes	Quotes
		of the discussions. Because a lot of the impact do fall on international students.”
		“Speaking from an international student’s perspective, they don’t really seem to actively make known of their efforts to help us.”
	Decentralized approach n=1	“I think it’s been very different depending on which part of UBC you’re interacting with... I wish that UBC almost had more of a regulated approach, that from now on, every teacher did this, every class is going to have this, and it was more kind of concise, versus I don’t really know what’s happening for this class, but this one is happening.”
	Not proactive n=1	“Lacklustre. UBC is very well-known for being retro-reactive... They only make these policies once it’s needed and once people are already suffering so in terms of that, UBC can be a lot more proactive in a lot of areas including emergency response plans.”

Table 14*Student recommendations for improved emergency response*

Themes	Quotes
Communication n=3	<p>“I know UBC has huge platforms on social media... [but] I feel they’re not really using their platform in a way that’s super constructive in this time.”</p> <p>“I think just being really open, and transparent with students is important. Obviously they’re not [going to] come up with a solution over night... but I think more openness like “hey, we’re talking about what our options are, we’re looking into maybe closing the university but we’re not there yet,” and kind of taking students along with [it], so they’re not [hearing] through rumours and Reddit threads.”</p> <p>“There needs to be less one-way communication and more working groups and abilities for students to be part of the decision-making process rather than being the receiving end of news.”</p>

Themes	Quotes
Advertisement on existing resources n=3	<p>“They’ve been using email for updates, but I don’t think they’re really detailed enough, or they don’t really give ways to help... I don’t even remember what any of their emails have said.”</p> <p>“... and really market them to students because there are so many changes going on, and students are in a foreign situation.”</p> <p>“There are a lot of resources here and there. There’s a lot of clubs that are offering in places as well. But they are so spread out all over the place and the resources are only exposed to a small group of people who like won’t likely share it with their friends. Having a website dedicated to compiling resources together and making sure that if there’s such a resource that it is easily accessible and well-communicated to students.”</p>
Creation of mental and health and wellness resources n=2	<p>“Mutual aid groups, that we kind of saw with COVID, [could be] instituted at the university level. It would be really nice to be able to reach out to something like that.”</p> <p>“I’d definitely say to provide more wellness and mental health resources.”</p>
Better organization n=2	<p>“Maybe organization.”</p> <p>“...at least making sure that the foundation is organized in a structured manner, would definitely help them with responses to pandemics such as COVID 19 in the future.”</p>
Support for international students n=2	<p>“In terms of emergency response, especially right now, it’s really hard being away from family, because I’m international I don’t have any many family connects here or places that I can just go to if there’s an emergency, so I have to really rely on building relationships with my cohort and friends. But I can see where mutual aid groups, that we kind of saw with COVID, being instituted at the university level, it would be really nice to be able to reach out to something like that.”</p> <p>“Providing more services to international students, I think is pretty important. I’ve seen a lot of posts about that on Facebook and petitions and stuff to support international students, because they don’t receive the government funding, so finding ways to support them I think is important.”</p>
Support for BIPOC students n=1	<p>“I really hope to see something that is very comprehensive in the way that emergency planning is approached. Really [taking] into account that all the factors as an integral part, making sure that my peers who come from Black and Indigenous backgrounds who are bearing a heavier disproportionate impact to all of these things happening with COVID.”</p>

Discussion

Student understanding and experiences with food security

The vast majority of surveyed students were classified as food secure, both before and during COVID-19. Compared to the data from the previous survey conducted by the AMS and the national study by Meal Exchange Canada which respectively indicated 38.5% (UBC, 2019) and 39% (Silverthorn, 2016) of post-secondary students as food insecure, the prevalence of food insecurity detected in our survey sample was lower. This may have been related to the low number of responses and convenience sampling method. With a population of 55,990 students (UBC Brand and Marketing, 2020) on the Vancouver campus, our sample size of 131 was small for generalizing the results. While food security is tied to socio-demographic factors, our sample also had a low representation of vulnerable and at-risk groups such as graduate, LGBT2SQIA+, Indigenous students, and Black students (UBC, 2019; Tarasuk & Mitchell, 2020). The missing voices from these communities in our sample may have contributed to a perceivably lower prevalence of food insecurity among students.

“Food security has always been an issue especially for post-secondary students.”

From our interview responses, we noticed a range of perspectives of campus food security before COVID-19. Whereas some students recognized food insecurity as a significant issue among post-secondary students, others referred to the availability of food security resources at UBC. Many had recognized the high costs of food, housing and tuition being unique factors that impact food security in post-secondary students, in alignment to what has been discussed in previous literature food insecurity in higher education (Payne-Sturges et al., 2017; Maynard et al., 2018; Silverthorn et al., 2016). Food security resources known to students will be further explored later in the discussion.

“I don’t really know much about how food insecure UBC students are.”

On the other hand, for both time periods, there were students who expressed uncertainty and a lack of knowledge in the topic of food security among university students. Considering our small sample, the number of students who did not have an understanding for the topic was a substantial proportion (22.2% for food security status before COVID-19, 33.3% for food security status during COVID-19). Despite being a public health concern, food security within the higher education context is a relatively new area of research, and little is understood about the lived experiences and challenges of food insecure students. However, this points to opportunities for increased exploration, advocacy and awareness, which was also expressed in the feedback from our survey.

“Food is a necessity, but everything else is already so expensive...You obviously need food, you can’t just not buy it, but if you don’t pay your rent then you’re [going to] get kicked out and have nowhere to live.”

Since all respondents reported having no personal experiences of financial vulnerability, the interviews were unsuccessful in capturing lived experiences of food insecure students. Instead, some respondents have shared their insights of friends who are food insecure. For personal experiences of food secure students and experiences of their food insecure friends alike, responses revealed a general deemphasis on obtaining an adequate and nutritious diet relative to other dire needs as a student. Some of these factors were unique to the post-secondary context, such as high costs of tuition and housing, restricted budgets, and a lack of time (Dela Cruz et al., 2020; Silverthorn, 2016; Maynard et al., 2018). As noted in literature, food is often not seen as an immediate need for food insecure students, compared to other demands in the university life (Maynard et al., 2018). With limited financial allocation for food being an evident theme, students have noted reducing diet quality and quantity in food insecure friends as a way to cope. The discourse on behaviours such as skipping meals and compromising diet quality appeared to be normalized. This finding

aligned with recent studies that have examined food insecurity in the higher education setting, which framed the narrative of the “starving student” – the ideology that the lack of access to nutritious foods during university is part a common student experience (Maynard et al., 2018; Crutchfield, Carpena, McCloyn & Maguire, 2020). Feelings of guilt, ambivalence and a strong desire for independence are common barriers that prevent post-secondary students from help-seeking actions even in strenuous circumstances (Maynard et al., 2018).

“... I would sometimes skip a meal such as my lunch, just so I can order more expensive meals for dinner.”

Despite this student identifying as food secure, they expressed choosing to skip some meals in order to purchase others at higher price points. Given that the student had reported having the financial means to afford an adequate supply of food, it appears that their challenge is not the lack of money to purchase food, but rather the ability to appropriately budget for food that meets their dietary preferences. This particular finding sheds light on the potential impact of increased support in providing students with personal finance and budget meal planning resources, relating to one of the themes of improvement identified by students from the survey (n=4) and the findings of previous student research (Nozadi et al., 2019). On the other hand, this student may have also been influenced by social factors such as social support (Deliens et al., 2014), parental control (Deliens et al., 2014), social media (Lambert, Chivers & Farrington, 2019), or peer situations (Deliens et al., 2014; Vilaro et al., 2019). Further exploration in how social determinants impact the food choices of UBC students is required.

The impact of COVID-19 on student life

The prevalence of student food insecurity was expected to have increased during COVID-19. However, we observed the opposite directionality in our survey results. Although the change in the population’s food security status score was insignificant, several demographic factors may have correlated with this observation in our sample. When we

compared the housing situation of our respondents before and during COVID-19, there was a decrease in students who live on-campus in student housing. Similarly, we observed a decreased proportion of students who live alone, since COVID-19. On the other hand, there was an increase in students who had moved off-campus as well as an increase in students living with their families or partners.

“I feel like time constraints have been in the way of preparing meals for myself and properly meal planning.”

The increased proportion of food insecure students living on campus during COVID-19 compared to before COVID-19 drew a parallel with the significant correlation between housing situation and food insecurity during COVID-19 ($p=0.011$). As food insecurity is rooted in financial capacity, our results suggested that moving off-campus and living with family or a partner may have offered increased access to affordable foods and/or financial resources. From the survey conducted by Statistics Canada in May 2020, it was also reported that post-secondary students living with family, compared to those who lived alone or with roommates, expressed greater financial concerns during COVID-19 (Statistics Canada, 2020b). From a student’s perspective, living alone may bring about challenges such as time restraints, personal finance, and relevant food skills such as meal planning. These factors may have been mitigated upon changes in their household characteristics. To illustrate an example, students who moved off-campus to live with their family may have been in situations where they were once in charge of meal planning for themselves but are now being taken care of by their family members, who manage the budgeting of expenses and food preparation. Living with a partner may also increase ease in meal planning, such as through shared financial resources or the ability to buy groceries in bulk. This finding again points to the potential benefits of food literacy and budgeting skill development in university students (Hattangadi et al., 2019; Maynard et al., 2018; Nozadi et al., 2019).

Under the circumstances of COVID-19, income streams that are significant to a university student's financial resources, including summer employment and part-time work, became at stake. As a result, the proportion of students who reported having a loss in income since COVID-19 was not unexpected. As captured by Statistics Canada, the impact of COVID-19 challenged students in areas of limited savings, student debt, ability to pay tuition, and ability to pay for current expenses (Statistics Canada, 2020b). This aligned with our qualitative findings on how students perceive the affordability of housing and tuition. Also related to the Statistics Canada finding, two recurring themes associated with food insecurity from our interviews were the overall affordability of food on campus and challenges for students living in residence, such as high cost of nutritious meals, lack of variety, and limited service hours in residence dining halls during COVID-19.

The critique pointing to the high cost of food on campus is not a novel sentiment among UBC students and has been reported in several previous student research projects (Chua et al., 2019; Dela Cruz et al., 2020; Lin et al., 2020). An assessment on how UBC can provide more accessible and affordable options to support student food security during an emergency is justified.

“If you do want to get something that is good and healthy on campus, it's extremely expensive and people can't afford to pay that. It's not sustainable. I think that's a really big thing - pricing for quality of food.”

As shared by our stakeholder, UBC Food Services has an industry leading reputation in North America for being 62% locally sourced, which is above the target set by the BC Ministry of Agriculture (Representative 6, personal communication, Jul 6, 2020; UBC Sustainability, 2020). It was acknowledged that purchasing locally may not be as economical as more competitive sources from the global economy and one of the priorities of UBC Food Services has been finding the balance between providing meals to students at affordable costs and contributing to a sustainable food system through supporting local producers. However,

in our study, there was no mention of this aspect of campus food pricing. This brought into question whether students are aware of this focus at UBC Food Services. Interestingly, one student commented that healthy food on campus is not sustainable, presumably from a purely economic standpoint. It is also not unreasonable for students with imminent financial restraints to weigh less importance on supporting local producers, especially if they lack knowledge of or concern for food system sustainability. Further investigation and consultation with students, including awareness and perspectives on UBC Food Service's priorities, may provide meaningful insights as to what students feel is most relevant in meeting their needs and values of affordable and sustainable meal options.

Food security resources at UBC

Food security resources that received the lowest recognition in our survey include the Chomp Meal Plan and Emergency Food Card Program. The Chomp Meal Plan offers the option to all students to preload their UBC student card with for a 5% discount for all food and drinks at UBC Food Services vendors. For students living on campus without a set meal plan, they are able to opt for a pre-paid plan offering a 12% discount (Food at UBC Vancouver, n.d.). Despite the affordability of campus food being a common criticism among students, there was a low number of students in the survey who displayed awareness for the discounts provided by the Chomp Meal Plan. Aside from the Emergency Food Card Program (UBC, 2019), which is maintained by Enrolment Services, there are currently limited food security resources specific to the context of an emergency apart from the general financial aids offered by UBC. Results of both programs showed that improved advertisement may be needed in order to reach a larger student population.

On the other hand, student-run initiatives, namely Sprouts and Agora, had higher recognition and level of usage among students. Benefits of accessing these outlets that make them appealing for students include competitive prices, an emphasis on sustainability, and the

array of plant-based options. Unfortunately, student-run initiatives have all been closed as a result of COVID-19 and the volunteer-run nature of these programs restricts their regular operations in the upcoming winter semesters (September to April). Without this option, students who remain living on campus may experience greater difficulties in finding affordable alternatives.

Although restricted in opening hours, the AMS Food Bank is one of the resources on the UBC campus that remained opened during COVID-19 to continue supporting students. While the AMS Food Bank may only be physically accessible to students who live on campus or near campus, off-campus food banks in the Greater Vancouver region have taken safety measures to maintain operations and are options for students living off campus (CBC News, 2020). It is important to note although the food bank only serves as a temporary relief to food insecurity, the demand had increased from the rapid onset of COVID-19 (Global News, 2020; Prime Minister of Canada, 2020). Consequently, food banks across the country garnered additional emergency grants from the provincial and federal governments to continue providing for communities experiencing food insecurity (Government of British Columbia, 2020b; Prime Minister of Canada, 2020). However, one striking finding from our study was the extremely low number of reported food bank visits since COVID-19 to both on-campus (i.e. AMS Food Bank) and off-campus settings when compared to the number of food insecure students. Considering that the number of AMS Food Bank users had increased by 45% since COVID-19 (Representative 7, personal communication, Jul 8, 2020), this observation reveals a weakness of the study in capturing a significant population of food insecure students at UBC who sought resources.

“It’s been really hard as an international student to get funding both from the States and Canada and I would say, overall, financially, it’s been very difficult and definitely feels really tenuous financially.”

At the baseline, food insecurity does not affect students equally at UBC or nationally. COVID-19 revealed consequences that impact students distinctively as well. From our research, one particular group of students that showed increased financial restraints during COVID-19 was international students. In fact, this observed difference in financial challenges was not limited to the circumstances of COVID-19, as international students were identified as one of the groups with heightened vulnerability to food insecurity even before the pandemic (UBC, 2019). Although most of the students interviewed did not express such difficulties, the two international students in our sample uniformly pointed to challenges with their finances during COVID-19. Government resources, including the Canadian Emergency Response Benefit (CERB) and Canadian Emergency Student Benefit (CESB), were offered and may have supported students in maintaining financial security, but eligibility for these funds was restricted to domestic students. Being away from home may have also limited one's access to resources, such as financial support from family or shared family housing. Despite having to pay high costs of tuition and housing with expressed financial challenges during COVID-19, international students at UBC have not been supported directly by any resources targeted to their needs. This finding necessitates the University's attention to providing financial resources for international students in general, but especially during an emergency, in order to equitably support student food security.

Limitations

External validity was a major limitation of this research for both the survey and interview components. The 6-item HFSSM is based on the full 18-item module that is used in both Canada and the United States and has reasonably high specificity and sensitivity as a shorter substitute (USDA, 2000). Although the shorter questionnaire was administered by Statistics Canada in the May 2020 food security survey, it differs from the 18-item questionnaire that is used in CCHS data collection (Statistics Canada, 2020). For the purpose

of my research, two separate time periods were chosen to grasp an understanding of how food security status may have changed since COVID-19, whereas the HFSSM in the CCHS assesses one's household situation over the time span of the previous 12 months. Therefore, using the short form module over two time periods posed two areas of challenges in comparing my findings with existing nationally representative data.

The survey in our study utilized convenience sampling as a method of participant recruitment, which was unable to capture a sample that is accurately representative of the population. Considering that interviewees were survey respondents who expressed interest in participating, similar limitations existed. For these processes, there was a significant risk of sampling bias and self-selection bias. In addition, there was a high dropout rate throughout the survey, which may have contributed to non-response bias. Therefore, the findings from this research lacked generalizability outside of the sample population.

The internal validity of the qualitative component of the research also saw opportunities for improvement. In the analysis stage, themes were converged based on the independent findings of two analysts. Although interview participants were invited to provide feedback on the report, there were no responses. Recognizing that qualitative research is prone to subjectivity, data triangulation involving more analysts and member checks with interview participants would increase the integrity of the findings and reduce potential biases.

Since this research was done as one part of a larger project within a short time frame, the theme of food security was insufficiently explored due to time and resource constraints. For instance, voices of food insecure students were unheard throughout interview process. Although some respondents shared experiences of friends who are food insecure, these perspectives were limited by the inferences from a third person's point of view as the meaning of food security are subject to the interpretation of each individual. Student groups who are recognized as more vulnerable to food insecurity were either underrepresented or not

represented in our survey and interview samples, which led to minimal insights as to how student food security had truly been impacted by COVID-19 beyond a surface understanding. Lastly, the definitions of food security and food insecurity that this study is built upon, provided by FAO (2006) and Tarasuk et al. (2020) respectively, are dynamic concepts that may not be collectively agreed upon in the intended audience.

Recommendations

Recommendations for key stakeholders

Overall, student feedback captured overlapping desires for increased affordability of food services on campus, better communication of available financial and food security resources, and increased support for specific student groups, such as international students. Furthermore, findings suggest major opportunities to promote student food literacy and personal finances, which are protective factors that will strengthen resiliency in the face of an emergency situation. Recommendations for future student engagement initiatives to each project client are as follows:

UBC Climate Hub

- Increase outreach to students in diverse disciplines

“I think the LFS faculty is really educated on this stuff but other faculties may not be. I think implementing programs that cover all faculties to cover the resources available and the concepts of food security, food literacy, etc. would be beneficial.”

Topics of food security, sustainability, and climate changes are heavily emphasized in the core curriculum of specific disciplines, such as in the Faculty of Land and Food Systems (LFS). Therefore, it was not surprising that we have observed a disproportionately higher outreach in the LFS student body. However, preparation and mitigation for a climate emergency require collaborative efforts between researchers, policy makers, and community members of all fields. Moving forward, emphasizing outreach to students in currently underrepresented programs, departments, and

faculties may be an area of opportunities. As a student-run organization, Climate Hub may be an effective advocate for multidisciplinary involvement through exemplifying this priority in their various events and initiatives.

- Facilitate discussion between students and campus stakeholders

“There needs to be less one-way communication and more working groups and abilities for students to be part of the decision-making process rather than being the receiving end of news.”

It is at utmost importance that students, especially those who are disproportionately impacted, are involved in ongoing discussions at the institution. In the context of preparing for a future climate crisis, partnership with stakeholders who directly interact with students is warranted. This includes, but is not limited to, UBC Food Services, UBC Enrolment Services, and UBC Wellbeing. In particular, students have emphasized concerns of financial stress and affordability of food, especially for students who live on residence. Feelings of being only on the receiving end of information, and not part of the decision-making processes, have been noted from both survey and interview participants- despite the decisions made being directly impacting the students themselves. As a university-wide initiative, there are opportunities for Climate Hub to leverage its resources and network with UBC and community stakeholders to collectively represent student voices for areas in food and financial security in connection with the organization’s action against climate change. We have heard students express their unique concerns on various aspects of the COVID-19 response and Climate Hub can provide an ongoing platform to facilitate discussions between the student body and stakeholders in both formal and informal settings. This may range from inviting student representatives from constituencies and student advocacy groups in stakeholder meetings, to showcasing student stories on these topics through social media platforms.

UBC EMT

- Coordinate centralized communication and provision of resources in emergency response

“I think it’s been very different depending on which part of UBC you’re interacting with... I wish that UBC almost had more of a regulated approach.”

Considering that COVID-19 has brought upon unprecedented circumstances, students have noted opportunities to improve the university’s delivery of emergency response. Two major areas of concern for students are UBC’s communication of emergency-related decisions and advertisement of available aids and resources, which seemed to have been unclear to students depending on factors such as their course instructors, faculty announcements, and personal networks. Despite recognizing the complexity of decision-making during this time, feedback from students have expressed confusion from the disorganized communication of updates and resources. Incorporating the procedures taken during COVID-19, the development of an updated pandemic response plan with synchronized protocols on the university, faculty, and departmental levels is a crucial next step for EMT.

- Target consultation with disproportionately impacted students in planning

“I really hope to see something that is very comprehensive in the way that emergency planning is approached. Really [taking] into account that all the factors as an integral part, making sure that my peers who come from Black and Indigenous backgrounds who are bearing a heavier disproportionate impact to all of these things happening with COVID.”

As previously mentioned, the involvement of students in higher-level decision making and planning processes would enhance the effectiveness of resources and services.

Bringing UBC’s values of equity and justice to emergency planning, consulting underrepresented student groups require intentional outreach and inclusion.

Henceforth, EMT can invest efforts in engagement with targeted student groups,

including graduate, international, and BIPOC students, in the development of emergency strategies. This may be achieved through focus group consultations, student employment, working groups, and student-led discussions. Furthermore, EMT may consider establishing a network of student representatives or ambassadors in the future, where students are actively involved in emergency-related planning and conversations.

Collaboration with other campus stakeholders

- Enrolment Services Advisors

“Students may have less money to allocate to food, tuition is also expensive. Most money would go to main expenses, wouldn't necessarily go to food.”

Personal finance is a recurring challenge for both post-secondary students, irrespective of their food security status. Especially with the uncertainties mounted in emergency situations, students may need greater support in managing their finances, such as budgeting and seeking funding opportunities. UBC Climate Hub and UBC EMT may consider cross-collaboration with Enrolment Services Advisor to support students in need with specific financial resources, as well as learning opportunities for financial literacy more broadly.

- UBC Food Services

“I know a lot of my friends will just choose not to eat cause either they hate the food on campus or its too expensive.”

Affordability of campus food services appears to be on the forefront of students' minds when discussing food insecurity. Considering the level of student concerns with the high costs of UBC Food Services vendor and the relative lack of knowledge for its sustainability efforts, increased communication and consultation is warranted. In the context of emergency, there appears to be inadequate support for students living on residence. During COVID-19 where mobility is limited, students living on

residence may experience unique challenges in meeting their dietary needs, though this topic requires further investigation.

- AMS Food Bank

As mentioned, the AMS Food Bank is a well-established food security resource that serves the UBC student population. The findings derived from the present study have not been successful in representing the AMS Food Bank clientele, which consists of food insecure individuals. To better understand the impacts of the COVID-19 emergency on food security, it may be worthwhile for UBC Climate Hub and UBC EMT to collaborate with AMS Food Bank in advocacy and research, which will be described in more details the following section.

Future research

Due to the weaknesses of the research design, the insights generated from this study are limited in scope. In the future, it would be worthwhile to examine deeper into the myriad lived experiences of food insecure students. The AMS Food Bank experienced a surge in users during COVID-19, yet in our sample, we had a significant portion of food insecure students who had not reported accessing any food banks during this period. Potential barriers that prevent a portion of food insecure post-secondary students from accessing the food bank, such as those in our study sample, suggest consultation opportunities with affected students to better understand their concerns and challenges. Another follow-up study can also closely collaborate with the AMS Food Bank and utilize purposive sampling to recruit participants for deeper exploration of their lived experiences during COVID-19. This will allow greater insights into how COVID-19 had impacted student population who were already experiencing food insecurity and those with low food security who required additional support during this time.

Although previous data identified that international and graduate students at UBC are at higher risks of food insecurity and are overrepresented in the AMS Food Bank clientele, little is known about their experiences (Kinsland, Priest, Shjaei & Villafuerte, 2018; UBC, 2019). At the University of Alberta, a study was conducted to understand the characteristics of campus food bank users in relation to their domestic or international student status (Hanbazaza et al., 2017). In a similar approach, subsequent studies at UBC can examine the relationship between food insecurity and sociodemographic factors of interest by targeting specific student communities through focus group research. Moving forward, it would be valuable to gain in-depth perspectives by characterizing the differential challenges, coping strategies, and experiences of the students most at risk. Relevant to emergency preparation and mitigation, succeeding research can also explore the types of resources and aids that students from these groups have found the most useful to access during COVID-19, as a guideline for future emergency events.

Conclusion

Overall, COVID-19 imposed unique impacts on the heterogeneous student population at UBC and these circumstances revealed gaps of unmet financial and food security needs for burdened students. Specific to our research, students living on campus and international students were the most challenged during this time. Although our results did not detect a statistically significant increase in food insecurity prevalence, the experiences of other known vulnerable student groups including graduate students, 2SLGBTQIA+, BIPOC, and students with disabilities were insufficiently represented. Thus, further research to understand the lived experiences of these unique student communities during COVID-19 are warranted. In this study, student participants expressed desires for increased affordability of on-campus food services, improved communication of existing resources, and enhanced provision of aids and services catered to most affected individuals. Results have also suggested opportunities

for UBC to promote growth in student food literacy and personal finances. Finally, strengthening emergency preparedness begins by empowering students. In order to better support student food security and build resilience as a community in preparation for a future crisis, the inclusion of student voices in planning and decision-making processes at UBC would be a critical next step.

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Appendices

Appendix A: Group Summary Report

Justice-Centred Emergency Preparedness: Group Summary

Bronwyn Neufeld, Rachel Ma, Vicky Kim

Introduction

In the early months of 2020, a novel coronavirus epidemic quickly spread across the globe and was soon declared a pandemic. The COVID-19 pandemic sparked a wave of shutdowns worldwide, with UBC's Vancouver campus following suit. Social distancing regulations were rapidly put into place, leading to the shift to online classes, closure of campus facilities and cancellation of events. Various branches of UBC were forced to act quickly to implement changes and alter existing services. As the pandemic resulted in immense disruptions to everyday life, concerns began to be raised about student wellbeing, specifically regarding the aspects of food security, financial resources and community care. This project aimed to investigate UBC's pandemic response and identify areas of improvement for responses to future emergency situations.

In order to examine UBC's response to the COVID-19 pandemic, an undergraduate research team was formed in collaboration with UBC SEEDS Sustainability Program, UBC Emergency Management and the UBC Climate Hub. The goal of this project was to provide student perspectives and input to inform future emergency planning processes and student engagement efforts. Three separate reports with different research sub-questions were produced, with one report focusing on food security and two reports focusing on various aspects of finance, community care, and wellbeing within the student population.

Methodology

A mixed-methods study was conducted, with both quantitative and qualitative analysis being performed. The primary methods utilized to collect data were an online student

survey and in-depth student interviews, while secondary methods included interviews with key stakeholders and a literature review. The main all-encompassing research question was: What are the best practices that can be proposed for future emergency preparation and response strategies at UBC, including, but not limited to climate emergencies? Each of the three reports contained their own individual research sub-questions pertaining to specific aspects of emergency preparedness. Quantitative data from the student survey was analyzed using descriptive statistics on Microsoft Excel, while qualitative data from student interviews as well as open-ended survey questions was analyzed by thematic analysis.

Results

Demographics

150 acceptable responses were analyzed from the 181 survey entries, with there being a steady participant dropout rate in response between each of the four sections of the survey: finance, food security, health and wellness, and community care. The majority of the survey participants identified as female, and most stated that they were full-time domestic undergraduate students. Over one-half of the participants identified as East Asian, and almost one-half indicated that they were from the Faculty of Land and Food Systems. Over one-half lived off-campus in the Lower Mainland before the pandemic, and over two-thirds are currently living off-campus in the Lower Mainland during the pandemic.

A total of nine students, comprising eight undergraduate students and one graduate student, were interviewed. The majority of respondents identified as female, and most stated that they were full-time undergraduate students. Most interviewed students lived off campus in the Lower Mainland before the pandemic, and none of the interviewed students had lived outside of the Lower Mainland during the past academic year.

Finance

In general, the findings showed that many students were working part-time before the pandemic, but their employment status and situations were affected by the pandemic. Most students identified that they were financially dependent, and there was a split between students who faced changes in their income and who did not as a result of the pandemic. While money from family or parents was identified as the most accessed financial resource for the majority of the study population before and during the pandemic, other financial resources that several students reported to have also accessed during the pandemic are the Canada Emergency Student Benefit (CESB), and the Canada Employment Response Benefit (CERB). Among the study population, barriers associated with accessing UBC financial resources were identified to be lack of widespread advertisement, diversity of options, and inclusivity for at-risk student groups such as international and graduate students.

Food security

Overall, the results of this project indicated that there was no significant difference in the prevalence of food insecurity before and during the pandemic within the study population. It was discovered that there was a statistically significant relationship between housing and food security status during the pandemic. This may indicate that students who live off campus might have higher access to food and financial resources due to living with family or a partner. No other demographic factor was found to have a statistically significant relationship with food security. Students were asked how UBC could better support them in terms of food security, and common themes that appeared included affordability, access, education and student involvement.

Community care and wellbeing

Successful emergency response strategies in other universities and communities around the world were identified and analyzed to what extent they could be implemented at UBC, with student volunteer emergency response teams and culturally sensitive pandemic

planning emerging as two of the most promising initiatives. Several student populations were identified as being particularly vulnerable during the pandemic, with international students emerging as the main group. Other vulnerable groups identified include students with dependents, immunocompromised students and students of lower socio-economic status. Increased screen time, decreased interactions with community or support networks, reduced or loss of access to gyms and/or fitness classes, and reduced time spent outside were identified as key challenges in taking care of physical and mental health during the pandemic, according to the study population. Additionally, major gaps in UBC's response and available health and wellness resources were identified. Lack of communication, advertisement, and inclusivity of resources were recurring concepts that arose while examining this aspect.

Discussion

Finance

One particular group of students that showed increased financial restraints during COVID-19 were international students. Because government resources created in response to the pandemic, including the Canadian Emergency Response Benefit (CERB) and Canadian Emergency Student Benefit (CESB), were not eligible for international students, they may have been limited in maintaining their financial security. Being away from home may have also limited one's access to resources, such as financial support from family or shared family housing. Despite having to pay high costs of tuition and housing with expressed financial challenges during COVID-19, international students at UBC have not been supported directly by any resources targeted to their needs. This finding necessitates the University's attention to providing financial resources for international students in general, but especially during an emergency. In addition, a demand for stronger advertisement and communication regarding financial resources through creating a centralized place for all information was expressed by several students.

Food security

International students were identified as one of the groups with heightened vulnerability to food insecurity before and during the pandemic, due to the aforementioned financial challenges. Additionally, there was a low number of students in the survey who displayed awareness for the discounts provided by the Chomp Meal Plan, despite the affordability of campus food being a common criticism among students. Aside from the Emergency Food Card Program, there are currently limited food security resources specific to the context of an emergency apart from the general financial aids offered by UBC. Students who remain living on campus may experience greater difficulties in finding affordable food, with student-run initiatives such as Sprouts and Agora being shut down due to COVID-19; however, the AMS Food Bank is one of the resources on campus that remained opened during COVID-19 to continue supporting students. Improved advertisement about available and open resources may be needed in order to reach a larger student population.

Community care and wellbeing

Despite numerous students expressing needs for health and wellness resources, a low number of students who displayed awareness for UBC's support systems and resources was observed. A need for stronger advertisement and communication about wellbeing resources through a centralized system was emphasized repeatedly by the study population. Moreover, long wait times and inaccessibility of mental health resources were some of the key issues that students identified with UBC's existing resources, and there was a demand to overcome these challenges in order to best support the student population. Several student survey respondents raised the idea of a new resource—one which would exist as an online platform where students can support other students, perhaps involving anonymous peer communications and support. This resource could also be useful for future emergency situations where it may not be possible to access physical resources on campus.

Limitations

A limitation of this study was that the study population was non-representative of the UBC student population, due to convenience sampling for survey and interview recruitment. Specifically, there was little or no representation in the study of groups that are identified in literature to be the most vulnerable to emergency crises, such as Black and Indigenous folk. Target consultation with disproportionately impacted students is necessary in emergency planning and response strategies to understand and provide for diverse student needs, as well as to coordinate effective communication strategies to advertise resources to diverse groups.

Other limitations include a general lack of literature on COVID-19 as well as there being a high dropout rate on the survey, which was likely associated with survey fatigue due to the length of the overall survey.

Recommendations

Several recommendations have been proposed as a result of this study, targeted towards UBC Emergency Management, the UBC Climate Hub or UBC as a whole.

UBC Emergency Management

- Coordinate centralized communication and provision of resources in emergency response.
- Target consultation with disproportionately impacted students in planning.
 - Apply the culturally sensitive pandemic plan model to emergency response planning as a whole.
- Include students in work – e.g. Work Learn, volunteer positions, student ambassadors.
 - Create several new Work Learn or Co-op student employment positions in order to alleviate burden on staff and allow for creation of new programs or initiatives.

- Implement a Community Emergency Response Team (CERT) style emergency response student volunteer program.
 - Can adopt a model similar to the Sustainability Ambassadors program (8-month cohort).
 - Use newly created Work Learn or Co-op positions to assist in the implementation and running of this program.
- Set a mandate that campus emergency response plans (i.e. pandemic response plan) are updated continuously; setting a target timeline such as every year or every two years.

UBC Climate Hub

- Increase outreach to students in diverse disciplines
 - Emphasize outreach to students in underrepresented programs or faculties
- Facilitate discussion between students and campus stakeholders
 - Provide platform for discussion between students and stakeholders in both formal and informal settings

UBC as a whole

- Create a centralized location where students can find all relevant resources.
 - Encourage or facilitate collaboration between various branches of UBC in order to create a centralized location (website) where students can access information regarding all wellbeing resources at UBC including but not limited to physical health, mental health, social wellbeing, financial aid and food security resources, all in one singular, easy-to-access place.
- Implement a new mental health resource where students can support each other anonymously.

- Design and implement a new mental health resource in which students can access a free online platform where they can anonymously communicate with other students and share mental health struggles and tips, with no wait time or limit on participants. Ensure this resource is advertised widely and effectively.

Appendix B: Data Collection

Survey

Demographic I
<p>1. Are/were you a UBC...</p> <ul style="list-style-type: none"> - Undergraduate Student - Graduate Student <p>If you have recently graduated (May 2020), please continue based on your student status in 2019–2020.</p> <p>If you are a faculty member, staff, alumni who graduated prior to 2020, or visitor: Thank you for your interest in our survey! However, we are only recruiting current or recently graduated students for the purpose of our project.</p> <p>* If options Undergraduate Student or Graduate Student are selected, survey takers will be led to reading a consent form</p> <p>2. Check all that applies/applied to you:</p> <ul style="list-style-type: none"> - Domestic Student - International Student - Visiting Student - Co-op Student - Exchange Student (at UBC) - Exchange Student (outgoing) <p>3. Are/were you a part-time or full-time student?</p> <ul style="list-style-type: none"> - Part-time - Full-time
Living Situation
<p>March 17th, 2020 was the day that BC officially declared a public health emergency for COVID-19. This survey will ask you to evaluate your experiences prior to the COVID-19 pandemic in BC (before March 17th, 2020) as well as your experiences since/during the COVID-19 pandemic in BC (March 17th, 2020 onwards).</p> <p>The following questions are about your living situation prior to the COVID-19 pandemic (before March 17th, 2020):</p> <p>4. Where were you living prior to the COVID-19 pandemic?</p> <ul style="list-style-type: none"> - On campus in residence/student housing

- On campus but not in student housing
- Off campus, Lower Mainland
- Off campus, rest of Canada
- Off campus, international
- Other, please specify:
- Prefer not to say

5. Which of the following describes your living situation **prior to the COVID-19 pandemic**? Check all that applies.

- Living alone
- Living with your parents and/or your siblings
- Living with your partner
- Living with children
- Living with roommates
- Other, please specify:
- Prefer not to say

The following questions are about your **current** living situation (March 17th, 2020 onwards):

6. Where are you **currently** living?

- On campus in residence/student housing
- On campus but not in student housing
- Off campus, Lower Mainland
- Off campus, rest of Canada
- Off campus, international
- Other, please specify:
- Prefer not to say

7. Which of the following describes your **current** living situation? Check all that applies.

- Living alone
- Living with your parents and/or your siblings
- Living with your partner
- Living with children
- Living with roommates
- Other, please specify:
- Prefer not to say

Finance (Questions 8-16)

Food Security (Before COVID-19)

In the 9 months **prior to the COVID-19 pandemic** (before March 17th, 2020), how do the following statements describe the food situation in your household?

17. The food that I/we bought just didn't last, and I/we didn't have money to get more.
- Often true
 - Sometimes true
 - Never true
 - Don't know or refuse to answer
18. I/we couldn't afford to eat balanced meals.
- Often true
 - Sometimes true
 - Never true
 - Don't know or refuse to answer
19. Did you/other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?
- Yes
 - No
 - Don't know or refuse to answer

***If option Yes is selected, survey takers are taken to Q20. For all other options selected, survey takers are taken to Q21**

20. How often did this happen?
- Almost every month
 - Some months but not every month
 - Only 1 or 2 months
21. Did you ever eat less than you felt you should because there wasn't enough money to buy food?
- Yes
 - No
 - Don't know or refuse to answer
22. Were you ever hungry but didn't eat because you couldn't afford enough food?
- Yes
 - No
 - Don't know or refuse to answer

Food Security (During COVID-19)

Since the COVID-19 pandemic (March 17th, 2020 onwards), how do the following statements describe the food situation in your household?

23. The food that I/we bought just didn't last, and I/we didn't have money to get more.
- Often true
 - Sometimes true
 - Never true
 - Don't know or refuse to answer

24. I/we couldn't afford to eat balanced meals.
- Often true
 - Sometimes true
 - Never true
 - Don't know or refuse to answer
25. Did you/other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?
- Yes
 - No
 - Don't know or refuse to answer

***If option Yes is selected, survey takers are taken to Q26. For all other options selected, survey takers are taken to Q27.**

26. How often did this happen?
- Almost every month
 - Some months but not every month
 - Only 1 or 2 months
27. Did you ever eat less than you felt you should because there wasn't enough money to buy food?
- Yes
 - No
 - Don't know or refuse to answer
28. Were you ever hungry but didn't eat because you couldn't afford enough food?
- Yes
 - No
 - Don't know or refuse to answer

Food Security Resources

29. Which of the following resources have you heard of? Check all that applies.
- AMS Food Bank
 - CHOMP Meal Plan
 - UBC Farm
 - Sprouts
 - Community Eats at Sprouts
 - Seedlings
 - Agora Cafe
 - Foood
 - Emergency Food Card Program
 - LFS|US Wednesday Night Dinner
30. During your time at UBC **prior to the COVID-19 pandemic** (before March 17th, 2020), how often have you accessed: (Matrix table)

	Never	Seldom	Sometimes	Often
--	-------	--------	-----------	-------

AMS Food Bank				
CHOMP Meal Plan				
UBC Farm				
Sprouts				
Community Eats at Sprouts				
Seedlings				
Agora Cafe				
Foood				
Emergency Food Card Program				
LFS US Wednesday Night Dinner				

31. **Since the COVID-19 pandemic** (March 17th, 2020 onwards), how many times have you visited the AMS Food Bank? (If none, enter 0) (Input)
32. **Since the COVID-19 pandemic** (Mar 17th, 2020 onwards), how many times have you visited off-campus food banks? (If none, enter 0) (Input)
33. Outside of UBC, what other community initiatives have you accessed (e.g. mutual aids, low-cost meal programs)? Be as specific as you can. If none, please type N/A. (Open-ended question)

Page break -----

Please consider **food options at UBC** as UBC Food Services (UBC restaurants, cafes, residence dining, retail stores), AMS food and shopping outlets (e.g. Blue Chip Cafe, Grocery Checkout), University Village and Wesbrook Village.

***Only students who are living on campus before and/or during COVID-19 will be asked Question 34-36. All other students are taken to Q37:**

34. How would you rate UBC's food options **prior to the COVID-19 pandemic** (before March 17th, 2020) in the aspects of: (Matrix table)

	Very unsatisf	Unsatisfactory	Neutral	Satisfactory	Very satisfactory	Don't know or
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	Very unsatisfactory	Unsatisfactory	Neutral	Satisfactory	Very satisfactory	Don't know or prefer not to say
Availability						
Physical accessibility						
Affordability						
Quality						
Meeting your dietary preferences						
Meeting your nutritional needs						

35. How would you rate UBC's food options **during the COVID-19 pandemic** (March 17th, 2020 onwards) in the aspects of: (Matrix table)

	Very unsatisfactory	Unsatisfactory	Neutral	Satisfactory	Very satisfactory	Don't know or prefer not to say
Availability						
Physical accessibility						
Affordability						
Quality						
Meeting your dietary preferences						
Meeting your nutritional needs						

36. Do you have any comments on the mentioned resources or ratings? If none, please type N/A. (Open-ended question)

37. In what other ways do you think UBC can better support student food security? If none, please type N/A. (Open-ended question)

Health & Wellness (Question 38-54)**Community Care (Questions 55-64)****Demographic II**

65. How do you describe your gender?
- Non-binary
 - Male
 - Female
 - Other
 - Prefer not to say
66. How would you describe your ethnic or cultural background? Check all that applies.
- Arab
 - Black
 - East Asian (e.g. Chinese, Japanese, Korean)
 - First Nations
 - Inuit
 - Latin American
 - Métis
 - South Asian (e.g. Indian, Pakistani, Sri Lankan)
 - Southeast Asian (e.g. Vietnamese, Cambodian, Malaysian, Filipinx)
 - West Asian (e.g. Iranian, Afghan)
 - White
 - Other, please specify:
 - Prefer not to say
67. Which of the following do you identify with? Check all that applies.
- LGBTQ+
 - A person with a disability
 - Other, please specify:
 - None of the above
68. How many years have you been a UBC student?
- 1
 - 2
 - 3
 - 4
 - 5+
69. What faculty are you in? Check all that applies.
- Applied Science, Faculty of
 - Architecture and Landscape Architecture, School of
 - Arts, Faculty of
 - Audiology and Speech Sciences, School of
 - Business, Sauder School of
 - Community and Regional Planning, School of
 - Dentistry, Faculty of
 - Education, Faculty of

- Extended Learning
- Forestry, Faculty of
- Graduate and Postdoctoral Studies
- Journalism, School of
- Kinesiology, School of
- Land and Food Systems, Faculty of
- Law, Peter A. Allard School of
- Library, Archival and Information Studies, School of
- Medicine, Faculty of
- Music, School of
- Nursing, School of
- Pharmaceutical Sciences, Faculty of
- Population and Public Health, School of
- Public Policy and Global Affairs, School of
- Science, Faculty of
- Social Work, School of
- UBC Vantage College
- Vancouver School of Economics

Survey Scoring: 6-Item US Household Food Security Status Module

Question	Affirmative Response(s)
<p>In the 9 months prior to the COVID-19 pandemic (before March 17th, 2020), <i>or</i> Since the COVID-19 pandemic (after March 17th, 2020),</p> <p>how do the following statements describe the food situation in your household?</p>	
<p>1. The food that I/we bought just didn't last, and I/we didn't have money to get more.</p>	<p>Often true Sometimes true</p>
<p>2. I/we couldn't afford to eat balanced meals.</p>	<p>Often true Sometimes true</p>
<p>3. Did you/other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?</p>	<p>Yes</p>
<p>* If responded yes to 3 4. How often did this happen?</p>	<p>Almost every month Some months but not every month</p>
<p>5. Did you ever eat less than you felt you should because there wasn't enough money to buy food?</p>	<p>Yes</p>
<p>6. Were you ever hungry but didn't eat because you couldn't afford enough food?</p>	<p>Yes</p>

Participant food security statuses are determined by the sum of their responses in each time period. Participants with 2 or more affirmative responses are identified as food insecure and participants with less than 2 affirmative responses are identified as food secure.

Interview Guides

Demographic
<ol style="list-style-type: none"> 1. What are your preferred pronouns? 2. What faculty or department are you in? What year of your program are in? <ol style="list-style-type: none"> a. Undergraduate or graduate: b. Faculty: c. Program: d. Year: 3. Are you a: <ol style="list-style-type: none"> a. Domestic student b. International student c. Exchange student (at UBC) d. Exchange student (outgoing)
Living Situation
<ol style="list-style-type: none"> 4. Could you describe what your living situation is like prior to COVID-19 and currently? (ex. living at home (BC, Canada, or international), on-campus (residence/other)) 5. Will you be returning to campus in the fall? Will you be continuing your studies in the fall? Why or why not?
Finance
<ol style="list-style-type: none"> 6. If applicable, could you tell us more about your work situation prior to COVID-19 and currently? 7. If you're comfortable sharing, how has COVID 19 impacted you financially? <ol style="list-style-type: none"> a. Are you accessing these funds: <ol style="list-style-type: none"> i. CERB? CESB? CSSG? ii. UBC emergency funds? iii. Bursaries? Honorariums? iv. Awards/scholarships? v. Loans? vi. Money from family 8. Have you heard of any of UBC's emergency financial resources? What are your thoughts about them?
Food Security
<ol style="list-style-type: none"> 9. What is your perspective on the state of food security on campus before and after the pandemic? <p style="color: red;">Household or individual food insecurity is defined as “the inadequate or insecure access to food due to financial constraints” (PROOF).</p>

10. Can you share your overall experience with food insecurity, if any, as a UBC student?
- If you don't have a personal experience to share, could you tell us about an experience from a friend or someone you know?
11. During COVID-19, how has your experience with food insecurity changed or impacted aspects of your student life such as in academics, mental health and social wellbeing?
- If no food insecurity, overall financial constraints impact these aspects
 - If no financial constraints, how has COVID-19 generally impacted these aspects

About 40% of students across universities in Canada experience food insecurity of varying severity. As such, UBC targets food insecurity through a variety of resources and initiatives, such as the AMS Food Bank which provides temporary relief.

12. What other food security resources at UBC have you heard of, used or are currently using?
13. What was your experience in accessing these resources during a time of emergency, such as during the recent COVID-19 pandemic? How do you feel about reaching the level of support you need?

Community Care & Wellbeing

UBC's Emergency Response and Student Engagement

17. Do you have any thoughts or ideas to share on how you feel UBC could improve future emergency response initiatives?
18. Which method of communication do you prefer from UBC? (email, social media, etc.)

Appendix C: Consent Forms

Survey

Consent Form

Research Team

Bronwyn Neufeld
Rachel Ma
Vicky Kim

Collaborator & Clients

UBC SEEDS Sustainability Program
UBC Emergency Management
UBC Climate Hub

Faculty Supervisors

Dr. Gail Hammond
Dr. Les Lavkulich

Project Name: Justice-Centred Emergency Preparedness

Introduction: The main purpose of this project is to evaluate and provide suggestions on UBC's emergency preparedness and adaptation strategy to inform future student engagement efforts by UBC Climate Hub and UBC Emergency Management. Reflecting from the impact of COVID-19, this research aims to gain a deeper understanding of the shortcomings of current policies and resources at UBC and identify areas of vulnerabilities in the diverse student population.

Survey Procedures: The survey will take approximately 15 minutes to complete. This includes basic demographic questions and research questions that encompass themes of: (1) food security, (2) financial status and (3) community care and wellbeing. You will be asked to complete the Six-Item Short Form of the US Household Food Security Survey Module, a validated tool by the US Department of Agriculture (USDA), over two time periods. This reason for this procedure is to reach a comparison between the participant's baseline experience of food security prior to and since COVID-19. You will also be given the opportunity to share specific feedback or any additional comments at the end of the survey. Upon completion, you will be invited to participate in an optional 20 minute in-depth interview at a later time.

Confidentiality: This survey is conducted electronically using Qualtrics, a company hosted in Canada. All the information you provide will be anonymous and kept strictly confidential for the purpose of our research.

Remuneration: You will be entered in a prize draw in exchange for your time and participation.

Contact Information: If you have any questions or would like further information about this project, please contact Bronwyn Neufeld (bronwyn.neufeld@alumni.ubc.ca), Rachel Ma (rachel.ma@alumni.ubc.ca), or Vicky Kim (vicky.kim@alumni.ubc.ca).

Consent: Your participation in this survey is entirely voluntary and you may withdraw from this survey at any point. As this survey is conducted anonymously, your signature is not required. By clicking the "continue" button, you are indicating your consent to participate.

*Student Interviews***Consent Form****Research Team**

Bronwyn Neufeld
 Rachel Ma
 Vicky Kim

Collaborator & Clients

UBC SEEDS Sustainability Program
 UBC Emergency Management
 UBC Climate Hub

Faculty Supervisors

Dr. Gail Hammond
 Dr. Les Lavkulich

Project Name: Justice-Centred Emergency Preparedness

Introduction: The main purpose of this project is to evaluate and provide suggestions on UBC's emergency preparedness and adaptation strategy to inform future student engagement efforts by UBC Climate Hub and UBC Emergency Management. Reflecting from the impact of COVID-19, this research aims to gain a deeper understanding of the shortcomings of current policies and resources at UBC and identify areas of vulnerabilities in the diverse student population.

Interview Procedures: The in-depth interview will take approximately 20 minutes to complete. After a briefing of our research purpose and goals, we will begin by asking basic demographic questions about your student status, identity, location, and living conditions. We will then ask questions encompassing our research themes including (1) food security, (2) financial status and (3) community care and wellbeing. You will also be given the opportunity to share specific feedback or any additional comments at the end of the survey.

Confidentiality: The interview will be conducted via Zoom, a company hosted in the United States. Zoom may store data in servers outside Canada. To learn more about Zoom and their privacy policy, visit <https://zoom.us/privacy>. We will be recording the interview session for the purpose of transcription, unless otherwise requested. Your responses during the interview will remain anonymous and any personal information, such as your name and email, will not be disclosed.

Contact Information: If you have any questions or would like further information about this project, please contact Bronwyn Neufeld (bronwyn.neufeld@alumni.ubc.ca), Rachel Ma (rachel.ma@alumni.ubc.ca), or Vicky Kim (vicky.kim@alumni.ubc.ca).

Consent: Your participation in this survey is entirely voluntary and you may refuse to answer or withdraw from the interview at any point.

Name**Signature**

Date

Appendix D: Contact Lists

Table D1

Stakeholder interviews

Identifier	Organization	Interview Date
Representative 1	UBC Wellbeing	Jun 30, 2020
Representative 2	UBC Student Housing and Hospitality Services	Jun 30, 2020
Representative 3	UBC Student Housing and Hospitality Services	Jun 30, 2020
Representative 4	UBC Go Global	Jul 2, 2020
Representative 5	UBC Wellbeing	Jul 6, 2020
Representative 6	UBC Food Services	Jul 6, 2020
Representative 7	UBC AMS Food Bank	Jul 8, 2020
Representative 8	UBC SEEDS	Jul 9, 2020
Representative 9	UBC Safety & Risk Services	Jul 16, 2020

Table D2

List of contacted organizations for survey distribution

Organization	Contacted?	Response
UBC Alma Mater Society	Yes	Yes
UBC Climate Hub	Yes	Yes
UBC Emergency Management	Yes	No response
LFS Undergraduate Society	Yes	Yes
LFS Firsts	Yes	No response
UBC Farm	Yes	Yes
LFS Newsletttuce	Yes	Yes
Science Undergraduate Society	Yes	No response
Arts Undergraduate Society	Yes	No response
Commerce Undergraduate Society	Yes	Yes
Engineering Undergraduate Society	Yes	No response
Vancouver School of Economics Undergraduate Society	Yes	No response
UBC Exchange Student Club	Yes	No response
Graduate Student Society	Yes	No response
Acadia Park Residence Association	Yes	Yes
UBC Equity & Inclusion Office	Yes	No response
Undergraduate Research Opportunities (URO)	Yes	No

Appendix E: Data Tables

Survey

Table E1

Demographics of survey sample population (n= 131)

Dimension	n	%
<i>Level of studies</i>		
Undergraduate	116	88.5%
Graduate	15	11.5%
<i>Domestic/ International</i>		
Domestic	99	75.6%
International	32	24.4%
<i>Part-time/ Full-time</i>		
Full-time	129	98.5%
Part-time	2	1.5%
<i>Gender</i>		
Female	94	70.7%
Male	22	16.5%
Non-binary	1	0.8%
Did not answer, prefer not to say	14	10.5%
<i>Others</i>		
LGBTQ+	11	8.4%
A person with a disability	4	3.1%
<i>Years at UBC</i>		
Minimum	1	
Maximum	5	
Mean (SD)	2.86	
SD	1.21	
<i>Ethnicity</i>		
Arab	1	0.8%
Black	1	0.8%
East Asian (e.g. Chinese, Japanese, Korean)	55	42.0%
First Nations	1	0.8%
Inuit	0	0.0%
Latin American	3	2.3%
Métis	0	0.0%
South Asian (e.g. Indian, Pakistani, Sri Lankan)	9	6.9%

Dimension	n	%
Southeast Asian (e.g. Vietnamese, Cambodian, Malaysian, Filipinx)	8	6.1%
West Asian (e.g. Iranian, Afghan)	0	0.0%
White	23	17.6%
Mixed race	20	15.3%
East Asian, Southeast Asian	2	1.5%
East Asian, White	7	5.3%
Latin American, White	2	1.5%
Métis, White	1	0.8%
South Asian, White	1	0.8%
Other, please specify:	0	0.0%
N/A, prefer not to say	17	13.0%
<i>Faculty</i>		
Applied Science	19	14.5%
Arts	15	11.5%
Dentistry	1	0.8%
Education	3	2.3%
Graduate & Postdoctoral Studies	2	1.5%
Interdisciplinary Studies	1	0.8%
Kinesiology	2	1.5%
Land and Food Systems	54	41.2%
Medicine	2	1.5%
Pharmaceutical Sciences	2	1.5%
Sauder School of Business	6	4.6%
Science	15	11.5%
Vancouver School of Economics	1	0.8%
Did not answer, prefer not to say	8	6.1%

Table E2

Living situation of survey participants, before and during COVID-19

Dimension	Before COVID-19		During COVID-19	
	n	%	n	%
<i>Housing</i>				
On campus in student housing	34	26.0%	13	9.9%
On campus, not in student housing	12	9.2%	6	4.6%
Off campus, Lower Mainland	76	58.0%	85	64.9%
Off campus, rest of Canada	4	3.1%	12	9.2%
Off campus, international	5	3.8%	14	10.7%
Prefer not to say	0	0.0%	1	0.8%
<i>Household characteristic</i>				
Living alone	20	15.3%	14	10.7%

Dimension	Before COVID-19		During COVID-19	
	n	%	n	%
Living with family (i.e. parents, siblings)	51	38.9%	82	62.6%
Living with partner	15	11.5%	20	15.3%
Living with children	5	3.8%	5	3.8%
Living with roommates	47	35.9%	20	15.3%

Table E3

Income change of survey participants, since COVID-19

Financial Situation	n	%
Complete loss in income	10	7.6%
Partial loss in income	51	38.9%
No change in income	55	42.0%
Prefer not to say	15	11.5%

Table E4

Ratings on UBC food options by students living on campus, before COVID-19 (n=46)

Dimension	n	%
Availability		
Very satisfactory	6	13.0%
Satisfactory	24	52.2%
Neutral	4	8.7%
Unsatisfactory	6	13.0%
Very unsatisfactory	1	2.2%
Don't know or prefer not to say	5	10.9%
Physical Accessibility		
Very satisfactory	7	15.2%
Satisfactory	28	60.9%
Neutral	2	4.3%
Unsatisfactory	4	8.7%
Very unsatisfactory	1	2.2%
Don't know or prefer not to say	4	8.7%
Affordability		
Very satisfactory	0	0.0%
Satisfactory	5	10.9%
Neutral	11	23.9%
Unsatisfactory	21	45.7%
Very unsatisfactory	5	10.9%
Don't know or prefer not to say	4	8.7%

Dimension	n	%
Quality		
Very satisfactory	2	4.3%
Satisfactory	19	41.3%
Neutral	10	21.7%
Unsatisfactory	11	23.9%
Very unsatisfactory	0	0.0%
Don't know or prefer not to say	4	8.7%
Meeting your dietary preferences		
Very satisfactory	2	4.3%
Satisfactory	22	47.8%
Neutral	10	21.7%
Unsatisfactory	5	10.9%
Very unsatisfactory	3	6.5%
Don't know or prefer not to say	4	8.7%
Meeting your nutritional needs		
Very satisfactory	2	4.3%
Satisfactory	17	37.0%
Neutral	17	37.0%
Unsatisfactory	4	8.7%
Very unsatisfactory	2	4.3%
Don't know or prefer not to say	4	8.7%

Table E5

Ratings on UBC food options by students living on campus, during COVID-19 (n=19)

Dimension	n	%
Availability		
Very satisfactory	0	0.0%
Satisfactory	0	0.0%
Neutral	4	21.1%
Unsatisfactory	10	52.6%
Very unsatisfactory	2	10.5%
Don't know or prefer not to say	3	15.8%
Physical Accessibility		
Very satisfactory	1	5.3%
Satisfactory	1	5.3%
Neutral	7	36.8%
Unsatisfactory	5	26.3%
Very unsatisfactory	2	10.5%
Don't know or prefer not to say	3	15.8%

Dimension	n	%
Affordability		
Very satisfactory	0	0.0%
Satisfactory	2	10.5%
Neutral	3	15.8%
Unsatisfactory	9	47.4%
Very unsatisfactory	2	10.5%
Don't know or prefer not to say	3	15.8%
Quality		
Very satisfactory	2	10.5%
Satisfactory	5	26.3%
Neutral	4	21.1%
Unsatisfactory	3	15.8%
Very unsatisfactory	2	10.5%
Don't know or prefer not to say	3	15.8%
Meeting your dietary preferences		
Very satisfactory	0	0.0%
Satisfactory	2	10.5%
Neutral	7	36.8%
Unsatisfactory	3	15.8%
Very unsatisfactory	3	15.8%
Don't know or prefer not to say	4	21.1%
Meeting your nutritional needs		
Very satisfactory	0	0.0%
Satisfactory	2	10.5%
Neutral	7	36.8%
Unsatisfactory	4	21.1%
Very unsatisfactory	2	10.5%
Don't know or prefer not to say	4	21.1%

Student Interviews

Table E6

Demographics of interview sample population (n=9)

Dimension	n	%
<i>Gender</i>		
Female	5	55.6%
Male	2	22.2%
Prefer not to say	2	22.2%

Dimension	n	%
<i>Level of studies</i>		
Undergraduate	8	88.9%
Graduate	1	11.1%
<i>Faculty</i>		
Applied Sciences	1	11.1%
Land and Food Systems Science	6	66.7%
	2	22.2%
<i>Program</i>		
BSc, Biochemistry	1	11.1%
BSc, Food, Nutrition, and Health	3	33.3%
BSc, Integrated Sciences	1	11.1%
BSc, Global Resource Systems	3	33.3%
MSc, Community and Regional Planning	1	11.1%
<i>Domestic/ International</i>		
Domestic	7	77.8%
International	2	22.2%
<i>Other identified student statuses</i>		
Exchange student (outgoing for 2020W)	1	11.1%
Co-op student (2020S term)	1	11.1%

Table E7

Living situation of interview participants, before and during COVID-19

	Before COVID-19		During COVID-19	
	n	%	n	%
<i>Housing</i>				
On campus in student housing	0	0.0%	2	22.2%
On campus, not in student housing	2	22.2%	1	11.1%
Off campus, Lower Mainland	7	77.8%	6	66.7%
Off campus, rest of Canada	0	0.0%	0	0.0%
Off campus, international	0	0.0%	0	0.0%
<i>Household characteristic</i>				
Living alone	2	22.2%	2	22.2%
Living with family (i.e. parents, siblings)	3	33.3%	4	44.4%
Living with partner	1	11.1%	1	11.1%
Living with children	0	0.0%	0	0.0%
Living with roommates	3	33.3%	2	22.2%