How the Covid-19 Pandemic has Affected Food Access of International Students at the University of Prince Edward Island

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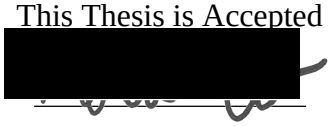
A thesis submitted in partial fulfillment of the requirements of the Honours Program in the Department of Applied Human Sciences

This Thesis is Accepted



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Year: Honours

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ABSTRACT

Accessing food during a global pandemic is a new problem for postsecondary students. It is known that many post-secondary students struggle to achieve food security, with international students being particularly vulnerable. One factor that contributes to food insecurity is access to food which became increasingly difficult due to challenges associated with the Covid-19 global pandemic. The purpose of this study was to develop an understanding of how the Covid-19 global pandemic affected access to food for international students at the University of Prince Edward Island. In this context, food access is defined as the ability to access culturally acceptable food that one needs or wants, including whether the food is free or purchased. To understand international students' experience accessing food during the Covid-19 pandemic, a virtual interview was conducted with students who felt their eating habits had changed compared to before the pandemic. Seven participants were asked a series of ten open-ended questions, which took around 30 minutes to complete. The interviews were conducted in February of 2021. Responses were analyzed using thematic content analysis. The results showed that all participants had to modify their method of accessing food due to the pandemic's unforeseen circumstances. The study also found that international students have used numerous coping mechanisms to access food when the usual method used is no longer accessible due to financial constraints or challenges occurring due to the pandemic.

ACKNOWLEDGMENTS

I would first like to thank my honours supervisor, Dr. Deborah Maclellan, for her guidance throughout this process. Your qualitative research expertise has been beneficial and insightful to my research and research skills development. I would also like to thank advisory committee member Dr. Jennifer Taylor. Together their knowledge, experience and insightful feedback aided in the completion of this research.

I would like to acknowledge Sister Susan Kidd at the Chaplaincy Centre food bank at UPEI. I appreciate your assistance in recruiting participants in my study and your ability to extend regular food bank hours to accommodate those affected by the Covid-19 pandemic.

Finally, I would like to thank my parents, siblings and friends for their words of motivation and encouragement throughout my research.

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1.0 INTRODUCTION

Food insecurity is an ongoing problem in Canada. It affects 1 in 8 households throughout Canada, equivalent to 4.4 million people in a food-insecure situation (Tarasuk & Mitchell, 2020, p.3). The term food insecurity has several different definitions. For this project, I will be using the definition of food insecurity proposed by the World Health Organization's in 2018: "….uncertain access to sufficient, safe and nutritious food ... may contribute to forms of malnutrition as seemingly divergent as undernutrition and obesity" (FAO, IFAD, UNICEF, WFP, & WHO, 2018, p.29). There are different levels of food insecurity including: marginal, moderate, and severe (Tarasuk & Mitchell, 2020).

University students have been increasingly affected by food insecurity (Rudolph et al., 2018). Students have been overlooked concerning food insecurity because it is often thought that if someone can afford post-secondary education, they should be financially stable. This perception is changing as recent a recent study by Farahbaksh and colleagues has shown that students attending post-secondary education often do not have a large income, they pay high tuition rates, and they may not have financial support from their families. Not being able to balance finances and time has led to economic instability among post-secondary students (Farahbakhsh et al., 2015). According to Farahbakhsh and colleagues (2015) a temporary solution used to get by when money is tight is not eating or eating less. Other bills such as rent and utilities are essential and inflexible, and food is considered to be more of an elastic expense. This has resulted in constant stress to make ends meet for food- insecure students (Farahbakhsh et al., 2015).

Students who struggle the most with food insecurity are international students, first-generation students, and those coming from financially disadvantaged backgrounds (Rudolph et al., 2018). The University of Prince Edward Island (UPEI) enrolls around 1200 international

students from more than 75 countries every year. This group makes up just over 25% of the entire student population (Tuition and Fees, 2020). The international fee to attend UPEI is an additional $7,470 per year on top of the standard tuition fee. For a four-year undergraduate degree, international students will have paid $29,880 just in international fees (International Students, 2020). International students are also affected by limited job opportunities from student visa restrictions and they often don't qualify for scholarships, bursaries, and student loans, as most are tailored to Canadian students (Hanbazaza et al., 2015). This compounds the financial burden these students face when coming to Canada to study.

Research has shown that food insecure post-secondary students are affected in several ways, such as poorly affecting their academic performance and overall health. If a student is food insecure, statistically, they do worse academically than their food-secure counterparts (Maynard, Meyer, Perlman and Kirkpatrick, 2018). Blagg et al. (2017) found that food insecurity affects one's mental health by causing depression and anxiety. Increased fatigue, hunger, and a change in body composition have all been associated with decreasing the quality of one's health (Martin et al., 2016). There are limited nutrient-dense options available on a budget, and the quality and quantity of food decreases as food insecurity increases (Ochs et al. 2020).

Since appearing in the fall of 2019, the Covid-19 global pandemic has threatened millions of people's food security due to uncertain times (FAO, 2020). Several border closures and lockdowns have resulted from Covid-19, making it difficult to obtain food from out of the country. People were affected worldwide by the delay in food production including Canada. The difficulty in shipping and receiving goods also resulted in grocery stores being unable to provide the same quality and quantity as was available pre-pandemic (FAO, 2020).

As incomes decrease and food insecurity increases, many people are forced to turn to food banks for food. In Canada, many food banks have seen a dramatic increase in usage. One Toronto food bank saw a 25% increase in customers after the pandemic was declared in March 2020 (Ochs et al. 2020). Food banks provide free options that generally do not take much preparation time to cook the items supplied. Alternatively, the food banks' choices are often low in nutrients and high in calories, highly processed, high in sodium, fats and sugar with little fresh food (Wetherill, White and Seligman, 2019).

When the pandemic began, 20% of post-secondary students attending U.S. Universities identified themselves as food insecure. This was most prevalent during the first few months of the outbreak (Young, 2020). However, limited data has been collected on how Covid-19 affected the food insecurity of students. Students are returning to school less financially stable from what research has been gathered compared to previous years. A study on the financial and academic impacts of Covid-19 on university students conducted by Statistics Canada from late April to the beginning of May 2020 found that most participants were financially worried. Around 70 percent of the participants were either "very" or "extremely" concerned that they would have to use all of their savings to get through this school year. Another 50% were worried they would go into debt, trying to afford education during the pandemic (Ferris, 2020). The pandemic has resulted in a lack or loss of employment, temporarily and permanently. Some support programs have been put in place to help those affected in such a way, such as the Canadian Emergency Response Benefit (CERB) and the Canadian Emergency Student Benefit (CESB). The financial aid being CERB did not include several students and international students as to be eligible one had to be either a Canadian citizen or a permanent resident. CESB was put on place and used by

students who did not meet the eligibility of CERB (Canada Revenue Agency, 2021).

Although there has been some research on the impact of Covid-19 among university students given financial hardships with food access, there is little to no data on the experience of international students. Therefore, this study explored international students' experience accessing food during the Covid-19 pandemic.

2.0 LITERATURE REVIEW

2.1 Food Insecurity Among University Students

The World Health Organization has defined food insecurity as "uncertain access to sufficient, safe and nutritious food …. may contribute to forms of malnutrition as seemingly divergent as undernutrition and obesity." (FAO, 2018, p.29). To better understand food insecurity, it helps to look at what it means to be food secure. There are four dimensions to what food security is and what it looks like to be food secure. The first is the availability of food. Availability has to do with the production, distribution, and exchange of food in the marketplace. The second is access to food. Food access includes the food's affordability and personal preferences. The third dimension is utilization which considers the social aspects of food, nutritional values and food safety. The last dimension is stability. The stability of the food supply ensures access to nutritious food at all times (Rudolph et al., 2018). Those who do not fulfil each dimension of food security may in fact be food insecure. Food insecurity is unique since it includes multiple categories, being marginal, moderate, and severe. Marginal food insecurity is experienced when an individual is worried about the possibility of running out of food or is limited in their food items to purchase due to lack of money for food. Moderate food insecurity is experienced when the quality and/or quantity of food has become compromised from lack of money for food. Severe food insecurity is experienced when an individual is having to miss meals, reduce their food intake and the most severe being going day(s) without food (Tarasuk & Mitchell, 2020).

Food insecurity continues to be an issue in Canada. Nationally, the prevalence of being food insecure has reached 14.6% as of May of 2020. In 2018 the prevalence for food insecurity was 8.8%, showing a substantial increase over two years (Statistic Canada, 2020). One of the

most severely affected age groups are individuals aged 20-34 years of age, with the prevalence of becoming food insecure at 10.4%. Undergraduate university students would be included in the 20-34-year-old age group and although their prevalence is just below the general population there has yet to be an updated statistic. Considering the general public's prevalence increased 5.8% over two years, this could affect the prevalence to increase for students to be food insecure (Farahbakhsh et al., 2015; Statistic Canada, 2020). On a national level, there is insufficient data on the prevalence of food insecurity among university students. However, a study conducted by Reynolds, Johnson, Jamieson, & Mawhinney (2018) surveyed students attending Saint Francis Xavier University and found that the prevalence of food insecurity was 37.2%. There are several reasons why young adults aged 20-34 may have had difficulty achieving food security. Reasons include being new to budgeting their finances, living off minimum wage, lack of financial support from their families, or paying high tuition fees (Farahbakhsh et al., 2015; Maynard, Meyer, Perlman and Kirkpatrick, 2018). From 2006 to 2016, Canadian students saw a 40% increase in tuition (Maynard, Meyer, Perlman and Kirkpatrick, 2018). Yet, over 20 years (1998-2018), Canada’s minimum wage has only increased 5.2% to 10.4% (Statistics Canada, 2019). The best predictors of food insecurity among university students are race, gender, being a first-generation student and not having a stable financial situation. Thus, international students are often impacted the most by food insecurity (Rudolph et al., 2018).

A study conducted by Maynard, Meyer, Perlman and Kirkpatrick, (2018) found that students who suffer from food insecurity are more likely to have their academic success inhibited. Rudolph et al. (2018) found a 50 to 60% dropout rate among university students deemed food insecure. It is also more challenging for food-insecure students to focus on school than food-secure students. Stebleton and colleagues (2020) explained in their study how food

insecurity had influenced students' academic and personal lives. Not being able to consistently eat healthy meals negatively affected participants' mental health and made it difficult for them to focus on schoolwork due to hunger. The study also found that students had experienced anxiety when it came to social situations such as eating out, which affected relationships with peers.

2.2 Food Insecurity Among International University Students

Silverthorn (2016) designed a mixed-methods study to assess food insecurity at five Canadian universities from across the country. Nearly 4,500 students from the five universities responded to an online survey. Results indicated that the overall percentage of students identifying as food insecure was 39%. This study also concluded that African respondents struggled with food insecurity the most, with 75.3% of them self-identifying as food insecure (Silverthorn, 2016).

A cross-sectional online survey conducted by Frank (2018) looked at food insecurity among students attending Acadia University located in rural Nova Scotia. 38% of the students had experienced food insecurity. Students reported that their living arrangements, source of income for school, meal plans, and their year of study were all associated with food insecurity. The study assessed several characteristics of their participants, one being if the student was international. Eight percent of the students who participated were international. 26.5% of international students identified as being moderately food insecure, and 18.1% were severely food insecure (Frank, 2018).

In 2017, Bottorff and colleagues (2020) conducted a cross-sectional survey with 3490 undergraduate students to determine the prevalence of food insecurity on their university campus. It was administered campus-wide, and they achieved a 50% response rate. Overall, the

prevalence of food insecurity was determined to be 42.3%. The study also found that international students were more likely to experience food insecurity compared to other groups. Of the 406 international students who participated in the survey, 50% were classified as food insecure. These findings suggest that a significant number of international students in Canada may need extra help in accessing affordable food (Bottorff et al., 2020).

2.3 Impact of Food Insecurity

International students' diets often change when they come to Canada when they are unable to find culturally acceptable staple food items in Canadian grocery stores. Their diets often incorporate more fast or processed foods, skipping meals, non-nutrient balanced meals, and eating fewer foods like fruit and vegetables. Consuming nutritionally poor options like these can negatively impact one's health (Hanbazaza et al., 2015). Both physical and mental health can be affected by food insecurity (Martin et al., 2016).

2.3.1 Physical Health

Research on food insecurity and overall health has found that the higher the level of food insecurity, the greater the likelihood of having adverse health outcomes (Tarasuk, Fafard St-Germain and Mitchell, 2019). Physical side-effects commonly related to food insecurity can be both short-term and long-term. The most common short-term side effects are hunger and fatigue. Long-term side effects can include body weight/ composition changes and an increased risk of chronic diseases (Martin et al., 2016). A study by Huizar, Arena, and Laddu (2020) linked food insecurity to malnutrition and obesity. Both malnutrition and obesity are driven by unhealthy dietary behaviours, and one can easily contribute to the other. Unhealthy dietary behaviours

include having an irregular eating pattern (consuming smaller portions or increased snacking), buying less expensive unhealthy foods, eating food after it has passed its expiration date and watering down food. These behaviours can lead to nutrient inadequacies which can also have an impact on physical health.

2.3.1.1 Nutritional Status Affected by Food Insecurity

There is evidence that those who are food insecure are less likely to afford fresh fruit, vegetables, meats, and dairy (Maynard, Meyer, Perlman and Kirkpatrick, 2018). Research has also shown that there is a higher prevalence of nutrient deficiencies among food-insecure individuals. Common nutrient deficiencies related to food insecurity included vitamin A, thiamin, riboflavin, vitamin B^6, folate, vitamin B^{12}, magnesium, phosphorus, and zinc. Protein intake also decreases when switching to a diet that includes insufficient food because food-insecure diets consist of mainly high carbohydrate and high-fat food (Kirkpatrick & Tarasuk, 2008).

The quantity of food and number of meals decreases as well when food insecurity exists. Pendergast and colleagues (2016) conducted a systematic review that included 35 studies on the correlation between meal skipping and young adults aged 18-30. These researchers identified that the studies varied in the prevalence of meal skipping to affect as many as 83% of young adults. Out of those who missed one meal daily, breakfast was the most frequently skipped meal, with up to 88% of participants choosing to skip breakfast. Although this systematic review did not directly assess food insecurity and meal skipping, it is known that those who regularly skip breakfast have lower nutrient intakes than breakfast eaters (Gibson and Gunn, 2011). Research has shown the prevalence of meal skipping and university students is increased for those who

spend four or more hours a day on the internet, those that have a lack of time and food literacy skills needed to prepare meals, have a lack of money, and those who live on campus compared to those who do not (Pendergast, Livingstone, Worsley and McNaughton, 2016).

2.3.2 Mental Health

Positive social interactions have been shown to help improve one's mental state. When students decide to isolate themselves physically, they lack that social connection and put themselves at more risk of developing or worsening their mental health (Maynard, Meyer, Perlman and Kirkpatrick, 2018). An American survey that looked at post-secondary students and mental illness identified that 60% of participants felt overwhelming anxiety. Forty percent responded that they had been experiencing depression, making it hard to focus on their course load (BestColleges, 2020). Maynard and colleagues (2018) have shown that to deal with the stress of food insecurity, food-insecure students physically remove themselves from social situations as a coping mechanism. Since dining out can be expensive, students may decide to stay at home where they only pay for the essentials and eliminate participating in extra activities besides school and work (Maynard, Meyer, Perlman and Kirkpatrick, 2018). Food insecure students are more likely to develop a mental illness than those who are food secure due to the increased stress around accessing food, physical isolation, and lack of nutrients in the diet (Martin et al., 2016).

A 2009-2010 Canadian Community Health Survey examined the link between food insecurity and an increase in mental illness. This survey aimed to determine if food insecurity increased the prevalence of mental illness and how stressful life events and social isolation might also play a role. The researchers concluded that the prevalence of a mental illness was 18.4% higher for food-insecure females and 13.5% higher for food-insecure males compared to those

who were food secure. However, the difference between females and males in this study may be due to the under-reporting of food insecurity among males (Martin et al., 2016).

2.4 Strategies Used to Cope with Food Insecurity

Hanbazza et al. (2017) designed a study to identify coping strategies used by food-insecure students when they do not have money for food. The participants were regular food bank users and were all assessed as being food insecure. The results findings are specific to an international students' experience; domestic students used the same strategies but varied in percentages. The most commonly used technique was finding employment or working more hours, with 85.2% of international students using this strategy. Postponing buying school supplies or not buying any school supplies was the second top strategy, with 74.1% of international students using it. Applying for a student loan or bursary as well as using a credit card to purchase food was equal in usage, with 70.4% of participants using these strategies. The other strategies used in order of most used include: postponing bill payments, borrowing money from friends and family, receiving food from family or going home to eat meals, cancelling unessential service such as a phone or television, selling personal possessions, using the food bank for groceries and buying cheaper food.

The impact Covid-19 has had on coping strategies is not yet known, but other studies have shown that food insecure post-secondary students will temporarily compromise their eating habits to eat less nutritionally dense items, change their sleeping habits to allow them to sleep through meals, skip meals, increase snacking to replace meals, use of a friends campus meal swipe card, go to bed hungry, and ration meals (Maynard, Meyer, Perlman and Kirkpatrick, 2018; Stebleton, Lee & Diamond, 2020).

2.4.1 Food Banks

Food banks were originally started by charitable organizations to help food insecure and low-income individuals and families cope with food insecurity. They were supposed to be used as a temporary measure to help food-insecure and low-income individuals get back on track financially while reducing starvation risk (Wetherill, White and Seligman, 2019). Unfortunately, food banks have become part of the food supply system and are part of governments' strategy to "end hunger." (De Souza, R, 2019).

The food supplied by food banks varies depending on the season, the economic situation of those donating and how much money the food bank has to use on supplying food that year. Since food banks began, they emphasized receiving and distributing foods with a decent shelf life. Thus, most of the supply is processed foods that lack nutrients (Wetherill, White and Seligman, 2019). Compared to grocery stores, food banks are much more limited in food options (Ochs et al. 2020).

Maynard et al. (2018) designed a mixed-methods study on the experience of food insecurity among undergraduate students. The student participants expressed feelings of embarrassment, stigma, or shame that they needed to rely on the food bank's support to get by. Others felt it was a last resort to reach out and look for help. Some students saw that others needed support more than themselves, so they felt guilty using the food bank's resources because they didn't want to be seen to be taking away from someone more deserving than themselves. The question of if the food bank is supplying to the population in need remains vital.

There has been an increased demand for the food banks in Canada, and the services should be used by those who are food insecure or financially unstable. A study conducted prior to the pandemic with university students using the University of Alberta's food bank was

designed to identify if students using the food bank were actually "food insecure." The results suggested that 10.3% of the students using the campus food bank were food secure. Almost 90% of respondents were food insecure, with 44.8% of students stating they were moderately food insecure by identifying quality and quantity of food decreased. Forty-five percent of students were determined to be severely food insecure by indicating a decrease in food consumption and distributed eating patterns (Farahbakhsh, Ball, Farmer, Maximova, Hanbazaza, and Willows, 2015).

2.5 Covid-19 Global Pandemic

The Coronavirus (Covid-19) was originally discovered in Wuhan, China, in December of 2019. A worldwide pandemic was declared by the WHO on March 11th, 2020 (Ducharme, 2020). The disease confused public health in the beginning as very little was known about this new virus. From the initial outbreak in December, the disease dramatically grew to affect much more than China and made its way to Prince Edward Island in March of 2020 (Wang, Tang and Wei, 2020). The Covid-19 pandemic has challenged Canadians greatly by impacting their financial stability due to job losses and workplace closures as a result of the pandemic. Covid-19 had impacted students in several ways that more research is needed to understand the full effect (Statistics Canada, 2020).

2.5.1 Impact of Covid-19 on Food Security

Statistics Canada revealed that in 2017-2018, 10.5% of Canadians identified as being food insecure. In May of 2020, during the Covid-19 pandemic, the prevalence of being food insecure has increased to now affecting 14.5% of Canadians (Statistics Canada, 2020). As

previously discussed, one of the ways that Canadians cope with being food insecure is to use their local food bank. Although little is known about how food bank usage has increased during the pandemic, some studies have shown that more people are using food banks now.

Three factors have largely contributed to the increased food insecurity since the Covid-19 pandemic. The first factor was that basic food items to purchase were in a temporary shortage. With the uncertainty of how the Covid-19 pandemic was going to affect food accessibility, most people bought groceries to last for months rather than weeks. The supply food chain was temporarily disrupted due to the over-purchasing of certain items, leaving shelves bare and items unstocked for an extended period of time. The second factor was the inability to access the grocery stores due to self-isolation. The third included various economic barriers such as fewer employment opportunities and loss of employment due to the pandemic (Barker and Russell, 2020). The Covid-19 global pandemic has not only impacted how individuals receive their food but how it is produced and distributed. Farmers had to either pause their production or reduce their produce substantially, making it hard for produce supplies to be distributed at the same capacities pre-Covid-19. Due to the increased difficulty to produce and distribute food, the retail price of groceries has increased, yet at the same time, income has decreased due to less work or loss of work entirely. These two factors have resulted in individuals having to buy either less food than they usually would or around the same amount of food, but it is less nutritionally dense and is of cheaper value (FAO, 2020).

2.5.1.1 Food Bank Usage

A mixed-methods study conducted with the users of the Daily Bread Food Bank (DBFB), located in Toronto, Canada explored the experience of hunger and poverty during the Covid-19

pandemic (Ochs et al. 2020). The researchers found that there were 6000 new clients who began using the food bank since June 2020, a 22% increase in users compared to that of the previous year. The results also suggested individuals who relied solely on the food bank for groceries saw a change in the quantity and quality of the food during Covid-19. The study also found that some of the current food bank users had no food supply source before finding the food bank due to financial constraints. Of the 6000 new food bank users, 76% confirmed that they decided to use the food bank due to Covid-19. Of the food bank users that were previously financially stable and used the grocery store as their primary source of achieving their food supply saw a decrease in quantity when they had to switch to the food bank. This was not the case for all food banks, but most food banks set limits on certain items/ don't have as many options as the grocery store, resulting in less quantity. The quality of the food items received from the food bank also decreases as suppliers rarely look to supply fresh produce or meat regularly. Food banks greatly rely on donations to support the users. These donations typically include canned soups, various pasta such as Kraft dinner and Mr. Noodles, and items that can be stored for an extended amount of time (Ochs et al. 2020).

2.5.2 The Impact of the Covid-19 Pandemic on University Students

The Covid-19 pandemic has significantly impacted food security (Ochs et al. 2020) and has added to university students' financial strain (Ferris, 2020). From late April to May of 2020, Statistics Canada administered an online questionnaire to post-secondary students to understand how Covid-19 had affected them. Sixty-one percent of the participants were concerned that they would have to use all of their savings to get

by. Forty-four to forty-seven percent of students expressed concern about not being able to afford tuition (Statistics Canada, 2020).

The government of Canada put financial aid packages in place to assist Canadians who lost employment due to Covid-19. The government implemented two programs, known as the Canadian Emergency Response Benefit (CERB) and the Canadian Emergency Student Benefit (CESB). To receive CERB, the recipients had to be Canadian citizens or permanent residents. CESB was formed due to CERB not being able to include international students, along with the issue that most students were unable to work the necessary amount to receive CERB due to being a full-time student. International students were able to apply and receive this benefit if they were working part-time throughout the school year and lost their employment due to Covid-19 (Canada Revenue Agency, 2021).

3.0 STUDY RATIONALE AND OBJECTIVES

3.1 Research Gap

It is important to understand the experience of accessing food for international students to ensure that adequate support can be put into place to prevent food insecurity among this vulnerable group. To do this, I chose to conduct a qualitative descriptive study designed to explore international students' experience accessing food during the Covid-19 global pandemic. Qualitative research allows the researcher to gain a deeper understanding of an experience, especially when little is known about that experience (Sandelowski, 2000). The impact Covid-19 has had on international students in accessing food is not well known and minimal literature has been published at this point. Being able to ask open-ended questions during the interviews was crucial to gain insights that might not have been thought of in a quantitative study. It is important to hear the opinions of those whose access to food has been affected by the Covid-19 pandemic.

3.2 Research Purpose and Objectives

The overall aim of this project was to develop an understanding of how the Covid-19 global pandemic has affected food access for international students at the University of Prince Edward Island.

The objectives of the research were:

1. To describe international students' experience accessing food during the Covid-19 pandemic.
2. To describe the coping mechanisms used by UPEI international students to access food during the Covid-19 pandemic.

3. To describe how the Covid-19 pandemic has impacted the health of international students at UPEI.

4.0 METHODS

4.1 Study Design

This study used a qualitative descriptive approach informed by Sandelowski (Sandelowski, 2000). This approach was chosen since a qualitative descriptive study allows for a "comprehensive summary of an event in the everyday terms of those events." Since the aim of my study was to understand how the Covid-19 pandemic affected UPEI international students' access to food, this approach was considered the appropriate choice for my research (Sandelowski, 2000).

4.1.1 Qualitative Descriptive Approach

Qualitative description is a widely recognized approach to qualitative research, particularly in healthcare-related research (Kim, Sefcik & Bradway, 2016). Health sciences researcher Sandelowski (2000) argues, "in the now vast qualitative methods literature, there is no comprehensive description of qualitative description as a distinctive method of equal standing with other qualitative methods, although it is one of the most frequently employed methodologic approaches in the practice disciplines." (p.335). This approach is known as qualitative description and has been increasingly used by researchers to seek validity. Qualitative description also ensures the event to be accurate so that anyone who might have experienced the same event would agree with the findings (Sandelowski, 2000).

Design features of qualitative description are as follows. Qualitative description uses a naturalistic perspective to identify and examine the said phenomenon, known as naturalistic inquiry. Naturalistic inquiry includes both qualitative research as well as forms of behavioral research. Naturalistic inquiry looks at the natural state of the phenomenon. Qualitative

description is quite responsive and allows for theories to develop that the researcher might not have theorized. Interpretations made from this method are of “low-inference” (Sandelowski, 2000, p.335). Compared to other qualitative methodologies, qualitative description is said to be less theoretical, which allows for more flexibility when the study is being designed and conducted (Kim, Sefcik & Bradway, 2016). Qualitative description helps to understand unclear phenomena as it looks to answer the who, what, and where type questions of said event or experience (Kim, Sefcik & Bradway, 2016, Sandelowski, 2000). Researchers use purposeful sampling techniques, with the goal being “to obtain cases deemed information-rich for the purposes of study” (Sandelowski, 2000, p.338). Data is collected through individual or focus group interviews that use semi-structured questions (Kim, Sefcik & Bradway, 2016). Content analysis has been a popular choice for data analysis, as researchers can choose from either conventional, directed or summative. Thematic analysis is also frequently used in qualitative description (Colorafi & Evans, 2016). Findings are presented as a descriptive summary of the event, which the researcher arranges in the order that makes the most sense to the intended audience (Sandelowski, 2000).

4.2 Sampling

A purposive sampling technique was used to recruit international students for this study. Eligible participants included international students at the University of Prince Edward Island who used the Chaplaincy Centre food bank's services at least once since the start of the pandemic in March of 2020. Students were required to be at least 18 years of age during the time of their participation to be able to provide consent (Appendix B). Further, participants needed to be able to type, read, and speak English. There were no exclusion criteria determined for this study.

4.3 Recruitment Procedure

Potential participants were recruited via two techniques that both involved the cooperation of the Chaplaincy Centre food bank. A poster (Appendix D) was created and distributed to the Chaplaincy Centre, where it was placed on the communication board for students to see. The same poster was uploaded and posted on the Chaplaincy Centre food banks' social media platforms. Students who met the criteria were able to submit their names and email information to the campus minister, Sister Susan Kidd, to participate in the interview. The emails sent to Sister Susan were then forwarded to myself. The assumption was made that international students who struggled to access food during Covid-19 would struggle financially and use the food bank as a coping strategy. A grocery store gift card was also offered to those who participated in the interview. Recruitment of participants began once approval from the UPEI Research Ethics Board was obtained in January of 2021.

4.4 Data Collection Tools and Methods

A combination of individual semi-structured interviews and a focus group was used to collect this study's data. I had anticipated doing between 10 to 15 interviews; however, there were some difficulties with recruitment and with limited time was only able to conduct seven interviews. The difficulties associated with recruitment will be further discussed in the section on limitations. The participants were all interviewed during a 2-week span being February 2nd to February 16th, 2021.

4.4.1 Semi-Structured Interviews

Once the potential participant was contacted and agreed to do the interview, a time and date were mutually agreed upon. All interviews were conducted via Zoom, an online meeting platform. Prior to the main questioning portion of the interview, the interviewer asked for permission to audio record the interview, then read a summarized version of the study's purpose and asked if the participant had read the consent letter (Appendix B) and were able to give verbal consent. Once participants gave consent, the interviewer administered an interview guide (Appendix C) which had been pretested for clarity and comprehension with two international students who were initially not used in the study. I ended up reaching out to one of the practice participants to participate in the actual interview because of having limited time for a second round of recruitment. The interview guide included ten main semi-structured questions and three demographic-related questions asked at the end of the interview. The questions used were a combination of previously used questions from previous food bank research questionnaires and original questions to reflect how the pandemic impacted food access of international students (Charron, Mackenzie & Tran, 2020). The interviewer followed the interview guide and, depending on the participant's response, followed up with some predetermined probes.

The interview was recorded via "otter.ai", an online audio transcribing system. As the interview took place, otter.ai was able to transcribe in real-time, making data gathering a more straightforward process. After completing the interview, the interviewer took notes to help organize each participant's demographic and other details that stood out from the interview. Once the interviews were completed, the interviewer thanked the students for their time and participation.

4.4.2 Focus Group

A virtual focus group was conducted with three of the participants. As mentioned, I reached out to one of the practice participants as they had offered to participate in the actual interview and knew of friends who wanted to participate as well. They were not independent since two were roommates, two were in a relationship, they have all lived on PEI for over a year, and they all came to UPEI from the same country. When scheduling the individual interviews, the participants requested to complete the interview together. Since the participants had several similarities and requested a group interview, I conducted a focus group for these participants.

4.5 Data Analysis

Analysis of interview data was undertaken using thematic content analysis, informed by Braun and Clarke (2006). The theme and subthemes were created from a combination of deductive codes from previous literature and anticipated outcomes and from inductive codes that arose through the coding process (Charron et al., 2020). The transcripts created from the recorded interviews were put in a Google document. The transcripts were all transcribed through *otter* and then reviewed by the researcher to ensure the software did not miss anything.

4.5.1 Codebook

Prior to the interviews, I had created a codebook on Google Docs of potential (deductive) codes and themes that may have come up in the actual interviews. Codes from the initial codebook were used the most in the final version of the codebook, but inductive codes did appear as well. Inductive codes were created in the process as unexpected topics began to

reoccur. The codebook was used as a tool in tracking the similarities within codes to assist in developing themes. The codebook contained potential codes, subthemes, and themes. Each of these was defined to ensure consistent coding of the data.

4.5.2 Coding Process & Thematic Content Analysis

Data analysis began with the development of codes through thematic analysis. First, I had listened to all of the interview's audio recordings several times. I had also read through the transcripts while listening simultaneously. During this time, I noted possible ideas that could be formed into codes later in the analysis process. After listening and reading the transcripts numerous times, I reached a point of familiarization with the information.

I then proceeded to generate initial codes of the data by using my previously developed codebook while being open to additional codes arising from the data. An "open-coding" technique of adding codes next to phrases or sentences of relevance was used simultaneously (Nowell, Norris, White & Moules, 2017). After the codes were generated, I then proceeded to search for themes. I had taken the codes and grouped together the most similar codes.

Next, the themes were revised (Braun & Clarke, 2006). Some of the original themes did not have enough data to support them and were discarded from the study. During the revision phase, it became clear that the codes were all connected and could be grouped under the same theme. I had then defined and named the theme (Braun & Clarke, 2006). The overarching theme used was food access, and the essence of the theme was to explain the strategies and barriers of accessing food, whether the food is free or paid for. I then used the theme and codes created to produce the results and discussion section below. I included sufficient data from the interviews to provide evidence of the theme.

4.5.3 Trustworthiness of the Data

Ensuring trustworthiness in qualitative research is vital as concepts such as validity and reliability are not addressed the same in naturalistic inquiries (Shenton, 2004). I will be using credibility, transferability, dependability, and confirmability to demonstrate the data's trustworthiness.

Credibility is referred to as "the truth value of data" and is necessary when questioning if the study's findings make sense (Colorafi & Evans, 2016, p.23). One way to ensure my study's credibility was by comparing my findings to that of other researchers found in my results and discussion section. I used triangulation strategies as my study included both individual interviews and a focus group to collect data. Another triangulation strategy used was comparing participants who were similar and easily comparable (Shenton, 2004). Since my study included international students, all of them could be compared, but students born in the same countries were the most similar in their responses. Tactics to help ensure honesty in participants was gained by asking for each participant's consent before the interview (Shenton, 2004). Iterative questioning was also used as I included probes and re-questioned information from the participant to look for discrepancies during the interview process.

Transferability is used to compare one study's findings and see how it can be applied to other situations (Shenton, 2004). I had shown my study is transferable by including findings in agreement with theory and suggesting how researchers could use my study in the future, found in my future research section (Colorafi & Evans, 2016).

Dependability can be gained by ensuring consistency throughout the study's methods, which in my research was semi-structured interviews (Colorafi & Evans, 2016). To ensure consistency, I had used the same interview guide for all participants. I had created an initial

codebook based on literature and theories, which was also used to guide data analysis, ensuring consistency (Colorafi & Evans, 2016).

Confirmability is described as “relative neutrality and reasonable freedom from researcher bias” (Colorafi & Evans, 2016, p.23). I demonstrated confirmability in the methods section by describing in detail the method this study used. I also created a trail audit, including data collection, analysis, and the methods section (Colorafi & Evans, 2016).

5.0 RESULTS & DISCUSSION

5.1 Participant Demographic Characteristics

Seven international UPEI students met the inclusion criteria and agreed to participate in this study. All participants were assigned a pseudonym to protect their anonymity. Two participants were male, and five were female. Participants' age ranged from 18 to 38 years of age. The participants were also a mix of undergraduate (n= 5) and graduate students (n=2). Participants were also from various countries; three from China, three from Mauritius, and one from Germany. When asked why they had chosen to attend UPEI, four students stated that UPEI was chosen as it was a less expensive university that still provided a quality education. The interview data indicate that none of the participants went without food during the Covid-19 pandemic but had used various coping strategies to be able to access food during this time. Four participants had used the food bank at least once since March of 2020. Participants varied greatly in how long they have been living in PEI. During the time of the interview, three students had lived in PEI for less than two months, one lived in PEI for just over a year, and three lived on PEI for three to four years.

5.2 Thematic Analysis and Discussion

Thematic analysis of the data revealed an overarching theme of food access with eight sub-themes that contributed to the issue of food access for these participants during the pandemic. The overarching theme of food access supports the themes of coping strategies, barriers and health outcomes. The sub-themes include: Support network, diet change, budgeting,

food delivery and pickup, financial concerns, food quality and quantity, mental health and physical health.

A single overarching theme was established through the accounts mentioned by participants. All participants, although experiences varied, had provided a statement on how they accessed food during Covid-19, creating the overarching theme “food access.” As previously mentioned, food access refers to the ability to access culturally acceptable food that one needs or wants, either free or paid for. All participants referred to the changes in food access during the pandemic. The changes all related back to their ability or their inability to access food.

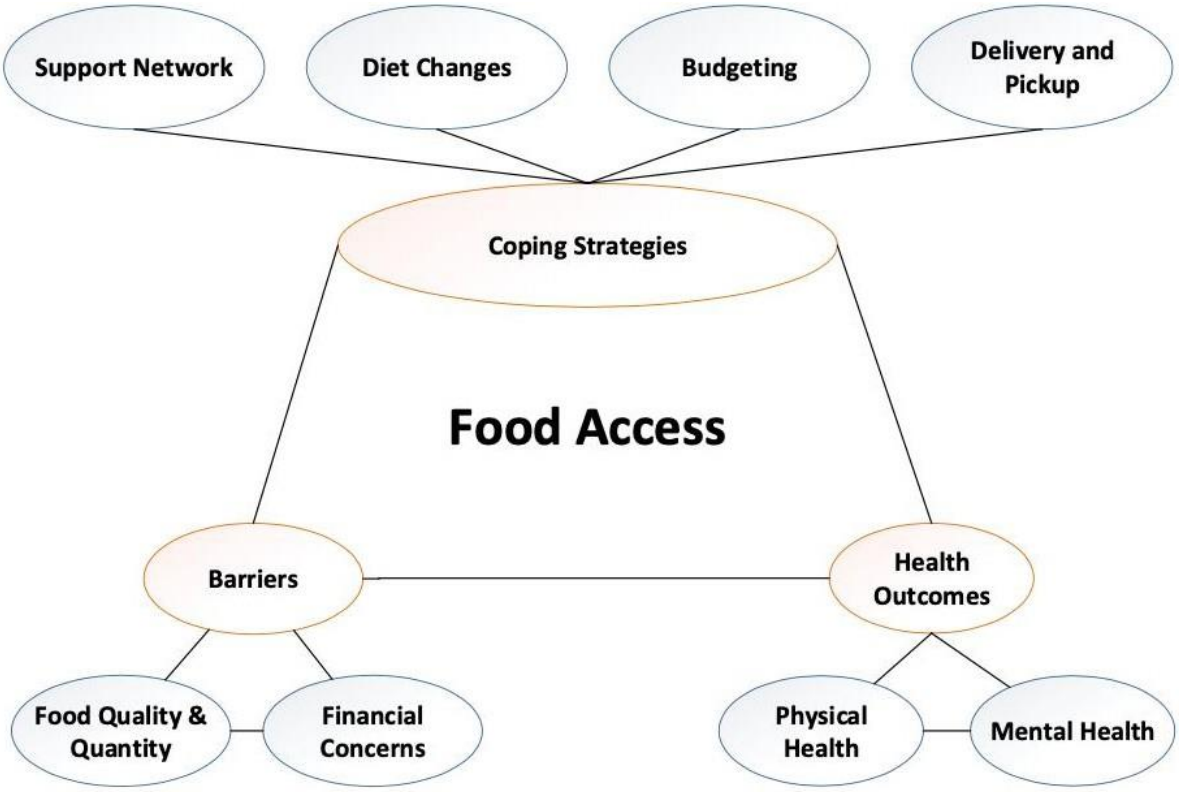

Figure 1. Thematic map inspired by Braun & Clarke, 2006 showing the overarching theme of “Food Access” in the center of the figure, themes (orange ovals) & sub-themes (blue ovals) relating to the challenges faced by international students at the University of Prince Edward Island when accessing food.

5.3 Coping Strategies

This study refers to coping strategies as a means of to accessing food or to make do with what food one already has. It also explores the mechanisms participants used to assist in their access to food during the Covid-19 pandemic. Food-coping strategies are defined as the mechanisms employed by households when the means of meeting needs are disrupted by one or a combination of factors, including low-income or high food prices (Kruger, Schönfeldt & Owen, 2008). The coping strategies discussed by participants were the use of budgeting, a support network, diet changes and food delivery and pick-up services.

5.3.1 Budgeting

Participants used budgeting in two ways, yet both affect access to food in the same manner. One form of budgeting students used was making their money go further by buying groceries on Tuesdays at Sobeys as there is a 10% student discount that day. This strategy was not found to be used by participants in other studies, which could mean that this discount was not available elsewhere. Cass explained her grocery store process where she incorporates the discounted groceries and support from the food bank:

> *"..every Tuesday as a student, I can go to the Sobeys and get a 10% discount because I'm a student. So I will just go to supermarket to buy food on Tuesday, and I will choose the food which have discounts. So I think I still can afford them." "But the food bank is better because it helped me to save money the most."*

The other form of budgeting used was budgeting food by meal planning. Three of the participants reported using this as one of their coping mechanisms. Greg explained how he budgets:

> *"I would say yeah definitely like budgeting like, it is my only strategy like knowing, knowing when and what to eat when to eat during your meal plans,*

> *drinking water a lot. And also, like for example before like we used to go to restaurants and we used to order food, and now has decreased a lot. Mainly because like, the prices have increased in terms of, even if you want to get something delivered to your house, like, I think it's even more expensive compared to before."*

In Maynard, Meyer, Perlman and Kirkpatrick's (2018) study, they had identified rationing meals and buying cheaper food options as coping mechanisms for their participants. Participants from my study also felt these strategies to be helpful. Cass found rationing to be especially effective:

> *" Like before the pandemic, I can go to the supermarket and buy just like a bag of food, like I can buy a week's worth of food, but after the pandemic, because I could just go outside once a month or twice a month. So I had to buy a lot of supplies to eat and drink."*

5.3.2 Support Network

We defined support network as receiving support from friends, family, peers, student union, or food bank to help financially, mentally, or physically meet daily needs. Several participants mentioned that they were able to access money or food from their support networks, including family and friends and the Chaplaincy Centre Food Bank. Similarly, in Hanbazza and colleague's (2017) study, borrowing money from friends and family and the use of a food bank were common strategies international students used when they did not have enough money for food. In my study, all of the participants had sought out support from friends and family. Four participants used the food bank, and of those, three have been using the food bank once to twice weekly. Three participants started using the food bank due to Covid-19. Similarly, albeit on a much larger scale and with the general population, Ochs and colleagues found a 76% increase in new users at the Daily Bread Food Bank in Toronto because of Covid-19 (Ochs et al., 2020).

The three participants who were not using the campus food bank to access food used other coping strategies as they felt that there could be other students who have less than they do. To explain why they have not used the food bank this is what Greg had to say, speaking for himself, Erica and Lexi:

> *" I would just say that UPEI has been promoting like the food banks. But we, we just didn't go and also I think, like, especially if we're able to at least like afford something to eat like, it is good to give the opportunity to somebody who really needs it, instead of just like going in there just taking everything even though we can we can take it. I think it's more important to give it to somebody who needed more most others."*

In Maynard et al.'s (2018) study, they also had participants not use the food bank as they felt there could be others more deserving than themselves. The study also identified students feeling guilty, embarrassed or shameful around using the food bank. Although it is not known if my participants experienced these same feelings it could be an underlying factor.

5.3.3 Diet Changes

The sub-theme of diet changes explains how participants had changed their diet due to the Covid-19 pandemic. With a change in how participants were able to access food it also impacted with diets. Every participant identified a diet change. Diet changes include both adopting a healthy diet and adopting a less nutritionally dense one. One participant adopted a vegan diet. Sarah had made an interesting comment on why she made her diet change:

> *"...the only change, I saw was because I wasn't hanging out with friends or going out to eat like restaurants, so I started going more vegan, because I was able to*
> *like cook for myself more. I was a little more cautious about what I ate."*

Sarah was not the only one whose diet change was impacted by the closure of food services (restaurants, drive-thrus, etc.). Four participants initially identified having

diets that included fast food and restaurant food, but since they were unable to access this convenience food, they learned how to cook. When international students come to Canada, they usually experience acculturation and tend to eat out more than before (Hanbazaza et al., 2015). Although I had not asked how often participants ate out prior tothe pandemic, it was evident that participants relied on being able to eat out that not being able to have made a large impact. Here is what Mark had to say:

> *"...in the beginning of Covid the restaurants closed, so you'd have to cook all your meals by yourself" ... "I am able to save money by doing the cooking myself"*

Of the four participants who learned to prepare their food, one found they could make healthy meals. The other three felt that initially, during the Covid-19 pandemic, their diet consisted of highly processed food and had a long shelf life since those items were cheaper. Since then, these participants have improved their cooking skills to now prepare healthy meals and have adapted more of a plant-based diet. Buying more affordable food items (Hanbazaza et al., 2015) and buying less nutritionally dense food items (Maynard, Meyer, Perlman and Kirkpatrick, 2018) continue to be relevant coping mechanisms that appeared in my research.

The last two students to experience a diet change indicated that it was as a result of not wanting to be exposed to the public during the Covid-19 pandemic. They had mass-purchased cheap food options once a month and prepared meals based on those supplies to eliminate their exposure to the public. Since then, they now incorporate the food bank to assist in the price of groceries.

5.3.4 Delivery and Pick-Up

The sub-theme of using delivery and pickup methods refers to an alternative way to access food. This strategy was used by participants to help limit in-person encounters during the Covid-19 pandemic and was used as a backup method when transportation was not available to them. Grocery delivery, curbside pickup, UPEI rideshare, and the use of public transit were all mentioned as positive, easy transportation methods that helped students access food during the Covid-19 pandemic. Two of the participants included some other methods they used for food delivery that included the use of "instacart" an online service that allows you to select your groceries online and then they are delivered to you. When they did not get delivery, they also used the university "rideshare," which is similar to a free taxi and is provided through UPEI to accommodate students without transportation. PEI does have limited transits unlike bigger centers, which is also why these deliveries and pick up methods were of more use. No other studies could be found that had similar findings. This could be due to the fact that these are all relatively new services at the University.

5.4 Barriers

The theme barriers arose from international students facing obstacles when trying to access food and make ends meet. In this study barriers refers to any physical or mental limitation making it difficult or impossible to access food. All participants mentioned the barrier of food quality and quantity, and five participants expressed financial concern as a barrier preventing them from accessing adequate amounts of healthy food.

5.4.1 Food Quality and Quantity

A nearly universal sub-theme for international students at UPEI during the Covid-19 pandemic was the change in quality and quantity of food. Food quality was defined in this study as the acceptability of the food to the consumer. Food quality is also based on the appearance, texture and flavor, according to the individual. Food quantity is referred to in this study as the amount of food participants were able to access during the pandemic compared to the quantity of food accessed pre-Covid-19 pandemic.

Most of the participants indicated a decrease in the quality of the food they are currently able to access, while fewer than half felt they saw a reduction in their food quantity. Similarly, in Ochs and colleagues (2020) study on the early effects of Covid-19 at The Daily Bread Food Bank in Toronto found that there was a decrease in the quality of food and quantity that was available. Participants in my study agreed that the quality of food decreased substantially compared to the price it is selling for due to Covid-19. Here is what Lexi said about food quality:

> *"The quality of the food at the grocery store has gotten rubbish and is too expensive compared to the quality."*

Mark and the other participants had to compromise the quality and quantity of their food due to repercussions caused by the Covid-19 pandemic. DBFB users also decreased their store-bought food quality and quantity due to lack of money (Ochs et al. 2020). Here is how Mark described the quality of his food since Covid-19:

> *"Oh, I'm not saying I really enjoy it but it is food."*

One reason for the decreased food quantity was the absence of the product in store. Sarah had identified that there was a lack of specific food items in the store making it difficult to obtain normal groceries:

> *"...like flour or yeast, or pasta or like all the things that you could keep or canned foods, they wouldn't have."*

Interestingly, two of the participants saw an increase in the quantity of food they were able to access during the Covid-19 pandemic. They were using the food bank to supplement the food they could not purchase at the grocery store for economic reasons. They also chose to buy cheaper food options allowing them to buy more food. Comparably, some of the food bank users at the DBFB also saw an increase in their food quantity when they incorporated the food bank as a source of groceries (Ochs et al. 2020). As Greg said:

> *"I would say for sure yes, definitely. I would say like we eat more than we used to…Umm, a mix of both but like we make a lot of ramen and stuff like that. Things that were cheap and stayed good for a longer time."*

The three participants who saw a decrease in their food quantity also used the food bank as their primary grocery source. In contrast, they were previously using the grocery store as their primary food source. One student attempted to go to an off-campus food bank and was declined the use of the food bank because she did not have a Canadian health card.

5.4.2 Financial Concerns

Several (5) participants talked about having financial concerns during the pandemic. The sub-theme of financial concerns is referred to as not having sufficient funds to afford necessities. Financial concerns in this study also include participants' feeling of worry that they may not be able to make ends meet. Worry was expressed by concerns of not having enough money, not being able to access funds, and choosing cheaper alternatives when possible. Research conducted at a rural Nova Scotia University had similar findings when assessing student's prevalence and outcomes of food insecurity. Their participants also experienced worry that they may not have enough money to afford food (Frank, 2019).

Financial concerns stemmed from students being unemployed, not receiving money from home and having to borrow money. Three participants were unemployed, two had maintained the same employment they had prior to Covid-19, and two did not specify their employment status. The participants who identified as being unemployed found it challenging to find employment on PEI this year due to lack of jobs. Similarly, Statistics Canada had initially stated that the pandemic had impacted university students by there being a lack of job opportunities from the increased business closures (Statistics Canada, 2021). Hanbazza et al. (2017) reported that finding employment or requesting more work at your current job was the most commonly used coping strategy for individuals who could not afford food. Only one participant mentioned trying to find employment, which is in line with Hanabazza et al.'s (2017) results, as it was still an attempted strategy. Here is what Mark had mentioned when trying to seek employment during the summer of 2020:

> *"So I stay for the whole summer. At the very beginning, I tried to find a job in the summer. But it's really hard to find a job during this time because people like working remotely and they were hiring fewer people because businesses weren't really open."*

Three of the participants mentioned that it was difficult to receive money from outside of Canada sent to them during the beginning of Covid-19. Here is Lexi explaining how it became increasingly difficult to receive income from her parents:

> *"Like our parents used to send us some type of umm money allowance and it would come in the mail, usually like 4-5 business days but the banks at home were closed for a while so it was hard to pay rent and for essentials. Like it was taking 3-4 weeks to get that cheque compared to a few days."*

Although the participants in my study were not asked to complete a food insecurity assessment, Farahbakhsh and colleagues' (2015) research indicated that

lack of income provided by families is one of several factors that increases the likelihood of one becoming food insecure. With food insecurity, it is harder to access food with a small budget which was also the case for my participants.

As mentioned, five of the participants who are international students expressed financial concerns. This is consistent with a report from Statistics Canada (2020) found that individuals of a visible minority were more likely to report that the Covid-19 pandemic has impacted their ability to fulfill their financial obligations compared to non-minority individuals.

5.5 Health outcomes

The theme “health outcomes” is necessary to express how the health of international students has been impacted during the pandemic. The World Health Organization (2021) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Health outcomes include both mental health and physical health. All seven participants indicated that the pandemic had impacted their mental health, while only one indicated that their physical health had suffered.

5.5.1 Mental Health

The World Health Organization’s (2021) definition of health includes mental health as one requirement to achieve complete health. This study refers to the World Health Organization’s (2021) definition of mental health as “a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community”. From the interviews conducted, none of the participants displayed the definition of adequate mental health. Mental health issues expressed by participants included: negative emotions, feeling a lack of control, depression, social stress or feeling lonely.

Statistics Canada reported that fewer people are identifying as having good mental health during Covid-19. The largest difference was found in the 15-24 age group. In 2019, 60% of 15-24-year-olds stated having good mental health. By July of 2020, they saw a 20% decrease as only 40% of people in that age group identified as having good mental health (Statistics Canada, 2020). Although the full mental strain is unknown, participants in the current study felt

they did experience a change in their mood and mental state compared to before the pandemic as.

Four participants had expressed feeling depressed, isolated, and lonely due to lock downs and circuit breakers, being bored, and being away from family. Similarly, Maynard et al. (2018) found that when post-secondary students isolate themselves from others due to concerns surrounding food, it has a negative effect on their mental health. Although the reason for isolation was different between the two studies, the emotional repercussions were consistent. The trend of feeling isolated was shared among all participants as they all endured isolation at some point in the Covid-19 pandemic. When asking Mark if he felt a type of stress during Covid-19, he explained:

> *"I do have some stress because you're isolated from your family or friend. I tend to call family, more often than before. It's like a, you're just lonely here yeah I don't have any friends anymore, and you can't go back to a family."*

Over half of my study participants talked about experiencing anxiety during the pandemic. Similarly, a US study of college students identified that 60% of their respondents suffered from anxiety (BestColleges, 2020). When asking Greg from the focus group how he felt the pandemic has impacted him, he said:

> *"... we are mostly in the house like compared to before we know like, like our routine for example before we used to go to the park we used to go to the restaurant, to the beach and stuff. There was always some kind of activity which is now, now has slowed down. So like, eventually in the house you're bored and mostly like after doing your assignments and your courses you're sleeping like that at some extent has contributed like mental health like we are more like unknowingly we're depressed."*

Greg also mentioned the impact the Covid-19 pandemic has had on his sleep schedule and how he spends more time sleeping. A change in sleeping habits has been seen as a way to cope with food insecurity and is also a sign of depression (Maynard, Meyer, Perlman and Kirkpatrick,

2018). Still, it appears that sleeping more may be used as a coping mechanism even when food insecurity does not occur. Beth expressed feelings of lack of control due to Covid-19 being:

> *"In the beginning, it had made me work more and resulted in making me worry because in the time of the pandemic I was just sitting at home all day. I felt bored and with more force, I guess"*

Four of the students expressed experiencing anxiety during the time of the Covid-19 pandemic. The reason triggering their anxiety differed as students mentioned two different reasons behind their anxiety. One student felt anxiety over having to interact with peers in person, causing social stress. Here is what Erica said when asking about anxiety:

> *"I find that before Covid I could meet with classmates to work on projects in person no problem. But now I find it like harder and stressful to meet with a classmate in person. I either don't know them or it just causes me anxiety to do it."*

The three other students described their anxiety as coming from the fear of possibly catching Covid-19 from products bought at the grocery store or from people in public. They also experienced anxiety from having to adapt to different safety precautions. When asking Mark what he experienced when accessing food compared to pre-pandemic he stated:

> *"When I go to the supermarket it is quite difficult and more like traffic. You got more chances to, you know, be infected by a virus, so I came to cut my shopping time, less than before."*

Although not specific to international university students, Statistics Canada also assessed the impacts of Covid-19 on mental health on a national level. Only 16% of males and 9.7% of females had not experienced anxiety symptoms during this time period. Of concern, that means 84.1% of males and 90.3% of females experienced mild to severe anxiety symptoms as an impact of the Covid-19 pandemic (Statistics Canada, 2020).

5.5.2 Physical Health

The sub-theme of physical health is important to include as it too is a necessary component of achieving proper health (WHO, 2021). One participant had reported being depressed due to weight gain from the dietary change of eating large amounts of highly processed food items as they were cheap. Huizar et al. (2020) suggested that when individuals are experiencing food insecurity, they are more likely to choose less nutritionally dense foods resulting in malnutrition and weight gain. Although this participant did not say they were food insecure, they demonstrated how even though one can access food, it does not mean they have the proper supply for a healthy diet. Here is what Lexi from the focus group mentioned:

> *"...like for me, it made my emotions worse. I was stress eating and eating out of boredom, so much that I gained around 10 pounds during the first few months. The weight gain had me feeling depressed and I have since then been able to get the weight off and feel myself again"*

Lexi also mentioned that she was able to return to her pre-pandemic weight with the help of the gym and proper nutrition. In other research, university students experienced an increased amount of sedentary time. As a result of cancelling in-person classes, students experienced sitting for an extra 7.8 hours weekly compared to pre-pandemic. They also noted a decrease in physical activity from the closures and limited capacity at the gym. The study also explored the "active couch potato theory," which describes a person who does exercise and is primarily sedentary for the remainder of the day. They found that most university students fall into this category typically and have increased due to the Covid-19 pandemic. The active couch potato is at an increased risk of cardiometabolic disorders (Barkley et al., 2020).

5.6 Strengths and Limitations

One strength of this study was using the qualitative descriptive approach. Qualitative description allowed me to gather a well-rounded summary of the events (Sandelowski, 2000) discussed on international students' experience accessing food during the Covid-19 pandemic. Through qualitative research, I achieved findings that I did not plan to discover, such as students using various coping strategies to access food during the Covid-19 pandemic, where I had assumed students would only use one method. I was also not expecting every participant to experience a diet change.

Another strength of this study was that to maintain social distance and ensure safety during the Covid-19 pandemic, the interviews were conducted virtually. The virtual interviews were seen as a strength as it made booking the interviews easy as most participants had full availability. Also, if the interview would have gone forward in person and I the participants would likely be meeting in a location not as familiar compared to participants being able to participate in the interviews from the comfort of their homes. I felt the virtual interviews benefitted the participants and allowed them to answer the questions more honestly.

A limitation to this study was the issue of time. Ethics approval took longer to receive than initially estimated. The initial timeline for this study was to have interviews completed from November to December. Upon waiting for ethics approval, the recruitment process could not take place until January. In February, the interviews took place where I interviewed the participants, I received from Sister Susan at the Chaplaincy Centre food bank. I only received four participants through the recruitment process. There was also a time lag between recruiting the first four participants and actually conducting the interviews. Being as this was an honours project I had to have my data gathered and analyzed by then end of February as the study needed

to be fully completed by April. I did not have time to find more participants using that same strategy, I decided to reach out to one of the practice participants who fit the demographic. They mentioned during the practice interview that they would be interested in partaking in the actual interview. If I had more time to conduct interviews, I could have found more participants to ensure saturation was met in my data.

Time had influenced the recruitment strategy, but the recruitment strategy used was a limitation in itself. The poster I created to advertise for participants (Appendix D) should have included more specific information. Originally, this study's goal was to explore the experience of food insecure international students who used the Chaplaincy Centre food bank during the Covid-19 pandemic. The poster did not include the words "food insecure" and did not mention we were looking for students who struggled to access food during the Covid-19 pandemic. I had included this information in the consent form that participants received before the interview. Making the objective clearer in both of these documents could have helped in reaching the intended sample. The statement on the poster asked, "Has Covid-19 affected your eating habits?" which resulted in all of the participants talking about having made a diet change during the pandemic.

Also pertaining to the interview guide, I would have liked to have asked participants to comment on how their physical health may have explicitly changed. School work normally involves sitting for a long duration of time which is why some students have a sedentary lifestyle. With the impact of Covid-19 and not being able to get out of the house as much and with online classes, I would have liked to find out more on how their physical health might have changed.

Another limitation was that data saturation was not met during this study. With limited

time and a smaller sample group than expected, new topics were appearing during my last few interviews. Participants had several similarities, but it would have been most beneficial to have completed a few more interviews to reach data saturation.

The last limitation to mention is the limitations influenced by the Covid-19 pandemic. In addition to the strength of conducting virtual interviews discussed above, there was also associated limitations. It would have been beneficial to give participants the option of being able to participate in person. It is hard to make a connection with someone through a computer screen compared to in person. Even if I could have done interviews in person, the campus encouraged students to study from home and had limited spaces available for students to use on campus. In previous years when finding participants for class purposes, I was always able to either speak in front of a class to recruit participants or I was able to approach individuals in person asking if they would be interested in partaking in my research. These two recruitment methods always resulted in the demographic and the number of participants I was looking for. Not being able to use these methods was one of the biggest limitations to my study.

6.0 FUTURE RESEARCH

The findings of this research suggest that international students at UPEI used a variety of coping strategies to access food during the Covid-19 pandemic. Additional research is needed to better understand international students' experience during the time of the Covid-19 pandemic.

During the initial planning phase of this research, we wanted to conduct a mixed-methods study to allow for the best understanding of international students' experience during Covid-19. A quantitative study was conducted using an online survey, but the data was never analyzed together. The mixed-methods approach was not realistic with the time restraints associated with it being an honours research study. It would be beneficial to have this study replicated with the researcher having more time to complete a mixed-methods study. Mixed-methods research would allow the researcher to find data through quantitative research and then give it a voice using qualitative methods. My study was able to give students a voice, but it would be that much more beneficial to the reader to see the incorporation of mixed methods.

It would be valuable to use this research as a pre-test and use the same questions on the same participants at the end of the Winter 2021 semester to compare. This would allow researchers to see how the students' situation may have changed over the semester. The majority of the participants have only lived on PEI since the January 2021 semester began. Since the interviews took place in February, participants may not have reached the peak of challenges faced when trying to access food during a pandemic. The Chaplaincy Centre food bank usage has remained high throughout the pandemic which is also why exploring the outcome of a post test would be beneficial. Implementing this second round of interviews would confirm the original findings and possibly find out more than before.

This study originally intended to gain an understanding on food insecurity of international students. After the interviews were conducted the theme of food access was unanimous and being as I did not measure food insecurity the focus of my study changed. If the study had not switched paths to explore food access, it would have helped assess food insecurity of participants. It was not part of this study to have participants also complete a food insecurity survey. If this study were to be replicated, it would help assess food insecurity as food insecurity has a large impact on food access (Barker and Russell, 2020). Including the second round of interviews would allow for a more comprehensive outlook on food access.

To better understand the results from this study, future research is needed to be able to compare how domestic students' access to food was affected by the Covid-19 pandemic. Although it is known that international students pay more in tuition fees, struggle to find employment compared to Canadian students (Bottorff et al., 2020), and were unable to claim CERB (Canada Revenue Agency, 2021) it would be beneficial to see how the results varied. Also, by including more students in the sample size would be beneficial as the larger sample will help to achieve data saturation.

7.0 CONCLUSIONS

The overall aim of this project was to develop an understanding of how the Covid-19 global pandemic has affected food access for international students at the University of Prince Edward Island.

Objective #1

To describe international students' experience accessing food during the Covid-19 pandemic.

The experience of International students' accessing food during the Covid-19 pandemic varied between participants. All students were able to access some food but had to modify either their transportation method, where the food was purchased, the amount of food and type of food purchased compared to pre-pandemic. Students received support from friends, family, the Chaplaincy Centre food bank, and the UPEI Student Union to help make up for the loss of food and income that resulted from the Covid-19 pandemic. One international student struggled with accessing food from food banks other than the Chaplaincy Centre food bank due to not having a Canadian health card. Some students also had difficulty receiving money from families in their home country during the first few months of the Covid-19 pandemic. However, students were able to handle the pandemic-related challenges through a variety of coping mechanisms.

Objective #2

To describe the coping mechanisms used by UPEI international students to access food during the Covid-19 pandemic.

There were several different coping mechanisms discovered. The strategies mentioned were influenced by lack of transportation and financial constraints.

Students who were unable to access food by lack of transportation started using the UPEI "rideshare" as a taxi service, used "instacart" to get groceries delivered, used curbside pickup for a faster and safer grocery experience, and used the public transit as it is free for students to use.

Students who were less financially stable than before the Covid-19 pandemic or who were trying to save money on groceries to help pay for other life necessities made a few changes. Most students purchased groceries at Sobeys on Tuesdays to receive a student discount. Others used the food bank to gather groceries and only went to the grocery store for items not found at the food bank. Some students had to ration their groceries to last them about a month where they used to buy groceries every week. Students would buy a month's worth of groceries and would prepare meals at home. Other students started preparing meals at home originally due to restaurants closing down but continued to cook meals at home even after the restaurants reopened. Most students prepared meals alone, but some of the students who lived with roommates said that preparing meals together was another way they saved money. The last coping strategy mentioned was to purchase food items that were cheaper and had a longer shelf life that way, they were only buying food that they knew would be consumed before it expired.

Objective #3

To describe how the Covid-19 pandemic has impacted the health of international students at UPEI.

All of the participants indicated that the Covid-19 pandemic had impacted their health. Students had experienced feelings negative emotions, lack of control, depression, social stress or feeling lonely. Going through the lockdown and isolation periods had implemented a sense of anxiety that has not yet been resolved. All of the students are away from their families and, due to the challenges put in place by Covid-19, had to choose between furthering education at UPEI or be with their families at home during this pandemic. Also, with the university and the province of Prince Edward Island not operating at the same capacity as before the Covid-19 pandemic, students feel more isolated than ever and are simply bored.

Only one student saw their physical health was impacted by unwanted weight gain. The weight gain was from changing their diet to less nutritionally dense and more calories dense food options as they were cheaper. Several other students mentioned eating food that was less nutritionally dense and more calorie-dense, impacting their health, although participants mentioned no physical signs. Cooking meals at home and including more vegetables into their meals were also common adjustments most students made. Decreasing the amount of fast food consumed and increasing home cooking with vegetables may have actually improved their nutritional health.

In Summary

This study has begun to fill the gap in research on international students' ability to access food in Canada due to a global pandemic. These findings contribute to a better understanding of

how international students at UPEI access food and how that has changed compared to before the Covid- 19 pandemic. Further, these exploratory findings suggest that food access among international post-secondary students is of concern. These findings add to the growing body of knowledge about the problem of food insecurity among international students. Although the students were not assessed for food insecurity, difficulty accessing food is one indicator of food insecurity and is clearly an issue in this sample.

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9.0 APPENDICES

9.1 Appendix A- Information Script for Potential Participants

Information for Introducing Study to Potential Participants

As part of my Foods and Nutrition honours project, I am conducting a research study on the household food situation and coping strategies of international students that have used the Chaplaincy Centre Food Bank since March 16, 2020. Students will be asked to participate in a one on one zoom interview discussing how your access to food may have changed since March 2020, when the Coronavirus outbreak began on PEI, as well as other barriers you have when accessing food.

The goal of this research project is to help us understand more about how access to food has changed since the outbreak of COVID-19, specifically among international UPEI students. We also want to be able to identify barriers to obtaining access to food. The results of this study will allow us to better understand the impact of COVID-19 on the household food situation of international students and be able to make recommendations for campus policies and programs concerning access to food.

Your participation is entirely voluntary. Should you choose to participate, you will be asked to complete an online interview via zoom. There are two options for the interview: 1) take part in the zoom interview using only the audio (turning off your camera) or 2) take part using both video and audio features on zoom. The email you provide for the interview will not be associated with the information in your interview. The interview is not for any academic credit and there is no pressure to complete the interview. There are 10 open-ended questions that have been adapted from previous studies as well as some new questions that are specifically related to the recent pandemic. Participants are able to stop participating at any point in the interview and are able to refuse to answer any questions. After your interview, you will have 48 hours to withdraw your information. It will not be possible to withdraw your information after that time frame.
The interview is designed to take around 30 minutes of your time. Interviews can be done either with video and audio or only audio to allow for more anonymity. Once the information is collected it will be stored in a safe UPEI server.

You will receive a $25 grocery store gift card after completion of the interview. All participants will provide an email to participate in the interview. You will be asked to provide your mailing address at the end of your interview so that we can send your gift card to you in the mail.

We really appreciate your assistance with this project if you choose to participate. The UPEI Research Ethics Board has approved this study. To sign up to participate in the interview, please leave your name (optional) and email with Sister Sue in the Chaplaincy Centre and I will confirm a time slot for the interview that may take place anytime from December to January. Please

contact Dr. Debbie Maclellan, my honours research supervisor, at maclellan@upei.ca if you have any questions regarding the study. If you want any information regarding your rights as a research participant, or have concerns about this research project, you may contact the Research Ethics Board, UPEI Research Services 902-620-5104 RESEARCHERPORTAL@UPEI.CA.

Thank you!

Laurissa Handren, Foods & Nutrition Honours student

9.2 Appendix B- Informed Consent

Informed Consent for Interview

Laurissa Handren, a Foods and Nutrition honours student is asking for your participation in a virtual interview via zoom on food insecurity and coping strategies of international students that have used the Chaplaincy Centre Food Bank over the past several months. My supervisors are Dr. Jennifer Taylor and Dr. Debbie MacLellan.

The interview will look into identifying barriers to obtaining access to food, and how the COVID-19 pandemic has impacted international students accessing food. The results of this study will allow us to better understand the household food situation of international students and allow us to make suggestions for campus programs and other support outlets.

Your participation is entirely voluntary. The interview is not for any academic credit and there is no pressure to complete the interview. There are 10 open-ended questions that have been adapted from previous interviews on food insecurity as well as new questions that are specifically related to the recent pandemic. The interview is designed to take around 30 minutes of your time.

You are able to stop participating at any point in the interview and are able to refuse to answer any questions. No waiver of your rights is being sought. You will have 48 hours to withdraw your information from the study. It will not be possible to withdraw your interview information after that time frame.

Interviews can be done either with video and audio or only audio. Information will be kept confidential within the limits of the law. Once the information is collected it will be stored in a safe UPEI server.

There are no known risks in taking part in the study. However, if you experience feelings of stress or anxiety during or after the interview, please contact student affairs (902-566-0488 or STUDENTSERV@UPEI.CA) to access support services.
A summary of the research results will be emailed to you if you would like after all information is gathered.

You will receive a $25 grocery store gift card after completion of the interview. You will be asked to provide your mailing address at the end of your interview so that we can send your gift card to you in the mail. Neither your email or your address will be connected to your interview responses. You will be assigned an original study ID so that your personal information is not attached to the study.

By completing this interview, you consent to participate in this project.

The Research Ethics Board has approved this study.

Contacts for questions or concerns
We are happy to answer any questions regarding this research study. Please contact Dr. Debbie MacLellan, the UPEI Co-Investigator of the study at 902-393-4024 or maclellan@upei.ca if you want to talk about this study. If you want any information regarding your rights as a research participant, or have concerns about this research project, you may contact REB, UPEI Research Services 902-620-5104 RESEARCHERPORTAL@UPEI.CA.

If you have any concerns or are feeling stressed after completing the questionnaire, please contact: Student Affairs, 902-566-0488 studentserv@upei.ca

Thank you!

Laurissa Handren (Honours Student) Dr. Debbie Maclellan (Supervisor)

9.3 Appendix C- Interview Guide

General Introduction Questions

1. I would like to start by asking you to describe how you came to study at UPEI?

   Prompts: What year of study are you in?
   What program are you in?
   What are your plans for when you graduate from UPEI?

COVID-19 Questions

2. Can you describe how your life has changed since the middle of March when the University shut down?

   Prompts: Change in accommodations? (Have you had to move?)
   Changes in the quantity of the food you have access to?
   Changes in the quality of the food you have access to?
   Changes in how you access food? (Grocery store? Convenience stores? Foodbank?)
   Changes in the way that you access food (Buying less than usual? Buying cheaper foods?)
   Have you ever had to go without food for one or more days without food since March 2020?

3. Prior to the start of the pandemic and the resulting lockdown, did you ever get groceries from the Campus Food Bank? If so, how often would you go there?

   Prompts: Do you remember why you had started using the food bank?
   Ex. Not able to buy groceries, used it as a social event, wanted to save money, etc.

4. Since the pandemic began, how often do you get groceries from the campus food bank?

   Prompts: Have you used the services of other Food Banks on PEI? If so, how often?

Food Bank Specific Questions

5. How did you learn about the campus food bank? (friends/ classmates, student union)

6. Are you able to find foods that you enjoy at the Campus Food Bank? If not, what foods would you like to have available there?

7. If you were not able to access the campus food bank, what would you do to obtain the food you need?

Challenges/ Coping Strategies

8. What are some of the biggest challenges you have faced regarding access to food during this pandemic?

9. How has the pandemic, and the resulting lockdown and loss of services, affected your mental health and your ability to cope with daily life?

   Prompts: Do you find yourself stress eating and/or eating out of boredom?
   Do you find yourself not eating anything some days?
   Do you feel anxiety now when having to go in public?

10. How would you describe your coping strategies during times when you are finding it hard to access food?

    (Probe: Support networks, cheaper food, avoid eating out, meal pooling, or eating fewer meals, borrowing money, not being able to pay bills)

11. Is there anything else you would like to say about your experience accessing food during this pandemic?

Demographic questions/ Wrap up

1. Where are you from?

2. How old are you?

3. How many years have you lived on PEI?

4. What is your mailing address so that your gift card for participating can be sent to you in the mail?

9.4 Appendix D- Recruitment Poster