Understanding food consumption behaviors; Prospects for shifting towards sustainable diets

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Every day, every one of the 8 billion people on the earth must decide about what to eat. By 2050, the world's population will have grown by at least 2 billion people, raising the question of whether we will be able to continue eating the same way. Moreover, Energy and resource use, meat consumption and food transport have greatly threatened the existing food system. To preserve a healthy and sustainable diet for everybody, a potential solution for this challenge can be shifting dietary choices to mitigate the general need for food supply and related resources. However, it is a challenge to achieve realistic dietary adjustments because of the complicated nature of the variables that influence food choices. While making purchasing and eating decisions, people might be influenced by personal factors such as health, price and, sensory appeal or by environmental factors such as food choice influencers, food culture and, sociability. Demographic status and previous diet changes also play important roles in shaping one's food behaviors. This thesis creates a model based on the Social Cognitive Theory to categorize these variables, and then conducts an exploratory analysis of the model using an online survey. The goal of this study is to understand the primary variables that influence Canadians' food choices, as well as how these factors differ depending on socio-demographic characteristics including gender, age, and education levels as well as how previous diet changes can affect the significance of factors.

The preliminary model identifies eight major personal determinants and three major environmental determinants that influence Canadians' food choices. Having these factors identified helps break down the decision-making process one goes through when making food choices. To conduct an exploratory analysis of this model, a quantitative approach was used, and an online survey was sent to 3623 Canadians across the country. The result of this study revealed that Price and Sociability are the dominant constructs for Canadians in their food choices. These two constructs remain almost consistently important over the three socio-demographic characteristics examined as well. Socio-demographics reported significantly different attitudes on five out of eleven constructs.

Understanding consumer attitudes and behaviors around dietary patterns are critical in identifying significant leverage points for positively affecting future food requirements and targeting different segments of consumers for diet shifts that are achievable. The results of this study highlight the key connections between each factor and consumer groups for policymakers and marketers to act accordingly. Taking a step further, we can apply the results of this study to other locations around the world and guide public food purchasing decisions to be more sustainable.

Keywords: Consumer behavior, Dietary Patterns, Sustainable Diets, Behavior Change, Social Psychology

Acknowledgements

Dedication

To my parents and friends, who have never failed to love and support me at the most challenging time of my life.

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Chapter 1
Introduction

In 2009, a new phrase was added to sustainability terminology; "Planetary Boundaries", which defined the safe operating space for humanity concerning the earth's system and are associated with the planet's biophysical subsystems or processes (Rockström et al., 2009; Crompton et al., 2012). Then in 2012, the idea of combining planetary boundaries as the upper threshold (environmental ceiling) with social boundaries as the lower threshold (social foundation) gained popularity. Setting these boundaries on the two ends, led to the emergence of an optimum space between well-being and environmental destruction which is capable of supporting inclusive and sustainable economic development. The result of this framework is a doughnut-shaped area of safe and just operating space for humanity (Raworth, n.d.). This area can be interpreted as sustainable because it is addressing 3 major pillars of sustainability: environment, society, and economy.

Food systems have been designed as a stable foundation for meeting people's nutritional needs. Previously, food system optimizations were primarily focused on increasing crop yield production and supply chain efficiency to feed the world's rising population. Once the health and environmental implications of the food system were emphasized, psychological and social dimensions became significant (Niles et al., 2018a).

The lower threshold, in the context of the doughnut framework applied to our global food system, can be described as providing the nutritional needs of populations in terms of the quality and quantity of food in order to preserve their physical and mental health. The upper limit, on the other hand, is linked to the negative environmental impacts of our existing food system (Raworth, n.d.). The ideal state is to keep all our systems, including the food system, operating inside the doughnut zone, however, to achieve this goal, there exist some major challenges.

1.1 Statement of the problem

Securing and providing sufficient, healthy, and nutritious food for all while tackling the various challenges of undernutrition, overweight and obesity, and micro-nutrient deficiencies in an environmentally sustainable and safe manner comes with several challenges, such as population growth, food waste, energy and resource consumption, food quality, and food transport (Corallo et al., 2019; Crompton et al., 2012; Ericksen, 2008). These problems are discussed in further depth in the following sections.

1.1.1 Population growth

The world's population is estimated to increase to 9 billion by the year 2050 (Pimentel & Pimentel, 2003). This claim leaves us with the challenge of feeding 9 billion people and providing them with sufficient food resources and it turns into a major issue when we realize that based on the UN report (2017), 821 million undernourished people are existing in the world right now, which equals to 1 out of every 9 people. Global food production should increase to 50-100% in 2050 in order to meet the Sustainable Development Goals (SDGs) determined by United Nations specifically, goal number two which is zero hunger (Crompton et al., 2012). Although there are doubts about the possibility of combatting food insecurity while keeping the negative environmental impacts low, based on available data, it is feasible to stay within the doughnut and meet both thresholds. For instance, in the case of food supply it is estimated that in order to provide additional calories for populations facing hunger, we only need 1 percent of the global food supply (Raworth & Oxfam, 2012).

1.1.2 Energy and resource consumption

Food production and food processing are considered to be highly resource intensive. A considerable number of major resources are intertwined with food production, such as land and water resources. As an example, the current agricultural system covers 43% of ice and

dessert-free lands, of which 87% of these lands are used for food production and just 13% is used for other services, like biofuel production and textile crops (Poore & Nemecek, 2018). At the same time, there is competition over these resources. For example, lands can be used for urban expansion, carbon sequestration, biofuel production, agriculture, and other services (Stafford-Smith et al., 2017).

Adding to that, more than one-third of food produced is not consumed and turns into waste or is lost in the process (Gooch et al., 2014; Young et al., 2017). There is a rising need to balance the increasing demand for food and limited resources and reduce the amount of food waste generated; in other words, to increase the efficiency of food systems. In Canada, the agricultural sector is by far the biggest user of freshwater, with irrigation accounting for 92 percent of that total. Water usage in the food production industry accounted for approximately 26 percent of overall manufacturing water use, or 3.5 percent of total water consumption in Canada (Statistics Canada, 2016). Due to the obvious strain on natural resources, practical strategies for changes in the food system, and possibly eating habits, are required.

1.1.3 Food quality

Another principal challenge is the growing need for meat and dairy products which is considered to be unsustainable (de Bakker & Dagevos, 2012). Weis coined the phrase "meatification of diets" in 2017, directing the focus of food quality exclusively on the meat consumption dilemma. He provides statistics on how meat consumption per capita has severely increased in the past half-century; from 23 kilograms of meat per year for an average person in the 1960s to 43 kilograms of meat in 2010. Given how unevenly meat consumption is distributed worldwide, in more developed areas like North America, this amount can approach 120 kilograms. He argues that if we consume with the same patterns that we do nowadays, the agricultural production that contains humans' vegetarian consumption, as well as the grains and crops needed to feed animals to produce meat, must be doubled in order to provide all the world's population with sufficient food in 2050. The approximate daily protein intake for

various nations is shown in Figure 1. It is clear from this statistic that, on average, Canadians eat nearly twice as much protein as the average person needs.

Aside from meat and dairy overconsumption, the food being eaten today is rich in fat, sugar, and salt (Mazac, 2019; World Health Organization., 2003). That serves as something threatening both individuals' health, such as increased heart disease, followed by the higher greenhouse gas emission as the environmental impact.
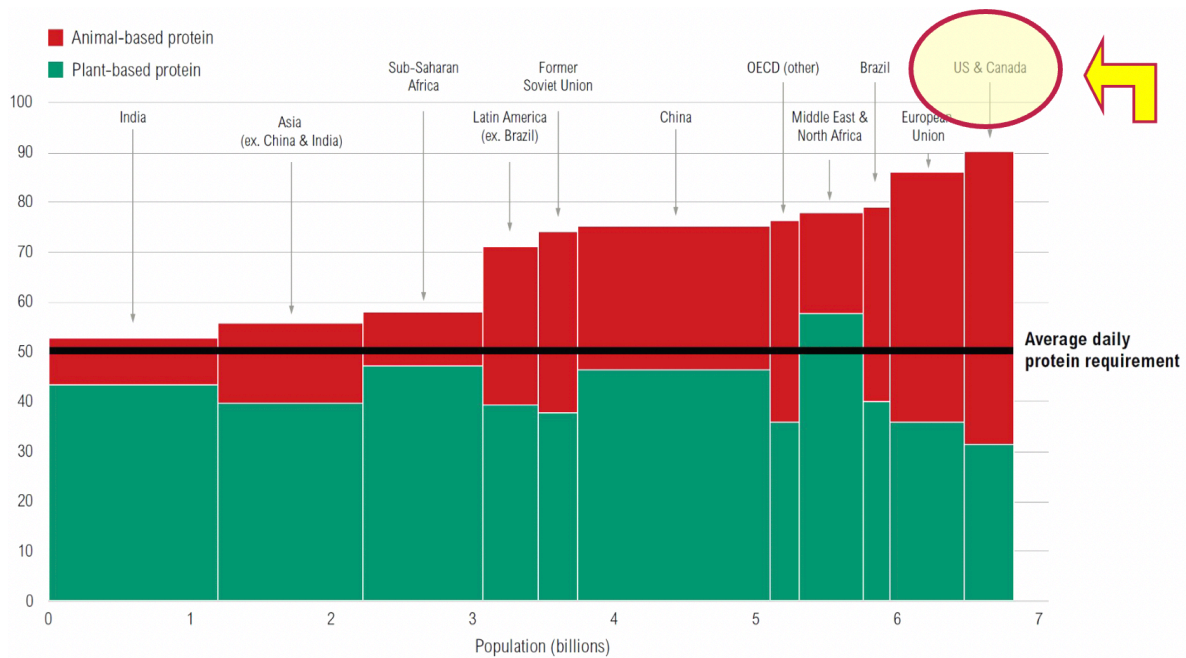
Figure 1- Daily protein consumption gr/day; (FAO, 2015)

1.1.4 Food transport

Another conceivable objection to the unsustainable food system is food transport. There are major concerns about the future food supply and if climate change-related deficiencies would increase the requirement for food to be transported throughout the world (Jones & Ejeta, 2016). This transforms the global food system into an integrated system with flaws. Importing nations, for example, are becoming increasingly reliant on the constant flow of food from places

hundreds of kilometers away and are thus vulnerable to interruption at various points along the supply chain (Fendrychová & Jehlička, 2018). Geographic location and transportation are specifically important issues in certain parts of Canada (Gorton et al., 2010). Northern Canadian regions, for example, experience significant rates of household food insecurity, owing in part to the high costs of food transportation; in Nunavut, 46.8 percent of families reported being food insecure in 2014 (Tarasuk et al., 2014).

There have been increasing pieces of research in the last 20 years that look at the environmental impacts of food consumption. Early research looked at the environmental impacts of particular food items, with an emphasis on manufacturing techniques. However, subsequent studies, largely done in Europe, investigated the effects of food consumed. In the last five years, the focus of these pieces of research has shifted to include diets as well as other countries and areas, such as the United States, China, India, Brazil, and Peru. Research on the effects of diets on the environment was undertaken in Canada by Veeramani in 2017, followed by Topau in 2022. This study calculated the carbon footprint (CF) of Ontario citizens' food choices in 2004, finding seven different dietary patterns, and suggested that transitioning to low-carbon, nutritionally balanced diets might reduce Canada's CF (Veeramani et al., 2017). In order to achieve this goal in practice, consumer behavior patterns and determinants need to be investigated.

1.2 Changes in consumer behavior as a means of addressing sustainability

The explained high consumption demands and global food insecurity challenge in previous paragraphs cannot be managed only with the aid of advancements in technology (de Bakker & Dagevos, 2012). Increasing cropping efficiency, which simply means producing more crops on the same amount of farmland, increasing the efficiency of underperforming lands and closing the so-called "yield gap" in crop production performance, changing people's dietary patterns, and so on are some of the suggestions made throughout existing literature (Charles et

al., 2010, Evans et al., 2015). Among the recommended options, the study by M. A. Hefny investigates the influence of changing consumption patterns as a tool for combating global food insecurity. this paper discusses the grounds behind this approach to some degree (Hefny, 2012a). He emphasizes some of the benefits of changing behavior in his paper on managing global food insecurity and water resources via changing behavior, such as the notion that governments cannot tackle large-scale challenges on their own and that public participation is required. Another factor is that changing one's behavior might be far less expensive than other solutions. Finally, it is stated that when individuals become more aware of their actions and the implications of those actions, their sense of responsibility grows, and they begin to promote more sustainable consumption habits throughout their communities (Hefny, 2012b). These are some of the reasons why researchers believe that shifting eating habits can help manage global food consumption demand.

Many strategies are given based on behavioral psychology studies to achieve the desired behavior change. Psychological methods are commonly used by researchers regarding tackling the defects of the current food system. Taking informational initiatives is one of these tactics (Hodson, 2019). People nowadays make consumer purchases based on complete knowledge, according to economic models of human decision-making. As a result, one approach is to educate the general public or specific audiences about sustainable food choices and how these decisions may have a good less negative influence on the environment. One use of social marketing in human well-being and societal welfare is public behavior campaigns (Wymer, 2011).

Several campaigns have been launched across the world to encourage people to modify their diets. "Healthy Ireland" is an Irish government project aimed at assisting, empowering, and encouraging individuals to take responsibility for their health by adopting small lifestyle adjustments to live and stay healthy (O'Keeffe et al., 2019). Healthy food, physical exercise, and mental wellness are the major pillars of their campaign, and the improved health condition of individuals and populations is providing evidence of their success (Department of the health of Ireland, 2018). Another example is the UK government's "5 A Day" campaign, which

encourages individuals to consume at least 5 servings of a variety of fruits and vegetables in a single day (WHO, 2018).

1.2.1 Sustainable diets

There are numerous definitions for what a sustainable diet is. It is defined as a diet that supports food security and environmental well-being. Sustainable diets are eating habits that consider the influence of food consumption on planetary resources, human health, and environmental, societal, and economic demands. Several international agencies, like the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO), have acknowledged this increasing body of research. Sustainable diets, according to the FAO, are diets that have low environmental consequences and contribute to food and nutrition security as well as a healthy life for current and future generations (FAO, 2012).

What is considered based on the literature as Sustainable and healthy food is mainly (Mazac, 2019; Sanniti, 2018; de Koning et al., 2010; Monroe et al., 2015a; Westhoek et al., 2014a; Beverland, 2014)

- Organic food

- Frequent consumption of fruits and vegetables

- Plant-based diet or reduction in meat consumption

According to a Dalhousie University study of 1,049 Canadians performed in 2018, the number of vegetarians and vegans appears to have remained stable, while the number of Canadians who follow particular dietary patterns is obviously on the rise. According to the findings, 7.1 percent of Canadians identify as vegetarians and 2.3 percent as vegans. Results show that 32 percent of Canadians follow a strict daily intake. also, Consumers in British Columbia are 1.6

times more likely than those in the Prairies or the Atlantic Region to identify as vegetarians or vegans (Charlebois et al., 2019).

1.2.2 Canada's food system

Canada is a prominent producer and exporter of food and agricultural products across the world. Wheat, pork, beef, and soybeans are among the country's top seven exports(Agriculture and agri-food Canada, 2015) The food industry in Canada is a major economic contributor, accounting for about 9 percent of the national GDP (Agriculture and agri-food Canada, 2015). Therefore, the food system presents a great opportunity for climate change mitigation in Canada.

In Canada, annually, over 30 billion dollars worth of food is produced and not consumed. Twenty percent of this food waste happens in manufacturing and processing, 10 percent at the grocery store level, another 10 percent at farms, almost 10 percent at restaurants, and nearly half of the food waste happens in consumers' households (Agriculture and Agri-food Canada, 2005). This shows that even if we disregard the contribution of consumers in the food waste happening at grocery stores and restaurants, there is still a huge opportunity for behavior change regarding food literacy and consumer-level behavior change to mitigate the environmental negative impacts.

Food consumption has become more heterogeneous as the ethnic makeup of Canadian society has changed, and so has the demographic. As a result of these developments, Canada has become a multi-ethnic and multi-cultural society (Aljaroudi, 2018a). Immigration has been Canada's most important source of population expansion, with individuals of all ethnic backgrounds immigrating to the country. Immigrants' capacity to adapt to culinary culture is a real concern for both them and the food producers and even affects the composition of available food products, markets, and restaurants (Cleveland et al., 2009). Because of the wide range of food customers and their attitudes toward food, market research on factors influencing food choices is valuable research in Canada (Hosseini et al., 2022).

1.3 Research aim, objectives, and, questions

Given the lack of research regarding consumer decision-making and behavioral aspects of food consumption in Canada, this study will aim to identify barriers, drivers, attitudes, and behaviors related to current food choices to assess viable (socially acceptable, nutritious, cost-effective) changes in the food supply to provide for various population groups with diverse socio-economic backgrounds.

In other words, identifying what factors contribute the most to food choices and how these factors are related can be utilized in future implications and policymaking.

The research questions of this study are listed as follows:

1. What are the main constructs in determining people's eating and purchasing habits, how relatively important are they, and how do they connect to one another?

2. How significant are the aforementioned constructs in terms of the Social Cognitive Theory?

3. How do these constructs vary amongst socio-demographic groups? As the dependent variables in this study, we concentrate on Gender, Age, and Educational Level.

4. How past behaviour changes adoptions may affect a person's priorities when making food purchase selections.

1.4 Thesis structure

The remainder of this thesis is sectioned into four chapters and six appendices. Chapter two gives a more in-depth literature review on the subject and delves into the specifics of each aspect influencing food choices and a summary of Social Cognitive Theory as the construct used in this study to investigate the factors influencing food choices.

Chapter three explains the materials used for this research and how they were developed, as well as the layout of the data gathering instrument (survey questions grouping based on the theory). It also gives an overview of the tools and methods utilized in studies comparable to this one. This chapter includes the software used and the analyses that had been chosen in response to the study's research questions.

Chapter four moves on to the results of the actual study, with extensive information and tables showing the most important findings.

The final chapter, Chapter five, is primarily a discussion of the noteworthy points gained from the study's findings. This chapter also includes limitations and recommendations for further study.

Chapter 2
Literature review

The following chapter delves through the existing academic literature in an effort to uncover what factors are influencing consumers' choices when it comes to food purchasing and eating. The structure of the Social Cognitive Theory is used to help categorize these factors and draw connections between them.

2.1 Introduction

Eating habits are formed throughout a lifetime and changing them requires behavioral changes that must be maintained, well beyond any short-term solution (Templeton et al., 2016; van den Bree et al., 2006). A complex and changing set of factors, varying from biological to anthropologic, combine to influence the formation and maintenance of dietary preferences (Asp, 1999a; Larson & Story, 2009; Renner et al., 2012). Understanding behavioral influences are crucial for developing dietary guidelines, health improvements, and informational messages that will help consumers build healthy diets and inspire dietary change. It is necessary to identify and comprehend the major influences on food choice and determine which of these are open to changes in order to select which significant attitudes and behaviors should be the primary targets of change.

According to the public health guidelines for dietary changes in the past, there was a key assumption that consumers would consider avoiding those eating patterns that are unhealthy in order to avoid future sickness (Nestle et al., 1998). Although the idea that knowledge changes behavior seems to be self-evident, reports show that delivering risk information has little impact on eating behavior unless it can overcome emotional, behavioral, and environmental obstacles (Brinberg et al., 2000; Peschel et al., 2016a). If changing one's diet was straightforward, then publicizing knowledge would inevitably result in a change in behavior (Peschel et al., 2016b; Surekha & Phil, 2008). Dietary recommendations intended to lower fat

consumption occasionally call for the elimination of particular food categories, which might be regarded as monotonous and restrictive (Baranowski et al., 1999). They may also be incompatible with societal or cultural food consumption norms. Dietary changes may need an increase in the price, knowledge, skill, time, or effort required to prepare meals. Marketing and environmental factors may operate in favor either for or against proposed changes. Given the intricacies of the system of factors influencing food choice decisions, offering dietary advice is likely to be easier than actually adopting the behavior, and the more variables influencing change, the more obstacles there are to overcome, and the more difficult it is to create and maintain dietary changes. In order to better grasp this complex system of behavior and behavior change, a human behavioral theory, the Social Cognitive Theory, is presented and explored below as the foundation for understanding human behavior for this study.

2.2 Social Cognitive Theory

The Social Cognitive Theory was originally proposed by Albert Bandura in 1977 with the original name "Social Learning Theory" and then renamed to "Social Cognitive Theory" in 1986 with the publication of Bandura's second book on the subject. The core claim of this theory is that behavior can be learned by observation of others as well as a direct experience. This theory was a response to John Watson's "Behaviorism" theory and Freud's behavior theory focusing on internal desires and forces solely to explain behaviors (Stajkovic & Luthans, 2002). As a result, Bandura portrays a triadic reciprocal deterministic relationship between the person (internal competencies), the environment (external spaces), and behaviors (decisions and actions) with each factor affecting one another correspondingly (Bandura, 2001). Figure 2 shows the original framework of Social Cognitive Theory.

Bandura demonstrated the validity of this theory in understanding the determining factors and models that influence reciprocity between the forces of the human environment, personal characteristics, and behavior in works from 1986, 2006, and 2008 (Lin & Hsu, 2015). Social Cognitive Theory (SCT) is widely used in health and behavior-related studies as it provides

opportunities to achieve behavior change using observational learning and other reinforcements. These studies vary from the use of SCT in the adoption of green purchasing behaviors by Chinese consumers, investigating the link between climate change knowledge and action of German forest owners and managers, patient e-health literacy in online health communities, and so on (Hengst-Ehrhart, 2019; Lu & Zhang, 2021; Wang et al., 2019).

Bandura's research, released in 2011, focuses on how SCT affects health and population in the context of climate change. He believes that these issues might be overcome by television serial plays that include models who act out the desired behavior. According to Bandura, we are on the verge of transitioning from a disease model (which focuses on individuals with issues) to a health model (which focuses on healthy people), and SCT is the theory that should be employed to help us get there.

On population, Bandura claims that population expansion is a worldwide crisis due to its link to resource depletion and destruction on our planet (Bandura, 2011). SCT, according to Bandura, should be employed to encourage the use of birth control, eliminate gender inequality through education, and model environmental protection in order to enhance the planet's status (Bandura, 2011).

The Social cognitive Theory is a learning theory that assumes people learn from observing others. These learned actions can play an important role in shaping one's personality. While social psychologists believe that one's upbringing influences behaviors, the particular person (and hence cognition) is as significant. People learn through observing others, with the environment, behavior, and the person itself functioning as the main influences on learning in a reciprocal triadic relationship (Ghazali et al., 2019).

With assistance from the original STC framework, the factors affecting food choices in this study have been categorized into two groups Personal determinants, Environmental determinants in order to understand the current food behaviors. It is acknowledged that the double-sided arrows between categories represent reciprocal causation between behaviors and personal/environmental determinants. However, for this study, the one-sided impact of

personal and environmental factor groups on food behaviors has been investigated. These categories are presented in the following sections respectively.
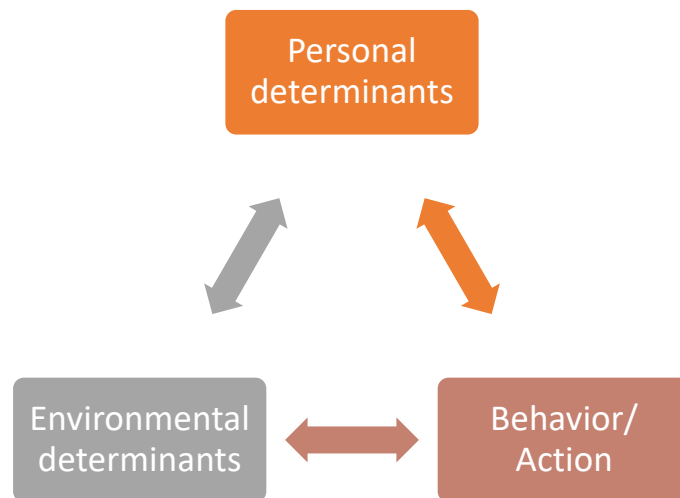
Figure 2- SCT framework (Bandura, 2001)

2.3 Determinants of food choices

The development and maintenance of food preferences are influenced by a variety of variables that interact in complicated and shifting ways, ranging from biological to anthropologic (Nestle et al., 2009). Drivers of food choice may come from previous generations and the current eating environment. As someone's age grows, the roots of their food preferences start changing from more gene-based ones to more environment-based ones. They start associating food with the consequences of eating them. From another perspective, a combination of genetics and environmental factors may shape and develop someone's food preference (Larson & Story,

2009) To categorize the factors affecting food choices, we can divide them into three major categories of socio-demographics of the consumers, personal-level factors and environmental-level factors.

2.3.1 Socio-demographic determinants

Education, income, and occupation are strong predictors of how healthy someone can be. These factors chose the living environment of a person that defines her accessibility to healthy food and enables her to participate in healthy behaviors throughout her life. Because they prioritize price and familiarity above health when buying food, those with lower levels of education and income typically have less healthy eating habits (Darmon et al., 2003a; Devine et al., 2006; Kay & al, 2005; Sosa et al., 2014). In the context of developed countries, the highest rates of obesity are correlated with high poverty and poor education (Drewnowski, 2004). In contrast, based on a recent study at the University of Dalhousie, Canada, Higher education holders are three times more likely than individuals who have only a high school level to identify as vegetarians or vegans (Charlebois et al., 2019).

Age does not necessarily correlate with the factors influencing food choices, however, different age groups may reveal insightful information to be used in marketing and policy making. For example, customers under the age of 35 are three times more likely than those who are 49 or older to identify as vegetarians or vegans (Forestell et al., 2012). Or on the other side, 18- to 24-years old adults are most often portrayed as being indifferent about their health in the future because of their general health at this age (Betts et al., 1995a).

When studying health-related research, gender is a vital aspect that should be taken into account. A study found that men made fewer healthy choices than women across a wide range of health-related habits, including wearing seatbelts and smoking, as well as medical visits and diet (Courtenay et al., 2002). For the past two decades of research in over 23 European countries, it has been shown that when it comes to making food choices, men value health less than other considerations like the taste or convenience (Steptoe et al., 1995). Women are more

likely than men to avoid high-fat meals, consume more fruit and vegetables, and limit salt consumption and they are also more likely to be dieting and value healthy eating (Steptoe & Wardle, 2001). Moreover, whether it is a result of differences between the sexes or as proposed by (Brough et al., 2016) from a prevalent cognitive association between green behavior and femininity, and hence viewed as emasculating, gender identity is an important factor when it comes to sustainable behavior adoption. Many studies in various geographical locations and contexts supported this result, and being a man was discovered to be the strongest and most conspicuous sociodemographic factor in limiting meat consumption and adopting a plant-based diet (Pohjolainen et al., 2015). A study at the University of British Columbia asked a wide range of participants to score characters on their perceived number of adjectives reflecting masculinity using a 2 (target gender) 2 (target dietary choices of being vegetarian or omnivore) construct. Given that these adjectives represented social beliefs around masculinity rather than the biological differences, the findings showed that male vegetarians are perceived as less manly than omnivores, as well as prevalent attributions of femininity and weakness among Canadian conceptions of vegetarianism (Ruby, 2012; Ruby & Heine, 2011).

Data from younger consumers also supports the findings' inclusiveness, with gender serving as a secondary differentiating feature. Younger customers, particularly Generation Z, and young Millennials, are breaking away from ingrained gender standards, according to the forecasted trend (Sinai et al., 2021). The body of literature, on the other hand, continues to support the gender-based character of food choices.

2.3.2 Personal determinants

The eight initial categories of personal factors that influence a consumer's food choices have been identified in Figure 3. The analysis section reassesses these factor groups.

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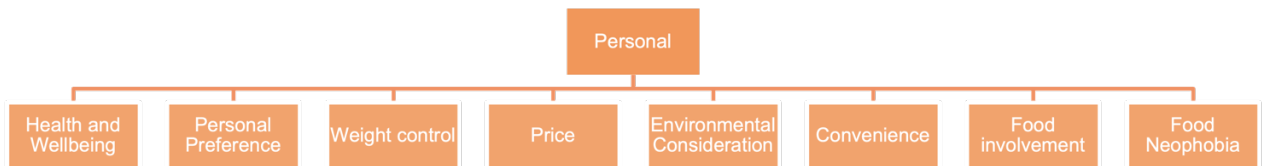
Figure 3- Personal determinants of food choices

2.3.2.1 Health and wellbeing

In a food context, the phrase "well-being" refers to the enjoyment that good food may instill in individuals as well as their assessment that the food they consume meets important criteria like flavor and health (Grunert et al., 2013). Aside from the hedonic joy of eating, happiness can also come from knowing that an individual is doing something good for their body (Grunert et al., 2013). The health concern is one of the main themes of today's food consumption in industrialized cultures due to the rising attention on food- and lifestyle-related diseases (Arrieta et al., 2022; van Loo et al., 2017). Even what is seen to be "good for you" has evolved; when evaluating "Health and Wellness," they now use a more holistic perspective by taking longer-term factors and more product qualities into account. In the past, nutritional content was often the only consideration in purchase decisions based on Health and Wellness and most consumers focused on a single element (such as carbohydrates, protein, or sugar) (Ostry et al., 2008; World Health Organization., 2003). However, today's consumers examine a variety of "Health and wellness" factors at the same time. Consumers increasingly look at several data points (such as qualitative product claims and quantitative nutritional content information), according to data from the US Grocery Shopping Trends survey. According to that study, the typical customer is looking for an average of 5.4 claims on the front of the box and 9.9

nutritional content details on the back. That's 15.3 pieces of health and wellness information that the average customer wants to know. As a result of the increased average number of health and wellness attributes important in each food product for the consumers, we may deduce that individuals' concerns for their health and well-being have grown (Westhoek et al., 2014a). The reason for this is that individuals are either worried about their overall health or have a specific diet they are attempting to follow or avoid.

2.3.2.2 Personal preference

At the individual level, we tend to gravitate toward some of the basic characteristics of food such as texture, smell, taste, and sight of the food which are all grouped under the "Sensory appeal" (Eldesouky et al., 2015). Early studies often suggest that most consumers make their food choices based on these characteristics than the nutrition and health aspects of the food (Food Marketing Institute, 1997). The same theme stays consistent through almost all the literature examining factors affecting food choices as the first or one of the most important aspects of food choices (Ali et al., 2021; Asp, 1999b; Joshi & Rahman, 2015; Lustermans, n.d.-a). At times, still acknowledging the importance of this factor, studies suggest that personal preferences have been highly overlooked (Bos et al., 2015). According to Sorensen et al., people perceive unhealthy foods to be tastier and more enjoyable, so they are preferred when someone is doing a task as a means to fulfill their enjoyment, rather than with no particular goal in mind.

Food consumption is also intertwined with personal mood. Emotional eating is a typical example of how people make eating decisions to make changes in their mood or soothe negativity (Birch, 1999). Also, people may act differently towards food under high-pressure situations changing their diets to excessive eating or anorexia (Pula et al., 2014).

2.3.2.3 Environmental impact considerations

The environment is a major factor in food behaviors. Consumers perceive food with organic labeling, fruits and vegetables, and plant-based food to be environmentally friendly and they try to include those items in their diet (Koenigstorfer & Groeppel-Klein, 2010). Bringing reusable bags to the supermarket, for example, can increase purchase intentions and unhealthy product selection because buyers reward themselves for doing something good for the environment by eating something unhealthy (Monroe et al., 2015). Nevertheless, even if it is a cognitive intention to practice an environmentally friendly behavior, Limitations such as the assumption that one's actions will not have any consequences can prevent perceived behavioral control from being effective (Yadav & Pathak, 2017). For example, if one wishes to engage in an environment responsibly act but does not have access to a store that sells a specific kind of sustainable food (e.g., vegan products) perceived behavioral control is low and constraints are high that behavior is unlikely to happen (Al-Swidi et al., 2014).

2.3.2.4 Convenience and availability

Accessibility of food within a community, how quickly and easily specific food products can be purchased, and the amount seems to be one of the most important factors for behavioral change supported strongly by the existing literature. Availability of fast-food restaurants in consumers' neighborhoods and workplaces can significantly impact individuals' diets in a negative manner (Glanz et al., 2005). On the other hand, accessible community gardens and farmer markets can result in higher fruit and vegetable consumption (Hosseini et al., 2022; Lustermans, n.d.-b).

Some studies also argue that the availability and accessibility of food are not considered in contemporary post-industrialize countries like Canada, because food is available almost anywhere, anytime, and by anyone (e.g., McMorrow et al., 2017a). However, in these countries, because people have busier lifestyles, there is a huge demand for convenient food,

which is easy and fast-prepared food. Young adults indicate that they are having difficulty in balancing their work and school schedules plus leisure activities with finding time to eat (Bos et al., 2015). A study using participants between 18-24 expressed difficulty managing their work, school, and leisure time with their meal preparation and eating time. It also leads to a lack of desire for cooking and preparing less convenient food (Betts et al., 2010). Therefore, Betts et al., suggest that the number one factor commonly mentioned by young adults determining their food choices is time constraints and convenience. Availability and visibility of organic food products in the supermarket were also found to be highly influential to Danish consumers (Hjelmar, 2011) and a reduction in time taken to prepare and enjoy family meals at home due to busy schedules was determined. (Neumark-Sztainer et al., 2003).

There is also a common belief among sustainable consumers that they need to travel long distances to a local farm or specific supermarkets to have access to sustainable products which opposes the growing need for consumers to live a busier lifestyle (Vermeir & Verbeke, 2006).

2.3.2.5 Food involvement

Individuals with a high level of food involvement represent another important group influencing dietary patterns (Cairns et al., 2010). "Foodies", for example, involve a group of people who are well-recognized as having a keen interest in the newest culinary trends and have a hunger for additional culinary knowledge. Those who are more involved in food practices make better meal choices regularly due to their superior understanding of food and dedication to self-education, which includes learning how to improve culinary skills and trying out new restaurants (Mohd-Any et al., 2014).

2.3.2.6 Food Neophobia

There is also a rejection of novel edibles and preferring previously tested and familiar food (Rigal et al., 2006). This preference is called "Neophobia". One of the major challenges in

shifting public diets toward plant-based and more sustainable alternatives, in case people are not familiar with these edibles is the neophobic response. As reported by 40 percent of Americans, the major obstacle to consuming healthier diets is fear of having to give up their conventional preferred foods. Studies detected that men tend to show greater neophobia than women. According to a market study, only 17% of new food products that are launched in the retail market are successful (Agriculture and Agri-food Canada, 2005).

In their study on neophobia, Pliner and colleagues looked at the reasons why people avoid trying new foods. The results show that, at least in relatively "safe environments" like cafeterias, people avoid trying new foods not because they think they might be dangerous but rather because they think they will not taste good (Pliner et al., 1991). A person's past interactions with food have been shown to have a significant impact on their present and future eating preferences. For instance, someone is more likely to want to try a certain meal again if they like it while eating it with their family (Furst et al., 1996). Therefore, individuals frequently choose routine foods that are safe and familiar to them out of habit (Lau et al., 1984).

2.3.3 Environmental determinants

Following the personal determinant of food choices, here in Figure 4 are the environmental food choices discovered and evaluated in this study. We go into further detail about each factor in the next subsections.
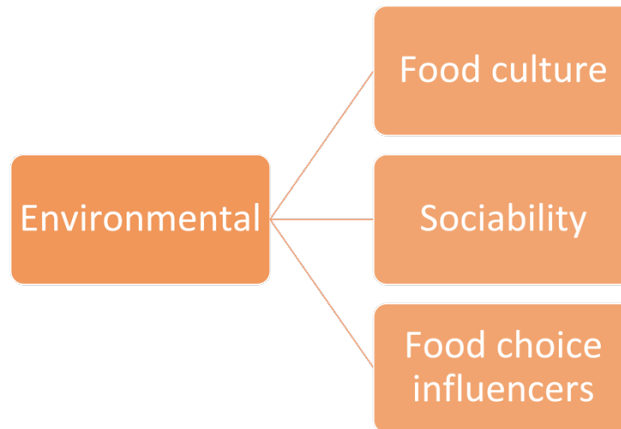
Figure 4- Environmental determinants of food choices

2.3.3.1 Food Culture

Food culture can be described as an "inserted mechanism of convention specifically related to food within the broader concept of culture" (Cronin and McCarthy, 2011, p. 722).

Culture is intertwined with food and food is considered to be one of the major components in constructing different cultures. This can be traditional preparation for food and recipes by one culture or the exclusion of certain food items (Mycek et al., 2020a; Onwezen & Bartels, 2013a; Pieniak et al., 2009a; Ruiz de Maya et al., 2011). Some food items find their way into one culture's food tradition simply because they are available in the geographical area where that culture exists (Westhoek et al., 2014b). From a cultural point of view, food proteins can vary from one country to another as Europeans do not include insects in their diets despite being a rich source of protein. On the other hand, southeast Asians are culturally accustomed to having insects in their diet. Food habits are seen as the culturally standardized set of food behaviors manifested by individuals who have been living with a given cultural tradition. (Stasi et al., 2018). Culture also plays a crucial role in establishing Food trends. The underlying patterns of how foods are considered to be connected to various aspects of well-being appear to be quite

consistent throughout different geographical locations, despite cultural differences surrounding views of how individual meals impact well-being (Ares & Gámbaro, 2008a).

People frame their values and choices on the foundation of their culture and these cultural conceptions could not be consistent with scientific constructs regarding the safety or nutritional worth of meals (Nestle et al., 2009). Cultural influences can lead to variances in the way people eat specific foods and, in certain circumstances, prohibitions such as the elimination of certain meat from the diet (Mycek et al., 2020b). However, the results from the study of Mohd-Any et al., show that the main determinants of food choices remain the same regardless of the ethnic background of the respondents (Mohd-Any et al., 2014b). Religious convictions also influence Canadians' decisions to purchase particular products like halal or kosher meals, although the results indicate that these markets are still relatively small. A total of 2.3% of Canadians said they often consume Halal cuisine, while less than 1% said they prefer Kosher food. Because Halal and Kosher goods are not always readily available, supply remains an issue nationwide (Aljaroudi, 2018).

2.3.3.2 Sociability

In the past decade, the notion of public eating environments has been gradually replaced with upscale, aesthetically pleasing food halls, trucks, and stalls offering a good variety of food samples (Lytle & Sokol, 2017). Our eating environment is capable of determining the quality of the food we consume (Glanz et al., 2005).

Food environment research has been developed in high-income nations due to the increased incidence of obesity and non-communicable illnesses (Browning et al., 2013). Eating in the presence of others elevates the quality of chosen food (Monroe et al., 2015). Thus, people are encouraged to eat together and have regular plans for family meals. Married couples show healthier food behaviors than individuals and having a child also elevates the quality of food (Maulida et al., 2016). Family and friends serve as role models and sources of peer pressure for eating certain meals, especially meals containing more fat, and for attempting new cuisines

(Fox et al., 2021). Overall, it can be concluded that peers both enhance and degrade the quality of one's food choices.

The social aspects of enjoying a meal, such as the setting and dining guests, can also impact food preferences. Compared to dining alone, research reveals that having a meal with others might significantly affect the preparation and consumption of fruits and vegetables (Thompson et al., 1999; Brug et al., 1995). To support the point of previous studies mentioned, Lindstrom et al. (2001) found that low social participation or weak social networks could explain fruit and vegetable intake variation among different socioeconomic groups. This once more emphasizes the important influence eating in public has on one's general eating habits and decision-making.

2.3.3.3 Food choice influencers

A social media influencer is an individual who focuses on one or multiple platforms like YouTube or Instagram and creates a following that is significant enough to be able to make noticeable changes in businesses. Marketers are willing to pay for influencers to include their brand, products, and messaging in their social media feeds. The emerging industry of influencer marketing even made restaurant designers think ahead about how their restaurant can be appealingly photographed besides bringing an enjoyable in-person food experience. As an example, designers prefer to incorporate huge windows, overhead lighting tables, and bright colors in their designs instead of creating a dim and cozy environment in order to make the cuisine look as appealing as possible for social media photos. All these combined provide an insightful overview of how social media influencers and also food environments can have a significant impact on the dietary habits of consumers (Moghimi & Wiktorowicz, 2019; Young et al., 2017).

Food trends similar to other social norms, act as a broader influential factor in the way people eat both inside and outside of their households. Existing food trends in the 2010s ranging from niche dietary restrictions that became mainstream to hours of a lineup for desserts advertised

on social media, all affect eating patterns within a community. Vegetarianism and veganism as a food trend became mainstream with the increase in awareness of animal cruelty, and the health and environmental considerations of animal-based food products (Petrescu & Petrescu-Mag, 2015).

Taking all aspects of a food product into account, while purchasing the majority of consumers' intention toward a product is shaped inside of a store, mostly based on visual aspects of the products (Inman et al., 1998). Some examples of these aspects are product category location on the shelves, product location within the category, brand awareness, the positive impact of the shelf-based scarcity of a product, transparent packaging, and so on (Castro et al., 2018). Other features of a grocery store such as the size of the store, scent, and the music being played in the environment also play a considerable role in human decision-making (Larson & Story, 2009). The processes that customers engage in a grocery store may also increase unhealthy choices. For instance, making a lot of choices in a row while shopping compared to the situation when a person has specific purchase instructions of what exactly to buy and from which brand. In this situation her self-control weakens, leading to unhealthy purchasing decisions (*Grocery Experience National Survey Report*, 2018). Therefore, alongside the influencers that could guide one's food choices before coming to the grocery store by media such as social media influencers/nutritionists, or food trends, it is important to consider the impact of instant decisions made in the grocery stores that are influenced by the display of items or the store environment (Mah et al., 2017).

2.4 Gaps in the literature

Consumers' views on food choice fluctuate throughout time, owing to a variety of external variables such as rapid technological innovations, changes in income status, or changes in food policies. Convenience, environmental impacts, as well as health and self-image, also become more important as consumers become more food literate (Ares & Gámbaro, 2008b). The necessity to change the food choice factors associated with the existing food choice knowledge

and shift in the perspective from where we try to understand food choices is highlighted by the ongoing evolution of consumer conceptions and attitudes.

The existing body of literature from all around the world, extensively covered across Europe (Tukker et al., 2011) and specifically studies conducted in the Scandinavian countries, cover the effect of current dietary patterns on the environment (Pieniak et al., 2009b). More recent research tries to formulate nutritious, affordable, and climate-friendly diets; however, these efforts are limited to a few countries and their specific dietary choices, culture, and food availability. In Canada, food consumption patterns and their impacts on the environment, as well as how changes in dietary patterns across time affect those environmental impacts, have been primarily studied regionally (Mah et al., 2017; Topcu et al., 2022; Veeramani et al., 2017). Nevertheless, there is a major research gap in understanding the food preferences across Canada's diverse geography and population. Since each region in Canada has a diverse culture and social and environmental conditions, similar studies should be conducted nationwide in other to better understand the determinants of food choices. Moreover, a lot of the retail companies have advanced and detailed data on how by store, by item, and by minute a product is selling and most of the existing studies use national data and statistics available from food supply systems, however, using that data as a basis misses the actual consumption and also the thinking behind why consumers made those purchases. studying the factors influencing eating decisions directly from consumers is more precise in identifying prominent eating drivers and realistic diet change approaches within the country.

Finally, while each of these elements can affect one's dietary choices, there are hidden links between these factors that require investigation. Energy-dense diets with additional fats, sweets, and refined grains, for example, are frequently the cheapest option for customers as well (Darmon et al., 2003b) while nutrient-dense foods including lean meat, fish, fruits, and vegetable are generally more expensive and thus potentially inaccessible to low-income individuals (Drenowski, 2004). Therefore, understanding these elements itself is not enough and there is a need for a more extensive approach to understanding and comprehending the relationship between the factors influencing food choices in Canada.

Chapter 3
Methods and materials

The overall goal of this research is to look at the food choice motives of Canadians living across Canada's provinces and what motivates Canadian consumers to modify their existing diets and how these motives are correlated. This objective has also been looked into explicitly in accordance with the Social Cognitive Theory. Following that, this research examines these motives among gender, age groups (periods of 10 years for each group), and respondents with different education levels. One step further, in order to include the behavioral determinants, these factors are examined between a group of customers who have reported long-term positive improvements in their eating habits and a group of consumers who have not reported any changes throughout the whole sample. This section discusses how the thesis' research questions were examined and addressed. It begins by explaining how the survey's structure was designed, then moves on to describe how it was distributed across Canada, how the data were validated, and lastly what analyses were performed.

3.1.1.1 Sample size

The surveys used in this study, as well as several other studies of a similar nature, deal with large populations, such as all Canadian adults. We must consider a few key elements that have an impact on the study and the statistics involved in order to select the appropriate sample size. In this manner, we are able to sample with confidence and know that there is a high probability that the survey results are accurate and representing the population. The variables that determine sample size are Population size, Margin of error (confidence interval), Confidence level, and Standard deviation.

Based on the 2016 census, the overall population of Canada has been estimated to be 34.46 million people. Leaving out the approximate 8 million people below the age of 18 and 506,000

temporary residents and 120,000 territories residents, the population size of this study is calculated to be 26.90 million. We assume the margin of error (d) of plus or minus 0.03 percent and a confidence level of 95 percent. The 95 percent confidence level is equal to Z-score= 1.96. In order to make sure the sample size is large enough, a safe assumption for the standard deviation (p) before conducting the survey and having the actual results is 0.5.

For populations with large sample sizes over 5000, here is how the sample size is calculated:

$$n = \frac{Z^2 p(1 - p)}{d^2}$$

Necessary sample size = $((1.96)^2 * 0.5(0.5)) / (0.03)^2 = 1067$

Therefore, a minimum number of 1067 responses are needed in order to represent the targeted respondents of this study. From the whole dataset of 3623 replies, 3066 were found to be reliable data that meets the minimum requirements for the sample size.

Alongside the benefits of using online surveys which has been discussed more in-depth in the Data Collection section, we acknowledge the limitations as well. Certain populations are less likely to have internet access and to respond to online surveys. Drawing samples based on email addresses or website visits is consequently more difficult. Furthermore, because participation in these surveys is voluntary, the demographics of the respondents may lean more toward a certain gender, age group, income, or educational level, which in turn biases the responses to the initial survey questions. As a consequence, despite the large sample size, this study adheres to interpreting the results for this sample size alone and does not tend to overgeneralize the findings to the whole Canadian population.

3.1.2 Survey instrument design

A survey was designed based on the existing body of literature to capture all the identified factors affecting food choices in detail. The judgment of an advisory committee, including The University of Waterloo Survey Center and the fellow research group, was used to guarantee the validity of the content and the clarity of each question, owing to annotations and comments that emerged before the pretesting phase. In the next step, the final version of the survey was developed in English and translated into French, providing all respondents the option of switching between the two languages at any point throughout the survey. The survey was also thoroughly pretested by the researchers with the support of the members of the Waterloo Industrial Ecology Group (WIEG) to detect any problems with the comprehension of the questions and assure the reliability of the survey results. Pretesting helps to ensure that items are relevant and clear to the population before the main survey is conducted, as well as reducing measurement errors.

The survey begins with screening questions about the age and legal status of the respondents in Canada. Moving forward, the next 4 questions reflect the basic socio-demographic profile of the respondents: gender, community type, education level, and, province/territory of living. This section is followed by two parts of the study on food choice questions, part one reflecting participants' attitudes towards their food choices and part two asking about actual food behaviors and exploring potentials for diet shifts. The survey concludes with a second set of socio-demographic questions regarding the participants' cultural backgrounds, the number of individuals in their families with whom they share food, and total household income. The items chosen for part one of the survey questions were selected based on an extensive study of the existing literature and insights from exploratory focus group discussions at the University of Waterloo Industrial Ecology Group (WIEG).

The Structure of the Food Choice Questionnaire (FCQ) developed by (Steptoe et al., 1995) served as a foundation for assessing a broad variety of factors that people could consider when deciding their dietary choices. On a 4-point scale, the original questionnaire evaluated 68 items

related to food choices. Among the original 68 factors, a final set of 36 items were found to be significant after the Confirmatory Factor Analysis run on the result in explaining food choice determinants. The 36 items are divided into nine categories, each of which represents one of the factors that influence food choices. These factors are labeled as follows: Health, Mood, Convenience, Sensory appeal, Natural content, Price, Weight control, Familiarity, and, Ethical concern. Almost all following studies in this area of research used the 36-item questionnaire as the basis for examining factors affecting food choices, with the questionnaire being translated into over 20 languages and used in studies from over 40 countries (Cunha et al., 2018).

As extensively covered in the systematic review of the application of FCQ, many different approaches have been applied to identify relevant items and dimensions based on the context of the study to add or remove from the FCQ (Cunha et al., 2018). In this research and the context of the Social Cognitive Theory, personal factors and environmental factors have been separately identified. Representing the personal factors influencing food decision-making, aside from the factors established in the FCQ construct, the notions of Food Involvement and Food Neophobia were identified to be worth investigating. Furthermore, Food Culture, Sociability, and Food Choice Influencers are explored as environmental factors that affect food decisions. This resulted in the overall number of 52 items investigating the significance of ten-factor groups defined from the background research.

For the first set of 24 questions, respondents were asked to use the drop-down menu to indicate the importance of their food choices, selecting from seven options ranging from not at all important to very important, scoring 1 to 7. In the next 28 questions, the respondents were asked to rate to what extent they agree or disagree with the following statements on a same 7-point rating scale ranging from strongly disagree to strongly agree, with scores ranging from 1 to 7. The 7-point Likert scale was chosen over (Steptoe et al., 1995)'s original 4-point scale for two reasons: first, to avoid respondents being forced to agree or disagree, and second because 7-point Likert scales have been shown to be more accurate, and easier to use, and a better reflection of a respondent's true evaluation. Given all of these benefits, 7-point questions

seem to be the best option for surveys, even when compared against higher-order items ((Finstad, 2010; Onwezen & Bartels, 2013b).

The major goal of this survey was to gather as much useful information as possible on the complicated food choice affecting variables while limiting the survey time to a minimum in order to retain the high quality of the responses. As a result, the questions representing each factor group were chosen independently and did not necessarily match the original FCQ items. More questions were used in certain circumstances, such as Environmental Effect Considerations, to account for all elements of environmental impact considerations, such as being fair trade, one's view on animal rights, processed food, or shopping locally. In categories like Price, on the other hand, we tend to keep the questions simple and straightforward. Finally, all 52 items were sorted at random to eliminate any correlation between respondents' replies. Table 1 lists all 11 original factor groupings, as well as the items that reflect each category, namely Health, Weight control, Personal Preference, Convenience, Price, Environmental Impact Considerations, Food Neophobia, Food Involvement, Food Culture, Food Choice Influencers, and Sociability. To compare with the survey design of this study, Table 2 contains the original FCQ construct developed by (Steptoe et al., 1995).

Table 1- Survey structure item statements

Constructs	Description	Item
Health	Concerns nutritional components beneficial for the overall health and wellbeing.	Keeps me healthy. Claims to contain no additives or GMOs. Is not highly processed.
Weight control	Values managing and maintaining a healthy body weight.	Is in line with my diet to maintain or reduce my weight. Is low in calories and fat.

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Personal preference	Focuses on the hedonistic aspects of eating, such as taste, smell, visual, and feel.	Tastes good. Makes me feel good. Has an appealing presentation (e.g., visual presentation or packaging)
Convenience	Concerns food easy accessibility and preparation, as well as time-saving features.	Is easily available in shops and supermarkets. Is easy to prepare (in terms of necessary skills, ingredients and, equipment). Is fast to prepare.
Price	Values the economic factors of choosing food.	Is on sale. Is a good value for the money.
Environmental impact considerations	Cares about the impact of eating on the environment, climate and resources.	Is prepared and packaged in an environmentally friendly way. Is produced in a way that respects animals' rights. Is organic. Is low in animal products. Is produced and processed locally. Is fair trade. Has a low impact on climate change. Is seasonal.
Food neophobia	Is reluctant to eat or is avoidant of new foods.	I prefer food from brands I'm familiar with. I am hesitant to eat things I have never had before. I am willing to try insect protein. I am constantly sampling new and different foods. I do not trust new food technologies (e.g., lab meat). I am willing to try plant-based protein foods.
Food involvement		I consider myself to be a skilled cook. I enjoy cooking for others and myself.

	Enjoys being engaged in the preparation and consumption of food.	I enjoy looking through recipes on websites and social media. I do most or all of my own food shopping. I eat just as a means of satisfying hunger.
Food culture	Shapes their attitude towards food based on their cultural background.	I often eat my ethnic/ traditional food. I often eat my family's traditional dishes. Aligns with my cultural background (e.g., nation, country, region). Aligns with my religious views (e.g., Halal, Kosher). People share common food tastes regardless of their cultural backgrounds. I often eat food from various cultures.
Food choice influencers	Is influenced by the environment while making food decisions.	I eat food which is recommended by nutrition experts. I follow food trends. I eat food which is recommended by social media influencers. I eat food which is recommended by friends. I eat food which is advertised in various media (e.g., Television, Online). I make most of my purchasing decisions inside the grocery store.
Sociability	Explores their food preferences within the presence of others.	Food makes social gatherings more enjoyable. Eating is a good way of spending time with other people.

Table 2- Structure of the Food Choice Questionnaire developed by (Steptoe et al., 1995) with its 36 items

Items	Factor/dimension
Contains a lot of vitamins and minerals	Health
Keeps me healthy	
Is nutritious	
Is high in protein	
Is good for my skin/teeth/hair/nails etc	
Is high in fibre and roughage	
Helps me cope with stress	Mood
Helps me to cope with life	
Helps me relax	
Keeps me awake/alert	
Cheers me up	
Makes me feel good	
Is easy to prepare	Convenience
Can be cooked very simply	
Takes no time to prepare	
Can be bought in shops close to where I live or work	
Is easily available in shops and supermarkets	
Smells nice	Sensory appeal
Looks nice	
Has a pleasant texture	
Tastes good	
Contains no additives	Natural content
Contains natural ingredients	
Contains no artificial ingredients	
Is not expensive	Price
Is cheap	
Is good value for money	
Is low in calories	Weight control
Helps me control my weight	
Is low in fat	
Is what I usually eat	Familiarity
Is familiar	
Is like the food I ate when I was a child	
Comes from countries I approve of politically	Ethical concern
Has the country of origin clearly marked	
Is packaged in an environmentally friendly way	

In part two of the survey questions, respondents were asked about their eating environment setting, and whether they have previously explored any specific diets or any long-term diet alterations using multiple-choice questions. Respondents who reported they had changed their diet were also asked to explain why they had done so with the option of choosing between multiple-choice reasons given or the open-ended text boxes provided. This part finishes by examining what adjustments individuals would make if they had more money to spend on food, as well as what they perceive to motivate them to make future dietary changes.

3.1.3 Data collection

Any Canadian citizen over the age of 18 was considered to be eligible to participate in this research making independent choices. An online survey hosted by Qualtrics XM was utilized as the tool for data collection. During the main round of data collecting, QuestMindShare, an online survey distribution tool, was used to send survey web links to guarantee a dependable number of responses in a relatively short period. The sample was drawn randomly from the decent representative QuestMindShare's data collection panel in line with the national population distributions concerning age, gender, and region. This method ultimately led to a total of 3623 responses.

Although it is understood that utilizing online surveys would exclude people who do not have internet access, the choice to utilize online surveys was rationalized since it is the most prevalent method of data collecting for all customer experience studies (Faran & Zanbar, 2019; Santoso et al., 2016). Furthermore, online surveys have the benefit of being practically easy to distribute and eliminating the possibility of missing data since respondents would not be allowed to continue if a specific response was left blank. In order to keep the experience of responding to the survey more engaging, a wide range of question types was used. The main portion of the data used in this study to understand the patterns and correlations between factors affecting food choices are driven by the 7-point Likert and rating scale questions, however, the open-ended questions were also added to elaborate further on consumers' attitudes and

decision-making regarding food. The socio-demographic questions are mostly designed in the format of dropdown and multiple choice.

Participation in the survey was completely voluntary and anonymous. Before beginning the survey, participants were informed about the purpose of the study and the use of data via an information letter, stressing that the information obtained would be used only for research, ensuring confidentiality. Furthermore, no sensitive personal information was requested at any stage during the survey, and each participant's data was saved under an identical response ID. In appreciation of the time participants gave to completing this study, they could decide if they wanted to provide an email address to enter a draw for one of 20 gift cards with a value of $25 each. If an email address was provided for the draw, the participation would not be anonymous. For this case, another survey was designed specifically for redirecting participants willing to enter the draw to collect their emails separately and maintain the confidentiality of the main survey questions.

3.1.4 Data cleaning

Screening questions addressing the age and citizenship status of the respondents, eliminating respondents under the age of 18 (42 responses) and temporary residents of Canada (89 responses) were conducted to ensure the participants were matched with the study's target group. Residents of the Canadian territories have also been excluded from this study due to the different nature of the food system in the mentioned locations. In addition, due to a large number of data responses, data cleaning was conducted on the Statistical Package for Social Sciences 28.0 (SPSS). The following are the assumptions used to detect poor data and outliers:

1. **Minimum approximate time for respondents to finish the survey**

   Qualtrics estimated the average time to complete the whole survey to be 678 seconds and pretesting estimated this time to be 780 seconds. The realistic assumption of

discarding survey replies with a duration less than 10 percent of the estimated time of responses suggested by (Rossmann et al., 2010) was made to eliminate the abnormally fast responses. Very quick response times suggest poor data quality, which results from respondents' negligence (Greszeki et al., 2015). As a result, the data set ended up with replies ranging from 301 to 14914 seconds, with a mean of 847.1 seconds.

2. **Straight lining behavior**

Straight lining, also known as non-differentiation in ratings, occurs when respondents lose interest in participating in a survey because they are bored, lack mental energy, or perceive the survey to be excessively difficult and demanding (Schacht et al., 2017). This survey response pattern may be found in the surveys using Likert/rating scale response choices and can be detected by determining the variance of responses in each set of questions. The Likert/rating scale questions of this survey consisted of 6 survey pages and the variance of 3 out of 6 sets of questions was computed. The responses which showed Variance= 0 in all 3 sets of questions were regarded as possibly faulty data, and they have been sent to the second phase of the verification process, where they were manually checked for additional questions. Once responses were manually checked, if there was evidence of a straight line pattern, those responses were eliminated; however, if there was no evidence of any straight lining, the data was retained even though the variance is zero.

3. **Detecting impossible answers**

The meaningless responses to the open-ended questions in the text boxes are classified as impossible answers in this research. Given that none of the survey's open-ended questions required a response in order to go to the next page, submissions containing meaningless responses in the text boxes were disregarded as impossible answers. This includes responding to a meaningful question with any type of meaningless wording, such as "kjjjj."

4. **Incomplete answers**

despite the categorization of the questions for research proposes, this study refused to retain the groups of questions in order and employed a randomizer tool to produce an overall random distribution of questions to guarantee the answer of each item is not influenced by the ones before and after. As a consequence, the premise that data with less than 40 complete Likert scale responses should be removed was justified. Since some of the groups may not be reflected in the answered questions at all, those answers were considered to be inadequate in order to provide an accurate comparison between the factor groups.

5. **Missing values**

Due to the large sample size and low frequency of missing responses, listwise deletion was employed as the method for treating missing values.

The whole dataset of 3623 replies was reduced to 3066 reliable and useful responses using the principles indicated above as a means of data cleaning with the average progress rate (how far each participant in the survey continued to answer the questions) of 99.55 percent.

3.1.5 Data analysis

The responses to the chosen questions of this study were analyzed using Statistical Package for Social Sciences 28.0 (SPSS) software after obtaining the whole raw dataset of the original survey responses on a Microsoft Excel spreadsheet. Multiple analysis tools were used to fulfill the research objectives. The constructs affecting food choices and their relative significance were investigated using descriptive mean analysis. The correlation of these constructs was assessed by the Pearson correlation test. The differences between the two primary gender groups, various age groups, and different education levels were then investigated using ANOVA analysis to see how this research may assist future behavior shift solutions that target customers depending on their gender, age, and educational level.

The participants were also clustered based on their responses to "Which of the following diets have you tried in the past 5 years for more than 6 months? (Select up to 3 options)", a behavior question indicating whether they have made any long-term food behavior changes. The respondents were divided based on whether they selected any option that represented a pre-identified sustainable behavior change or responded, "none of the above." There are no unanswered responses because responding to this question was a requirement for moving forward in the survey's design. Two groups were compared in terms of the factor groups affecting food choices using a mean analysis to see if there is any misalignment between attitudes of people with past food-related behaviors as an indication of how the behavior itself can impact new behavior adoptions (see SCT construct, Figure 2)

3.1.5.1 Bootstrapping

The characteristics of the population from which the sample was drawn are typically of importance while gathering data. With estimates derived from the sample and in order to be able to statistically analyze the data, we may conclude these population parameters, such as the independence of the responses in a sample or the margin of error. We might have a good understanding of the characteristics of these sample estimates and assumptions and can trust the results for some known populations and well-behaved parameters. However, the goal of bootstrapping is to determine how trustworthy these assumptions are for unknown populations and problematic parameters in cases such as online surveys. This single-sample approach can be used to generate a small population from which small samples are taken repeatedly with replacement. Bootstrapped samples can be fairly accurate estimates for population parameters. Alongside the one-way ANOVA, a bootstrapping has been performed in SPSS with 500 samples.

Chapter 4
Results

This chapter is characterized by three main goals, which are based on the above insights. Starting with evaluating the key constructs influencing consumers' food choices in Canada, as well as their relative importance. Second, to investigate these constructs in the Social Cognitive Theory framework. Third, to look at the differences in the aforementioned factors between three major socio-demographic characteristics: gender, age, and education levels. Lastly, to compare the factors that influence food choices between individuals who have reported past long-term diet changes and those who have not reported any long-term diet changes in the overall sample.

4.1 Descriptive analysis

Socio-demographic characteristics of the pooled sample are provided in detail in Table 3 to assess the sample's overall composition. Gender distribution shows 63.2 percent of the respondents were female and 36.2 percent were male, and 0.7 percent identified their gender as other. Although the gender distribution does not seem to correspond with the gender mix of Canada in general, the male/female response ratio may be rationalized as a result of women's greater participation in food-related behaviors (Statistics Canada, 2016; Leng et al., 2017). In terms of age, 7.9 percent fell between the ages of 18 to 24, 18.8 percent between 25 to 34, 20 percent between 35 to 44, 16.4 percent between 45 to 54, 18.9 percent between 55 to 64, and, 17.9 percent above 65 years old. The age composition of the sample matches closely with the age breakdown of Canada's population Census 2016 data (Statistics Canada, 2016). In terms of educational level, 6.5 percent of the sample population reported having no certificate, diploma, or degree. 22.9 percent reported holding a secondary (High) school diploma, 14.2 percent an apprenticeship or trades certificate or diploma, 38.1 percent a college or university

certificate or diploma below or equal to bachelor level, and finally 18.3 percent a university certificate or diploma above bachelor level. This survey also yielded some additional socio-demographic data that was not directly used in the development of this thesis. In Appendix A, you may find a table with the remainder of the statistics.

Table 3- Respondents' profile

		Frequency	%
Gender	Female	1933	63.2
	Male	1108	36.2
	Other	19	0.7
Age	18-24	243	7.9
	25-34	576	18.8
	35-44	614	20
	45-54	502	16.4
	55-64	581	18.9
	65 or older	550	17.9
Educational level	No certificate, diploma or degree	198	6.5
	Secondary (High) school diploma	702	22.9
	Apprenticeship or trades certificate or diploma	435	14.2
	College or university certificate or diploma below or equal to bachelor level	1167	38.1
	University certificate or diploma above bachelor level	559	18.3

4.2 Mean analysis

The first objective of this study was to identify the major determinants of Canadian consumers' food choice motivations and analyze the relative significance of these constructs. Therefore, to address this objective a Mean analysis was undertaken on the construct groups identified in the survey design, Table 1- Survey structure item statements. The mean for the Price factor was shown to be the highest among all constructs (μ=5.73, SD=1.01) Followed by Sociability ((μ=5.67, SD=1.07), Health (μ=5.48, SD=1.12), Convenience (μ=5.29, SD=1.06), Food Involvement (μ=5.24, SD=0.84), Food Neophobia (μ=5.12, SD=0.66), Food Culture (μ=5.00, SD=0.86), Weight Control ((μ=4.70, SD=1.47), Environmental Impact Considerations (μ=4.61, SD=1.11), Personal Preferences (μ=4.54, SD=0.90) and lastly, Food Choice Influencers (μ=4.15, SD=0.93). The result of the mean analysis is shown in Table 4 6. Figure 5- Means comparison of construct groups also portrays the comparison of the means of construct groups in descending order.

Table 4- Descriptive statistics for Construct groups

Constructs	Mean	Std. Deviation
Health	5.48	1.12
Personal Preference	4.54	0.90
Environmental Impact Consideration	4.61	1.11
Price	5.73	1.01
Weight Control	4.70	1.47
Food Neophobia	5.12	0.66
Convenience	5.29	1.06
Food Involvement	5.24	0.84
Food Culture	5.00	0.86
Food Choice Influencers	4.15	0.93
Sociability	5.67	1.07

Figure 5- Means comparison of construct groups
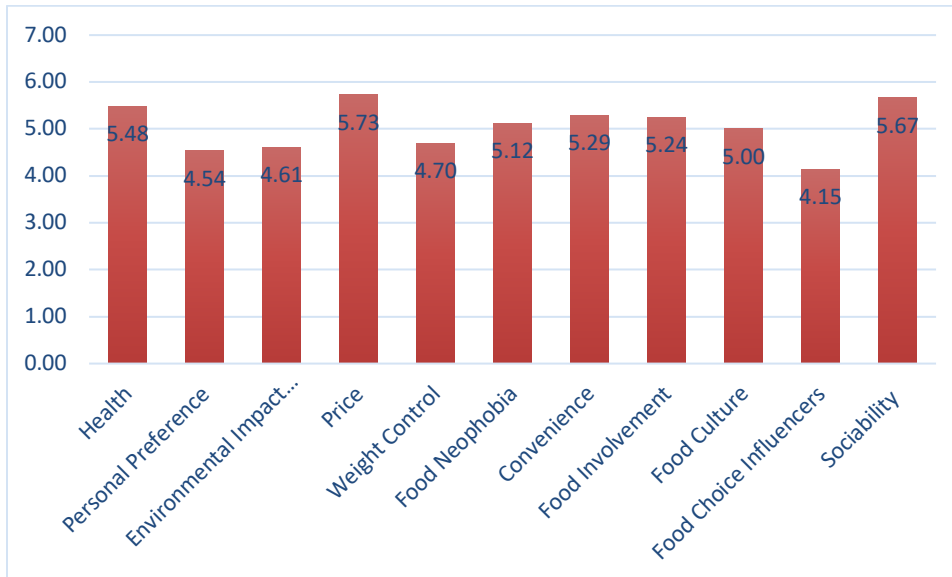
4.3 Pearson Correlation

The study of the construct groups correlations is another component of the study's first goal. The construct groups were subjected to a Bootstrapped (n=500) 2-tailed Pearson Correlation test in order to meet this goal, and significant correlations were highlighted. Except for Price and Food Choice Influencers, which did not indicate any association, and Convenience and Food Involvement, which revealed a negatively significant correlation, the results show that each of the two constructs is significantly positively correlated with the other. There is a strong positive relationship between Health and Environmental Impact Considerations, $r(3064) = 0.62$, $p<.01$. In Table 5 the findings of the Pearson Correlation Coefficient test are provided.

Table 5- Pearson Correlation Coefficient

Correlations

		Health	Personal_Preference	Environmental_Impact_Consideration	Price	Weight_Control	Food_Neophobia	Convenience	Food_Involvement	Food_Culture	Food_Choice_Influencers	Sociability
Health	Pearson Correlation	1	.329**	.621**	.109**	.435**	.104**	.146**	.242**	.213**	.166**	.169**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Personal_Preference	Pearson Correlation	.329**	1	.456**	.179**	.329**	.152**	.340**	.156**	.363**	.315**	.159**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Environmental_Impact_Consideration	Pearson Correlation	.621**	.456**	1	.063**	.368**	.054**	.129**	.227**	.252**	.276**	.140**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000
Price	Pearson Correlation	.109**	.179**	.063**	1	.126**	.109**	.368**	.049**	.065**	-0.002	.098**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000	0.000	0.007	0.000	0.924	0.000
Weight_Control	Pearson Correlation	.435**	.329**	.368**	.126**	1	.061**	.223**	.114**	.162**	.263**	.115**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.001	0.000	0.000	0.000	0.000	0.000
Food_Neophobia	Pearson Correlation	.104**	.152**	.054**	.109**	.061**	1	.194**	.056**	.165**	.096**	.078**
	Sig. (2-tailed)	0.000	0.000	0.003	0.000	0.001		0.000	0.002	0.000	0.000	0.000
Convenience	Pearson Correlation	.146**	.340**	.129**	.368**	.223**	.194**	1	-.114**	.064**	.074**	.066**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
Food_Involvement	Pearson Correlation	.242**	.156**	.227**	.049**	.114**	.056**	-.114**	1	.397**	.359**	.423**
	Sig. (2-tailed)	0.000	0.000	0.000	0.007	0.000	0.002	0.000		0.000	0.000	0.000
Food_Culture	Pearson Correlation	.213**	.363**	.252**	.065**	.162**	.165**	.064**	.397**	1	.412**	.407**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
Food_Choice_Influencers	Pearson Correlation	.166**	.315**	.276**	-0.002	.263**	.096**	.074**	.359**	.412**	1	.289**
	Sig. (2-tailed)	0.000	0.000	0.000	0.924	0.000	0.000	0.000	0.000	0.000		0.000
Sociability	Pearson Correlation	.169**	.159**	.140**	.098**	.115**	.078**	.066**	.423**	.407**	.289**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

**. Correlation is significant at the 0.01 level (2-tailed), n= 3066

4.4 Mean analysis in the Social Cognitive Theory framework

The second goal of this study is to recreate the original framework of social cognitive theory using the components discovered in the literature review. Eight of the 11 construct categories, as mentioned in the literation review chapter, indicate the personal determinants of food choices, while the other three of the 11 constructs reflect the environmental factors in the SCT framework. Table 6 shows the grouping of the constructs. Figure 6 and Figure 7 portray the means for both personal and environmental determinants. Therefore, in the original framework of the STC, personal determinants (Mean= 5.09) are noted as more significant than the environmental determinants (Mean= 4.80) in shaping one's food purchasing decisions (Figure 8).

Table 6- Means analysis table with constructs grouped by the SCT framework

Constructs	Mean	Std. Deviation
Health	5.48	1.12
Personal Preference	4.54	0.90
Environmental Impact Consideration	4.61	1.11
Price	5.73	1.01
Weight Control	4.70	1.47
Food Neophobia	5.12	0.66
Convenience	5.29	1.06
Food Involvement	5.24	0.84
Food Culture	5.00	0.86
Food Choice Influencers	4.15	0.93
Sociability	5.67	1.07

Personal — Health through Food Involvement

Environmental — Food Culture through Sociability

Figure 6- Means for Personal determinants
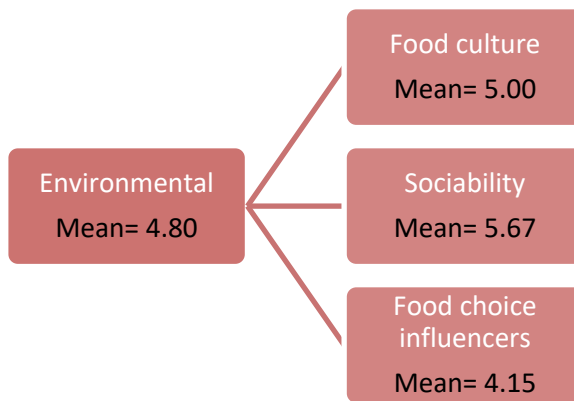
Figure 7- Means for Environmental determinants
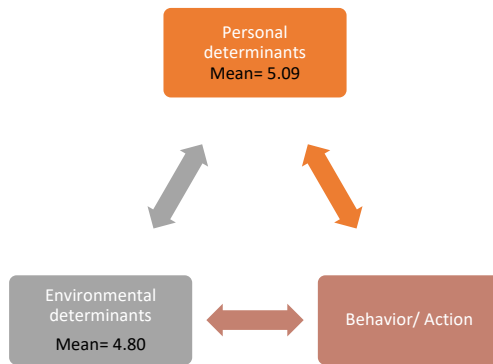
Figure 8- Mean analysis in the SCT framework

4.5 Food choice across gender, age and education

As the response to the third objective of this study, A bootstrapped one-way ANOVA test was used to evaluate the differences in factors influencing food choices between the two primary gender groups, age groups, and education level as the prominent socio-demographic characteristics of the populations.

In the case of gender, seven out of eleven constructs reported significant differences between men and women (Health, Convenience, Environmental impact considerations, Food Culture, Personal Preferences, Food Involvement, and, Sociability). The other four constructs that indicated no significant differences were Price, Food Choice Influencers, Food Neophobia, and, Weight Control. The results of the ANOVA are shown in Table 7. The significance level is set at sig <0.05 for each construct.

Table 7- ANOVA results on Gender

		Sum of Squares	df	Mean Square	F	Sig.
Health	Between Groups	43.933	3	14.644	11.837	<.001
	Within Groups	3774.635	3051	1.237		
	Total	3818.568	3054			
Price	Between Groups	4.870	3	1.623	1.995	0.113
	Within Groups	2485.143	3055	0.813		
	Total	2490.013	3058			
Convenience	Between Groups	60.210	3	20.070	16.412	<.001
	Within Groups	3734.656	3054	1.223		
	Total	3794.866	3057			
Food Choice Influencers	Between Groups	5.981	3	1.994	1.964	0.117
	Within Groups	3099.010	3053	1.015		
	Total	3104.990	3056			
Environmental Impact Consideration	Between Groups	48.603	3	16.201	7.591	<.001
	Within Groups	6509.623	3050	2.134		
	Total	6558.226	3053			
Food Neophobia	Between Groups	6.594	3	2.198	4.991	<.01
	Within Groups	1343.214	3050	0.440		
	Total	1349.809	3053			
Food Culture	Between Groups	19.388	3	6.463	5.836	<.001
	Within Groups	3380.872	3053	1.107		
	Total	3400.260	3056			
Personal Preference	Between Groups	60.920	3	20.307	29.329	<.001
	Within Groups	2112.411	3051	0.692		
	Total	2173.331	3054			
Weight Control	Between Groups	3.828	3	1.276	1.713	0.162
	Within Groups	2271.223	3049	0.745		
	Total	2275.052	3052			
Food Involvement	Between Groups	20.407	3	6.802	7.930	<.001
	Within Groups	2606.971	3039	0.858		
	Total	2627.378	3042			
Sociability	Between Groups	34.592	3	11.531	10.06	<.001
	Within Groups	3357.129	2929	1.146		
	Total	3391.721	2932			

The impact of gender on food choices is acknowledged here, as demonstrated by existing literature. Therefore, to emphasize the primary areas of difference between gender groups, the ANOVA test is followed by a post-hoc analysis using Tukey's HSD criterion for significance. The key findings of the analysis are given in Table 8, as well as the full table is provided in appendix 1.

Table 8- Multiple comparisons between gender groups

	Dependent Variable		Mean Difference (I-J)	Std. Error	Sig.
Environmental impact considerations	Female	Male	.29043	.04168	<.001
Food involvement	Female	Male	.29397	.03139	<.001
Health	Female	Male	.21122	.04194	<.001
Food Culture	Female	Male	.04891	.03257	.437
Sociability	Female	Male	.21509	.04123	<.001

Men and women have different perspectives on the environmental impact of what they eat, as well as how much they are involved or like being involved in food preparation and consumption, the health considerations of food products, and eating in the presence of others as seen in the table above. Also, across all construct groups, food culture has the lowest significance (Mean Difference= 0.04891), indicating that there is essentially no difference in how men and women view their cultural links and backgrounds when selecting food.

The same analysis of the One-way ANOVA test and a post-hoc analysis using Tukey's HSD criterion was done on the other two major socio-demographic determinants, age and education level. The results of the ANOVA test on age show significant differences in five out of eleven construct groups (Health, Food Involvement, Food Culture, Food Choice Influencers, and Sociability) and the education level revealed significant differences in eight out of eleven constructs excluding Environmental impact considerations, Price and Convenience. The full table of ANOVA analysis results for age and education level is provided in appendix A. Here

in Table 9, the major finding of the post-hoc analysis for age, and in Table 10 the key findings of education level difference are provided.

Table 9- Multiple comparisons between age groups

	Dependent Variable		Mean Difference (I-J)	Std. Error	Sig.
Food Choice influencers	18-24	25-34	0.02802	0.06965	0.999
		35-44	0.14536	0.06904	0.285
		45-54	.39795*	0.07122	<.001
		55-64	.49935*	0.06954	<.001
		65 or older	.57071*	0.07012	<.001
Food culture	18-24	25-34	0.11946	0.06581	0.456
		35-44	0.15672	0.06522	0.155
		45-54	.29751*	0.06729	<.001
		55-64	.29259*	0.06573	<.001
		65 or older	.29567*	0.0663	<.001
Personal Preferences	18-24	35-44	0.03575	0.06899	0.995
		45-54	0.01361	0.06837	1
		55-64	0.11641	0.07049	0.564
		65 or older	0.08697	0.0689	0.806

The findings show that when it comes to food choices, Food Choice Influencers play a huge role in making eating decisions for younger age groups. There is a 0.57 mean difference between the first group (18-24) and participants over 65 years which showed significantly less

importance to the influencers. Food culture was deemed less important by older respondents but relatively important by younger respondents, particularly those under 45 years old. Finally, the Personal Preferences construct has the lowest mean in the whole sample, and post-hoc findings suggest that it remains the same among different age groups.

Table 10- Multiple comparisons between educational level groups

	Dependent Variable		Mean Difference (I-J)	Std. Error	Sig.
Health	No degree	Secondary school	-0.15582	0.08921	0.405
		Certificate or diploma	-.31625*	0.09503	<0.01
		Bachelor level	-.39782*	0.08521	<.001
		Above bachelor	-.43535*	0.09169	<.001
Food culture	No degree	Secondary school	-0.09581	0.0693	0.639
		Certificate or diploma	-0.0475	0.07385	0.968
		Bachelor level	-.20268*	0.06623	0.019
		Above bachelor	-.35719*	0.07123	<.001
Weight Control	No degree	Secondary school	-0.04035	0.11744	0.997
		Certificate or diploma	-0.18708	0.12508	0.565
		Bachelor level	-.31886*	0.11216	<.05
		Above bachelor	-.44664*	0.12069	<.05
	No degree	Secondary school	-0.234620645	0.088200208	0.06

Environmental Impact Considerations		Certificate or diploma	-0.253498218	0.09399797	0.05
		Bachelor level	-.47540*	0.084353881	<.001
		Above bachelor	-.44210*	0.090658878	<.001
Sociability	No degree	Secondary school	-0.25031*	0.08937	<.05
		Certificate or diploma	-0.27534*	0.09528	<.05
		Bachelor level	-0.48242*	0.08554	<.001
		Above bachelor	-0.45185*	0.09179	<.001

According to the table above, individuals with varying educational levels value Health, Food Culture, Weight Control, Environmental Impact Considerations, and, Sociability differently. The higher one's educational level, the more attention they devote to their health and well-being, with a 0.435 mean difference gap between participants with no certificate, diploma, or degree and those with a university certificate beyond a bachelor's degree. In terms of education, participants' attitudes about Environmental Impact Considerations and Convenience are mostly unchanged. There appear to be two significant spikes in how respondents value each construct for nearly all of the elements. One difference in attitudes exists between respondents without a degree and respondents with only a high school diploma or less; the next difference in attitudes occurs when respondents have a university degree, whether it be an undergraduate or graduate degree.

4.6 Food selection concerning previous dietary changes

The study's next objective is to see if there are any significant differences in the factors that influence food choices between individuals who have claimed long-term diet changes in the past and those who have not. The importance of prior behavior shifts concerning their food

choice motives was investigated using an Independent Sample t-test. The results suggest that the importance of Food Neophobia and Convenience stays the same among groups regardless of their past dietary changes. The most evident differences between the two groups are in terms of Environmental Impact Considerations, Weight Control, and, Food choice influencers (0.4 higher means for the group reporting past diet changes). A noteworthy finding is that, even though the previously diet-changed group's concern for environmental impact has improved, it still ranks in the bottom three least important factors, with constructs like Price still being more significant.

Table 11- Mean comparison, Past diet change influence on factors affecting food choices

Constructs	Mean Past diet shift	No diet shifts
Health	5.67	5.34
Personal Preference	4.62	4.48
Environmental Impact Consideration	4.86	4.43
Price	5.67	5.77
Weight Control	5.02	4.47
Food Neophobia	5.13	5.11
Convenience	5.29	5.29
Food Involvement	5.38	5.14
Food Culture	5.14	4.90
Food Choice Influencers	4.41	3.95
Sociability	5.76	5.63

Chapter 5
Discussion

This research aimed to assess the most important existing constructs that affect people's food consumption and purchasing decisions, as identified by the literature, as well as their relative importance and correlations, and to evaluate the relevance of the mentioned constructs from the standpoint of the Social Cognitive Theory. Finding out how these constructs are differently important across socio-demographic categories is the next primary goal. We concentrate on the dependent variables of Gender, Age, and Educational Level for this study. Lastly, to look at how a person's preferences for constructs influencing food purchase decisions are impacted by earlier behavior change adoptions to better help future diet shift solutions.

5.1 Discussion

This study offers policymakers, retailers, and food and beverage operators new information about food choice motivations. The Social Cognitive Theory framework suggests that personal determinants influence eating choices more so than environmental determinants do (Objective two). Price was shown to be the most important factor influencing food choices. This demonstrates the importance of pricing in customers' eyes, as well as the fact that food may sell as long as it is reasonably priced. This also presents a significant potential for long-term behavior interventions to develop methods to reduce the costs of targeted food production and processing in order to increase their consumption. Fresh fruit and vegetables are often more expensive to grow than other kinds of crops that are used as ingredients for processed foods, therefore the most cost-effective options are often not the most nutritionally sound ones. Fresh strawberries, for example, must be picked by hand, whereas strawberries for preserves may be collected by machines (McMorrow et al., 2017b). The price difference between fresh fruits

and processed fruit products (e.g., strawberry jam) reflects this additional effort. Taking into consideration the importance of the Price construct, there is the possibility to make healthy food selections more accessible for lower-income populations through government subsidies. Additional incentives, on the other hand, are required to keep customers away from low-cost processed food products. According to data from the US Center for Disease Control and Prevention, taxes on tobacco and alcohol have proven beneficial in reducing their consumption. Similarly, imposing taxes on non-essential food products may appear to be a useful solution to steer customers toward healthier foods (Louderback, 2022; Niles et al., 2018b). Removing price-stabilizing measures in agriculture markets (such as current regulations for dairy and poultry) and exploring new competition in the retail food industry are two more potential solutions to the problem of price consolidation in response to the importance of Price construct.

Surprisingly, the second most significant construct was shown to be Sociability from the environmental determinants. Food products with lower purchase rates in grocery stores might be targeted for presentation in social eating environments such as restaurants or office meals to boost their chances of consumption based on the Sociability aspect of food selections. Since food is an integral element of social settings, gatherings and events may be a major opportunity for quality food to be offered or new healthy/sustainable food items to be promoted, thereby assisting consumers in overcoming their possible food neophobia in a social context. Concerning the health and safety guidelines, the post-pandemic rising and predicted interest in community activities and social gatherings might provide an opportunity to incorporate more of the sustainable diet features into people's nutritional intake and, perhaps, eating habits.

The third most important construct affecting Canadians' food choices was found to be Health, supporting the claim made by Westhoek et al. (2014a) that the population's rising health concerns are a result of the expansion of health and well-being attributes. Personal Preferences in food, ranging from the visual presentation of the meal, food packaging, taste, texture, and smell appeared to be significant for customers according to a substantial body of research naming this construct as one of the highest in their investigations (Ali et al., 2021; Asp, 1999b;

Joshi & Rahman, 2015; Lustermans, n.d.-a). The findings of this research, however, show that this construct is the second-to-last important construct. Convenience was identified as the fourth key component and was shown to be relatively significant. This element, in contrast to the Personal Preference construct, sheds emphasis on the fading hedonic aspect of food choices. One possible reason why this factor is perceived might be a result of the fast pace of life in nations such as Canada. The takeaway from this new factor is that, while food literacy and educating consumers on food health and environmental impacts are critical, there is room for diet shifts given the large segment of consumers who are willing to eat whatever is conveniently available on the market as long as their physical needs are met.

When picking food in typical day-to-day life, Environmental impacts were shown to be comparatively less important for almost all demographics regardless of previous diet change experiences. Although environmentally conscious food marketing is considered niche and it has been proven effective among those who are already concerned about the environmental impacts of their everyday food consumption (Joshi & Rahman, 2015; Nguyen et al., 2019; Young et al., 2010), the government, in general, and the Public Health Agency of Canada in particular, should raise public awareness through education and social campaigns.

Food neophobia was extensively supported in the literature on developmental psychology and the adoption of new food behaviors (Rigal et al., 2006), however, the results for Canadian consumers indicate that this construct is only of modest relevance in comparison to the others. Pairing this result with the significance of the Convenience construct mentioned above, and the relatively low significance of Food Culture, it seems that there is a trend and opportunity for people to explore more diverse food options which can facilitate the acceptance of new food technologies (e.g., Lab meat, insect protein).

In order to achieve the study's next goal, the factors influencing food choices have been looked at across gender, age groups, educational levels, and, past diet changes. Most of the construct groups exhibited significant differences between segments in each of these three cases. To be

more explicit, seven out of 11 constructs were substantially different between men and women in the case of gender. This demonstrates that, despite recent marketing efforts and public perception shifts in nations such as Canada to go gender-neutral in product design and sales, gender remains an acceptable differentiator for segmenting food consumption and marketing. Food culture and price and, Food choice influencers were the factors with findings that were not strongly correlated to gender. Given the importance of price in the ranking of the factors, policymakers and marketers can employ wider methods exclusively aimed at lowering prices while yet ensuring that they benefit everyone. The relevance of Environmental Impacts in selecting food decisions differs the greatest between men and women, as extensively supported in the previous studies.

The findings show that when it comes to food choices, Food Choice Influencers play a huge role in making eating decisions for younger age groups. There is a 0.57 mean difference between the first group (18-24) and participants over 65 years which showed significantly less importance to the influencers. Food culture was deemed less important by older respondents but relatively important by younger respondents, particularly those under 45 years old. Finally, the Personal Preferences construct has the lowest mean in the whole sample, and post-hoc findings suggest that it remains the same among different age groups.

Young adults are found to be health-indifferent but also more likely to identify as vegetarian or vegan (Betts et al., 1995b; Forestell et al., 2012b), according to the literature review. The results of this study highlight how significantly more interest young adults show in the Food choice influencers construct than other age groups. Therefore, changes in dietary behavior that are aimed at young people may assist influencer marketing campaigns to be more effective.

As anticipated, those with higher education levels prefer to engage in healthier habits, including eating, as shown by the 0.435 mean difference between participants with no certificate, diploma, or degree and those with a university certificate above a bachelor's degree. Yet, people's education level does not necessarily correlate with their attitudes on how their dietary choices affect the environment. Overall, three educational level categories—high school or lower, non-university degree, and university degree holder—perceive noteworthy

differences for the majority of the constructs that could be considered in future behavior interventions.

The two main differences between respondents with and without previous behavior changes would be in how they perceive the Weight control and Environmental impact and, Food choice influencers constructs. This suggests that more major dietary adjustments may be motivated by those types of concerns. Due to the fact that environmental impact remains modest across all classifications, there is an opportunity to increase public awareness of the issue and encourage lasting changes in behavior toward sustainable eating habits.

5.2 Study Limitations

There are several limitations to this research, which have been acknowledged. The scope of the study was confined to only residents of Canada's provinces. The Canadian territories were excluded, Due to differences in market availability and eating habits. Furthermore, the use of online surveys shows that some populations, such as those without internet access, are excluded. As a result, the study paves the way for more comprehensive studies that include other minority populations in other parts of Canada, the type of community they live in (whether they live in a rural area, a small town, or a big city, and how this can affect factors influencing food choices), as well as other socio-demographic dimensions such as the number of people in the household, income level, and cultural background.

Children and adolescents under the age of 18 are not included in this research since they do not appear to be the ones who make primary food shopping choices in the household (Oellingrath et al., 2013). With the growing focus on gender neutrality in the way young people think and make decisions, and thus how food products should be marketed to these new-age consumers, there is great potential for future research to look at younger consumers' food decisions in comparison to the findings of this study. This comparison enables policymakers

to better predict forthcoming market patterns and consumer expectations, and they were able to modify their top-down interventions as a result.

5.3 Future work recommendations

Future studies can look back on the same trends and see if people are making any difference. Despite asking novel questions, because the circumstances are changing rapidly, comparing the answers to the same questions and interpreting the differences will give invaluable insights to policymakers and marketers. Also, dietary pattern studies do not always provide quantitative recommendations. With the data-driven methods, we are looking at the patterns in the data, but once the patterns are identified, there is a need to go one step forward and translate what those patterns mean for quantitative intake.

People who are interested in being involved with food today have a broad variety of options to fulfill their desire, thanks to the quick expansion and intelligence of social media. These tools include online websites that offer recipes and nurture niche culinary interests, a large number of YouTube channels dedicated to food-related visual content, and the ongoing trend of tasters on social media recommending restaurants or food items. As a result, food involvement might be a novel way to stimulate people's interest in various sorts of cuisine while also providing chances for gastro-diplomacy on a micro level. Individuals' perspectives on their food involvement, such as their culinary abilities, and the pleasure they derive from grocery shopping, cooking, searching for recipes online, and eating, are thus worth researching.

It is worth mentioning that there has been a whole lot of change over the pandemic on how consumers make decisions about products, the pandemic also brought more focus on the need to understand how consumers are making decisions and what is important in their decision making. Based on the latest analysis looking at the sales in the sector, data shows that the average household spends about 27 percent of its food budget on processed and ready-to-eat food (Charlebois et al., 2021). This shows that despite the pandemic, Canadians have not given up on food services.

Also, it is given that with the greater use of e-commerce and online grocery shopping and how the shopping process can be oriented through typing the products needed or price and brand filtering, consumers are left with a much less exploratory process compared to the in-person shopping experience where one's attention can be easily grabbed to a certain product, sign or packaging. Even though the majority of Canadians are still shopping for their food products in the grocery store environment, the time they spend shopping there has decreased, browsing less and being less creative due to health and safety considerations (Portugal-Nunes et al., 2022). Due to its growing popularity and the benefit of the data collected during Internet search activities as one type of Big Data that may give important insights and information on population behavior and interests, the influence of online grocery shopping is worth investigating.

5.4 Conclusion

In order to develop more effective future diet changes and consumer targeting in Canada, this study was developed to thoroughly explore the major constructs influencing food choices. In order to identify these constructs, the body of research on the subject was examined. A series of questions reflecting these constructs were then designed and utilized in an online survey design. The results of this online study were analyzed to determine the relative importance of the constructs. In order to further explore how the initial constructs may be perceived differently among various groups, Segmenting respondents based on socio-demographic characteristics (gender, age, educational levels), and previous diet changes were used in this method.

Overall, personal determinants of eating behavior outweigh environmental ones, with Price being the most important construct determining food preferences. Even though Sociability is a part of environmental constructions, it is also recognized as a crucial construct to consider. Environmental impact literacy for Canadian consumers appears to present a significant opportunity to more accurately represent the true priority that should be given to this construct.

To date, gender, age, and educational level appear to be dependable indicators for categorizing customers in order to accomplish better targeting, given that they revealed significant differences in the majority of the constructs. Moreover, dietary changes may be primarily driven by a person's concern for environmental impact weight control, and food influencers. In general, the fact that food consumption habits vary so quickly suggests regular assessment of each of these constructs and targeting behavior changes accordingly.

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Appendices

Appendix A.   Ethics Clearance for online survey distribution

UNIVERSITY OF WATERLOO

Notification of Ethics Clearance to Conduct Research with Human Participants

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Principal Investigator: Goretty Dias (School of Environment, Enterprise and Development)

Student investigator: Kimiya Bahari (School of Environment, Enterprise and Development)

Co-Investigator: Jennifer Lynes Murray (School of Environment, Enterprise and Development)

File #: 41458

Title: Understanding food consumption behaviors: Prospects for shifting towards sustainable diets

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The Human Research Ethics Committee is pleased to inform you this study has been reviewed and given ethics clearance.

Initial Approval Date: 10/19/20 (m/d/y)

University of Waterloo Research Ethics Committees are composed in accordance with, and carry out their functions and operate in a manner consistent with, the institution's guidelines for research with human participants, the Tri-Council Policy Statement for the Ethical Conduct for Research Involving Humans (TCPS, 2nd edition), International Conference on Harmonization: Good Clinical Practice (ICH-GCP), the Ontario Personal Health Information Protection Act (PHIPA), the applicable laws and regulations of the province of Ontario. Both Committees are registered with the U.S. Department of Health and Human Services under the Federal Wide Assurance, FWA00021410, and IRB registration number IRB00002419 (HREC) and IRB00007409 (CREC).

This study is to be conducted in accordance with the submitted application and the most recently approved versions of all supporting materials.

Expiry Date: 10/20/21 (m/d/y)

Multi-year research must be renewed at least once every 12 months unless a more frequent review has otherwise been specified. Studies will only be renewed if the renewal report is received and approved before the expiry date. Failure to submit renewal reports will result in the investigators being notified ethics clearance has been suspended and Research Finance being notified the ethics clearance is no longer valid.

Level of review: Delegated Review

Signed on behalf of the Human Research Ethics Committee

Karen Pieters, Manager, Research Ethics, karen.pieters@uwaterloo.ca, 519-888-4567, ext. 30495

This above named study is to be conducted in accordance with the submitted application and the most recently approved versions of all supporting materials.

Documents reviewed and received ethics clearance for use in the study and/or received for information:

file: FeedbackLetter_Version2_20200922.pdf

Appendix B Recruitment letter

Hello,

This research study examines the factors affecting the food choices and eating habits of Canadians. The study is being conducted by Kimiya Bahari, a Masters's student working under the supervision of Professor Goretty Dias in the Faculty of Environment at the University of Waterloo, Canada.

You are eligible to participate if you are older than 18 and are currently a Canadian citizen or a permanent resident. You will be asked to complete an online survey which takes about 12 minutes to complete. The survey questions will be asking about your eating habits, how you make food choices, and your food preferences.

On completing this survey, you will receive your standard remuneration as per your participation in Quest MindShare as a token of appreciation for your participation.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#41458). For more information about the study, you can contact me at kbahari@uwaterloo.ca. To participate in the survey, please follow the link below.

https://uwaterloo.ca1.qualtrics.com/jfe/form/SV_ezjjNahVAkDWmkl

Thank you very much.

Sincerely,

Kimiya Bahari

Appendix C.   Survey information and consent letter

Title of Project: Understanding food consumption behaviors: Prospects for shifting towards sustainable diets

The following section provides you with information about the study so you can make an informed decision about participating. The request for consent to participate and the survey link are found at the end of this information section.

You are invited to participate in a research study conducted by Kimiya Bahari, a Masters's student under the supervision of Dr. Goretty Dias in the Faculty of Environment at the University of Waterloo, Canada. The goal of the study is to understand the drivers of food choices for Canadians.

If you decide to participate, you will be asked to complete an anonymous online survey that takes about 12 minutes to complete. Survey questions are mostly focusing on your personal food preferences and eating habits. There are no known or anticipated risks from participating in this study.

To be eligible to participate in this study, you must be:

a) 18 years or older AND

b) a Canadian citizen or permanent resident

Participation in this study is voluntary. You may skip any questions that you do not wish to answer by leaving a blank response or not selecting any of the provided response options, then continuing to the next question. You can also withdraw your participation from the survey at any time by closing the browser window. In that case, your collected data will be deleted.

You will be completing the study by an online survey hosted by Qualtrics™. However, you will receive your standard remuneration as per your participation in Quest MindShare. When information is transmitted over the internet, privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g., government agencies, hackers). Qualtrics™ temporarily collects your computer IP address to avoid duplicate responses in the dataset but will not collect information that could identify you personally. We will delete this information once we have verified that there are no duplicate responses.

The data, with no personal identifiers, collected from this study will be maintained on a password-protected computer. As well, the data will be electronically archived after completion of the study. The data will be maintained for at least 7 years and then erased.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#41458). If you have questions for the Committee contact the Office of Research Ethics, at 1-519-888-4567 or ore-ceo@uwaterloo.ca. For all other questions about the study, please contact Kimiya Bahari at kbahari@uwaterloo.ca.

If you wish to participate, please provide your consent below to continue the survey. By agreeing to participate in the study you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

Thank you for considering participating in this study.

Consent to Participate

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

☐ I agree to participate.	☐ I do not agree to participate.

Appendix D.   Social media recruitment poster

SEEKING ONLINE SURVEY PARTICIPANTS

Understanding food consumption behaviors: Prospects for shifting towards sustainable diets

Chance to win one of 20

$25

Tim Hortons/ Starbucks gift cards

⬧ Are you a Canadian citizen or permanent resident of Canada and 18 years or older?

⬧ To learn more about the study and participate in the survey, please follow https://uwaterloo.ca1.qualtrics.com/jfe/form/SV_ezjjNahVAkDWmkl To inquire about participation in this study email the researcher, Kimiya Bahari at kbahari@uwaterloo.ca.

Intake survey (12mins)

The researcher seeks to learn about your eating habits, how you make food choices, and your food preferences. Participation is voluntary and participant identities will be confidential.

UNIVERSITY OF **WATERLOO**

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee.

Understanding food consumption behaviors: Prospects for shifting towards sustainable diets

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Q2 What is your age?

◯ Under 18 (1)

◯ 18-24 (2)

◯ 25-34 (3)

◯ 35-44 (4)

◯ 45-54 (5)

◯ 55-64 (6)

◯ 65 or older (7)

Skip To: End of Block If What is your age? = Under 18

- -

Q28 What is your legal status in Canada?

◯ I am a Canadian citizen. (1)

◯ I am a Permanent Resident of Canada. (2)

◯ I am a Temporary Resident of Canada. (e.g., Visitors, Student visa, ...) (3)

Q1 What is your gender?

○ Female (1)

○ Male (2)

○ Other (3)

○ Prefer not to say (4)

Q3 What type of community do you live in?

○ Large city (more than 100,000 people) (1)

○ Small city or town (3)

○ Rural area (4)

Q6 What is the highest educational level you achieved?

○ No certificate, diploma or degree (1)

○ Secondary (High) school diploma (2)

○ Apprenticeship or trades certificate or diploma (3)

○ College or university certificate or diploma below or equal to bachelor level (4)

○ University certificate or diploma above bachelor level (5)

Q9 In which province/territory do you live?

○ Alberta (1)

○ British Columbia (2)

○ Manitoba (3)

○ New Brunswick (4)

○ Newfoundland and Labrador (5)

○ Northwest Territories (6)

○ Nova Scotia (7)

○ Nunavut (8)

○ Ontario (9)

○ Prince Edward Island (10)

○ Quebec (11)

○ Saskatchewan (12)

○ Yukon (13)

Page Break

Q10 *Please answer the remaining questions based on your opinions and actions PRIOR to COVID-19 lockdowns.*   Please use the drop-down menu to indicate how important/unimportant the following factors are in   your   food   choices.

Keeps me healthy. (1)   ▼ Not important at all (1) ... Very important (7)

Tastes good. (2)   ▼ Not important at all (1) ... Very important (7)

Aligns with my cultural background (e.g., nation,   ▼ Not important at all (1) ... Very important (7)
country, region). (3)

Is prepared and packaged in an environmentally friendly   ▼ Not important at all (1) ... Very important (7)
way. (4)

Is produced in a way that respects animals' rights. (5)   ▼ Not important at all (1) ... Very important (7)

Is organic. (6)   ▼ Not important at all (1) ... Very important (7)

Is easily available in shops and supermarkets. (7)   ▼ Not important at all (1) ... Very important (7)

Is low in calories and fat. (8)   ▼ Not important at all (1) ... Very important (7)

Page Break

Q21 Please use the drop-down menu to indicate how important/unimportant the following factors are in your food choices.

Is easy to prepare (in terms of necessary skills, ingredients and, equipment). (1)	▼ Not important at all (1) ... Very important (7)
Claims to contain no additives or GMOs. (2)	▼ Not important at all (1) ... Very important (7)
Is in line with my diet to maintain or reduce my weight. (3)	▼ Not important at all (1) ... Very important (7)
Makes me feel good. (4)	▼ Not important at all (1) ... Very important (7)
Is seasonal. (5)	▼ Not important at all (1) ... Very important (7)
Is on sale. (6)	▼ Not important at all (1) ... Very important (7)
Is fast to prepare. (7)	▼ Not important at all (1) ... Very important (7)
Aligns with my religious views (e.g., Halal, Kosher). (8)	▼ Not important at all (1) ... Very important (7)

Page Break

Q22 Please use the drop-down menu to indicate how important/unimportant the following factors are in your food choices.

Is low in animal products. (1)	▼ Not important at all (1) ... Very important (7)
Has an appealing presentation (e.g. visual presentation or packaging). (3)	▼ Not important at all (1) ... Very important (7)
Is produced and processed locally. (4)	▼ Not important at all (1) ... Very important (7)
Is not highly processed. (5)	▼ Not important at all (1) ... Very important (7)
Is a good value for the money. (6)	▼ Not important at all (1) ... Very important (7)
Is fair trade. (7)	▼ Not important at all (1) ... Very important (7)
Has a low impact on climate change. (8)	▼ Not important at all (1) ... Very important (7)

Page Break

Q11 Please indicate to what extent you agree or disagree with the following statements. (Ranging from **1= Strongly disagree, 4= Neutral** to **7= Strongly agree**)

	SD				SA		
	1	2	3	4	5	6	7
I am constantly sampling new and different foods. ()							
I am willing to try plant-based protein foods. ()							
I eat just as a means of satisfying hunger. ()							
I eat for pleasure. ()							
I enjoy looking through recipes on websites and social media. ()							
People share common food tastes regardless of their cultural backgrounds. ()							
Food makes social gatherings more enjoyable. ()							
I often eat my ethnic/ traditional food. ()							
When I am around others, I eat better quality food. ()							
I often eat food from various cultures. ()							
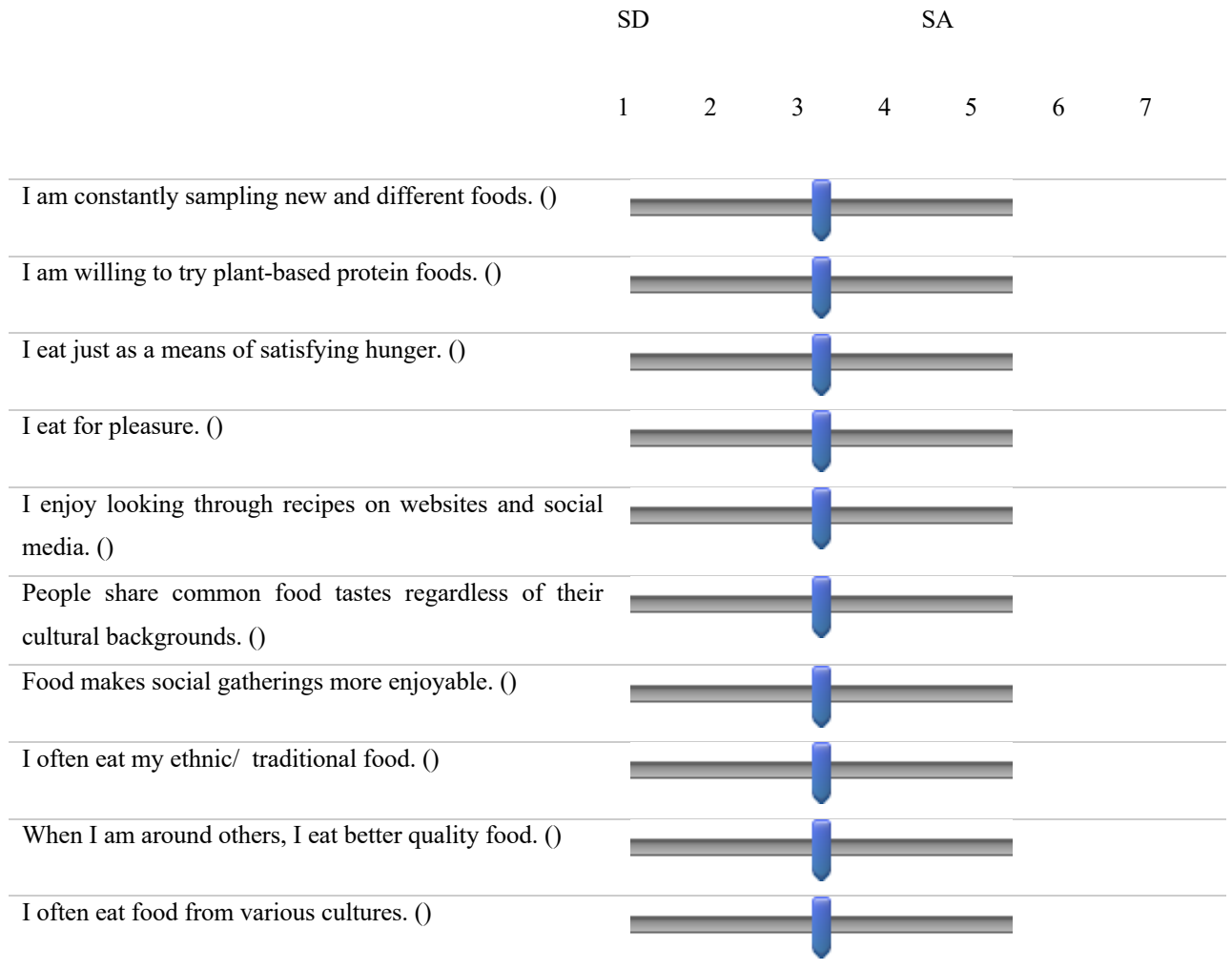
Q24 Please indicate to what extent you agree or disagree with the following statements. (Ranging from 1= Strongly disagree, 4= Neutral to 7= Strongly agree)

|	SD						SA
	1	2	3	4	5	6	7
I am afraid to eat things I have never had before. ()			●				
I am willing to try insect protein. ()			●				
I often eat out or ready-to-eat meals (more than 3 times a week). ()			●				
I consider myself to be a skilled cook. ()			●				
Food is an expression of cultural identity. ()			●				
I often eat my family's traditional dishes. ()			●				
I enjoy cooking for others and myself. ()			●				
Eating is a good way of spending time with other people. ()			●				
I do not trust new food technologies (e.g., lab meat). ()			●				
I do most or all my own food shopping. ()			●				

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Q25 Please indicate to what extent you agree or disagree with the following statements. (Ranging from 1= Strongly disagree, 4= Neutral to 7= Strongly agree)

	SD					SA	
	1	2	3	4	5	6	7

Statement	Scale
I eat food which is recommended by nutrition experts. ()	⊕
I follow food trends. ()	⊕
I eat food which is recommended by social media influencers. ()	⊕
I make most of my purchasing decisions inside the grocery store. ()	⊕
I eat food which is recommended by friends. ()	⊕
I prepare my shopping list before going to the grocery store. ()	⊕
I eat food which is advertised in various media (e.g., Television, Online). ()	⊕
I prefer food from brands I'm familiar with. ()	⊕
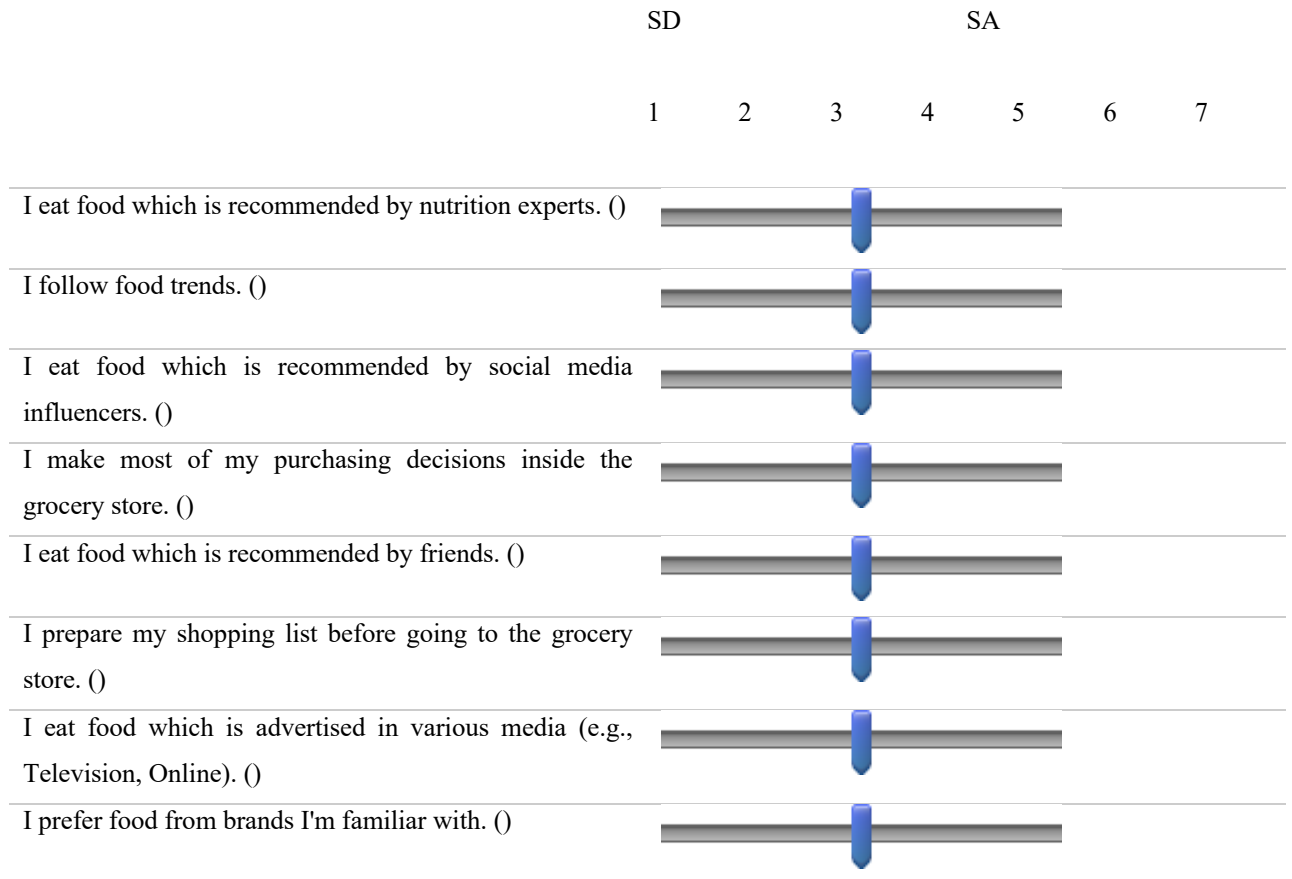
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Q13   How   frequently   do   you   eat   at   the   following   locations?

(1= Never, 2= A few meals a month, 3= A few meals a week, 4= Most meals, 5= All meals)

	Never			All meals	
	1	2	3	4	5
At home ()					
At work ()					
At restaurants ()					
Other, please specify. ()					

- -

Q14

How   frequently   do   you   eat   food   **prepared**   at   the   following   locations?

(1= Never, 2= A few meals a month, 3= A few meals a week, 4= Most meals, 5= All meals)

	Never			All meals	
	1	2	3	4	5
At home ()					
By my workplace ()					
By restaurants ()					
Other, please specify. ()					

Q12 How frequently do you eat in the following social settings? **(1= Never, 2= A few meals a month, 3= A few meals a week, 4= Most meals, 5= All meals)**

	Never			All meals	
	1	2	3	4	5

Alone ()

With a partner ()

With nuclear family ()

With extended family ()

With friends ()

Other, please specify. ()
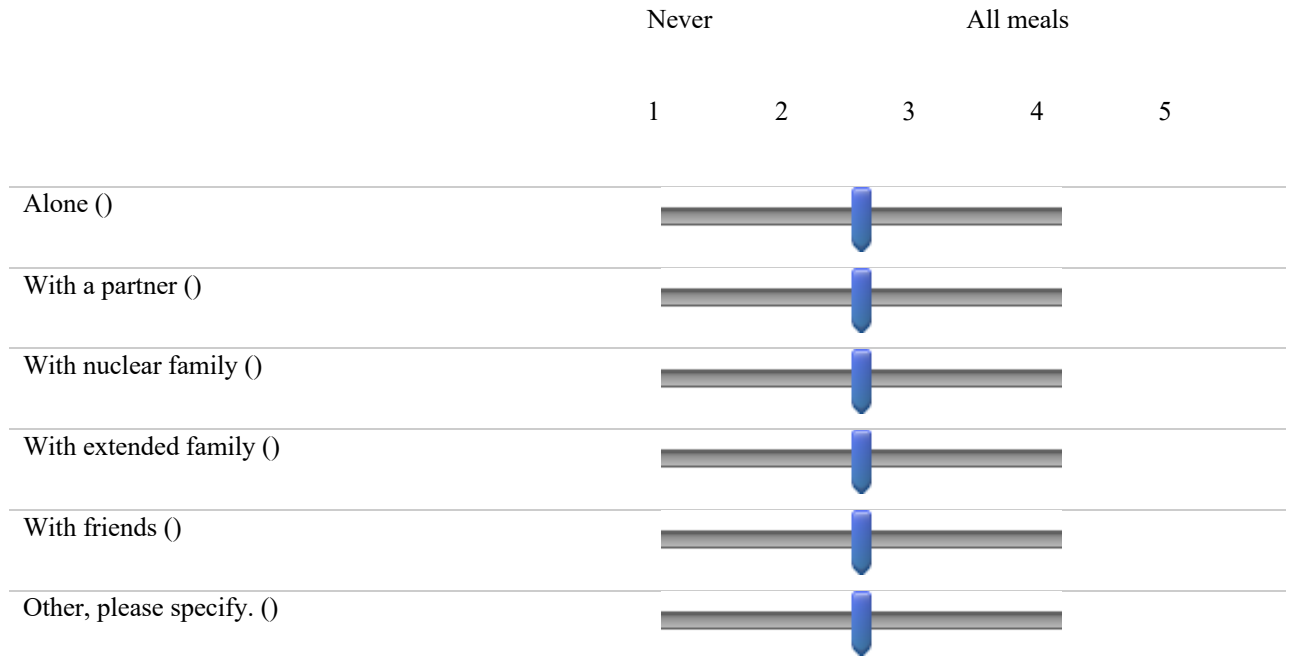
Page Break

Q15 Which of the following diets have you tried in the past 5 years for **more than 6 months**? (Select up to 3 options)

☐ Vegetarian (1)

☐ Vegan (2)

☐ Keto (3)

☐ Paleo (4)

☐ Mediterranean diet (5)

☐ Lactose-free (6)

☐ Gluten-free (7)

☐ Nut-free (8)

☐ Raw (9)

☐ Low Carb (e.g., Atkins) (10)

☐ None of the above (12)

☐ Other, please specify. (11) _____

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Q16 Please specify the main reasons for trying the diets mentioned above. (Select up to 3 options)

☐ Health (1)

☐ Convenience (2)

☐ Cost (3)

☐ Weight control (4)

☐ Environmental considerations (5)

☐ Animal welfare (6)

☐ Social concerns (7)

☐ Advertisement or recommendation of others (8)

☐ Other, please specify. (9) _____

Q26 If you have discontinued your diet(s), please specify why.

_____

Q17 Which of the following changes, if any, have you made to your diet in the past 6 months? (Select up to 3 options)

☐   Reducing meat consumption (1)

☐   Reducing all animal-based products (2)

☐   Increasing fruits and vegetables consumption (3)

☐   Eating seasonally and locally (4)

☐   None of the above (6)

☐   Other   diet   alterations,   please   specify,   (5)
_____

Q18 If you have chosen any of the above, please specify the main reasons why. (Select up to 3 options)

- [ ] Health (1)

- [ ] Convenience (2)

- [ ] Cost (3)

- [ ] Weight control (4)

- [ ] Environmental considerations (5)

- [ ] Animal welfare (6)

- [ ] Advertisement or recommendations of others (7)

- [ ] Other, please specify. (8) _____

Q19 If you had 50% more money to allocate to your food budget, please indicate what changes, if any, you would make to your eating habits. (Select up to 3 options)

☐ I would not change my eating habits. (1)

☐ Eat healthier. (2)

☐ Eat food that has lower impact on the environment. (3)

☐ Eat higher quality food. (4)

☐ Spend less time preparing food. (I would buy more prepared healthy foods from the retail stores.) (5)

☐ Spend less time preparing food. (I would use meal preparation services like Hello Fresh, ...) (6)

☐ Spend more time preparing food. (I would buy healthier ingredients and spend more time cooking.) (7)

☐ Eat out more. (8)

☐ Obtain food skills from better sources. (e.g., attend cooking classes.) (9)

☐ Obtain food information from better sources. (e.g., consult a dietitian.) (10)

☐ Other, please specify. (11) _____

Q20 Which of the following would motivate you the most to change your diet? (Select up to 3 options)

☐ Information on environmental impact of food products (1)

☐ Information on nutrition and health aspects of food products (2)

☐ Advertisement by media (3)

☐ Recommendation by nutrition experts (4)

☐ Recommendation by social media influencers or celebrities (5)

☐ Recommendation by friends (6)

☐ Recommendation by family members (7)

☐ Other, please specify. (8) _____

Q4 Which ethnic cuisines or food cultures have the **strongest influence** on your food choices and eating habits?

○ North American Aboriginal origins (e.g., First Nations) (4)

○ Other North American origins (e.g., Canadian, American) (5)

○ British Isles origins (e.g., English, Scottish) (6)

○ Northern European origins, except British Isles origins (e.g., Norwegian, Swedish) (7)

○ French origins (e.g., French) (8)

○ Western European origins, except French origins (e.g., German, Austrian) (9)

○ Eastern European origins (e.g., Russian, Polish) (10)

○ Southern European origins (e.g., Italian, Spanish) (11)

○ Caribbean origins (e.g., Jamaican, Haitian) (12)

○ Latin, Central and South American origins (e.g., Colombian, Mexican) (13)

○ Central and West African origins (e.g., Ghanaian, Nigerian) (14)

○ North African origins (e.g., Moroccan, Algerian) (15)

○ Southern and East African origins (e.g., Ethiopian, South African) (16)

○ West Central Asian and Middle Eastern origins (e.g., Iranian, Lebanese) (17)

○ South Asian origins (e.g., Indian, Pakistani) (18)

○ East and Southeast Asian origins (e.g., Chinese, Korean) (19)

○ Oceania origins (e.g., Australian, New Zealander) (20)

○ Other, please specify. (21) _____

○ Prefer not to say (22)

Q27 What effects do you think COVID-19 has had on your food choices and eating habits? (Select up to 3 options)

☐ It did not affect my food choices or eating habits. (1)

☐ I eat healthier. (2)

☐ I eat food that has lower impact on the environment. (3)

☐ I eat higher quality food. (4)

☐ I spend more time preparing food. (5)

☐ I eat lower quality food (7)

☐ It has drastically changed what I eat (8)

☐ Other, please specify. (6) _____

Page Break

Q29 Which of the following ethnic origins/ cultural backgrounds do you most identify with?

○ North American Aboriginal origins (e.g., First Nations) (1)

○ Other North American origins (e.g., Canadian, American) (3)

○ British Isles origins (e.g., English, Scottish) (5)

○ Northern European origins, except British Isles origins (e.g., Norwegian, Swedish) (9)

○ French origins (e.g., French) (6)

○ Western European origins, except French origins (e.g., German, Austrian) (7)

○ Eastern European origins (e.g., Russian, Polish) (8)

○ Southern European origins (e.g., Italian, Spanish) (10)

○ Caribbean origins (e.g., Jamaican, Haitian) (11)

○ Latin, Central and South American origins (e.g., Colombian, Mexican) (12)

○ Central and West African origins (e.g., Ghanaian, Nigerian) (13)

○ North African origins (e.g., Moroccan, Algerian) (14)

○ Southern and East African origins (e.g., Ethiopian, South African) (15)

○ West Central Asian and Middle Eastern origins (e.g., Iranian, Lebanese) (16)

○ South Asian origins (e.g., Indian, Pakistani) (17)

○ East and Southeast Asian origins (e.g., Chinese, Korean) (18)

○ Oceania origins (e.g., Australian, New Zealander) (19)

○ Other, please specify. (20) _____

○ Prefer not to say (21)

Q5 How many people in your household do you share your food with? (Including yourself)

○ 1 (1)

○ 2 (2)

○ 3 (3)

○ 4 (4)

○ 5 or more (5)

Q23 What kind of household do you live in? (Select all that apply)

☐ Live alone and cook for myself. (5)

☐ Live with roommates but prepare and eat my own food. (6)

☐ Live with roommates but share food. (9)

☐ Live with a partner (married or common law). (1)

☐ Family with younger children (under 16). (2)

☐ Family situation with older adults (e.g., extended family such as grandparents). (4)

☐ Other. Please specify (7) _____

Q8 What is your estimated **total household** income after taxes in the last 12 months? (Please estimate based on all those that live in your household and share food with you).

○ Less than $10,000 (1)

○ $10,000 - $19,999 (2)

○ $20,000 - $29,999 (3)

○ $30,000 - $39,999 (4)

○ $40,000 - $49,999 (5)

○ $50,000 - $59,999 (6)

○ $60,000 - $69,999 (7)

○ $70,000 - $79,999 (8)

○ $80,000 - $89,999 (9)

○ $90,000 - $99,999 (10)

○ $100,000 - $149,999 (11)

○ More than $150,000 (12)

○ Prefer not to answer (13)

End of Block: Block

Start of Block: Feedback and appreciation block

Q33 Thank you for your participation in this study entitled **"Determinants of food choice behaviors and future of diets among Canadians"**. The data collected from this online survey may contribute to future research in understanding food choices that support human and planetary health. Your identity will be kept confidential. This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE #41458). If you have questions for the Committee, contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca. If you are interested in receiving more information regarding the results of this study or would like a summary of the results, please provide your email address, and when the study is completed, anticipated by December 2020, we will send you a summary of the results. Your contact

information will not be stored with your responses. If you have any further questions, please feel free to contact either Kimiya Bahari, at kbahari@uwaterloo.ca or Prof. Goretty Dias at gdias@uwaterloo.ca Kimiya Bahari University of Waterloo School of Environment, Enterprise and Development

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Q34 Please provide your email address if you are interested in receiving more information regarding the results of this study: (optional)

_____

End of Block: Feedback and appreciation block

Start of Block: Screening block

Display This Question:
  If What is your age? = Under 18

Q31
Thank   you   for   considering   participating   in   this   study.
You are not eligible to participate because you are not over 18.

Display This Question:
  If What is your legal status in Canada? = I am a Temporary Resident of Canada. (e.g., Visitors, Student visa, ...)

Q30
Thank   you   for   considering   participating   in   this   study.
You are not eligible to participate because you are not a Canadian citizen or Permanent Resident.

End of Block: Screening block

Start of Block: Draw block

Q32, Would you like to enter a draw for the chance to win a gift card worth $25 CAD for either Tim Hortons or Starbucks?

○ Yes (1)

○ No (2)

Appendix F.   Supplementary analysis results

Table 12- Remainder of respondents' profile

		Frequency	%
Community type	Large urban centre (more than 100,000 people)	1798	58.8
	Small urban center	777	25.4
	Rural area	485	15.8
Number of people in the household sharing food together	1	726	24.2
	2	1101	36.7
	3	509	16.9
	4	454	15.1
	5 or more	213	7.1
Annual household income after taxes	Less than $10,000	78	2.6
	$10,000 - $19,999	213	7.0
	$20,000 - $29,999	278	9.2
	$30,000 - $39,999	285	9.4
	$40,000 - $49,999	293	9.6
	$50,000 - $59,999	287	9.5
	$60,000 - $69,999	238	7.8
	$70,000 - $79,999	196	6.5
	$80,000 - $89,999	175	5.8
	$90,000 - $99,999	194	6.4
	$100,000 - $149,999	387	12.7
	More than $150,000	179	5.9
	Prefer not to answer	234	7.7
Province/ Territory of living	Yukon	1	0.0
	Saskatchewan	80	2.6
	Quebec	745	24.3
	Prince Edward Island	12	0.4
	Ontario	1236	40.4
	Nova Scotia	98	3.2
	Northwest Territories	2	0.1
	Newfoundland and Labrador	58	1.9
	New Brunswick	71	2.3
	Manitoba	95	3.1
	British Columbia	357	11.7
	Alberta	308	10.1
Ethnic origin	Prefer not to say	83	2.7
	Other	49	1.6
	Oceania origins (e.g. Australian, New Zealander)	5	0.2
	East and Southeast Asian origins (e.g. Chinese, Korean)	268	8.8
	South Asian origins (e.g. Indian, Pakistani)	115	3.8
	West Central Asian and Middle Eastern origins (e.g. Iranian, Lebanese)	35	1.2
	Southern and East African origins (e.g. Ethiopian, South African)	8	0.3
	North African origins (e.g. Moroccan, Algerian)	18	0.6
	Central and West African origins (e.g. Ghanaian, Nigerian)	17	0.6
	Latin, Central and South American origins (e.g. Colombian, Mexican)	40	1.3
	Caribbean origins (e.g. Jamaican, Haitian)	54	1.8
	Southern European origins (e.g Italian, Spanish)	116	3.8
	Northern European origins, except British Isles origins (e.g. Norwegian, Swedish)	38	1.3
	Eastern European origins (e.g. Russian, Polish)	191	6.3
	Western European origins, except French origins (e.g. German, Austrian)	124	4.1
	French origins (e.g. French)	104	3.4
	British Isles origins (e.g. English, Scottish)	392	12.9
	Other North American origins (e.g. Canadian, American)	1304	42.9
	North American Aboriginal origins (e.g. First Nations)	78	2.6

Table 13- post-Hoc test results on Gender

			Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Food involvement	Female	Male	.42369*	0.04665	0.000	0.3038	0.5436
		Other	0.14203	0.37355	0.981	-0.8182	1.1022
		Prefer not to say	0.17896	0.43769	0.977	-0.9461	1.3040
	Male	Female	-.42369*	0.04665	0.000	-0.5436	-0.3038
		Other	-0.28166	0.37435	0.876	-1.2439	0.6806
		Prefer not to say	-0.24473	0.43837	0.944	-1.3715	0.8821
	Other	Female	-0.14203	0.37355	0.981	-1.1022	0.8182
		Male	0.28166	0.37435	0.876	-0.6806	1.2439
		Prefer not to say	0.03693	0.57405	1.000	-1.4386	1.5125
	Prefer not to say	Female	-0.17896	0.43769	0.977	-1.3040	0.9461
		Male	0.24473	0.43837	0.944	-0.8821	1.3715
		Other	-0.03693	0.57405	1.000	-1.5125	1.4386
Food culture	Female	Male	-0.00773	0.04895	0.999	-0.1336	0.1181
		Other	0.50251	0.39277	0.576	-0.5071	1.5121
		Prefer not to say	-0.20772	0.46021	0.969	-1.3907	0.9752
	Male	Female	0.00773	0.04895	0.999	-0.1181	0.1336
		Other	0.51024	0.39360	0.565	-0.5015	1.5220
		Prefer not to say	-0.19998	0.46092	0.973	-1.3847	0.9848
	Other	Female	-0.50251	0.39277	0.576	-1.5121	0.5071
		Male	-0.51024	0.39360	0.565	-1.5220	0.5015
		Prefer not to say	-0.71023	0.60359	0.642	-2.2617	0.8413
	Prefer not to say	Female	0.20772	0.46021	0.969	-0.9752	1.3907
		Male	0.19998	0.46092	0.973	-0.9848	1.3847
		Other	0.71023	0.60359	0.642	-0.8413	2.2617
Food choice influencers	Female	Male	.15864*	0.04581	0.003	0.0409	0.2764
		Other	-0.39280	0.36610	0.706	-1.3339	0.5483
		Prefer not to say	0.41824	0.45846	0.798	-0.7602	1.5967
	Male	Female	-.15864*	0.04581	0.003	-0.2764	-0.0409
		Other	-0.55144	0.36688	0.436	-1.4945	0.3916
		Prefer not to say	0.25960	0.45908	0.942	-0.9204	1.4396
	Other	Female	0.39280	0.36610	0.706	-0.5483	1.3339
		Male	0.55144	0.36688	0.436	-0.3916	1.4945
		Prefer not to say	0.81104	0.58539	0.509	-0.6937	2.3158
	Prefer not to say	Female	-0.41824	0.45846	0.798	-1.5967	0.7602
		Male	-0.25960	0.45908	0.942	-1.4396	0.9204
		Other	-0.81104	0.58539	0.509	-2.3158	0.6937
Functionality	Female	Male	.06720*	0.02144	0.009	0.0121	0.1223
		Other	-0.23239	0.17170	0.529	-0.6737	0.2090
		Prefer not to say	-0.00966	0.20118	1.000	-0.5268	0.5075
	Male	Female	-.06720*	0.02144	0.009	-0.1223	-0.0121
		Other	-0.29959	0.17207	0.303	-0.7419	0.1427
		Prefer not to say	-0.07686	0.20149	0.981	-0.5948	0.4411
	Other	Female	0.23239	0.17170	0.529	-0.2090	0.6737
		Male	0.29959	0.17207	0.303	-0.1427	0.7419
		Prefer not to say	0.22273	0.26386	0.833	-0.4555	0.9010
	Prefer not to say	Female	0.00966	0.20118	1.000	-0.5075	0.5268
		Male	0.07686	0.20149	0.981	-0.4411	0.5948
		Other	-0.22273	0.26386	0.833	-0.9010	0.4555
Sociability	Female	Male	.22596*	0.04114	0.000	0.1202	0.3317
		Other	0.62105	0.32877	0.233	-0.2240	1.4661
		Prefer not to say	0.19491	0.38522	0.958	-0.7953	1.1851
	Male	Female	-.22596*	0.04114	0.000	-0.3317	-0.1202
		Other	0.39509	0.32947	0.627	-0.4518	1.2420
		Prefer not to say	-0.03105	0.38582	1.000	-1.0228	0.9607
	Other	Female	-0.62105	0.32877	0.233	-1.4661	0.2240
		Male	-0.39509	0.32947	0.627	-1.2420	0.4518
		Prefer not to say	-0.42614	0.50522	0.834	-1.7248	0.8725
	Prefer not to say	Female	-0.19491	0.38522	0.958	-1.1851	0.7953
		Male	0.03105	0.38582	1.000	-0.9607	1.0228
		Other	0.42614	0.50522	0.834	-0.8725	1.7248

			Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
		Other	0.01819	0.20066	1.000	-0.4976	0.5340
		Prefer not to say	0.08163	0.23511	0.986	-0.5227	0.6860
	Male	Female	-.09672*	0.02503	0.001	-0.1611	-0.0324
		Other	-0.07854	0.20108	0.980	-0.5954	0.4383
		Prefer not to say	-0.01509	0.23547	1.000	-0.6204	0.5902
	Other	Female	-0.01819	0.20066	1.000	-0.5340	0.4976
		Male	0.07854	0.20108	0.980	-0.4383	0.5954
		Prefer not to say	0.06345	0.30836	0.997	-0.7292	0.8561
	Prefer not to say	Female	-0.08163	0.23511	0.986	-0.6860	0.5227
		Male	0.01509	0.23547	1.000	-0.5902	0.6204
		Other	-0.06345	0.30836	0.997	-0.8561	0.7292
Convenience_familiarity	Female	Male	.16106*	0.03967	0.000	0.0591	0.2630
		Other	0.38047	0.31819	0.630	-0.4374	1.1984
		Prefer not to say	0.05850	0.37282	0.999	-0.8998	1.0168
	Male	Female	-.16106*	0.03967	0.000	-0.2630	-0.0591
		Other	0.21940	0.31886	0.902	-0.6002	1.0390
		Prefer not to say	-0.10257	0.37340	0.993	-1.0624	0.8572
	Other	Female	-0.38047	0.31819	0.630	-1.1984	0.4374
		Male	-0.21940	0.31886	0.902	-1.0390	0.6002
		Prefer not to say	-0.32197	0.48897	0.913	-1.5789	0.9349
	Prefer not to say	Female	-0.05850	0.37282	0.999	-1.0168	0.8998
		Male	0.10257	0.37340	0.993	-0.8572	1.0624
		Other	0.32197	0.48897	0.913	-0.9349	1.5789
Food_involvement	Female	Male	.29397*	0.03139	0.000	0.2133	0.3746
		Other	0.12961	0.25160	0.955	-0.5171	0.7763
		Prefer not to say	-0.04247	0.29480	0.999	-0.8002	0.7153
	Male	Female	-.29397*	0.03139	0.000	-0.3746	-0.2133
		Other	-0.16436	0.25213	0.915	-0.8124	0.4837
		Prefer not to say	-0.33644	0.29525	0.665	-1.0954	0.4225
	Other	Female	-0.12961	0.25160	0.955	-0.7763	0.5171
		Male	0.16436	0.25213	0.915	-0.4837	0.8124
		Prefer not to say	-0.17208	0.38664	0.971	-1.1659	0.8218
	Prefer not to say	Female	0.04247	0.29480	0.999	-0.7153	0.8002
		Male	0.33644	0.29525	0.665	-0.4225	1.0954
		Other	0.17208	0.38664	0.971	-0.8218	1.1659
Food_culture	Female	Male	0.04891	0.03257	0.437	-0.0348	0.1326
		Other	0.44098	0.26097	0.329	-0.2298	1.1118
		Prefer not to say	-0.13346	0.30578	0.972	-0.9194	0.6525
	Male	Female	-0.04891	0.03257	0.437	-0.1326	0.0348
		Other	0.39207	0.26152	0.438	-0.2802	1.0643
		Prefer not to say	-0.18236	0.30625	0.933	-0.9696	0.6048
	Other	Female	-0.44098	0.26097	0.329	-1.1118	0.2298
		Male	-0.39207	0.26152	0.438	-1.0643	0.2802
		Prefer not to say	-0.57443	0.40104	0.479	-1.6053	0.4564
	Prefer not to say	Female	0.13346	0.30578	0.972	-0.6525	0.9194
		Male	0.18236	0.30625	0.933	-0.6048	0.9696
		Other	0.57443	0.40104	0.479	-0.4564	1.6053
Food_Choice_Influencers	Female	Male	.16867*	0.03499	0.000	0.0787	0.2586
		Other	-0.13300	0.28006	0.965	-0.8529	0.5869
		Prefer not to say	0.14993	0.35071	0.974	-0.7515	1.0514
	Male	Female	-.16867*	0.03499	0.000	-0.2586	-0.0787
		Other	-0.30167	0.28065	0.705	-1.0231	0.4197
		Prefer not to say	-0.01874	0.35118	1.000	-0.9214	0.8840
	Other	Female	0.13300	0.28006	0.965	-0.5869	0.8529
		Male	0.30167	0.28065	0.705	-0.4197	1.0231
		Prefer not to say	0.28293	0.44781	0.922	-0.8681	1.4340
	Prefer not to say	Female	-0.14993	0.35071	0.974	-1.0514	0.7515
		Male	0.01874	0.35118	1.000	-0.8840	0.9214
		Other	-0.28293	0.44781	0.922	-1.4340	0.8681

Table 14- ANOVA Test results on Age

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Health	Between Groups	130.346	5	26.069	21.573	<.001
	Within Groups	3691.641	3055	1.208		
	Total	3821.987	3060			
Personal_Preference	Between Groups	4.766	5	.953	1.172	.321
	Within Groups	2488.460	3059	.813		
	Total	2493.226	3064			
Environmental_Impact_Consideration	Between Groups	13.865	5	2.773	2.240	.048
	Within Groups	3785.995	3058	1.238		
	Total	3799.860	3063			
Price	Between Groups	12.160	5	2.432	2.398	.035
	Within Groups	3100.032	3057	1.014		
	Total	3112.193	3062			
Weight_Control	Between Groups	20.575	5	4.115	1.916	.088
	Within Groups	6559.661	3054	2.148		
	Total	6580.236	3059			
Food_Neophobia	Between Groups	3.766	5	.753	1.707	.129
	Within Groups	1347.551	3054	.441		
	Total	1351.317	3059			
Convenience	Between Groups	13.136	5	2.627	2.365	.038
	Within Groups	3396.038	3057	1.111		
	Total	3409.174	3062			
Food_Involvement	Between Groups	16.160	5	3.232	4.570	<.001
	Within Groups	2160.700	3055	.707		
	Total	2176.860	3060			
Food_Culture	Between Groups	28.937	5	5.787	7.842	<.001
	Within Groups	2253.108	3053	.738		
	Total	2282.045	3058			
Food_Choice_Influencers	Between Groups	146.581	5	29.316	35.813	<.001
	Within Groups	2490.967	3043	.819		
	Total	2637.548	3048			
Sociability	Between Groups	33.365	5	6.673	5.781	<.001
	Within Groups	3383.264	2931	1.154		
	Total	3416.629	2936			

Table 15- post-Hoc test results on Age

			Multiple Comparisons - Age				

Tukey HSD

Dependent Variable	(I) What is your age?	(J) What is your age?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Health	18-24	25-34	-.24030*	0.08409	0.049	-0.4801	-0.0005
		35-44	-.39451*	0.08337	0.000	-0.6322	-0.1568
		45-54	-.47968*	0.08593	0.000	-0.7247	-0.2346
		55-64	-.59559*	0.08400	0.000	-0.8351	-0.3561
		65 or older	-.72389*	0.08468	0.000	-0.9653	-0.4824
	25-34	18-24	.24030*	0.08409	0.049	0.0005	0.4801
		35-44	-0.15421	0.06384	0.151	-0.3363	0.0278
		45-54	-.23938*	0.06716	0.005	-0.4309	-0.0479
		55-64	-.35529*	0.06466	0.000	-0.5397	-0.1709
		65 or older	-.48359*	0.06554	0.000	-0.6705	-0.2967
	35-44	18-24	.39451*	0.08337	0.000	0.1568	0.6322
		25-34	0.15421	0.06384	0.151	-0.0278	0.3363
		45-54	-0.08517	0.06625	0.793	-0.2741	0.1038
		55-64	-.20108*	0.06373	0.020	-0.3828	-0.0194
		65 or older	-.32938*	0.06461	0.000	-0.5136	-0.1451
	45-54	18-24	.47968*	0.08593	0.000	0.2346	0.7247
		25-34	.23938*	0.06716	0.005	0.0479	0.4309
		35-44	0.08517	0.06625	0.793	-0.1038	0.2741
		55-64	-0.11591	0.06705	0.513	-0.3071	0.0753
		65 or older	-.24421*	0.06789	0.004	-0.4378	-0.0506
	55-64	18-24	.59559*	0.08400	0.000	0.3561	0.8351
		25-34	.35529*	0.06466	0.000	0.1709	0.5397
		35-44	.20108*	0.06373	0.020	0.0194	0.3828
		45-54	0.11591	0.06705	0.513	-0.0753	0.3071
		65 or older	-0.12830	0.06543	0.365	-0.3149	0.0583
	65 or older	18-24	.72389*	0.08468	0.000	0.4824	0.9653
		25-34	.48359*	0.06554	0.000	0.2967	0.6705
		35-44	.32938*	0.06461	0.000	0.1451	0.5136
		45-54	.24421*	0.06789	0.004	0.0506	0.4378
		55-64	0.12830	0.06543	0.365	-0.0583	0.3149
Personal_Preference	18-24	25-34	0.03575	0.06899	0.995	-0.1610	0.2325
		35-44	0.01361	0.06837	1.000	-0.1814	0.2086
		45-54	0.11641	0.07049	0.564	-0.0846	0.3174
		55-64	0.08697	0.06890	0.806	-0.1095	0.2835
		65 or older	0.07974	0.06947	0.861	-0.1184	0.2778
	25-34	18-24	-0.03575	0.06899	0.995	-0.2325	0.1610
		35-44	-0.02214	0.05234	0.998	-0.1714	0.1271
		45-54	0.08066	0.05507	0.687	-0.0764	0.2377
		55-64	0.05122	0.05303	0.929	-0.1000	0.2024
		65 or older	0.04399	0.05377	0.964	-0.1093	0.1973
	35-44	18-24	-0.01361	0.06837	1.000	-0.2086	0.1814
		25-34	0.02214	0.05234	0.998	-0.1271	0.1714
		45-54	0.10280	0.05429	0.406	-0.0520	0.2576
		55-64	0.07336	0.05222	0.724	-0.0755	0.2223
		65 or older	0.06613	0.05297	0.813	-0.0849	0.2172
	45-54	18-24	-0.11641	0.07049	0.564	-0.3174	0.0846
		25-34	-0.08066	0.05507	0.687	-0.2377	0.0764
		35-44	-0.10280	0.05429	0.406	-0.2576	0.0520
		55-64	-0.02944	0.05496	0.995	-0.1862	0.1273
		65 or older	-0.03668	0.05567	0.986	-0.1954	0.1221
	55-64	18-24	-0.08697	0.06890	0.806	-0.2835	0.1095
		25-34	-0.05122	0.05303	0.929	-0.2024	0.1000
		35-44	-0.07336	0.05222	0.724	-0.2223	0.0755
		45-54	0.02944	0.05496	0.995	-0.1273	0.1862
		65 or older	-0.00724	0.05366	1.000	-0.1602	0.1458
	65 or older	18-24	-0.07974	0.06947	0.861	-0.2778	0.1184
		25-34	-0.04399	0.05377	0.964	-0.1973	0.1093
		35-44	-0.06613	0.05297	0.813	-0.2172	0.0849
		45-54	0.03668	0.05567	0.986	-0.1221	0.1954
		55-64	0.00724	0.05366	1.000	-0.1458	0.1602
Environmental_Impact_Consideration	18-24	25-34	0.05528	0.08511	0.987	-0.1874	0.2980
		35-44	0.03450	0.08435	0.999	-0.2060	0.2750
		45-54	0.01642	0.08698	1.000	-0.2316	0.2645
		55-64	-0.11809	0.08500	0.734	-0.3605	0.1243
		65 or older	-0.08661	0.08571	0.915	-0.3310	0.1578
	25-34	18-24	-0.05528	0.08511	0.987	-0.2980	0.1874
		35-44	-0.02078	0.06457	1.000	-0.2049	0.1633
		45-54	-0.03886	0.06797	0.993	-0.2327	0.1550
		55-64	-0.17337	0.06542	0.086	-0.3599	0.0132
		65 or older	-0.14190	0.06634	0.267	-0.3311	0.0473
	35-44	18-24	-0.03450	0.08435	0.999	-0.2750	0.2060
		25-34	0.02078	0.06457	1.000	-0.1633	0.2049
		45-54	-0.01808	0.06701	1.000	-0.2092	0.1730
		55-64	-0.15259	0.06443	0.168	-0.3363	0.0311
		65 or older	-0.12112	0.06535	0.432	-0.3075	0.0652
	45-54	18-24	-0.01642	0.08698	1.000	-0.2645	0.2316
		25-34	0.03886	0.06797	0.993	-0.1550	0.2327
		35-44	0.01808	0.06701	1.000	-0.1730	0.2092
		55-64	-0.13451	0.06784	0.352	-0.3280	0.0589
		65 or older	-0.10304	0.06872	0.665	-0.2990	0.0929
	55-64	18-24	0.11809	0.08500	0.734	-0.1243	0.3605
		25-34	0.17337	0.06542	0.086	-0.0132	0.3599
		35-44	0.15259	0.06443	0.168	-0.0311	0.3363
		45-54	0.13451	0.06784	0.352	-0.0589	0.3280
		65 or older	0.03147	0.06620	0.997	-0.1573	0.2202
	65 or older	18-24	0.08661	0.08571	0.915	-0.1578	0.3310
		25-34	0.14190	0.06634	0.267	-0.0473	0.3311

Dependent Variable	(I) Age	(J) Age	Mean Difference	Std. Error	Sig.	Lower Bound	Upper Bound
		45-54	0.10304	0.06872	0.665	-0.0929	0.2990
		55-64	-0.03147	0.06620	0.997	-0.2202	0.1573
Price	18-24	25-34	-0.03845	0.07703	0.996	-0.2581	0.1812
		35-44	-0.08026	0.07637	0.900	-0.2980	0.1375
		45-54	-0.13126	0.07870	0.553	-0.3557	0.0931
		55-64	-0.20652	0.07693	0.079	-0.4259	0.0129
		65 or older	-0.07922	0.07757	0.911	-0.3004	0.1420
	25-34	18-24	0.03845	0.07703	0.996	-0.1812	0.2581
		35-44	-0.04181	0.05848	0.980	-0.2086	0.1250
		45-54	-0.09281	0.06149	0.658	-0.2681	0.0825
		55-64	-0.16807	0.05921	0.052	-0.3369	0.0008
		65 or older	-0.04077	0.06004	0.984	-0.2120	0.1304
	35-44	18-24	0.08026	0.07637	0.900	-0.1375	0.2980
		25-34	0.04181	0.05848	0.980	-0.1250	0.2086
		45-54	-0.05100	0.06066	0.960	-0.2240	0.1220
		55-64	-0.12626	0.05835	0.255	-0.2927	0.0401
		65 or older	0.00104	0.05919	1.000	-0.1677	0.1698
	45-54	18-24	0.13126	0.07870	0.553	-0.0931	0.3557
		25-34	0.09281	0.06149	0.658	-0.0825	0.2681
		35-44	0.05100	0.06066	0.960	-0.1220	0.2240
		55-64	-0.07526	0.06136	0.824	-0.2502	0.0997
		65 or older	0.05204	0.06216	0.961	-0.1252	0.2293
	55-64	18-24	0.20652	0.07693	0.079	-0.0129	0.4259
		25-34	0.16807	0.05921	0.052	-0.0008	0.3369
		35-44	0.12626	0.05835	0.255	-0.0401	0.2927
		45-54	0.07526	0.06136	0.824	-0.0997	0.2502
		65 or older	0.12730	0.05991	0.275	-0.0435	0.2981
	65 or older	18-24	0.07922	0.07757	0.911	-0.1420	0.3004
		25-34	0.04077	0.06004	0.984	-0.1304	0.2120
		35-44	-0.00104	0.05919	1.000	-0.1698	0.1677
		45-54	-0.05204	0.06216	0.961	-0.2293	0.1252
		55-64	-0.12730	0.05991	0.275	-0.2981	0.0435
Weight_Control	18-24	25-34	-0.13482	0.11214	0.836	-0.4546	0.1849
		35-44	-0.11557	0.11115	0.905	-0.4325	0.2014
		45-54	-0.15552	0.11457	0.753	-0.4822	0.1712
		55-64	-0.17470	0.11199	0.625	-0.4940	0.1447
		65 or older	-0.31181	0.11289	0.064	-0.6337	0.0101
	25-34	18-24	0.13482	0.11214	0.836	-0.1849	0.4546
		35-44	0.01925	0.08515	1.000	-0.2236	0.2621
		45-54	-0.02070	0.08957	1.000	-0.2761	0.2347
		55-64	-0.03988	0.08625	0.997	-0.2858	0.2061
		65 or older	-0.17700	0.08741	0.328	-0.4263	0.0723
	35-44	18-24	0.11557	0.11115	0.905	-0.2014	0.4325
		25-34	-0.01925	0.08515	1.000	-0.2621	0.2236
		45-54	-0.03995	0.08833	0.998	-0.2918	0.2119
		55-64	-0.05913	0.08496	0.982	-0.3014	0.1831
		65 or older	-0.19624	0.08614	0.203	-0.4419	0.0494
	45-54	18-24	0.15552	0.11457	0.753	-0.1712	0.4822
		25-34	0.02070	0.08957	1.000	-0.2347	0.2761
		35-44	0.03995	0.08833	0.998	-0.2119	0.2918
		55-64	-0.01918	0.08939	1.000	-0.2741	0.2357
		65 or older	-0.15630	0.09051	0.514	-0.4144	0.1018
	55-64	18-24	0.17470	0.11199	0.625	-0.1447	0.4940
		25-34	0.03988	0.08625	0.997	-0.2061	0.2858
		35-44	0.05913	0.08496	0.982	-0.1831	0.3014
		45-54	0.01918	0.08939	1.000	-0.2357	0.2741
		65 or older	-0.13712	0.08723	0.617	-0.3858	0.1116
	65 or older	18-24	0.31181	0.11289	0.064	-0.0101	0.6337
		25-34	0.17700	0.08741	0.328	-0.0723	0.4263
		35-44	0.19624	0.08614	0.203	-0.0494	0.4419
		45-54	0.15630	0.09051	0.514	-0.1018	0.4144
		55-64	0.13712	0.08723	0.617	-0.1116	0.3858
Food_Neophobia	18-24	25-34	0.04141	0.05096	0.965	-0.1039	0.1867
		35-44	0.03996	0.05052	0.969	-0.1041	0.1840
		45-54	0.03017	0.05209	0.992	-0.1184	0.1787
		55-64	-0.05464	0.05090	0.892	-0.1998	0.0905
		65 or older	0.00783	0.05131	1.000	-0.1385	0.1541
	25-34	18-24	-0.04141	0.05096	0.965	-0.1867	0.1039
		35-44	-0.00145	0.03856	1.000	-0.1114	0.1085
		45-54	-0.01124	0.04060	1.000	-0.1270	0.1045
		55-64	-0.09605	0.03906	0.137	-0.2074	0.0153
		65 or older	-0.03358	0.03960	0.958	-0.1465	0.0793
	35-44	18-24	-0.03996	0.05052	0.969	-0.1840	0.1041
		25-34	0.00145	0.03856	1.000	-0.1085	0.1114
		45-54	-0.00979	0.04004	1.000	-0.1240	0.1044
		55-64	-0.09460	0.03848	0.137	-0.2043	0.0151
		65 or older	-0.03214	0.03903	0.963	-0.1434	0.0792
	45-54	18-24	-0.03017	0.05209	0.992	-0.1787	0.1184
		25-34	0.01124	0.04060	1.000	-0.1045	0.1270
		35-44	0.00979	0.04004	1.000	-0.1044	0.1240
		55-64	-0.08481	0.04052	0.291	-0.2004	0.0307
		65 or older	-0.02235	0.04105	0.994	-0.1394	0.0947
	55-64	18-24	0.05464	0.05090	0.892	-0.0905	0.1998
		25-34	0.09605	0.03906	0.137	-0.0153	0.2074
		35-44	0.09460	0.03848	0.137	-0.0151	0.2043
		45-54	0.08481	0.04052	0.291	-0.0307	0.2004
		65 or older	0.06246	0.03952	0.612	-0.0502	0.1752
	65 or older	18-24	-0.00783	0.05131	1.000	-0.1541	0.1385
		25-34	0.03358	0.03960	0.958	-0.0793	0.1465
		35-44	0.03214	0.03903	0.963	-0.0792	0.1434
		45-54	0.02235	0.04105	0.994	-0.0947	0.1394
		55-64	-0.06246	0.03952	0.612	-0.1752	0.0502
Convenience_familiarity	18-24	25-34	0.03947	0.08062	0.997	-0.1904	0.2694
		35-44	0.00419	0.07992	1.000	-0.2237	0.2321
		45-54	-0.06457	0.08240	0.970	-0.2995	0.1704

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
25-34	18-24	.22590*	0.06433	0.006	0.0425	0.4093
	35-44	-0.00561	0.04882	1.000	-0.1448	0.1336
	45-54	0.09274	0.05140	0.463	-0.0538	0.2393
	55-64	0.08617	0.04945	0.504	-0.0548	0.2272
	65 or older	.15112*	0.05016	0.031	0.0081	0.2942
35-44	18-24	.23151*	0.06377	0.004	0.0497	0.4133
	25-34	0.00561	0.04882	1.000	-0.1336	0.1448
	45-54	0.09835	0.05070	0.378	-0.0462	0.2429
	55-64	0.09178	0.04871	0.412	-0.0471	0.2307
	65 or older	.15673*	0.04944	0.019	0.0158	0.2977
45-54	18-24	0.13315	0.06577	0.328	-0.0544	0.3207
	25-34	-0.09274	0.05140	0.463	-0.2393	0.0538
	35-44	-0.09835	0.05070	0.378	-0.2429	0.0462
	55-64	-0.00657	0.05130	1.000	-0.1529	0.1397
	65 or older	0.05837	0.05199	0.872	-0.0899	0.2066
55-64	18-24	0.13973	0.06425	0.250	-0.0435	0.3229
	25-34	-0.08617	0.04945	0.504	-0.2272	0.0548
	35-44	-0.09178	0.04871	0.412	-0.2307	0.0471
	45-54	0.00657	0.05130	1.000	-0.1397	0.1529
	65 or older	0.06495	0.05006	0.787	-0.0778	0.2077
65 or older	18-24	0.07478	0.06480	0.858	-0.1100	0.2596
	25-34	-.15112*	0.05016	0.031	-0.2942	-0.0081
	35-44	-.15673*	0.04944	0.019	-0.2977	-0.0158
	45-54	-0.05837	0.05199	0.872	-0.2066	0.0899
	55-64	-0.06495	0.05006	0.787	-0.2077	0.0778
Food_culture 18-24	25-34	0.11946	0.06581	0.456	-0.0682	0.3071
	35-44	0.15672	0.06522	0.155	-0.0293	0.3427
	45-54	.29751*	0.06729	0.000	0.1056	0.4894
	55-64	.29259*	0.06573	0.000	0.1052	0.4800
	65 or older	.29567*	0.06630	0.000	0.1066	0.4847
25-34	18-24	-0.11946	0.06581	0.456	-0.3071	0.0682
	35-44	0.03725	0.04985	0.976	-0.1049	0.1794
	45-54	.17804*	0.05254	0.009	0.0282	0.3279
	55-64	.17313*	0.05051	0.008	0.0291	0.3172
	65 or older	.17621*	0.05126	0.008	0.0300	0.3224
35-44	18-24	-0.15672	0.06522	0.155	-0.3427	0.0293
	25-34	-0.03725	0.04985	0.976	-0.1794	0.1049
	45-54	0.14079	0.05180	0.072	-0.0069	0.2885
	55-64	0.13587	0.04974	0.069	-0.0060	0.2777
	65 or older	0.13895	0.05050	0.066	-0.0051	0.2830
45-54	18-24	-.29751*	0.06729	0.000	-0.4894	-0.1056
	25-34	-.17804*	0.05254	0.009	-0.3279	-0.0282
	35-44	-0.14079	0.05180	0.072	-0.2885	0.0069
	55-64	-0.00491	0.05243	1.000	-0.1544	0.1446
	65 or older	-0.00184	0.05316	1.000	-0.1534	0.1497
55-64	18-24	-.29259*	0.06573	0.000	-0.4800	-0.1052
	25-34	-.17313*	0.05051	0.008	-0.3172	-0.0291
	35-44	-0.13587	0.04974	0.069	-0.2777	0.0060
	45-54	0.00491	0.05243	1.000	-0.1446	0.1544
	65 or older	0.00308	0.05116	1.000	-0.1428	0.1489
65 or older	18-24	-.29567*	0.06630	0.000	-0.4847	-0.1066
	25-34	-.17621*	0.05126	0.008	-0.3224	-0.0300
	35-44	-0.13895	0.05050	0.066	-0.2830	0.0051
	45-54	0.00184	0.05316	1.000	-0.1497	0.1534
	55-64	-0.00308	0.05116	1.000	-0.1489	0.1428
Food_Choice_Influencers 18-24	25-34	0.02802	0.06965	0.999	-0.1706	0.2266
	35-44	0.14536	0.06904	0.285	-0.0515	0.3422
	45-54	.39795*	0.07122	0.000	0.1949	0.6010
	55-64	.49935*	0.06954	0.000	0.3010	0.6977
	65 or older	.57071*	0.07012	0.000	0.3708	0.7706
25-34	18-24	-0.02802	0.06965	0.999	-0.2266	0.1706
	35-44	0.11735	0.05261	0.224	-0.0327	0.2674
	45-54	.36993*	0.05544	0.000	0.2119	0.5280
	55-64	.47134*	0.05327	0.000	0.3194	0.6232
	65 or older	.54269*	0.05401	0.000	0.3887	0.6967
35-44	18-24	-0.14536	0.06904	0.285	-0.3422	0.0515
	25-34	-0.11735	0.05261	0.224	-0.2674	0.0327
	45-54	.25259*	0.05467	0.000	0.0967	0.4085
	55-64	.35399*	0.05247	0.000	0.2044	0.5036
	65 or older	.42534*	0.05323	0.000	0.2736	0.5771
45-54	18-24	-.39795*	0.07122	0.000	-0.6010	-0.1949
	25-34	-.36993*	0.05544	0.000	-0.5280	-0.2119
	35-44	-.25259*	0.05467	0.000	-0.4085	-0.0967
	55-64	0.10141	0.05530	0.444	-0.0563	0.2591
	65 or older	.17276*	0.05602	0.025	0.0130	0.3325
55-64	18-24	-.49935*	0.06954	0.000	-0.6977	-0.3010
	25-34	-.47134*	0.05327	0.000	-0.6232	-0.3194
	35-44	-.35399*	0.05247	0.000	-0.5036	-0.2044
	45-54	-0.10141	0.05530	0.444	-0.2591	0.0563
	65 or older	0.07135	0.05387	0.772	-0.0823	0.2250
65 or older	18-24	-.57071*	0.07012	0.000	-0.7706	-0.3708
	25-34	-.54269*	0.05401	0.000	-0.6967	-0.3887
	35-44	-.42534*	0.05323	0.000	-0.5771	-0.2736
	45-54	-.17276*	0.05602	0.025	-0.3325	-0.0130
	55-64	-0.07135	0.05387	0.772	-0.2250	0.0823

*. The mean difference is significant at the 0.05 level.

Table 16- ANOVA test results on educational level

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Health	Between Groups	53.443	4	13.361	10.874	<.001
	Within Groups	3748.811	3051	1.229		
	Total	3802.254	3055			
Personal_Preference	Between Groups	22.344	4	5.586	6.913	<.001
	Within Groups	2468.613	3055	.808		
	Total	2490.956	3059			
Environmental_Impact_Consideration	Between Groups	10.418	4	2.604	2.102	.078
	Within Groups	3784.039	3054	1.239		
	Total	3794.457	3058			
Price	Between Groups	14.536	4	3.634	3.583	.006
	Within Groups	3096.392	3053	1.014		
	Total	3110.928	3057			
Weight_Control	Between Groups	71.587	4	17.897	8.408	<.001
	Within Groups	6492.273	3050	2.129		
	Total	6563.860	3054			
Food_Neophobia	Between Groups	10.199	4	2.550	5.813	<.001
	Within Groups	1337.912	3050	.439		
	Total	1348.111	3054			
Convenience	Between Groups	10.661	4	2.665	2.403	.048
	Within Groups	3385.428	3053	1.109		
	Total	3396.089	3057			
Food_Involvement	Between Groups	13.464	4	3.366	4.755	<.001
	Within Groups	2159.762	3051	.708		
	Total	2173.227	3055			
Food_Culture	Between Groups	36.816	4	9.204	12.507	<.001
	Within Groups	2243.777	3049	.736		
	Total	2280.593	3053			
Food_Choice_Influencers	Between Groups	38.387	4	9.597	11.230	<.001
	Within Groups	2597.105	3039	.855		
	Total	2635.492	3043			
Sociability	Between Groups	56.002	4	14.001	12.218	<.001
	Within Groups	3354.074	2927	1.146		
	Total	3410.076	2931			

Table 17- post-Hoc test results on educational level

Tukey HSD

Dependent Variable	(I) What is the highest educational level you have completed?	(J) What is the highest educational level you have completed?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Health	No certificate, diploma or degree	Secondary (High) school diploma	-0.15582	0.08921	0.405	-0.3993	0.0877
		Apprenticeship or trades certificate or diploma	-.31625*	0.09503	0.008	-0.5756	-0.0569
		College or university certificate or diploma below or equal to bachelor level	-.39782*	0.08521	0.000	-0.6304	-0.1652
		University certificate or diploma above bachelor level	-.43535*	0.09169	0.000	-0.6856	-0.1851
	Secondary (High) school diploma	No certificate, diploma or degree	0.15582	0.08921	0.405	-0.0877	0.3993
		Apprenticeship or trades certificate or diploma	-0.16043	0.06766	0.124	-0.3451	0.0242
		College or university certificate or diploma below or equal to bachelor level	-.24200*	0.05299	0.000	-0.3866	-0.0974
		University certificate or diploma above bachelor level	-.27953*	0.06289	0.000	-0.4512	-0.1079
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	.31625*	0.09503	0.008	0.0569	0.5756
		Secondary (High) school diploma	0.16043	0.06766	0.124	-0.0242	0.3451
		College or university certificate or diploma below or equal to bachelor level	-0.08157	0.06229	0.685	-0.2516	0.0884
		University certificate or diploma above bachelor level	-0.11910	0.07090	0.447	-0.3126	0.0744
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	.39782*	0.08521	0.000	0.1652	0.6304
		Secondary (High) school diploma	.24200*	0.05299	0.000	0.0974	0.3866
		Apprenticeship or trades certificate or diploma	0.08157	0.06229	0.685	-0.0884	0.2516
		University certificate or diploma above bachelor level	-0.03753	0.05708	0.965	-0.1933	0.1183
	University certificate or diploma above bachelor level	No certificate, diploma or degree	.43535*	0.09169	0.000	0.1851	0.6856
		Secondary (High) school diploma	.27953*	0.06289	0.000	0.1079	0.4512
		Apprenticeship or trades certificate or diploma	0.11910	0.07090	0.447	-0.0744	0.3126
		College or university certificate or diploma below or equal to bachelor level	0.03753	0.05708	0.965	-0.1183	0.1933
Personal_Preference	No certificate, diploma or degree	Secondary (High) school diploma	0.08455	0.07235	0.769	-0.1129	0.2820
		Apprenticeship or trades certificate or diploma	0.01311	0.07706	1.000	-0.1972	0.2234
		College or university certificate or diploma below or equal to bachelor level	-0.05908	0.06909	0.913	-0.2477	0.1295
		University certificate or diploma above bachelor level	-0.17150	0.07434	0.143	-0.3744	0.0314
	Secondary (High) school diploma	No certificate, diploma or degree	-0.08455	0.07235	0.769	-0.2820	0.1129
		Apprenticeship or trades certificate or diploma	-0.07144	0.05487	0.690	-0.2212	0.0783
		College or university certificate or diploma below or equal to bachelor level	-.14363*	0.04296	0.007	-0.2609	-0.0264
		University certificate or diploma above bachelor level	-.25605*	0.05097	0.000	-0.3952	-0.1169
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	-0.01311	0.07706	1.000	-0.2234	0.1972
		Secondary (High) school diploma	0.07144	0.05487	0.690	-0.0783	0.2212
		College or university certificate or diploma below or equal to bachelor level	-0.07219	0.05050	0.609	-0.2100	0.0656
		University certificate or diploma above bachelor level	-.18461*	0.05747	0.012	-0.3415	-0.0277
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	0.05908	0.06909	0.913	-0.1295	0.2477
		Secondary (High) school diploma	.14363*	0.04296	0.007	0.0264	0.2609
		Apprenticeship or trades certificate or diploma	0.07219	0.05050	0.609	-0.0656	0.2100
		University certificate or diploma above bachelor level	-0.11242	0.04624	0.107	-0.2386	0.0138
	University certificate or diploma above bachelor level	No certificate, diploma or degree	0.17150	0.07434	0.143	-0.0314	0.3744
		Secondary (High) school diploma	.25605*	0.05097	0.000	0.1169	0.3952
		Apprenticeship or trades certificate or diploma	.18461*	0.05747	0.012	0.0277	0.3415
		College or university certificate or diploma below or equal to bachelor level	0.11242	0.04624	0.107	-0.0138	0.2386
Environmental_Impact_Consideration	No certificate, diploma or degree	Secondary (High) school diploma	-0.00305	0.08958	1.000	-0.2476	0.2415
		Apprenticeship or trades certificate or diploma	-0.13258	0.09543	0.635	-0.3930	0.1279
		College or university certificate or diploma below or equal to bachelor level	-0.13423	0.08556	0.518	-0.3678	0.0993
		University certificate or diploma above bachelor level	-0.11875	0.09206	0.697	-0.3700	0.1325
	Secondary (High) school diploma	No certificate, diploma or degree	0.00305	0.08958	1.000	-0.2415	0.2476
		Apprenticeship or trades certificate or diploma	-0.12953	0.06794	0.314	-0.3150	0.0559
		College or university certificate or diploma below or equal to bachelor level	-0.13118	0.05320	0.099	-0.2764	0.0140
		University certificate or diploma above bachelor level	-0.11570	0.06312	0.355	-0.2880	0.0566
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	0.13258	0.09543	0.635	-0.1279	0.3930
		Secondary (High) school diploma	0.12953	0.06794	0.314	-0.0559	0.3150
		College or university certificate or diploma below or equal to bachelor level	-0.00165	0.06254	1.000	-0.1723	0.1690
		University certificate or diploma above bachelor level	0.01383	0.07117	1.000	-0.1804	0.2081
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	0.13423	0.08556	0.518	-0.0993	0.3678
		Secondary (High) school diploma	0.13118	0.05320	0.099	-0.0140	0.2764
		Apprenticeship or trades certificate or diploma	0.00165	0.06254	1.000	-0.1690	0.1723
		University certificate or diploma above bachelor level	0.01548	0.05726	0.999	-0.1408	0.1718
	University certificate or diploma	No certificate, diploma or degree					

Dependent	(I) Education	(J) Education	Mean Diff	Std. Error	Sig.	Lower	Upper
		Secondary (High) school diploma	0.11570	0.06312	0.355	-0.0566	0.2880
		Apprenticeship or trades certificate or diploma	-0.01383	0.07117	1.000	-0.2081	0.1804
		College or university certificate or diploma below or equal to bachelor level	-0.01548	0.05726	0.999	-0.1718	0.1408
Price	No certificate, diploma or degree	Secondary (High) school diploma	0.02096	0.08105	0.999	-0.2003	0.2422
		Apprenticeship or trades certificate or diploma	0.01705	0.08634	1.000	-0.2186	0.2527
		College or university certificate or diploma below or equal to bachelor level	0.07895	0.07741	0.846	-0.1323	0.2902
		University certificate or diploma above bachelor level	0.20806	0.08329	0.091	-0.0193	0.4354
	Secondary (High) school diploma	No certificate, diploma or degree	-0.02096	0.08105	0.999	-0.2422	0.2003
		Apprenticeship or trades certificate or diploma	-0.00391	0.06147	1.000	-0.1717	0.1639
		College or university certificate or diploma below or equal to bachelor level	0.05798	0.04814	0.749	-0.0734	0.1894
		University certificate or diploma above bachelor level	.18710*	0.05711	0.009	0.0312	0.3430
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	-0.01705	0.08634	1.000	-0.2527	0.2186
		Secondary (High) school diploma	0.00391	0.06147	1.000	-0.1639	0.1717
		College or university certificate or diploma below or equal to bachelor level	0.06190	0.05659	0.810	-0.0926	0.2163
		University certificate or diploma above bachelor level	.19101*	0.06439	0.025	0.0153	0.3668
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	-0.07895	0.07741	0.846	-0.2902	0.1323
		Secondary (High) school diploma	-0.05798	0.04814	0.749	-0.1894	0.0734
		Apprenticeship or trades certificate or diploma	-0.06190	0.05659	0.810	-0.2163	0.0926
		University certificate or diploma above bachelor level	0.12911	0.05182	0.093	-0.0123	0.2705
	University certificate or diploma above bachelor level	No certificate, diploma or degree	-0.20806	0.08329	0.091	-0.4354	0.0193
		Secondary (High) school diploma	-.18710*	0.05711	0.009	-0.3430	-0.0312
		Apprenticeship or trades certificate or diploma	-.19101*	0.06439	0.025	-0.3668	-0.0153
		College or university certificate or diploma below or equal to bachelor level	-0.12911	0.05182	0.093	-0.2705	0.0123
Weight_Control	No certificate, diploma or degree	Secondary (High) school diploma	-0.04035	0.11744	0.997	-0.3609	0.2802
		Apprenticeship or trades certificate or diploma	-0.18708	0.12508	0.565	-0.5285	0.1543
		College or university certificate or diploma below or equal to bachelor level	-.31886*	0.11216	0.036	-0.6250	-0.0127
		University certificate or diploma above bachelor level	-.44664*	0.12069	0.002	-0.7760	-0.1172
	Secondary (High) school diploma	No certificate, diploma or degree	0.04035	0.11744	0.997	-0.2802	0.3609
		Apprenticeship or trades certificate or diploma	-0.14672	0.08907	0.467	-0.3898	0.0964
		College or university certificate or diploma below or equal to bachelor level	-.27851*	0.06978	0.001	-0.4690	-0.0880
		University certificate or diploma above bachelor level	-.40629*	0.08280	0.000	-0.6323	-0.1803
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	0.18708	0.12508	0.565	-0.1543	0.5285
		Secondary (High) school diploma	0.14672	0.08907	0.467	-0.0964	0.3898
		College or university certificate or diploma below or equal to bachelor level	-0.13178	0.08199	0.493	-0.3556	0.0920
		University certificate or diploma above bachelor level	-.25957*	0.09332	0.043	-0.5143	-0.0049
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	.31886*	0.11216	0.036	0.0127	0.6250
		Secondary (High) school diploma	.27851*	0.06978	0.001	0.0880	0.4690
		Apprenticeship or trades certificate or diploma	0.13178	0.08199	0.493	-0.0920	0.3556
		University certificate or diploma above bachelor level	-0.12779	0.07512	0.433	-0.3328	0.0773
	University certificate or diploma above bachelor level	No certificate, diploma or degree	.44664*	0.12069	0.002	0.1172	0.7760
		Secondary (High) school diploma	.40629*	0.08280	0.000	0.1803	0.6323
		Apprenticeship or trades certificate or diploma	.25957*	0.09332	0.043	0.0049	0.5143
		College or university certificate or diploma below or equal to bachelor level	0.12779	0.07512	0.433	-0.0773	0.3328
Food_Neophobia	No certificate, diploma or degree	Secondary (High) school diploma	0.04055	0.05361	0.943	-0.1058	0.1869
		Apprenticeship or trades certificate or diploma	.16439*	0.05710	0.033	0.0085	0.3202
		College or university certificate or diploma below or equal to bachelor level	.14464*	0.05124	0.039	0.0048	0.2845
		University certificate or diploma above bachelor level	.17008*	0.05510	0.017	0.0197	0.3205
	Secondary (High) school diploma	No certificate, diploma or degree	-0.04055	0.05361	0.943	-0.1869	0.1058
		Apprenticeship or trades certificate or diploma	.12385*	0.04044	0.019	0.0135	0.2342
		College or university certificate or diploma below or equal to bachelor level	.10409*	0.03164	0.009	0.0177	0.1905
		University certificate or diploma above bachelor level	.12954*	0.03756	0.005	0.0270	0.2321
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	-.16439*	0.05710	0.033	-0.3202	-0.0085
		Secondary (High) school diploma	-.12385*	0.04044	0.019	-0.2342	-0.0135
		College or university certificate or diploma below or equal to bachelor level	-0.01975	0.03724	0.984	-0.1214	0.0819
		University certificate or diploma above bachelor level	0.00569	0.04239	1.000	-0.1100	0.1214
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	-.14464*	0.05124	0.039	-0.2845	-0.0048
		Secondary (High) school diploma	-.10409*	0.03164	0.009	-0.1905	-0.0177
		Apprenticeship or trades certificate or diploma	0.01975	0.03724	0.984	-0.0819	0.1214
		University certificate or diploma above bachelor level	0.02544	0.03409	0.946	-0.0676	0.1185
	University certificate or diploma above bachelor level	No certificate, diploma or degree	-.17008*	0.05510	0.017	-0.3205	-0.0197
		Secondary (High) school diploma	-.12954*	0.03756	0.005	-0.2321	-0.0270

			Mean Diff	Std. Error	Sig.	Lower	Upper
		Apprenticeship or trades certificate or diploma	-0.00569	0.04239	1.000	-0.1214	0.1100
		College or university certificate or diploma below or equal to bachelor level	-0.02544	0.03409	0.946	-0.1185	0.0676
onvenience_familiarity	No certificate, diploma or degree	Secondary (High) school diploma	-0.10317	0.08475	0.741	-0.3345	0.1281
		Apprenticeship or trades certificate or diploma	0.04252	0.09028	0.990	-0.2039	0.2889
		College or university certificate or diploma below or equal to bachelor level	-0.10584	0.08095	0.687	-0.3268	0.1151
		University certificate or diploma above bachelor level	-0.00609	0.08709	1.000	-0.2438	0.2316
	Secondary (High) school diploma	No certificate, diploma or degree	0.10317	0.08475	0.741	-0.1281	0.3345
		Apprenticeship or trades certificate or diploma	0.14569	0.06427	0.156	-0.0297	0.3211
		College or university certificate or diploma below or equal to bachelor level	-0.00267	0.05034	1.000	-0.1401	0.1347
		University certificate or diploma above bachelor level	0.09708	0.05971	0.481	-0.0659	0.2601
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	-0.04252	0.09028	0.990	-0.2889	0.2039
		Secondary (High) school diploma	-0.14569	0.06427	0.156	-0.3211	0.0297
		College or university certificate or diploma below or equal to bachelor level	-0.14836	0.05917	0.089	-0.3099	0.0131
		University certificate or diploma above bachelor level	-0.04861	0.06733	0.951	-0.2324	0.1352
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	0.10584	0.08095	0.687	-0.1151	0.3268
		Secondary (High) school diploma	0.00267	0.05034	1.000	-0.1347	0.1401
		Apprenticeship or trades certificate or diploma	0.14836	0.05917	0.089	-0.0131	0.3099
		University certificate or diploma above bachelor level	0.09975	0.05418	0.350	-0.0481	0.2476
	University certificate or diploma above bachelor level	No certificate, diploma or degree	0.00609	0.08709	1.000	-0.2316	0.2438
		Secondary (High) school diploma	-0.09708	0.05971	0.481	-0.2601	0.0659
		Apprenticeship or trades certificate or diploma	0.04861	0.06733	0.951	-0.1352	0.2324
		College or university certificate or diploma below or equal to bachelor level	-0.09975	0.05418	0.350	-0.2476	0.0481
ood_involvement	No certificate, diploma or degree	Secondary (High) school diploma	-0.06156	0.06797	0.895	-0.2471	0.1240
		Apprenticeship or trades certificate or diploma	-0.11843	0.07241	0.475	-0.3161	0.0792
		College or university certificate or diploma below or equal to bachelor level	-0.17557	0.06495	0.054	-0.3528	0.0017
		University certificate or diploma above bachelor level	-.22078*	0.06988	0.014	-0.4115	-0.0301
	Secondary (High) school diploma	No certificate, diploma or degree	0.06156	0.06797	0.895	-0.1240	0.2471
		Apprenticeship or trades certificate or diploma	-0.05687	0.05138	0.803	-0.1971	0.0834
		College or university certificate or diploma below or equal to bachelor level	-.11401*	0.04019	0.037	-0.2237	-0.0043
		University certificate or diploma above bachelor level	-.15922*	0.04774	0.008	-0.2895	-0.0289
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	0.11843	0.07241	0.475	-0.0792	0.3161
		Secondary (High) school diploma	0.05687	0.05138	0.803	-0.0834	0.1971
		College or university certificate or diploma below or equal to bachelor level	-0.05714	0.04730	0.747	-0.1863	0.0720
		University certificate or diploma above bachelor level	-0.10235	0.05387	0.318	-0.2494	0.0447
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	0.17557	0.06495	0.054	-0.0017	0.3528
		Secondary (High) school diploma	.11401*	0.04019	0.037	0.0043	0.2237
		Apprenticeship or trades certificate or diploma	0.05714	0.04730	0.747	-0.0720	0.1863
		University certificate or diploma above bachelor level	-0.04520	0.04333	0.835	-0.1635	0.0731
	University certificate or diploma above bachelor level	No certificate, diploma or degree	.22078*	0.06988	0.014	0.0301	0.4115
		Secondary (High) school diploma	.15922*	0.04774	0.008	0.0289	0.2895
		Apprenticeship or trades certificate or diploma	0.10235	0.05387	0.318	-0.0447	0.2494
		College or university certificate or diploma below or equal to bachelor level	0.04520	0.04333	0.835	-0.0731	0.1635
ood_culture	No certificate, diploma or degree	Secondary (High) school diploma	-0.09581	0.06930	0.639	-0.2850	0.0933
		Apprenticeship or trades certificate or diploma	-0.04750	0.07385	0.968	-0.2491	0.1541
		College or university certificate or diploma below or equal to bachelor level	-.20268*	0.06623	0.019	-0.3834	-0.0219
		University certificate or diploma above bachelor level	-.35719*	0.07123	0.000	-0.5516	-0.1628
	Secondary (High) school diploma	No certificate, diploma or degree	0.09581	0.06930	0.639	-0.0933	0.2850
		Apprenticeship or trades certificate or diploma	0.04831	0.05242	0.889	-0.0948	0.1914
		College or university certificate or diploma below or equal to bachelor level	-0.10686	0.04099	0.069	-0.2187	0.0050
		University certificate or diploma above bachelor level	-.26137*	0.04865	0.000	-0.3942	-0.1286
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	0.04750	0.07385	0.968	-0.1541	0.2491
		Secondary (High) school diploma	-0.04831	0.05242	0.889	-0.1914	0.0948
		College or university certificate or diploma below or equal to bachelor level	-.15517*	0.04828	0.012	-0.2870	-0.0234
		University certificate or diploma above bachelor level	-.30969*	0.05494	0.000	-0.4596	-0.1597
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	.20268*	0.06623	0.019	0.0219	0.3834
		Secondary (High) school diploma	0.10686	0.04099	0.069	-0.0050	0.2187
		Apprenticeship or trades certificate or diploma	.15517*	0.04828	0.012	0.0234	0.2870
		University certificate or diploma above bachelor level	-.15451*	0.04416	0.004	-0.2751	-0.0340
	University certificate or diploma above bachelor level	No certificate, diploma or degree	.35719*	0.07123	0.000	0.1628	0.5516
		Secondary (High) school diploma	.26137*	0.04865	0.000	0.1286	0.3942

	(I) Education	(J) Education	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
			.35719*	0.07123	0.000	-0.5516	-0.1628
	Secondary (High) school diploma	No certificate, diploma or degree	0.09581	0.06930	0.639	-0.0933	0.2850
		Apprenticeship or trades certificate or diploma	0.04831	0.05242	0.889	-0.0948	0.1914
		College or university certificate or diploma below or equal to bachelor level	-0.10686	0.04099	0.069	-0.2187	0.0050
		University certificate or diploma above bachelor level	-.26137*	0.04865	0.000	-0.3942	-0.1286
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	0.04750	0.07385	0.968	-0.1541	0.2491
		Secondary (High) school diploma	-0.04831	0.05242	0.889	-0.1914	0.0948
		College or university certificate or diploma below or equal to bachelor level	-.15517*	0.04828	0.012	-0.2870	-0.0234
		University certificate or diploma above bachelor level	-.30969*	0.05494	0.000	-0.4596	-0.1597
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	.20268*	0.06623	0.019	0.0219	0.3834
		Secondary (High) school diploma	0.10686	0.04099	0.069	-0.0050	0.2187
		Apprenticeship or trades certificate or diploma	.15517*	0.04828	0.012	0.0234	0.2870
		University certificate or diploma above bachelor level	-.15451*	0.04416	0.004	-0.2751	-0.0340
	University certificate or diploma above bachelor level	No certificate, diploma or degree	.35719*	0.07123	0.000	0.1628	0.5516
		Secondary (High) school diploma	.26137*	0.04865	0.000	0.1286	0.3942
		Apprenticeship or trades certificate or diploma	.30969*	0.05494	0.000	0.1597	0.4596
		College or university certificate or diploma below or equal to bachelor level	.15451*	0.04416	0.004	0.0340	0.2751
Food_Choice_Influencers	No certificate, diploma or degree	Secondary (High) school diploma	0.02256	0.07515	0.998	-0.1825	0.2277
		Apprenticeship or trades certificate or diploma	0.00232	0.08001	1.000	-0.2161	0.2207
		College or university certificate or diploma below or equal to bachelor level	-0.16613	0.07186	0.141	-0.3623	0.0300
		University certificate or diploma above bachelor level	-.27234*	0.07725	0.004	-0.4832	-0.0615
	Secondary (High) school diploma	No certificate, diploma or degree	-0.02256	0.07515	0.998	-0.2277	0.1825
		Apprenticeship or trades certificate or diploma	-0.02024	0.05650	0.996	-0.1745	0.1340
		College or university certificate or diploma below or equal to bachelor level	-.18869*	0.04421	0.000	-0.3094	-0.0680
		University certificate or diploma above bachelor level	-.29491*	0.05253	0.000	-0.4383	-0.1515
	Apprenticeship or trades certificate or diploma	No certificate, diploma or degree	-0.00232	0.08001	1.000	-0.2207	0.2161
		Secondary (High) school diploma	0.02024	0.05650	0.996	-0.1340	0.1745
		College or university certificate or diploma below or equal to bachelor level	-.16845*	0.05205	0.011	-0.3105	-0.0264
		University certificate or diploma above bachelor level	-.27467*	0.05927	0.000	-0.4365	-0.1129
	College or university certificate or diploma below or equal to bachelor level	No certificate, diploma or degree	0.16613	0.07186	0.141	-0.0300	0.3623
		Secondary (High) school diploma	.18869*	0.04421	0.000	0.0680	0.3094
		Apprenticeship or trades certificate or diploma	.16845*	0.05205	0.011	0.0264	0.3105
		University certificate or diploma above bachelor level	-0.10622	0.04770	0.170	-0.2364	0.0240
	University certificate or diploma above bachelor level	No certificate, diploma or degree	.27234*	0.07725	0.004	0.0615	0.4832
		Secondary (High) school diploma	.29491*	0.05253	0.000	0.1515	0.4383
		Apprenticeship or trades certificate or diploma	.27467*	0.05927	0.000	0.1129	0.4365
		College or university certificate or diploma below or equal to bachelor level	0.10622	0.04770	0.170	-0.0240	0.2364

*. The mean difference is significant at the 0.05 level.