**An Aboriginal Perspective on the Influences of Food Intake**

By

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# Abstract

**Background:** The purpose of this phenomenological study is to explore the existing research on the determinants and influential factors of eating decisions made by Aboriginal peoples and provide insight from the perspective of Aboriginal peoples living off-reserve in Ottawa, Ontario. **Methods:** This study was comprised of a convenience sample of 12 Aboriginal individuals from a local Aboriginal community centre. Participants were asked to conduct a personal food diary of their meals for a period of 3 days, followed by a one-on-one semi-structured interview. The interviews were designed to explore: 1) knowledge and perspectives of healthy eating 2) knowledge and perspectives of Health Canada's *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis,* 3) perception of influential factors 4) self-efficacy and 5) common barriers in making food choices. **Results:** 1) Except for the senior participants, healthy food knowledge did not translate into healthy food choices for most participants; 2) Most participants had not seen a copy of the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis*, and all participants felt they were not influenced by it when making eating decisions; 3) The main themes of influential factors were concluded to be: taste preference, availability, convenience, "had no choice", health reasons, "easy to make", low in cost, following a diet or "food schedule," hunger or thirst, "needed something quick", nearby location (of store or restaurant), being tired or lazy and being in a routine; 4) Most participants perceived themselves as having control over their eating decisions regardless of situational factors and level of motivation varied between participants; 5) Time, financial constraints, having a busy schedule and being unprepared for meals were identified as possible barriers. **Conclusions:** Either version of the food guide should be developed into a more flexible and convenient tool such as a mobile application. Local community centres should consider providing workshops in food preparation, and to strengthen skills such as understanding food labels of market foods to ease the transition to living off-reserve. **Future Implications:** Policy makers at the federal, provincial and municipal levels should work together and strengthen their communication strategies in order to coordinate the development and implementation of future interventions.

Keywords
[Off-reserve Aboriginal, Food Intake, Eating Habits, Dietary Habits, Dietary Behaviours, Self-Efficacy, Food Consumption, Food Intentions]

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## Table of Contents

## List of Figures



## List of Tables

# Introduction

**Purpose of this research project**

When it comes to Aboriginal public health data, there is in fact an increase in the quality of both qualitative and quantitative data; however, all the completed studies are not inclusive of all Aboriginal groups or living regions (i.e. on-reserve vs. off-reserve or urban vs. rural communities), and use various methodologies making it difficult to compare findings (Reading & Wien, 2009). There are research studies that have examined the dietary intake of Aboriginal individuals, but there remains a large research gap when it comes to exploring the influences or determinants of healthy eating choices and food intake, particularly in Aboriginal people living off-reserve or in urban areas (Willows, 2005). Little is known about psychosocial factors such as self-efficacy and their effect on dietary choices (Mercille, Receveur, & Potvin, 2012). Considering its recent publication in the last few years, further assessment and promotion should also be done for Health Canada's *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* in order to determine its level of effectiveness and utility among the Canadian Aboriginal population. Further research in this area will enable a more thorough understanding of why certain eating behaviours are performed and why effective health promotion techniques and public health interventions need to be developed to target these eating behaviours (Brug, 2008). Future public health interventions may improve knowledge translation among those affected by obesity and chronic diseases associated with dietary behaviour (King, 2011). The existing health profiles of the Aboriginal population suggest a strong need for action when it comes to delivery of community interventions (Sarkar, Lix, Bruce, & Young, 2010). Interventions which can demonstrate how to prepare healthy meals on low budgets, using non-traditional foods, and even identifying food labels are ones that may deem useful for the Aboriginal population in particular (Mead, Gittelsohn, Roache, & Sharma, 2010). The purpose of this phenomenological study is to explore these research gaps of food intake among Aboriginal peoples living off-reserve and thereby demonstrate the need for interventions which may facilitate a positive change in

eating decisions, and aid in decreasing the prevalence of obesity and chronic disease within the Aboriginal population (Mead, Gittelsohn, Roache, & Sharma, 2010).

## Literature Review

***The Problem of Obesity*** Obesity is a public health issue that has become a growing problem around the globe and has been identified as a major risk factor for chronic diseases such as cardiovascular disease, type 2 diabetes, hypertension, stroke, gallbladder disease, some forms of cancer, psychosocial problems, sleep apnea and osteoarthritis (Le Petit & Berthelot, 2006). Most cases of obesity result when energy input exceeds more than the individual can expend (Le Petit & Berthelot, 2006). In order to assess the weight of an individual, health care professionals use the Body Mass Index (BMI)[1] and Waist Circumference (WC)[2] (for individuals 18 years of age and older) as tools to identify their risk of developing health problems or diseases related to weight (Health Canada, 2006). While some influencing factors are genetic, the main factors for being overweight or obese remain related to lifestyle, diet, socioeconomic status, societal and environmental factors (Cecchini, Sassi, Lauer, Lee, Guajardo-Barron, & Chishold, 2010).

In the last 15-20 years, there has been an increase in the prevalence of obesity for both children and adults in Canada (Katzmarzyk, 2002). According to the World Health Organization (WHO), 31.5% of children (between the ages of 5 and 17) were overweight or obese, with 19.8% being overweight and 11.7% obese between 2009 and 2011 (Roberts, Shields, de Groh, Aziz, & Gilbert, 2012). Data collected from 2007-2009, showed that over one in four Canadian adults (about 25.4% of Canadian adults) were classified as obese (Tjepkema & Shields, 2005).

[1] Body Mass Index (BMI) is calculated as a weight-to-height ratio and is used to classify individuals within four main weight classifications: less than 18.5 (underweight), between 18.5 and 24.9 (normal weight), between 25 and 29.9 (overweight) and BMI 30 and over (obese) (Health Canada, 2006).

[2] Waist Circumference (WC) measurement assesses excess fat around the waist and the upper body of the individual; men over 102cm and women over 88cm are individuals at risk of the mentioned health issues (Health Canada, 2006).

Although the prevalence of being overweight or obese is of great concern for the general population, there is even more concern for the Canadian Aboriginal population considering the proportion of Aboriginal adults who are overweight or obese has been consistently higher than the non-Aboriginal population, especially for Aboriginal women (Tjepkema M. , 2002). The 2011 National Household Survey reported that the Aboriginal population (those who identify as being Aboriginal) was comprised of approximately 1.4 million people in Canada (Statistics Canada, 2013). Self-reported data collected from the 2008/2010 First Nations Regional Longitudinal Health Survey demonstrated that approximately 34.2% of First Nations adults were overweight, 34.8% reported being obese, and 5.4% were considered morbidly obese (FNIGC, 2012). As a result, the Aboriginal population demonstrates a higher increase in heart disease, high blood pressure and diabetes (obesity related chronic diseases), when compared to the non-Aboriginal population (Sarkar, Lix, Bruce, & Young, 2010).

***Quality of Life in Aboriginal Peoples*** An economic analysis, conducted in 2005, found that there was an estimated $1.8 billion in direct health care costs and approximately $2.5 billion in indirect costs of obesity in Canada (Janssen & Diener, 2009). For the Aboriginal population, it is difficult to state the current direct costs of Aboriginal health on the health care system (due to the lack of literature); however there is concern for the costs of chronic disease impacting their quality of life or years of potential life lost (YPLL)[3]. For example, Aboriginal Canadians have a significantly lower life expectancy than their non-Aboriginal Canadian counterparts, with the life expectancy of Aboriginal men lower by 4.7 years and the life expectancy of Aboriginal women lower by 6.5 years (King, 2011). It was also found in the First Nations Regional health survey that 62.6% of First Nations adults (living within on-reserve communities) have at least one chronic health condition (a finding that was also the same in the 2002/2003 survey) (FNIGC, 2012). The most common chronic health conditions reported being: high blood pressure, arthritis, back pain and diabetes – chronic health conditions associated with obesity or being overweight

[3] YPLL is an estimate of the average years a person would have lived if he or she had not died prematurely as a result of having a particular disease or condition (Gardner & Sanborn, 1990).

(FNIGC, 2012). Although these particular findings from the First Nations Regional Health Survey were from Aboriginal individuals living on-reserve, it has been demonstrated that lower life expectancy remains consistent for the Aboriginal population regardless of their living region or community (King, 2011).

***Aboriginal Peoples and Healthy Eating*** As previously mentioned, there are many lifestyle factors that contribute to obesity; diet and eating habits in particular being major influences which are associated with high blood pressure and high cholesterol (Brug, 2008). In 2010, Health Canada created *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis*, similar to the original *Eating Well with Canada's Food Guide*, the former includes foods considered to be traditional (such as bannock, wild game meats, and berries) for the Aboriginal people and is used as a helpful healthy eating guideline that incorporates cultural components (Health Canada, 2010). The 2004 Canadian Community Health Survey asked off-reserve Aboriginal participants to specify the occasion of the food they had eaten; breakfast, lunch, dinner or between-meal consumption (additional snacks or drinks between meals) to identify their eating habits and calories consumed from each of the identified food groups according to Health Canada's *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* (Garriguet, 2008). It was found that Aboriginal men tend to ingest less milk products than the non-Aboriginal population, whereas Aboriginal women consumed a small portion of their calories from milk and grain products and had one less serving of fruits and vegetables a day (Garriguet, 2008). Aboriginal women also had a larger percentage (35%) of their daily calories from "other foods" (foods outside of the main four food groups which include soft drinks, condiments, candy and oils) compared with 24% for non-Aboriginal women (Garriguet, 2008). "Other foods" also accounted for 63% of their caloric consumption in the "between-meal consumption" category compared to 43% for non-Aboriginal women (Garriguet, 2008). The leading source of calories within this category was from soft drinks; both Aboriginal women and men consumed more than their non-Aboriginal counterparts (Garriguet, 2008). Another popular food choice for Aboriginal people between the ages of 19-50 was found to be those within the "sandwich"

category, which includes sandwiches, submarines, hamburgers, hot dogs and pizza (Garriguet, 2008). An estimated 68% of Aboriginal women between the ages of 19 and 30 consumed foods within the "sandwich" category prior to their interview, compared to 48% of non-Aboriginal women (Garriguet, 2008). Overall Aboriginal women (living off-reserve) tend to consume more calories from foods not included in the four main food groups of Health Canada's *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* (Garriguet, 2008).

In 2006, the Aboriginal Children's Survey (ACS) was conducted to find out more about the nutrition of Aboriginal children (ages 2-5) living off-reserve and the types of food they consume, including foods found in *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* (Langlois, Findlay, & Kohen, 2013). The ACS found that less than 5% of First Nations and Métis children ate bannock or fry bread daily, about a quarter First Nations and 15% Métis children ate bannock or fry bread at least once a week and 46% of First Nations children and 60% of Métis children did not even eat bannock or fry bread (Langlois, Findlay, & Kohen, 2013). Large game animals were consumed by 33% of First Nations and 28% of Métis children at least once a month and salt and freshwater fish were consumed by 39% of First Nations and 37% of Métis children at least once a month as well (Langlois, Findlay, & Kohen, 2013). In general, Inuit children consumed higher percentages of traditional foods and reported lower percentages of foods consumed from the "regular" food groups; about a quarter had bannock or fry bread every day and 60% consumed bannock or fry bread at least once a week (Langlois, Findlay, & Kohen, 2013). Large game animals were consumed at least once a month by 76% of Inuit children, and salt and freshwater fish were consumed at least once a month by 68% (Langlois, Findlay, & Kohen, 2013). In total, 70% of First Nations children, 90% of Inuit children, and 62% of Métis children living off reserve consumed traditional foods; that being said, Aboriginal children living in rural or remote areas may be more likely to access fruits, vegetables or traditional foods than Aboriginal children living within Census Metropolitan Areas (CMA) (Langlois, Findlay, & Kohen, 2013). An estimated two-thirds of the Aboriginal children in total consumed fast food and processed

foods at least once a week, and more than half consumed sugary and salty snacks on a daily basis, with the frequency of consumption of these types of foods depending on the living region of the Aboriginal children (Langlois, Findlay, & Kohen, 2013). Existing research on the eating habits of Aboriginal populations demonstrate similar findings to those previously mentioned; however, there has been little research done on why these choices are made at the level of the individual. What are the driving forces and experiences behind these eating choices? In order to explore these influential factors, one must also have a better understanding of the historical, cultural and sociological context of the Aboriginal population as a whole.

***Determinants of Healthy Eating in Aboriginal Peoples*** There are three different levels of social determinants of health; distal determinants (historical, political, social and economic influences), intermediate determinants (resources, community infrastructure and systemic influences), and proximal determinants (health behaviours, physical and social environmental influences) (Reading & Wien, 2009). Historically, the Aboriginal population in Canada endured the effects of colonization and systematic discrimination which included their loss of land and language; diminished access to resources, socioeconomic status and lifestyle disruption; and high rates of obesity, diabetes and cardiovascular disease (Reading & Wien, 2009). Aboriginal peoples have always experienced strong traditional ties to their physical natural environment through engaging in traditional harvesting and other practices which increased their sense of self-reliance and overall well-being (Reading & Wien, 2009). Consuming traditional foods provided a stronger sense of cultural identity; it was not just about consumption, but was important in maintaining relationships and understanding social norms such as cooperation and sharing (Willows, 2005). After colonization, Aboriginal peoples were forced to assimilate into the dominant Canadian culture and were no longer environmental stewards[4] of their land, could no longer manipulate their natural resources through traditional hunting and gathering, and food preparation, and were pushed

[4] Environmental stewardship is defined as the "responsible use and protection of the natural environment through conservation and sustainable practices" (Leopold, 1949).

further away mentally and physically from their natural environments due to contamination of their wildlife and vegetation (Reading & Wien, 2009).

Modern foods have now replaced traditional Aboriginal foods and tend to be lower in fibre, iron, calcium, folacin, vitamin D, vitamin A, fruit and vegetables, and high in sugar and fats (Willows, 2005). As more Aboriginal peoples move to urban areas and away from their traditional lands and traditional food systems[5], they must be able to adapt to new modern or market foods (Kuhnlein & Receveur, 1996). An estimated 60% of the Aboriginal population across Canada are now living in off-reserve communities and approximately 45% are under the age of 25 (Elliott, Jayatilaka, Brown, Varley, & Corbett, 2012). A research study was conducted using the "Story/Dialogue" method by requiring participants to share their stories while the researcher probed with questions as they arose. During this study, a youth was quoted saying: "We need to learn how to live our old ways and new ways together, and still be successful as Native Peoples" (Elliott, Jayatilaka, Brown, Varley, & Corbett, 2012). Despite traditional knowledge and cultural practices being preserved within Aboriginal communities, participants noted that this knowledge is being lost over generations, and many do not have the skills or knowledge to gather and prepare traditional foods and instead are consuming less healthy non-traditional foods (Elliott, Jayatilaka, Brown, Varley, & Corbett, 2012). One youth described this transition as the "five white sins: flour, salt, sugar, alcohol, and lard" and stated that they struggled with the concept of living in a "mixed culture" (Elliott, Jayatilaka, Brown, Varley, & Corbett, 2012).

This historical struggle in which the Aboriginal population has experienced over many years, has also denied them access to the necessary resources to increase their socioeconomic status (SES), and has resulted in poor housing, low community resources, high rates of unemployment, low literacy and educational achievement (Reading & Wien, 2009). The Canadian Community Health Survey found when looking at levels of household income, Aboriginal peoples living in a low-income household

[5] Traditional Food System refers to a food system that is composed of food items that are from the local and natural environment and consumed within the culture (Kuhnlein & Receveur, 1996).

demonstrated a higher rate (64% compared to 53%) of obesity than non-Aboriginals living in the same class (Garriguet, 2008). Overall income was not demonstrated to be a factor for obesity in non-Aboriginal people (Garriguet, 2008). This stress of low income and food insecurity creates a domino effect of health issues such as compromised diet, depression, distress, obesity and related chronic conditions (Reading & Wien, 2009). Aboriginal individuals living within off-reserve communities in particular have been estimated to be 3 times more likely to live in a household which experiences food insecurity compared to the rest of the Canadian population (Reading & Wien, 2009).

Culture plays a critical role at the proximal level of determinants, influencing dietary choices according to particular strong tastes or textures and decisions based on their level of cultural identity or knowledge of certain foods (Willows, 2005). A research study exploring the dietary patterns of Inuit living within an on-reserve community found that they preferred the strong flavour of "igunaaq" (seal meat) and associated eating traditional foods with the feeling of good health and associated non-traditional foods with weakening or "polluting" of the body (Willows, 2005). Body image is another cultural factor that influences dietary habits; for example, Ojibway-Cree in Northern Ontario tend to prefer a large body size and associate size as a sign of robustness and strength, but young First Nations or Métis girls living in urban areas have a preference to be thin and turn to dieting to lose weight (Willows, 2005). Due to the small sample size, the following research study will not account for differences between Aboriginal sub-cultures and instead will explore the Aboriginal population as a whole.

Regardless of culture, convenience, availability or accessibility of foods are important influencing factors for dietary choices and nutritional behaviours (Brug, 2008). A possible explanation for this has been as identified by our obesogenic environment; which prevents individuals from acting on their positive health intentions (Brug, 2008). The term obesogenic environment refers to the many opportunities of avoiding work or physical activities during leisure time, coupled with the high accessibility and availability of unhealthy energy-dense foods (Brug, 2008). Aging or physiological development can also influence eating behaviour; dietary quality decreases with age for children when

they begin to have more control over their dietary choices and choose foods high in fat and sugars (Raine, 2005). In contrast, seniors experiencing changes in health status, such as illness or impaired taste and smell senses may make healthier food choices and may be provided assistance through community resources (Raine, 2005). Among the age groups, healthy food knowledge has a greater influence of healthier food intake and choices among seniors, which can also be attributed to a greater amount of experienced health problems and disruption to health status (Raine, 2005).

An additional proximal determinant of health behaviour which will be looked at further in the following research study is self-efficacy. There are various theories and frameworks that propose different intentions or motivations of health behaviours such as the Theory of Planned Behaviour, Protection Motivation Theory and Social Cognitive Theory (Brug, 2008). For the purpose of this study, we will examine self-efficacy in the context of the Theory of Planned Behaviour framework. Self-efficacy refers to one's confidence (or self-perception) in their skills and abilities to engage in the particular behaviour at hand (Brug, 2008). In the context of food intake, an individual may have the confidence to prepare a simple meal that may be unhealthy in nature, and may not have the confidence to prepare a healthy meal high in nutritional value. Skills and abilities are central to one's level of self-efficacy and can be dependent on knowledge (Brug, 2008). However, it has been demonstrated in the research that knowledge is not necessarily a direct determinant of eating behaviours or changes in health behaviour (Brug, 2008). A research study was conducted among on-reserve Inuit households in 3 remote communities in Nunavut by creating an Adult Impact Questionnaire (AIQ) which created scales based on the Theory of Planned Behaviour and Social Cognitive Theory to measure items such as frequency of healthy and unhealthy food acquisition, food preparation methods, intentions, self-efficacy and healthy food knowledge (Mead, Gittelsohn, Roache, & Sharma, 2010). Researchers found that healthy food choices were associated with healthy food intentions, acquisition of healthy foods, healthy preparation methods and a higher SES, and noted that future interventions should combine and target knowledge, healthy food intentions and self-efficacy especially to those individuals of lower SES (Mead, Gittelsohn, Roache, & Sharma, 2010). The

researchers concluded that there was not a strong association between healthy food knowledge and self-efficacy, and that knowledge does not necessarily translate into a higher level of confidence for an individual to engage in healthy dietary behaviours (Mead, Gittelsohn, Roache, & Sharma, 2010).

A cross-sectional survey was done among Aboriginal women living within another on-reserve community to explore their self-efficacy in food preparation; specifically in their confidence to prepare balanced meals using store-bought foods (Mercille, Receveur, & Potvin, 2012). The female participants were confident in their skills and abilities to prepare the store-bought foods, but had lower self-efficacy scores for healthy food preparation (Mercille, Receveur, & Potvin, 2012). For women living with family members or a spouse, some showed lower self-efficacy, possibly due to having to prepare food according to the food preferences of others' (Mercille, Receveur, & Potvin, 2012). Moderate alcohol consumption was also associated with better scores than participants who regularly or never consumed alcohol (Mercille, Receveur, & Potvin, 2012). Connections have also been made from studies done among First Nations in Canada and Aboriginal populations in the United States, between self-efficacy and intentions and their particular association with health behaviours which lead to diabetes and obesity; however there has been limited research done in this area (Mead, Gittelsohn, Roache, & Sharma, 2010).

# Methodology

### Research Tradition: Qualitative Phenomenology

The common qualitative research methods include ethnography, grounded theory, case studies and phenomenology (Creswell, 1998). Ethnographic research asks what's it like to be a particular person, culture or specific population and allows the researcher (or the "outsider") to see the world from their perspective (Creswell, 1998). This would require field work or observational study, and identification of specific characteristics of the population prior to participant recruitment. Grounded theory develops a new emerging theory by simultaneously analysing data while it is still being collected (Creswell, 1998). The nature of grounded theory is also more objective and scientific in language. Case studies are analyses of people, events, and other systems in real-life contexts and may be a mix of both quantitative and

qualitative data (Creswell, 1998). An exploratory qualitative research was conducted for this study following the phenomenology approach. Used for research in the social sciences and health sciences, phenomenology examines how the participants experience the phenomenon and explores the meaning of these experiences, known as the *essence* of the research (Creswell, 1998). Given the period of time to complete the project and after asking the main research questions for the study, phenomenology was the most appropriate method to understand the Aboriginal perspective of food intake.

The paradigm or assumption behind the approach, the ontological assumption, questions the nature of the reality, assumes that the reality is subjective and is constructed by the participants themselves, and allows the researcher to provide evidence of these perspectives through quotes and themes (Creswell, 1998). In light of the research questions exploring the perspective and experiences of Aboriginal individuals, a decision was made prior to designing the study to take the phenomenological approach in order to examine these experiences.

Phenomenology also assumes a psychological approach, and forces the researcher to set aside any prejudgements, eliminating any forms of bias (Creswell, 1998). This is labeled as the concept of *epoche*, or *bracketing*, which is central to the paradigm and needed to understand the philosophical perspectives of the approach itself (Field & Morse, 1985). It is central to the notion that prior to interpretation or analysis, human experiences can only make sense to those who live it and cannot be constructed by the observer or researcher (Dukes, 1984). The main sources of data collection in phenomenology are interviews, which normally range between 5 to 25 research participants (Polkinghorne, 1989). Upon completion of data collection, phenomenological data analysis may begin by completing horizonalization, a process which divides the original statements so that clusters of meanings can be formed (Creswell, 1998). Once these concepts are tied together a textural or general description can be made describing what the Aboriginal individuals experienced, followed by a structural description of how they were experienced (Creswell, 1998). These descriptions of concepts and experiences can then finally allow the reader to also understand the essence or meaning behind these experiences (Creswell, 1998).

**Theory of Planned Behaviour**

The Theory of Planned Behaviour is a theoretical framework also central to the study, which looks at the motivational factors of an individual which influence and produce a particular behaviour (Glanz, Rimer, & Viswanath, 2008). It takes into account external factors such as demographic variables, or personality traits, and identifies how they may influence behavioural and normative beliefs, self-efficacy, perceived controls and the overall final intention driving the behaviour in question (Glanz, Rimer, & Viswanath, 2008). This particular theory rationalizes that perceived behavioural control and a behavioural intention can in fact directly predict achieving the behaviour in question (Ajzen, 1991). For example, if two individuals have the same level of intentions, the individual who has confidence in performing the behaviour and does not doubt his or her ability, will be more likely to achieve the behaviour (Ajzen, 1991). Perceived behavioural control comes from Bandura's concept of self-efficacy, which can be defined as an individual's belief of their capability to "exercise control over their own level of functioning and over events that affect their lives" (Ajzen, 2006). In order to accurately predict the particular behaviour, the intentions and perceptions of control (of level of self-efficacy) must be assessed within the same context (Ajzen, 1991). The framework also takes into account that external variables (as previously mentioned) may intervene and change the intentions or perception of behavioural control, thereby creating greater difficulty in predicting a behaviour (Ajzen, 1991). In this case, we explore the external variables as perceived by the participants, which influence the level of perceived control, self-efficacy and the health behaviour of food intake.

## Research Questions and Objectives

This study explores the following research questions and corresponding objectives:

1. What are potential factors that influence the food intake of Aboriginal peoples living off-reserve?

   *Sub-question:* Is Health Canada's *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis*, a factor that influences their food intake?

   *Objective:* Use data from interviews and participant food diaries, to horizonalize and explore common influential factors of food intake among Aboriginal peoples living off-reserve.

2. What are potential barriers that Aboriginal peoples living off-reserve face in eating healthily on a daily basis?

   *Objective:* Use data from interviews and participant food diaries to explore common experiences of barriers.

3. What potential role does self-efficacy have in making eating decisions for Aboriginal peoples living off-reserve?

   *Objective:* Use data collected from interviews and participant food diaries to explore common themes of food intake experiences.

## Data Collection

### Overview of the Process

The study required participants to complete a food photo diary using basic disposable cameras for a period of 3-4 days (minimum two weekdays and one weekend day). Each participant was provided with a basic disposable camera and envelope each numbered with their corresponding participant number, and was demonstrated how to use the camera. Participants were asked to take a photograph of each of their meals and snacks each day excluding themselves or other individuals to maintain anonymity. The purpose of these photographs was to encourage an interactive and exciting method of recording a food diary (a creative alternative to the traditional written food journals) and generate a form of stimulated recall[6] which would allow both the researcher and participant to further understand the decision making process made by the individual.

After completing their food photo diaries, cameras were given directly to me, as the primary researcher, at the research site or dropped off in their corresponding envelope and left at the main reception desk for pick-up. Photographs were developed within 1-2 days by the researcher at a local photo-centre prior to conducting the interviews with participants. The date and time of each interview was determined based on the availability of each participant, and occurred within 1 week of completing the food photo diaries.

[6] Stimulated recall is a research process designed to investigate the cognitive process of research participants during an event to form a decision or demonstrate a particular behaviour (Lyle, 2003).

Semi-structured interviews were conducted individually with each participant at the local Ottawa Aboriginal community centre and ranged in duration from 20 minutes to 60 minutes. The questionnaire, comprised from elements of the theory of planned behaviour, included questions on: (1) possible factors that influenced their food choices (2) whether Health Canada's *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* was a factor that influenced their choices (3) whether self-efficacy played a role in their choices (4) possible barriers they faced to making healthier choices.

**Participant Recruitment**

Permission was granted from a managing director of a local Ottawa Aboriginal community centre to use the facility as the main research site for participant recruitment for the duration of the study. This particular Aboriginal centre, is a non-profit organization which provides various types of services to both Aboriginal and non-Aboriginal individuals within the city of Ottawa. The organization offers programs for all age groups, many social and recreational activities, cultural events and community resources, with a main objective to enhance the quality of life for Aboriginal peoples in Ottawa, Ontario. Some programs include community justice, youth programs, family support, healthy living, life-long care, homeless support and cultural awareness programs. Given the small sample population, the Aboriginal community centre will not be identified in order to ensure anonymity of participants and to abide by the requirements of the University of Ottawa's *Research Ethics Board* (*REB)*.

Following approval from University of Ottawa's REB, a sample pre-test with a colleague was conducted to ensure the reliability of the semi-structured interview guide as well as the level of compliance of completing the food diary. The individual was provided with a basic disposable camera to conduct their food photo diary for a period of 3 days (2 weekdays and 1 weekend day). After completion, the photographs were developed and a private interview was conducted within 1 week using the proposed interview guide. The pre-testing phased allowed me, as the primary researcher, to practice asking the necessary questions, and learn flexibility with the interview guide. Once specific questions were altered to

address possible gaps of the initial interview guide, participant recruitment began at the local Ottawa Aboriginal community centre.

On a weekly basis participant recruitment was conducted through verbal announcements at the active programs within the community centre. A recruitment poster, including information about the study, participant requirements, and contact information was posted within the centre in visible main areas and was also made available by the program directors. Individuals who demonstrated interest in participating were explained further details of the study, and were informed of their anonymity and confidentiality for the study both verbally and through the written informed consent form. Participants were also informed of their ability to drop out of the study at any time, if they so desired. The informed consent forms allowed participants to provide written consent to use their responses strictly for research purposes. Participants who were not able or willing to provide written consent due to personal values or physical impairment were given the option of providing verbal consent which would have been audio recorded prior to participation. However, all participants who were recruited chose to provide written consent. Each potential participant was given approximately 24 hours to think about their involvement prior to signing the informed consent form. Once a decision was made to participate, all participants were required to sign the informed consent forms enforcing their awareness of what the study entailed, what their tasks were for the study, what their rights were as participants, and what their benefits were for participating in the study.

Participants were chosen on a first-come-first-serve basis provided they met all inclusion and exclusion criteria. A list of the exclusion criteria was included in the verbal and poster recruitment text. Individuals who self-identified as belonging to an Aboriginal population and were over the age of 18 were included within the study. Any non-Aboriginal individuals or Aboriginal individuals with pre-existing medical conditions (diabetes, kidney disease, cancer, celiac disease or gluten intolerance, pregnancy or breastfeeding) were excluded to avoid additional stress on their existing dietary needs.

Verbal and direct recruitment was more effective with recruiting the sample population. A convenience sample of 12 Aboriginal individuals over 18 years of age and living off-reserve within the city of Ottawa were recruited for the study over a period of 4 months. Of the total participants, 7 were females and 5 were males; 6 were program users/centre visitors, 5 were paid or non-paid staff members, and 1 was a college student (see Table 1 *Demographics*). Audio-visuals and audio of the semi-structured interviews were collected as the recruitment process began in order to comply with the schedule and availability of the participant. Half-way through recruitment, the centre re-located within the city, placing recruitment on hold for a period of approximately one month. However, individuals were eager to participate within the study generating a very low level of difficulty in completing recruitment.

**Eating Well with Canada's Food Guide – First Nations, Inuit and Métis**

In 2010, Health Canada created *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis(Figure 2.)* in order to reflect their traditional foods, values and food choices, and demonstrates examples of how to combine their traditional foods with other store-bought foods in order to maintain a healthy diet (Health Canada, 2010). It has been made available for their different languages; Inuktitut, Ojibwe, Plains Cree and Woods Cree (Health Canada, 2010). Health Canada also developed slide set presentations for nutrition educators and community health workers to use as an educational tool for the Aboriginal population (Health Canada, 2011). These particular slide sets provide knowledge on how to create a balance between traditional Aboriginal foods and market foods, nutritional information on the food groups and labels, and how to determine serving sizes (Health Canada, 2011). Considering its relatively recent publication, there has been little research on the effectiveness of this new food guide as a health promotion tool and the role that it plays in the daily dietary patterns of Aboriginal peoples living within off-reserve communities. During the interviews, a few questions on both Health Canada's *Eating Well with Canada's Food Guide* and *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis,* were asked to explore the level of awareness and utility for each participant and their perspectives on the benefits and limitations of each guide.

**Semi-Structured Interviews**

Face to face semi-structured interviews were chosen as the primary method of data collection in order to further understand the context behind decisions made by the participants. Conducting the interviews complement the nature of the qualitative research questions at hand which may require complex and dynamic responses that may not be fully answered through other quantitative research methods. These interviews also demonstrate a strong value on personal language as data which is beneficial for this particular phenomenological study (Gillham, 2000).

A semi-structured interview guide was created as a reference tool to cover the necessary topics and questions of the study, while maintaining a casual flow of conversation with open questions and allowing each participant to describe personal experiences and beliefs. Due to the nature of current Aboriginal health research, it is difficult to find consistent questionnaires or interview guides that can be compared between different research studies. For this reason, the interview guide was not based on any prior research instrument, and was constructed as a means to explore influences of dietary intake among the sample population and adhere to the nature of the phenomenology approach.

Prior to beginning the interview, I provided an introduction about myself, who I am as a graduate student, my interests, my goals and nature of the study, which was then followed by asking the participant about their demographics, interests, occupation and description of themselves. After the introduction, the first section of questions (*See Figure 3. for Interview Guide*) was asked repetitively for each meal or snack consumed to explore dietary habits and the second section explored participants' knowledge, utility and awareness of both the *Eating Well with Canada's Food Guide* (original) and *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis*. The last section of the interview guide was created to explore participants' beliefs of healthy eating, experiences of their level of self-efficacy (in terms of perceived control, confidence, ability, and motivation) and their perceived cultural influences.

## Phenomenological Data Analysis (PDA)

### Overview of the Process

Once interviews for all 12 participants concluded, transcription of the audio recorded data was completed prior to phenomenological data analysis (PDA). In order to begin this process, the initial step required a complete read-through of the interview transcripts a few times to be able to draw general concepts from the participants' experiences. This introduced horizonalization of the data; listing participant statements from the interviews about their experiences and grouping these statements into meaning units or themes (Creswell, 1998). This stage of classifying data included the use of qualitative data analysis computer software, © QSR International (Qualitative Solutions International) NVivo10, and © Microsoft Excel. These programs allowed for consistent organization of the data collected from semi-structured interviews, by grouping together common themes and experiences. Interpretation of these themes involved developing textural and structural descriptions; what are their influences of food intake and how were they experienced? Once these descriptions were developed an overall narrative was formed by integrating the descriptions to capture the essence[7] of the overall participant experiences.

### Participant Findings

***Participant1*** - Participant 1 consumed minimal food intake, with a total of 6 food items over a period of 3 days. During the interview, he disclosed he was a vegetarian, following a plant-based "food schedule". He noted, he preferred to use the term "food schedule" instead of diet, because he did not like the term "diet", and referred to vegetables with the term "plants" (see Table 2. for *Types of Food Items*). Influential factors included taste preference, personal food schedule of plant based food items, convenience and family tradition. Food items which required planning ahead of time were those included in his food schedule, with time required to prepare meals as an obstacle. Despite his particular food schedule, 5 of 6 of his meals included in his food diary were store or restaurant bought meals.

When asked about Health Canada's *Eating Well with Canada's Food Guide*, participant 1 stated he had been shown the pamphlet in school as a child, but believed it was "not at all helpful" for his

[7] In the phenomenology approach the essence refers to the single unifying meaning of the experience (Creswell, 1998).

personal "food schedule". He revealed that he had never used the guide and prefers to conduct his own personal research, since meat does not play a role in his own "food schedule." Participant 1 noted, however, that it may have indirectly impacted his food choices. He suggested that the *Eating Well with Canada's Food Guide* should be more flexible in terms of providing alternatives for individuals who may follow various types of diets and to provide specific information about making food choices in addition to the recommended portion sizes. Participant 1 had heard of the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* but had never seen a physical copy. He stated he had never used it or been influenced by it since he does not know much about that particular guide. He suggested it be promoted more so Aboriginal individuals and the general public could be made more aware.

He identified foods which are plant-based and high in fibre as foods which he believed to be considered healthy; and deep fried, high-carbohydrate, high fat and meats to be considered unhealthy foods. Wanting to enjoy and live a long life and not have health problems were push factors for choosing healthy foods, but when feeling discouraged under stressful conditions or enduring a heavy work load, participant 1 feels pushed towards unhealthier foods. When asked if he felt in control of his food choices, he stated "for the most part" he was in control, but when he is reminded how healthy foods can impact his everyday life, he feels he has a greater level of control. He believed he was not confident in following the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* but he did believe he possessed the abilities to use the guide if he was more aware of its content. Participant 1 stated that he did feel motivated on a regular basis to make healthy eating decisions, and found that the effect of healthy foods on his productivity and daily performance offers a positive influence on his motivation. Just recently, participant 1 has become more involved with the Aboriginal centre and community to stay in tune with his culture. Every once in a while he enjoys eating Indian Tacos or traditional moose meats.

***Participant 2*** – Participant 2 consumed minimal intake with 8 food items over a period of 3 days (see Table 2. for *Types of Food Items*). Food items were identified as quick or easy to make, low in cost and items which provided energy prior to exercise. Thought or planning involved in preparation of meals

included preparing meals ahead of time and choosing snacks based on simplicity. Participant 2 was aware of the *Eating Well with Canada's Food Guide* and thought it may have influenced her food diary minimally since it made her conscious of her intake, but has never used or referenced to it directly. She noted that it would probably be helpful to use the *Eating Well with Canada's Food Guide* since she does "try to live a healthier lifestyle." Participant 2 had never heard of, or used the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* but was interested in learning more about it. Light foods and salads were identified by participant 2 as being considered healthy foods; and fast-foods, such as burgers, were considered to be unhealthy foods. Having a health goal is what she believed pushed her to choose healthy foods, while choosing unhealthy foods was believed to be influenced by "laziness and their mere convenience."

Participant 2 believed to have control over her own meal choices as a result of being a "picky-eater" and possessing the tendency of "gravitating towards healthy foods". Time was identified as the factor which did affect her level of control. She also believed that she would be confident in using the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* and have the abilities to do so as well. Participant 2 stated she made a life choice to make healthier choices, which is the driving factor for her level of motivation. She noted that she does not practice many Aboriginal traditions on a regular basis, but instead gravitates towards more traditional Chinese foods such as going for dim sum with her family. Concluding the interview, participant 2 mentioned when consuming alcohol her food choices become unhealthier.

***Participant 3*** – A heavy smoker, participant 3 also consumed a high amount of coffee per day, with 10 of the 19 food items identified as coffee. The more cups of coffee he drank in a day, the more he thought it was unhealthy (see Table 2. for other *Types of Food Items*). He noted that he did not like vegetables, but identified foods with meal as being healthy. Taste preference was a major influential factor for choosing his meals, and wanting to be alert to draw were major influential factors for consuming coffee. Coffee shops which participate in fair trade is an important factor he considers when

choosing where to purchase coffee. Participant 3 mentioned that when he gets into his creative zone, he forgets to have meals, and friends will sometimes visit with food to make sure he takes care of himself. Other than routine choices, he did not identify any elements involved in thought or planning of food intake, and did not identify any obstacles in making these decisions.

Participant 3 was aware of the *Eating Well with Canada's Food Guide*, and indicated that he had not seen a recent version or hard copy. Although he mentioned using it in the past, it did not influence his dietary choices when completing his food diary and he did not find it helpful since he is "left still feeling hungry." In regards to the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis,* participant 3was aware of it, but never used it or found it helpful or influential in making his food choices. Fruit, pasta, meat, steamed vegetables and water were food items he found to be considered healthy; and foods he considered to be unhealthy included bacon, cheeseburgers, pizza and overall fast foods. Participant 3 believed gaining weight, being active and playing sports would be factors that would push him to choose healthier foods. He also mentioned that a past sports injury was the underlying influential push factor for choosing unhealthy foods.

Participant 3 believed to have "absolute" control over his food choices – he just "[chose] to eat unhealthy," and identified time as the main factor for affecting his level of control. He rated himself with a high level of confidence and abilities in making eating decisions according to the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis*. During the interview, he disclosed that recently he has not felt motivated to make healthy eating decisions, but in the future having a family would have a positive effect on his choices. Lastly, he indicated aside from enjoying the traditional bannock, he did not practice cultural traditions on regular basis but assumed if he were to follow a traditional diet he would be a healthier individual.

***Participant 4***- Participant 4 consumed consistent meals, however 10 of his 11 food items were provided by a non-profit homeless organization and community centre (see Table 2. For *Types of food items*). Among the 10 of the 11 food items, he experienced having no choice in food intake since the

meals were provided to him, however the remaining meal (pizza) he chose because of his taste preference for pizza and because it was low in cost. No planning was identified for any of his meals consumed throughout his food diary, and he stated he experienced no direct obstacles. That being said, he disclosed that the food provided to him would sometimes be spoiled or expired and he stated "I had food poisoning only a couple times." He was not aware of either the *Eating Well with Canada's Food Guide* or the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* and had never used or been influenced by either version. He considered a healthy meal to be having regular meals at regular hours, but was unsure of what would be considered an unhealthy meal. Participant 4 identified vegetables as a push factor for eating healthy meals, and was unsure of what influenced him to choose unhealthy meals.

He expressed his concern for pesticide and steroid use in fast foods such as McDonald's®, which he identified as causing cancer, and expressed his concern in regards to the food grown in our polluted environment. He believed he had control over his meal choices (despite not having a choice in food intake for the majority of his food items), but could not identify what would be possible factors affecting his level of control. He rated himself as having a moderate level of confidence and abilities in using the *Eating Well with Canada's Food Guide* to make healthy eating decisions if he were to know more about it. Participant 4 disclosed never having felt motivation to make healthy eating decisions, but if he were to have a greater sense of community and experience learning from others he would feel more motivated. Once a month, he acknowledged having a traditional Aboriginal meal, such as caribou, from the centre.

It is important to note, that prior to commencing his food diary, participant 4 did not disclose that he frequented the non-profit organization. Consequently, he was instructed to leave the non-profit organization by their staff for disobeying regulations by bringing in his camera for his food diary. After I spoke with the director of the organization and explained to him that the participant was helping me with my research study, he was able to continue with his food diary with no issues. Despite this complication, and after assuring him he was not required to continue participating, the participant was still enthusiastic

about participating within the study. Following the data collection, this complication was reported to the University of Ottawa's REB as a minor adverse event of the study.

***Participant 5*** – Among the 8 food items participant 5 consumed throughout her food diary, 7 of those meals were those prepared by the participant (see Table 2 for *Types of Food Items*). Following a strict diet, main influential factors for choosing food items were identified by the participant as "health reasons." Although she did not currently have any identified health problems, she had experienced a health scare in the past which made her more aware of the foods she put in her body. Other than preparing her ingredients, such as fish and washing vegetables, she did not identify any other obstacles. Some meals required planning and preparing ahead of time to adhere to her special diet.

Participant 5 admitted to owning a copy of the *Eating Well with Canada's Food Guide* posted on her refrigerator but believed it did not influence her eating decisions as she mentioned "I go with my body…I know what I need." She did identify the guide as being a helpful source for knowing how much of each food group to consume, how many vegetables to eat and so forth. In regards to the *Eating Well with Canada's Food Guide- First Nations, Inuit and Métis*, participant 5 stated she had never seen it, nor found it useful or influential for making her food choices as she no longer consumes traditional Aboriginal foods. She identified greens, grains and protein as foods she considered to be healthy meals; and fast foods like McDonald's ® to be considered unhealthy foods. Her health was the main push factor for choosing healthy foods and stated that she feels pushed to choose unhealthy foods when there is nothing else available and she is hungry. Participant 5 believed to have full control of her eating decisions as a result of her self-discipline. She also believed that she possessed the confidence and abilities to use the *Eating Well with Canada's Food Guide- First Nations, Inuit and Métis* to make eating decisions if she were to still eat traditional Aboriginal foods. Since having her health scare, she disclosed that she felt more motivation to make healthy eating decisions and would consider her health to be the driving factor behind these decisions. During the interview, she discussed that she believed everything was healthier growing up on the reserve than it is now, and found the transition to non-traditional foods to be difficult.

"[Living on the reserve was more healthy] because everything was from the garden and winter time we had lots of animals (my dad was a trapper) and we ate all the stuff that he caught. I don't eat it now because I've been away from it. We used to fight over- my mom used to take the beaver tail and put it in the oven. We used to fight over that. Now I look at that and think how could I - but then you're eating habits change. But it was the way we were brought up, it was more healthier I find. Everything was from the garden we didn't use any pesticides."

Since participant 5 has started visiting the Aboriginal centre, she is slowly getting back into her cultural traditions.

***Participant 6*** – Participant 6 consumed the most meals (18) among all 12 participants over a four day period (see Table 2. for *Types of Food Items*). Possible influences of her food choices varied and included taste preference, availability, trying to be healthy and following a vegetarian diet. She identified obstacles to be the time and hard work required for preparing certain meals, and the planning involved for advanced meal preparation. Meal preparation was required for following her diet, recipes, and preparing her meal for taking the picture. Among all participants, participant 6 was the only participant who stated that they were aware of the *Eating Well with Canada's Food Guide*, used it on a regular basis and found it helpful in choosing and tracking all her meals – something she currently does daily in a food journal. She "thought she may have seen something" in regards to the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* but was minimally aware of it and admitted she has only used the original version since she is a vegetarian and does not eat traditional Aboriginal meats. Participant 6 identified the inclusion of all food groups, including "a bit of fat", protein, dairy and vegetables as foods which she would consider in a healthy meal. She referred to "yellow foods", what she believed to be fried or greasy foods (French fries, poutine and fried fish), as foods she considered to be unhealthy. Similar to participant 5, participant 6 found her health to be the main push factor for choosing healthy foods, but if she didn't plan ahead of time and was hungry she would be pushed to choose unhealthy foods. She believed to have high control in making healthy decisions and had a high level of confidence and abilities in using the *Eating Well with Canada's Food Guide*, but was unsure of her confidence in using the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis.* Participant 6 described herself as being motivated to make healthy eating decisions, due to the driving factor being the need to maintain her health.

Although she no longer eats traditional Aboriginal delicacy meats, she disclosed she enjoyed eating fried breads such as skaan or bannock.

***Participant 7*** – Participant 7 consumed minimal food items during a period of 3 days, with the majority identified as store bought items (see Table 2. for *Types of Food Items*). He identified influential factors as mainly convenience, availability and taste preference. Due to his lack of planning meals ahead of time, he stated that he would plan to purchase alternatives to meals at the store, such as chocolate milk as a quick breakfast, but did not experience any obstacles in making these dietary choices.

Participant 7 disclosed he was aware of the *Eating Well with Canada's Food Guide* but had never used it and did not feel he was influenced by it to make specific eating decisions. He noted "it would be helpful if I wanted to use it." He just did not believe it was convenient for his busy everyday life since his current diet consists of mostly fast foods. He explained he had heard of the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* but had not seen a physical copy, and had never used or been influenced by that particular version either. He did not believe it was a helpful tool either because it is not convenient to use and "would never pull it out to make a meal." He suggested a mobile application might be helpful. Participant 7 identified meals with a good balance of nutrients, greens, carbohydrates, proteins and portion sizes to be considered healthy. Meals with 2 minute preparation times which are high in fat, sugar and grease and deep fried, he identified as being categorized as unhealthy. Working out and being physical gives him a different attitude which would push him to choose healthier meals; however, he has the tendency to gravitate towards unhealthy meals due to their level of convenience.

He believed to have control over his meal choices and stated "I choose what to eat and what not to eat." Time, however, was a contributing factor for the amount of control he may have in a situation, and rated himself with a low level of control. He believed to have a low level of confidence in using the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* and believed his ability to follow it would be moderate "if I wanted to". He did not feel motivated to make healthy eating decisions and

disclosed he would have to have a specific goal in order to influence his level of motivation. Participant 7 identifies as belonging to two cultural groups, Middle Eastern and Aboriginal, in which they consume large portions regularly. He also disclosed he grew up as a child eating a large amount of traditional Aboriginal meats, deep fried bread and fish. He noted at the end of the interview that the 3 day period was a very busy schedule for him and he was caught in "a rough 3 days." Completing the food diary may have been time-consuming or identified as being inconvenient for him to conduct. Despite this obstacle, he was still "happy to help."

***Participant 8*** – Participant 8 consumed regular meals with a total of 15 food items (see Table 2. for *Types of Food Items*). Most of her meals were prepared by herself with reasons influencing her eating decisions including taste preference, availability, simplicity, low level of difficulty and low in cost. Most meals did not involve any obstacles; however she did sometimes find it difficult to find clean dishware and ran out of some ingredients when preparing her meal(s). While some meals did not require planning as it was identified as her daily routine, she planned her meals according to what was available, low in cost, easy and simple to make. Participant 8 was aware of the *Eating Well with Canada's Food Guide*, but stated she had never used it or been influenced by to make her eating decisions. She believed it was not helpful for her because she "likes to eat meals based on preference and not based on what statistics say is good for you." She was not aware of the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* and had never used it. Rice, salad, chicken and "plain food" (foods she identified as having no preservatives or extra added ingredients), were foods she considered to be healthy. Foods with high fat and sugar she identified as being unhealthy. She perceived herself as eating unhealthy, but stated television or media may have an influence on her eating habits. Push factors for choosing unhealthy foods were identified as being lost in cost, quick to make and preferred in taste.

Participant 8 rated a high level of control in making eating decisions and stated "I choose what to eat; it was not handed to me." She identified money as a factor which has an effect on her level of control. She believed to have high confidence and moderate level of ability to use the *Eating Well with*

*Canada's Food Guide – First Nations, Inuit and Métis* to make healthy eating decisions, but did not feel she was motivated to do so. She disclosed having a particular health reason would motivate her, but emphasized that "I don't enjoy listening to what people tell me is right or wrong, do it based on what I think is good for myself." Lastly, participant 8 did not identify practicing any cultural traditions regularly, she noted only consuming coffee on regular basis.

***Participant 9*** – Participant 9 consumed consistent meals over her 3 day period, with most of her meals prepared by herself (see Table 2. for *Types of Food Items*). She chose her meals due to taste preference, health, routine, availability, low in cost, and because they were easy to make. She planned most of her meals ahead of time when doing her grocery shopping and did not experience any obstacles. Participant 9 was aware of the *Eating Well with Canada's Food Guide*, but she had never paid attention to it, used or been influenced by it to make her eating choices, stating " I haven't seen it in a few years- not knowledgeable about it." In regards to the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis*, she was not aware of it and noted she had never used it as a guide or reference. Meals with fruit, vegetables and high protein she considered to be healthy and unhealthy foods were categorized as "processed foods and sugary drinks." She stated that she cares about her health, appearance and weight, which pushes her to choose to eat healthy foods, but sometimes experiences cravings for unhealthy foods because of their taste.

She believed to have control of all her eating decisions because she does her own grocery shopping and has many options in the store. She noted that when she does not plan ahead or organize her routine or schedule ahead of time, her level of control of her food intake is affected. She believed to have a high level of confidence, abilities and motivation in using the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* and making healthy eating decisions. She believes that what she looks like in terms of her body weight, appearance and overall health is what drives her motivation to make these choices. Participant 9 did not practice any cultural traditions regularly other than celebrating western holidays.

***Participant 10***- Participant 10 consumed minimal meals over a period of 3 days (see Table 2. for *Types of Food Items*). He chose his meals based on routine, availability, low cost and items which were easy to make. Other than burning his hand on one of his pre-packaged meals, he did not encounter many obstacles in choosing or preparing his meals (however 4 of his 8 food items were prepared by someone else or store bought). He identified a lack of planning in his food intake, but did some planning ahead if he did grocery shopping. Participant 10 was aware of the *Eating Well with Canada's Food Guide*, and although he had never used it or been influenced by it directly when making his eating choices, he believed it would be a helpful tool for others. He identified himself as being "too lazy to make these big elaborate meals, don't really think of [using it]." Similar to participant 7, 8 and 9, participant 10 had never heard of or used the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis*. As noted in other interviews, participant 10 considered balanced, natural meals with no preservatives to be healthy; and meals which are unnatural , high in salt, fat, sugar and preservatives to be categorized as unhealthy. He identified having health reasons to be a possible push factor for eating healthy, and "pure laziness" for being the major push factor for choosing unhealthy foods. Participant 10 inferred he had a moderate level of control of making his decisions due to financial constraints. He stated the following:

> "Yes and no. Ok that's a bad answer, but like I do as in I physically can choose what I eat but I don't because I'm limited by like financial situations or like basically financial situations, yeah. It's just like financial situations and my own laziness I guess. So yeah I don't have the means to buy very healthy very expensive meals. But I also wouldn't very much care to make them."

He believed to have a low level of confidence and high level of ability in using the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* to make healthy eating choices. He disclosed he did not feel motivated to eat healthy on a daily basis and explained it was due to "laziness and a lack of caring." Participant 10 did not practice any cultural traditions, but did disclose having stomach issues or a type of sensitivity to certain foods, which makes him also particular with what he consumes.

***Participant 11*** – Participant 11 consumed minimal food items over a 3 day period (see Table 2. for *Types of Food Items*). Reasons for choosing her food items included taste preference, availability, and

because they were easy to make. She did not identify obstacles during meal preparation other than having to wash dishes to cook. No planning was identified for meals, but she did consider choosing meals based on routine, simplicity and availability. Participant 11 was aware of the *Eating Well with Canada's Food Guide*, but stated she never used it or was influenced by it to make her eating choices; she "just ate." She believed it may be a helpful tool to consider since she makes poor health choices and her family has a history of diabetes and due to its description of portion sizes. She was not aware of the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* and therefore had never used it or been influenced by it to make healthy eating decisions. She believed healthy foods to be categorized as those which fall under the main food groups and greasy food like McDonald's® to be categorized as unhealthy foods. Being active and being in a routine are factors she believed to push her to choose healthier foods, but when she has lots of work to do and feels tired, she is often pushed to choose unhealthy foods.

Participant 11 felt she possessed a moderate level of control and stated that "I just sometimes choose not to [choose healthy foods]." She believed taste preference to be the factor which affected her level of control in making these decisions. She identified herself as having low confidence and a high level of ability in using the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* , but did not feel she was motivated to make healthy eating decisions due to her busy schedule. Concluding her interview, she revealed her interest in Aboriginal culture, and described attending many pow-wow dances, traditional ceremonies and sweat meals. She also noted that she enjoys eating traditional berries.

***Participant 12*** – Participant 12 consumed minimal meals during a 3 day period (see Table 2. for *Types of Food Items*). Main reasons for choosing her meals were due to availability, low cost and needing something quick. No obstacles or forms of planning were encountered during meal preparation. Participant 12 was aware of the *Eating Well with Canada's Food Guide* and disclosed she had used it in the past. She believed it to be a somewhat influential and helpful tool since it provides guidelines of what types of foods and portions to eat which made her consider having "something good at the end [of her food diary]." She was also aware of the *Eating Well with Canada's Food Guide – First Nations, Inuit*

*and Métis* and noted she had used it in the past but not regularly. She also found it helpful since it recommends serving sizes, but felt it did not influence her choices throughout her food diary. Meals which comprised foods from all food groups in proper portion sizes she identified as being considered healthy, and found sugary foods with "empty calories" (calories she identified as having no benefit) to be considered unhealthy. The will to live healthy in an older age was identified as a major push factor for choosing healthy meals, but the instant gratification of foods, such as hamburgers or French fries, is what pushes her to choose unhealthy foods.

Participant 12 believed to have control over her meal choices, but stated she "just needs to take time to buy the food;" and suggested time and money as possible factors affecting her level of control. She believed to possess a high level of confidence and abilities in using the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* to make healthy food choices. However, she did not feel motivated to make healthy eating decisions due to the temptations of unhealthy foods. Concluding the interview, participant 12 noted that although she did not participate in traditional ceremonies, she enjoyed eating fried breads and bannock and occasionally consumed wild meat and wild rice.

**Horizonalization**

After listing each participant experience, the horizonalization process continued into grouping meaning units into common themes identified throughout the study (see Tables 3-8 for common themes). Using ©Microsoft Excel (2010), participant statements were listed to allow a better visual of the different themes of experiences. These themes were then used to develop a coding grid within © QSR NVivo10 (Qualitative Solutions Research International). Labels for each node within the grid were developed by using terms made by the participants. All transcripts of interviews were imported into © QSR NVivo10 so that participant statements could be grouped according to the coding grid. Following coding of the transcripts, the number of coded references was identified for each item, which allowed for elimination of

nodes which were not interpreted as significant (had 1 or less coded reference[8]). Tree diagrams of all nodes were then created to allow for visual interpretation of the overall recurring themes between participants (see Figures 4-11 for Tree Diagrams).

## Discussion

### Themes

*Food diaries* – Although types of foods consumed varied between participants, there were similar patterns found as the 2004 Canadian Community Health Survey done among off-reserve Aboriginal individuals. Overall, participants did seem to enjoy and consume many items within the "sandwich category" and did not consume traditional foods on a regular basis, which may be attributable to living off-reserve in an urban area where traditional foods are not easily accessible (Garriguet, 2008), indicating a potential need for further information for food preparation methods of market foods for those transitioning off-reserve in an urban setting. Similar to the literature explored, female participants demonstrated a tendency to consume more snacks or "between-meal consumption." Overall knowledge regarding healthy and unhealthy foods, and the push factors for choosing these types of foods were consistent among participants (see Figures 8 and 9; *Healthy and Unhealthy Meals and Push Factors for Healthy and Unhealthy Meals*) . Healthy food knowledge appeared to have a greater influence in healthy food choices among the senior participants as normally seen with aging (Raine, 2005); however healthy food knowledge did not translate into healthy eating behaviours for many of the other participants. During the interviews, it was also noted that many of the participants laughed or made jokes when identifying something "unhealthy" they consumed, which may suggest feelings of embarrassment or guilt for being "caught in the act" of being unhealthy. This may also confirm that they are aware of their eating habits and choices. Some participants were particular with their word choices when describing their meals. For example participant 1 labeled his eating choices according "food schedule" (vs. diet) and

[8] A reference in © QSR NVivo10 is considered to be the number of selections coded within a particular source of data (Qualitative Solutions Research International, 2012). For this study all sources were participant transcripts, and all coded selections were text.

"plants" (vs. vegetables) which may indicate a strong emotional tie to his physical and natural environment or land, as demonstrated throughout history among the Aboriginal population. This may suggest the need for a holistic approach to be considered for future research studies in this field.

The main themes of influential factors of making eating decisions were concluded to be: taste preference, availability, convenience, "had no choice", health reasons, "easy to make", low in cost, following a diet or "food schedule," hunger or thirst, "needed something quick", nearby location (of store or restaurant), being tired or lazy and being in a routine (see Figure 4. for *Influential Factors*) – factors which are also common among non-Aboriginal populations. Even though, they were not consistent overall participants, some interesting factors were also mentioned during the interview process. Participant 3 had noted that choosing restaurants who participate in fair trade was important to him for choosing his coffee, which may imply the importance of distal determinants (historical, political, environmental and social) and their role in making his eating decisions (Reading & Wien, 2009). Participants 4 and 5 both noted the importance of physical and social environments and how they may influence ones' state of health. Participant 4 received most of his meals from a non-profit homeless organization, but disclosed if he were to feel a sense of belonging to a community he would feel more motivated to make better healthy eating decisions. It is not uncommon for Aboriginal individuals to feel the need for sharing values with others and belonging to a community as explored in the literature, however this may be difficult to experience for those who no longer live on-reserve and have lost their cultural identity (Willows, 2005). He demonstrated ties to the physical environment as well, when he noted the pesticides, steroids and pollution of our environment which is negatively impacting our state of health with cancer and other diseases. Participant 3 and 5 believed traditional foods and culture to be healthier, and Participant 5 also described the struggle of transitioning to an off-reserve location where traditional foods and methods are no longer accessible. This finding implies the need for public health interventions which teach methods of adapting to non-traditional foods and new preparation methods for Aboriginal individuals who have relocated to off-reserve regions.

*Eating Well with Canada's Food Guide*- Most participants were aware of the *Eating Well with Canada's Food Guide*, but levels of utility and influence on eating decisions varied (see Table 3. *Eating Well with Canada's Food Guide)*. Most participants did find it helpful for providing portions and guidelines; however they noted following their own wants or needs instead of using a guide and would maybe helpful for others. Participant 8 had stated that she did not like being told what "statistics says is good for you" which may reflect a mental struggle with political influences as seen throughout the history of Aboriginal peoples (Reading & Wien, 2009). That being said, most participants had not seen a copy of the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* (see Table 4. *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis)*, 6 out of 12 participants were aware of it, and all participants felt they were not influenced by it when making eating decisions. This finding may be due to most participants not consuming traditional foods. Participant 7 noted that he did not find either version convenient and would suggest a mobile application as an alternative for others. He stated that regardless of alteration, he would probably still not use it as a tool. A lack of caring for using either guide was stated and observed among some participants, and suggested an overall feeling of discouragement that has been noted in other Aboriginal research studies (Reading & Wien, 2009). Copies of the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* were available within the Aboriginal centre in multiple programs, but only 1 of the 6 staff interviewed was aware and had seen the version. This lack of promotion emphasizes the need for information to be transferred to the public in an efficient and action-oriented manner.

*Self-Efficacy*- Most participants perceived themselves as having control over their eating decisions regardless of potential negative effects from influential factors. For example, participant 4 had no choice but to obtain his set meals from the non-profit organization, yet he believed he had control over the meals he consumed. Main themes for perceived level of control among participants were identified as time, money and taste preference (see Figure 10. *Control and Motivation*). Most participants also believed that if they were to use either version of the guide to make eating decisions, they would possess the

abilities and confidence to do so (see Table 5. *Self-efficacy Themes*). However level of motivation varied between participants; those who made health conscious decisions regularly experienced higher levels of motivations than those who did not, or did not "care" to make healthy decisions. According to the framework for the *Theory of Planned Behaviour*, the elements of self-efficacy (perceived control, motivation, confidence and abilities) impact particular health behaviours (Glanz, Rimer, & Viswanath, 2008). In this study, there appeared to be a gap between perceived level of self-efficacy and healthy eating behaviour. While some participants identified themselves with high levels of self-efficacy and produced healthy eating behaviours (such as the senior participants), most participants did not produce healthy eating behaviours despite describing a high level of self-efficacy. This relationship may suggest an influence of external factors. The inconsistencies of rating their levels of perceived control, confidence, abilities and motivation and conflicting statements may also attribute to this gap.

*Cultural Themes*- Cultural influences varied among all participants, with a few individuals fully engaged in traditional ceremonies on a regular basis, and others with minimal cultural identity (see Figure 11. *Cultural Themes*). Most participants still enjoyed eating fried breads, bannock, Indian tacos and delicacy meats (such as moose) every so often. All participants frequented or worked at the Aboriginal centre; with most disclosing that by attending the centre they were able to gradually get involved with their traditional roots again. This acknowledges the importance of local Aboriginal community centres, resources or organizations within urban areas, which provide a sense of community and transitional outlet for Aboriginal peoples living off-reserve.

Participants noted a "lack of caring" or "laziness" in reference to their food habits or utility of either version of the Canadian food guides. These statements may suggest a diminished sense of self-determination across the Aboriginal populations, which stems from the effects of their historical struggle, and that issues or influential factors may be deeper than the common influential factors identified in this study. Some participants stated "not wanting to be told what to do" and enforced their independence and level of control in making eating decisions, which may also suggest a lack of trust with government tools

and emphasize the need to resist any form of "assimilation." However, further research with a holistic approach needs to be conducted to explore these interpretations and draw more accurate conclusions.

**Potential Limitations**

The use of semi-structured interviews allows flexibility for the conversation between interviewer and interviewee to maintain a casual and relaxed atmosphere; however there may have been inconsistencies produced between each interview due to the unstructured or unplanned probing questions used throughout the interview process. The requirement of taking pictures of every meal can be seen as a time consuming or inconvenient request of the participant. Some participants acknowledged forgetting to use the camera when having a meal, but were still able to self-report during the interview. Some pictures developed were visually difficult to see and was a result of the low quality of basic disposable cameras. Participant 6, in particular, mentioned during her interview that part of planning her meal was due to preparing her meal for the picture. This suggests her meal choices may have been influenced by the use of the camera. Despite this limitation, she also admitted to recording a daily food diary for her physician, and after participation, considered using photographs instead.

The use of a convenience sample for the study presents difficulty to generalize findings to the total off-reserve Aboriginal population and in comparing findings to other Aboriginal research studies. However it provides answers to the research questions at hand, and therefore insight of the experiences and perspectives of the research participants to allow for further testing in this field.

Although all participants volunteered to participate, were chosen on a first come first serve basis, and met all inclusion and exclusion criteria, a small amount of sampling bias may have occurred during recruitment. Given more time to complete the study, recruitment could have been conducted in a more indirect manner instead of in person in order to eliminate sampling bias.

## Conclusion

Given the continued high rates of obesity in the Aboriginal population, the fight against obesity must continue by exploring the level of influence external factors may have on food intake. Overall factors explored, which influence the food intake of Aboriginal peoples living off-reserve within the convenience sample, were found to be; taste preference, availability, convenience, "had no choice", health reasons, "easy to make", low in cost, following a diet or "food schedule," hunger or thirst, "needed something quick", nearby location (of store or restaurant), being tired or lazy and being in a routine. Political and social factors also played a role for some participants. After discussing Health Canada's *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* with each participant, it was concluded that the guide targeted towards Aboriginal peoples, was not identified as a potential influential factor for food intake among those living off-reserve.

Similar to the non-Aboriginal population, it was inferred from the research study that Aboriginal individuals living off-reserve experienced time and financial constraints, having a busy schedule and being unprepared for meals as common barriers in eating healthily on a daily basis. Other potential barriers identified within the convenience sample included experiencing illness or food poisoning from meals provided by a non-profit organization, and having no choice in meals provided. In addition, transitioning from traditional foods on-reserve to non-traditional foods off-reserve was also identified as a possible conflict in making eating decisions.

Aboriginal individuals who identified as being mindful of healthy eating decisions on a regular basis possessed a high level of self-efficacy and engaged in healthy eating behaviors. Those who did not make healthy eating decisions on a regular basis demonstrated varying perceived levels of self-efficacy and did not engage in healthy eating behaviours, due to external factors or barriers which influenced perceived levels of control, motivation, confidence and abilities.

As suggested by some of the participants, either version of the food guide should be developed into a more flexible and convenient tool which is more suitable for daily use – such as the creation of a

mobile application. Many of the participants interviewed in the study disclosed living on-reserve in the past and (as demonstrated in both the study and the literature) found it difficult to transition to eating market foods and adjusting to life off-reserve in the city of Ottawa.

## Future Implications

As mentioned in the literature, the Aboriginal community in Canada is comprised of a young population. Although this study focused on the adult population, further studies should explore the attitudes of Aboriginal youth regarding their influences of food intake. If we could further understand the Aboriginal perspective in making eating decisions, then we could target health promotion interventions, to educate the Canadian Aboriginal population in a more efficient and action-oriented manner. Health Canada developed the *Eating Well with Canada's Food Guide – First Nations, Inuit and Métis* as a health promotion tool for the Aboriginal population and corresponding educational slide sets for community workers. However, based on this study, use and promotion of these products were not found to be put into practice at the community and individual levels. Policy makers at the federal, provincial and municipal levels should work together and strengthen their communication strategies in order to coordinate the development and implementation of future interventions. Perhaps consideration of incentives, for instance accreditation or certification, for the community health workers to use these tools within local community centres would be helpful. Workshops in food preparation of both traditional and market foods, understanding food labels and serving sizes and overall health promotion would also be beneficial for Aboriginal community centres in facilitating a positive change in healthy eating decisions.

## Figures

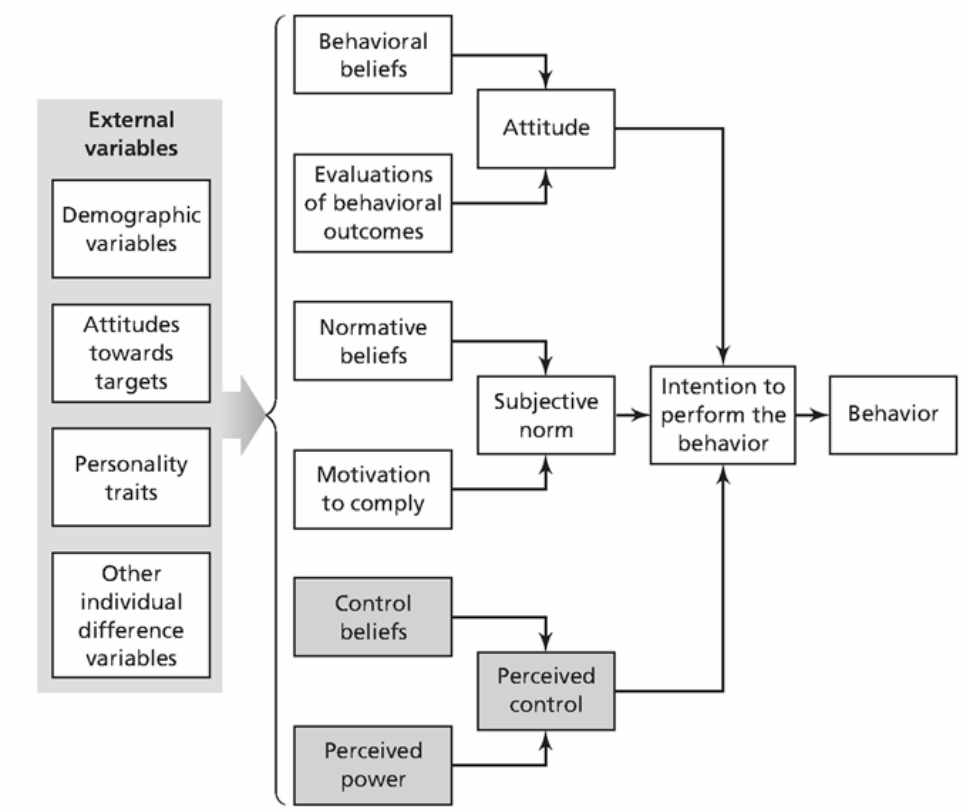
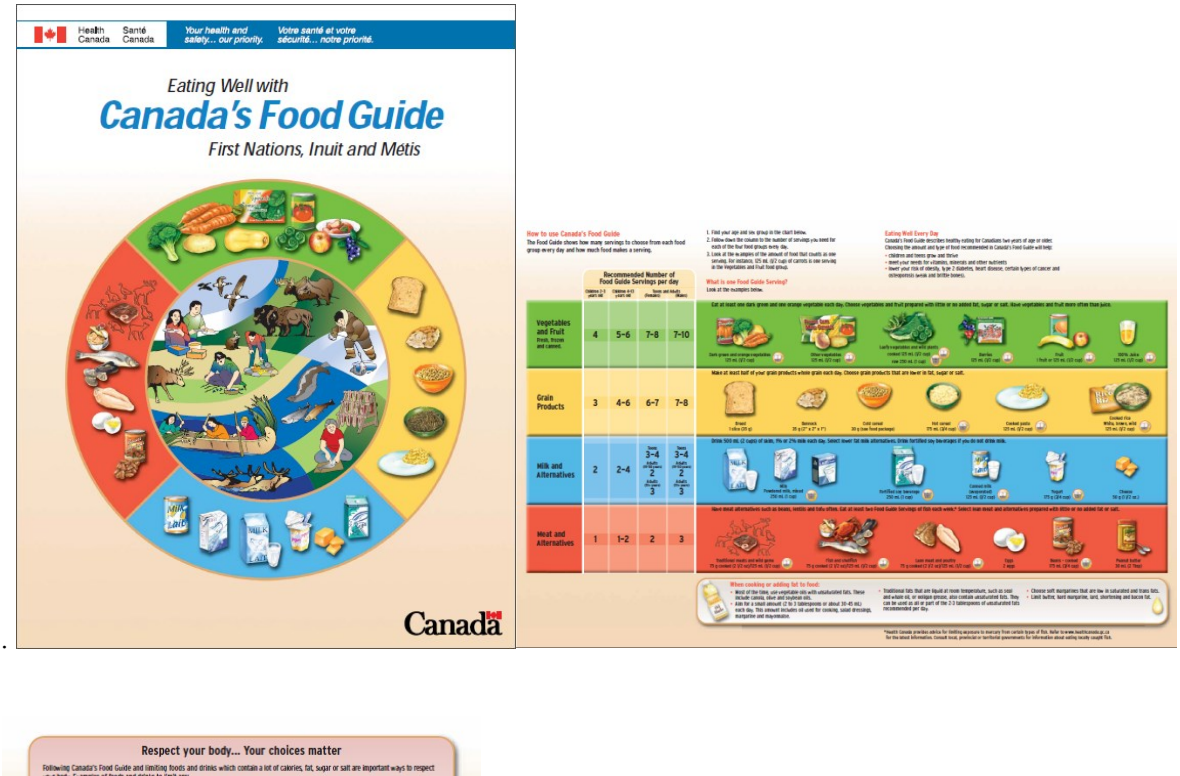



**Figure 1.** *Diagram of Theory of Planned Behaviour (Glanz, Rimer, & Viswanath, 2008)*



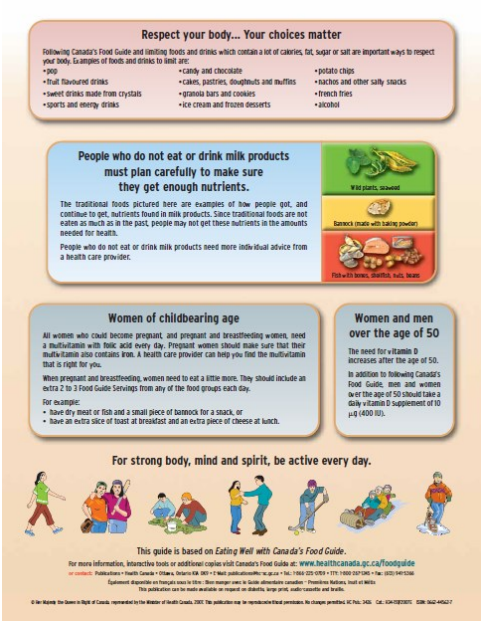




**Figure 2.** *Eating well with Canada's Food Guide – First Nations, Inuit and Métis (Health Canada, 2010)*

**Introduction & Demographics**

**Part I. Food Diaries**

1. What meal is shown in this photo? (ie. breakfast, lunch, dinner, a snack )
2. What time of day did you eat it at?
3. Who prepared this meal?
   - Interviewee (Go to Q4)
   - Someone else (Go to Q6)
   - Sit-down or fast food restaurant (Go to Q8)
4. Why did you choose this meal?
   ***Probe:*** Did you choose based on taste? Nutrients? Appearance? Price? Availability? Preference?
5. Did you experience any obstacles in preparing this meal?
6. What thought or planning went into choosing this meal? (Go to Q11)
7. Did you have a choice in what you had? If YES; why did you choose this meal?
   ***Probe:*** Did you choose based on taste? Nutrients? Appearance? Price? Availability? Preference? (Go to Q11)
8. Why did you choose this particular restaurant?
9. Why did you choose this particular meal at this restaurant?
   ***Probe:*** Did you choose based on taste? Nutrients? Appearance? Past experience? Price? Availability? Preference?
10. What thought or planning went into choosing this meal at the restaurant?
11. Would you describe this meal as healthy or unhealthy?

*REPEAT QUESTIONS #1-11 FOR EACH MEAL

**Part II. *Eating Well with Canada's Food Guide* and *Eating well with Canada's Food Guide – First Nations, Inuit and Métis***

7. Have you heard of Health Canada's *Eating Well with Canada's Food Guide?*
   ***Probe***: If yes, did it influence what you ate while doing your food diary? How so?
8. Have you ever used it to make a meal? Would you say it's helpful to you when choosing what to eat?
   ***Probe:*** Why is it helpful to you?
   ***Probe:*** Why was it not helpful to you? What would make it helpful to you?
9. Have you heard of Health Canada's Aboriginal Food Guide *Eating Well with Canada's Food Guide- First Nations, Inuit and Métis?*
   ***Probe:*** If yes, did it influence what you ate while doing your food diary? How so?
10. Have you ever used it to make a meal? Would you say it's helpful to you when choosing what to eat?
    ***Probe:*** Why is it helpful to you?
    ***Probe***: Why was it not helpful to you? What would make it helpful to you?

**Part III. Beliefs on Healthy Eating and Eating Decisions**

1. In your own words, what would be considered a "healthy" meal?
2. In your own words, what would be considered an "unhealthy" meal?
3. What pushes you to choose healthy meals?
4. What pushes you to choose unhealthy meals?
1. Do you feel you have control over your meal choices?
   ***Probe:*** Why or why not?
   ***Probe***: What factors tend to have a greater influence on your level of control?
   - On a scale from 1-5, 5 having the most control, how would you rate your level of control?
2. Do you believe you are confident in making eating decisions according to the Aboriginal Food Guide *Eating Well with Canada's Food Guide- First Nations, Inuit and Métis*?
   - On a scale from 1-5, 5 being the most confident, how would you rate yourself?
   - On a scale from 1-5, 5 being the highest ability, how you would you rate your ability to make eating decisions according to the Aboriginal Food Guide?
3. Do you feel you are motivated to make healthy eating decisions on a regular basis?
   ***Probe***: If so, what motivates you to make these choices? What does not motivate you?
   - On a scale from 1-5, 5 being the highest motivation, how would you rate your level of motivation to make healthy eating decisions?
4. Do you have any cultural traditions that have an influence on your eating choices? If so, what are some common traditions you practice on a regular basis?
5. Do any other factors affect your food choices that we haven't already talked about?
6. Do you have additional questions or comments for me?

Figure 3. Semi-Structured Interview Guide


**Figure 4.** *Influential Factors* ***(Qualitative Solutions Research International, 2012)***

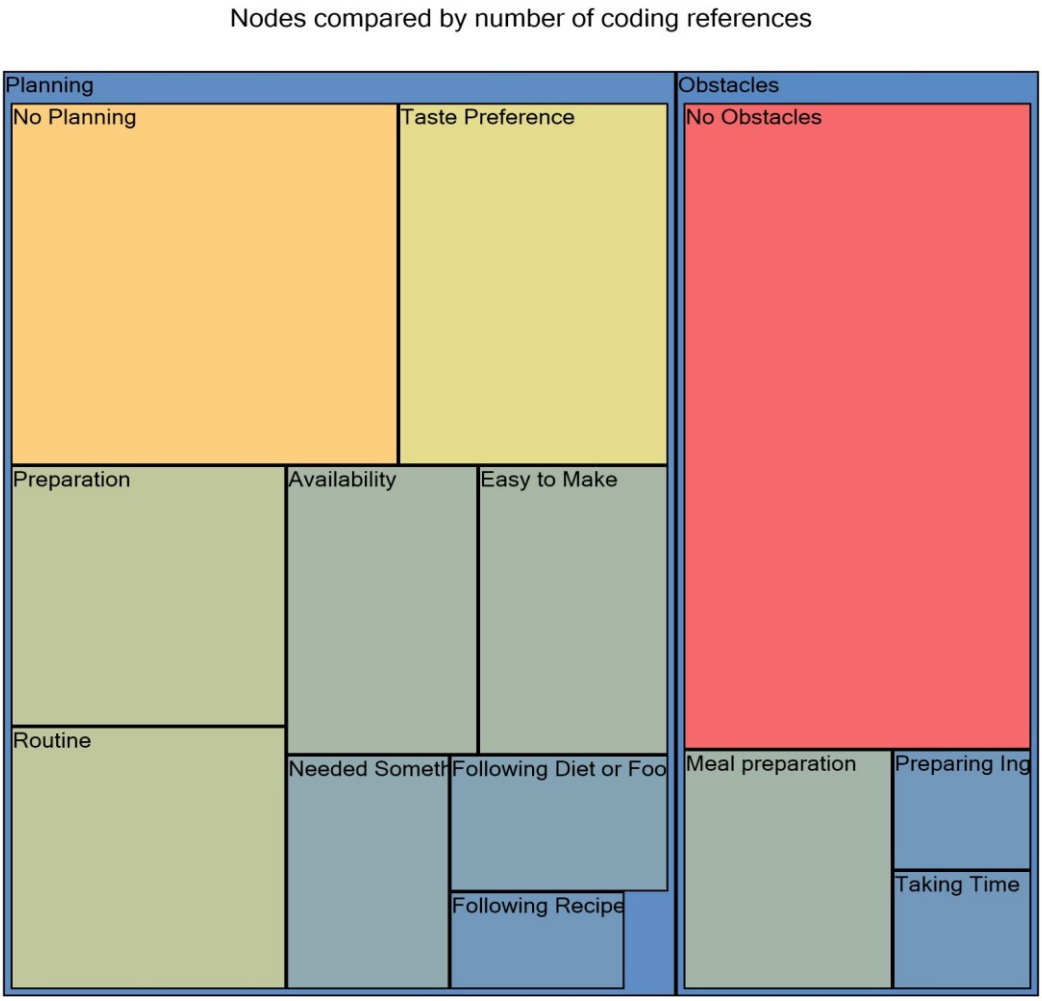



**Figure 5.** *Obstacles and Planning* (Qualitative Solutions Research International, 2012)

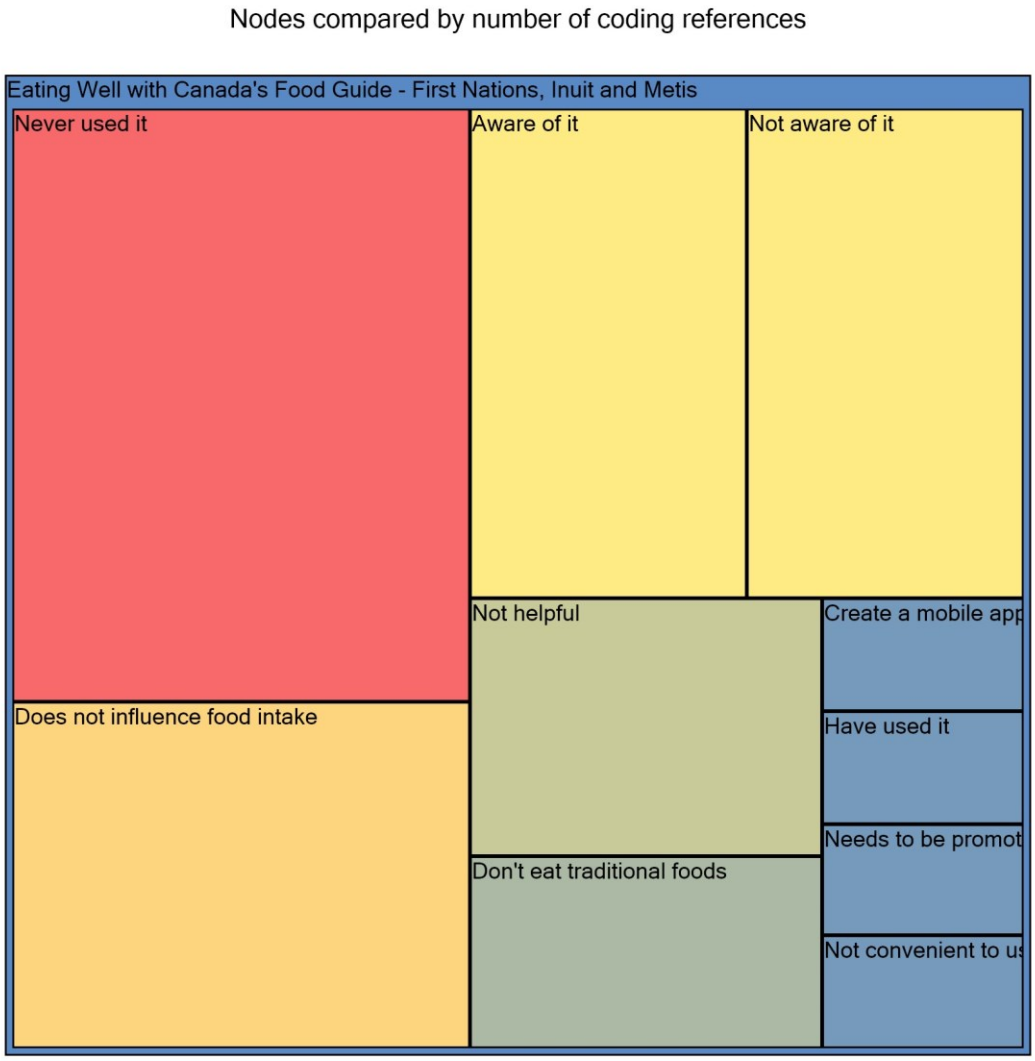



**Figure 6.** *Eating well with Canada's Food Guide – First Nations, Inuit and Métis* (Qualitative Solutions Research International, 2012)


**Figure 7.** Eating Well with Canada's Food Guide (Qualitative Solutions Research International, 2012)

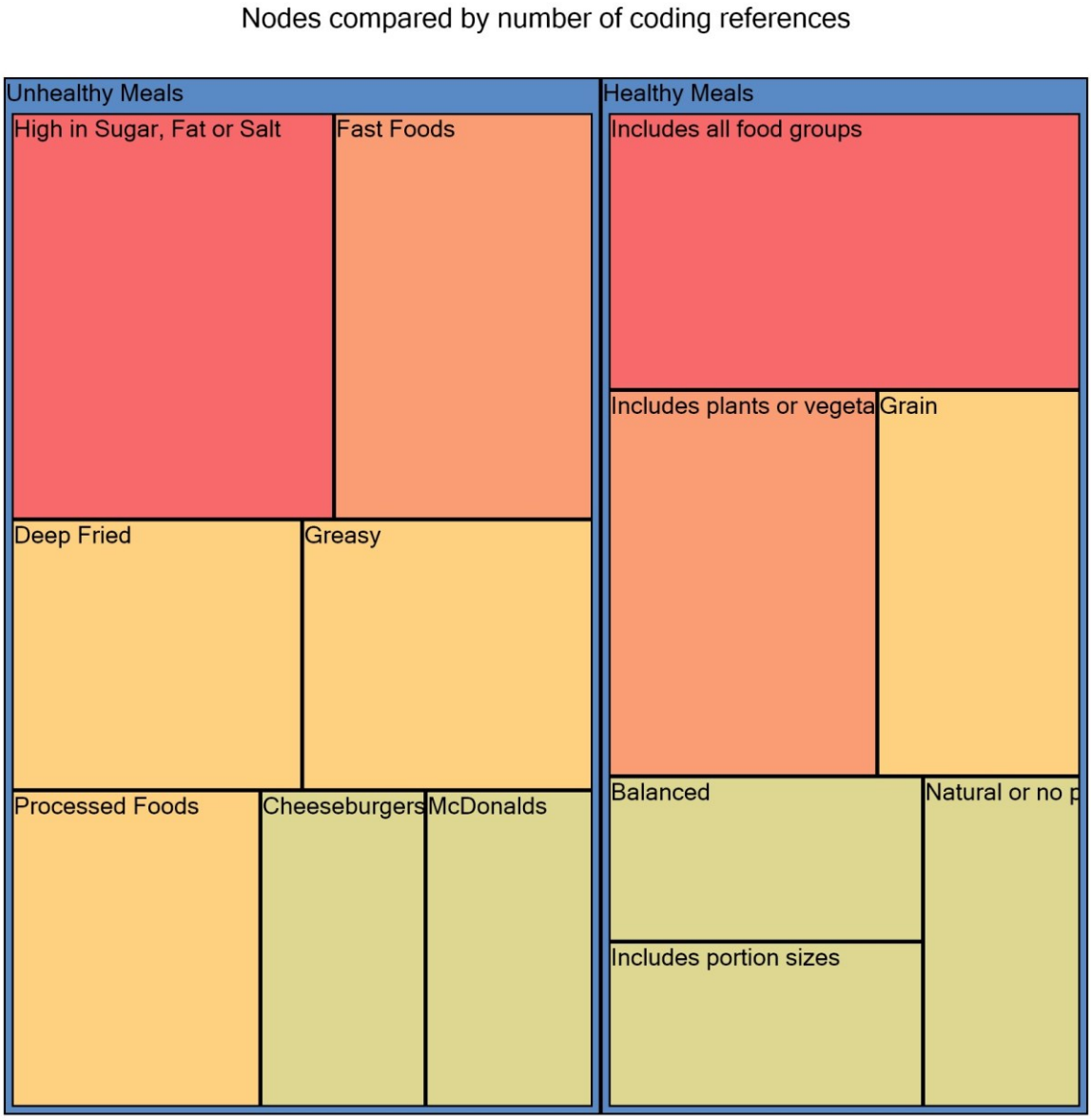



*Figure 8.* **Healthy and Unhealthy Meals** (Qualitative Solutions Research International, 2012)


**Figure 9.** *Push Factors for Healthy and Unhealthy Meals* (Qualitative Solutions Research International, 2012)

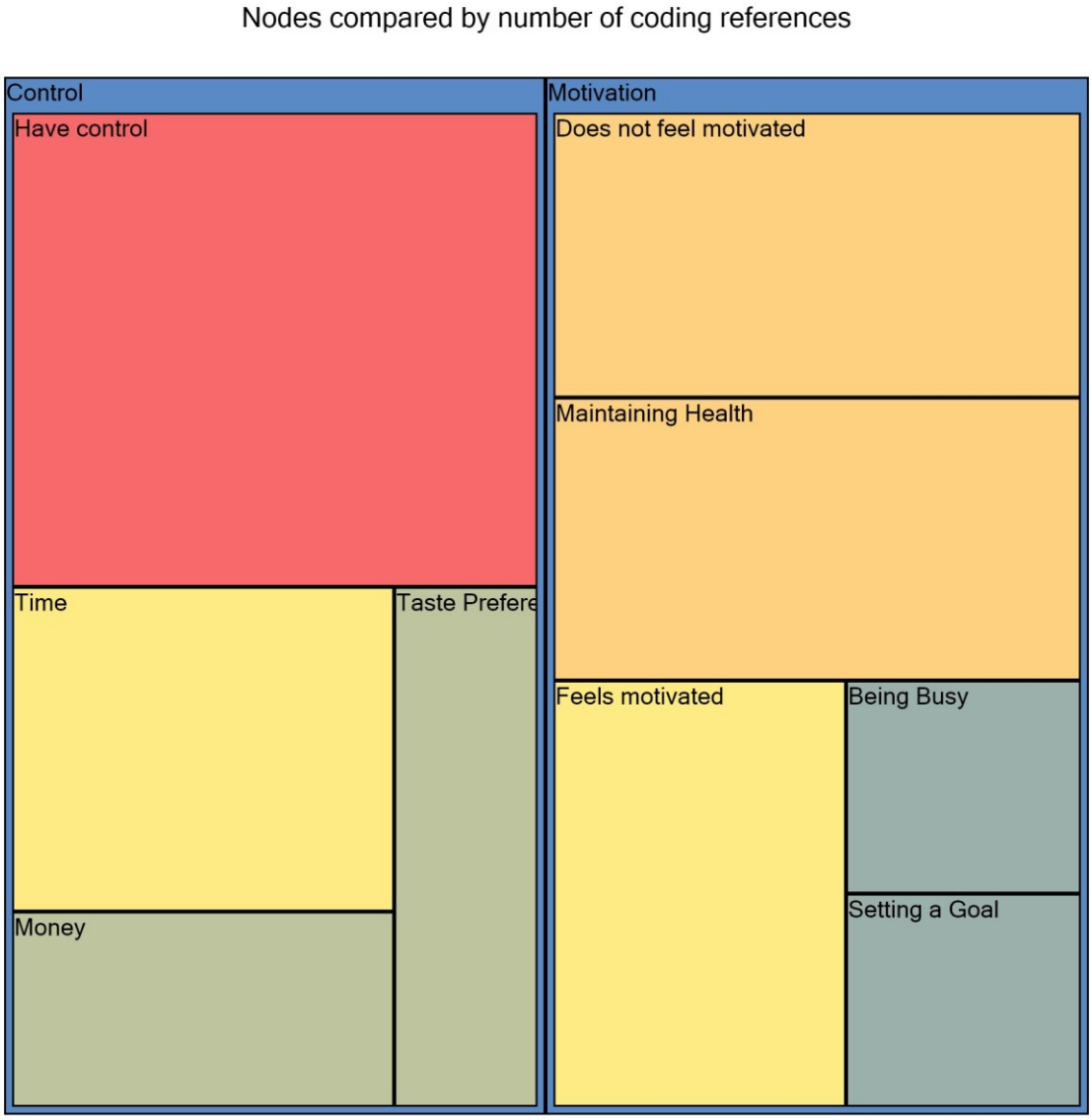



**Figure 10.** *Control and Motivation* ***(Qualitative Solutions Research International, 2012)***

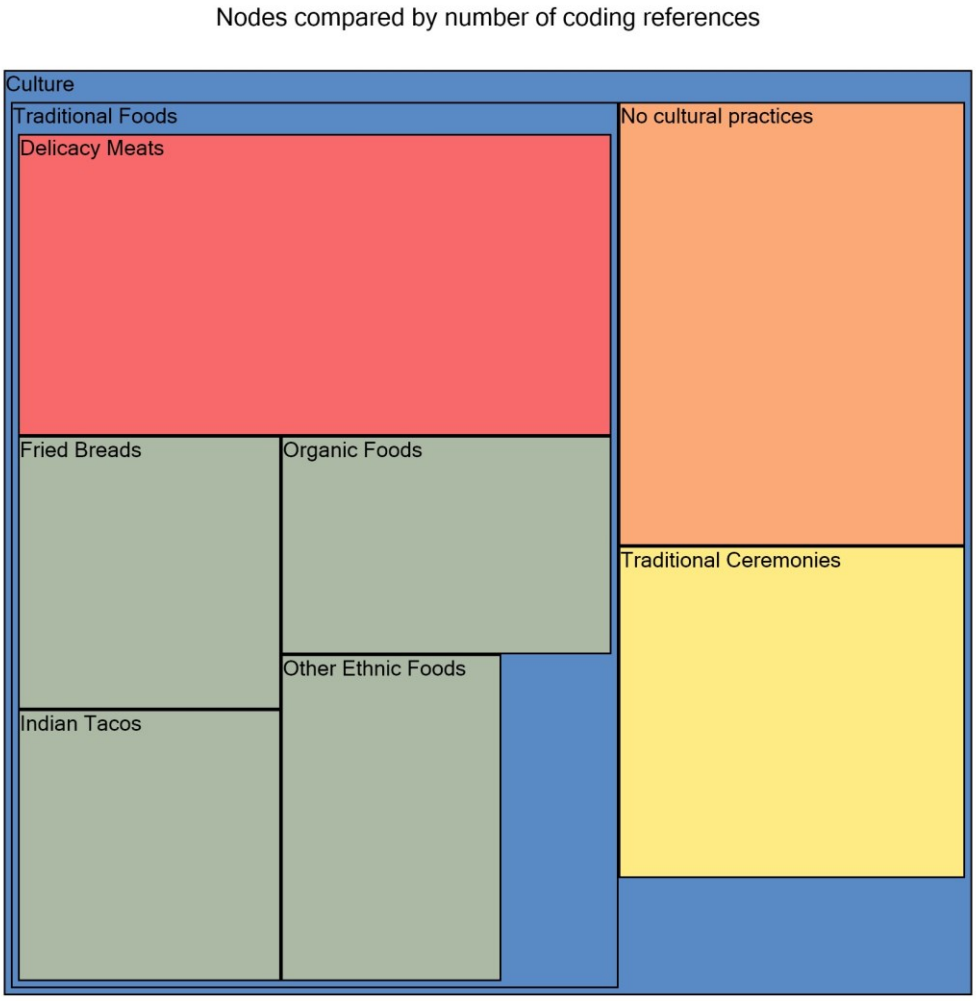



**Figure 11.** *Culture* (Qualitative Solutions Research International, 2012)

# Tables

***Table 1.*** *Demographics of participants*

| Sex | Age | Interests | Marital Status | Children |
|---|---|---|---|---|
| **M** | 21 | Becoming a doctor, youth issues | Single | 0 |
| **M** | 21 | Did not disclose | Single | 0 |
| **F** | 18 | Ojibwe culture, pow-wows, being active, boxing | Single | 0 |
| **F** | 43 | Did not disclose | Common-law | 3 |
| **F** | 22 | Did not disclose | Single | 0 |
| **M** | 41 | Illustration, comic books, graphic novels, film making, science fiction, writing, poetry and helping people | Divorced | 0 |
| **M** | 45 | Hanging out with friends, reading, healing circle, attending Alcoholics Anonymous meetings | Ex-Common Law | 0 |
| **F** | 72 | Jewelry design, knitting, keeping busy, walking, weight lifting, being active, doing crochet and beadwork | Widow | 2 |
| **F** | 72 | Tai Chi, walking | Separated | 3 |
| **M** | 21 | Pow-wow dancer, galias, traditional dance | Single | 0 |
| **F** | 31 | Did not disclose | Single | 0 |
| **F** | 23 | Did not disclose | Single | 0 |

*Note:* M=Male, F=Female

***Table 2.*** *Participant Food Diaries*

| **Participant, Age** | **Meals** | **Types of Foods** | **Meal Source** |
|---|---|---|---|
| **1 (21)** | 6 | Chickpeas, baked pitas with tahini & mint, fruit & veggies, peanut butter bananas & toast, sushi (Vegetarian) | 4 store bought meals, 1restaurant meal, 1 prepared by the participant |
| **2 (22)** | 8 | Chicken wings, turkey & ham sandwich, bagel & cream cheese, banana chips, Wendy's burger, avocado & cranberry salad, banana, English muffin with peanut butter/cream cheese, yogurt, smoothie & coffee | 2 store bought meals, 2 restaurant meals, 4 prepared by the participant |
| **3 (41)** | 19 | Coffee, doughnut & apple, Bannock & ham, sandwiches, Oreo® cookies, Coca Cola®, pizza, rice, hamburger & tomato sauce | 2 store bought meals, 5 restaurant meals, 6 prepared by the |

| | | | |
|---|---|---|---|
| | | | participant, 2 prepared by someone else, 4 prepared by the centre |
| **4 (45)** | 11 | Sandwich, apple, cookies, juice, jello, chilli, pancakes, sausage, cereal, milk, beans, toast, pizza, eggs, bacon, potatoes, pasta, fruit salad, burger, onion rings, pie | 10 prepared by a non-profit organization, 1 restaurant meal |
| **5 (72)** | 8 | Gluten-free Messa cereal, spinach salad, salmon, zucchini, grapes, cranberry juice, green tea, boiled eggs, whole wheat crackers, chicken taco with fried beans, greens | 1 store bought meal from someone else, 7 prepared by the participant |
| **6 (72)** | 18 | Porridge, toast, tea, orange, cheese, pretzels, fried fish, beer, fries, coleslaw, coffee, Danish, carrot cake, coca cola, peanut butter banana, milk, Weight Watchers® wafers, iced water with lime, Egg foo yung, popcorn, packaged blueberry waffles, Babybel® cheese, Starbucks® tuna quinoa wrap, cranberry juice, packaged crab cakes, corn, potatoes, Tim Hortons® Coffee | 2 store bought meals, 13 prepared by the participant, 3 restaurant meals |
| **7 (21)** | 8 | Chocolate milk, banana nut muffin, hot dog, pastry, turkey sandwich, crackers, juice box, fruit candies, tuna sandwich, Kraft Dinner®, pizza | 3 store bought meals, 3 prepared by the participant, 2 prepared by the centre |
| **8 (31)** | 15 | Coffee, Second Cup® coffee, banana, vegetable & tomato soup, croissant, instant noodles with seaweed, caesar salad, chilli, Kellogg's® cereal, pepperoni pizza, banana muffin, chocolate chips, chicken breast, rice, salad with sun dried tomato dressing, panzerotti | 3 store bought meals, 12 prepared by the participant |
| **9 (23)** | 12 | Eggs, tomato, cheese, avocado slices, Subway® sandwich, Lara (granola) bar, salad, apple, chicken wrap with salsa banana, pizza, hamburger patty, onions & mushrooms, cheese, chocolate | 3 store bought meals, 1 restaurant meal, 8 prepared by the participant |
| **10 (21)** | 8 | Jello cup with pieces of fruit, black forest ham wrap, Babybel® cheese, shepherd's pie, banana, microwavable Uncle Ben's® Rice, Hamburger Helper®, boiled eggs, penne noodles with chicken breasts and tomato sauce | 2 store bought meals, 4 prepared by the participant, 2 prepared by someone else |
| **11 (18)** | 7 | Pepsi®, porkchops & sidekicks, pomegranate, pizza, Life cereal, ham sandwich on grain bread, Cheetos®, Kraft Dinner®, water | 1 store bought, 5 prepared by the participant, 1 prepared by someone else |
| **12 (43)** | 5 | Chicken noodle soup, rye bread with peanut butter & jam, jalapeno & chive bread, baguette, coffee, salad, pastry | 2 prepared by the participant, 2 restaurant meals, 1 prepared by someone else |

***Table 3.*** *Eating Well with Canada's Food Guide*

| Question | **Overall Findings** |
|---|---|
| Have you heard of Health Canada's food guide, "Eating well with Canada's food guide"? | 11 out of 12 participants said yes<br>1 out of 12 participants said no |
| Did it influence you at all when you were doing your food diary? How so? | 7 out of 12 said no influence<br>4 out of 12 minimal influence<br>1 out of 12 said it influenced their food intake |
| Have you used it to make a meal? | 8 out of 12 said never used it<br>2 out of 12 have used it recently<br>2 out of 12 have used it as a child |
| Would you say it's helpful to you then when you choose what you're eating? | 8 out of 12 said it was helpful, however 3 of those 8 said it was:<br>- "helpful for others"<br>- "it would be helpful if they used it", and<br>- "if they wanted to be healthy it would be helpful"<br>3 out of 12 said it was not helpful<br>1 out of 12 unsure |
| Why is it not helpful for you? | Doesn't like to be told what to do<br>Not convenient<br>Too lazy to make these "types" of meals<br>Not knowledgeable enough on it<br>Don't think of it |
| What do you think would make it helpful? | Helpful because it gives portions/guidelines,<br>Would be helpful if provided more options or flexibility for different diets<br>To be made more convenient ie. Mobile Application |

***Table 4.*** *Eating Well with Canada's Food Guide –First Nations, Inuit and Métis*

| **Question** | **Overall Findings** |
|---|---|
| **Have you heard of Health Canada's Aboriginal food guide, "*Eating Well with Canada's Food Guide –First Nations, Inuit and Métis*"?** | 6 out of 12 participants said no<br>3 out of 12 participants were minimally aware<br>3 out of 12 participants said yes |
| **Did it influence you at all when you were doing your food diary? How so?** | 12 out of 12 participants said did not influence food diary |
| **Have you used it to make a meal?** | 11 out of 12 participants said never used it<br>1 out of 12 participants used it but not regularly<br>- (participant works in healthy living at the centre) |
| **Would you say it's helpful to you then when you choose what you're eating?** | 10 out of 12 participants said it was not helpful<br>1 out of 12 participants said it was helpful |

| | |
|---|---|
| | - (participant works in healthy living at the centre)<br>1 out of 12 participants unsure if it would be helpful |
| **Why is it not helpful for you?** | Don't use it<br>Not convenient to use<br>Don't eat traditional meats |
| **What do you think would make it helpful?** | Could be promoted more<br>A mobile application |

***Table 5.*** *Self-Efficacy Themes*

| Question | Finding/Theme |
|---|---|
| **Do you feel you have control over your meal choices?** | 10 out of 12 participants said yes<br>2 out of 12 participants said they had moderate control<br>- "just choose not to eat healthy foods" |
| **What factors do you think have a greater influence of your level of control of what you choose to eat?** | Takes time<br>Money<br>Taste preference<br>Routine<br>Being a picky eater<br>Level of self-discipline<br>Unsure<br>Being reminded of effect on health |
| **On a scale from 1-5, with 5 having the most control how would you rate your overall level of control?** | 6 out of 12 participants said level 3<br>3 out of 12 participants said level 4<br>1 out of 12 participants said level 6<br>1 out of 12 participants said level 5<br>1 out of 12 participants said level 2.5 |
| **Do you believe you're confident in making eating decisions according to the Aboriginal food guide "Eating well - ?** | 9 out of 12 participants said yes<br>2 out of 12 participants said no<br>1 out of 12 participants said unsure |
| **So on a scale of 1-5- 5 being most confident…how would you rate yourself?** | 4 out of 12 participants said level 4<br>3 out of 12 participants said level 2<br>2 out of 12 participants said level 3<br>1 out of 12 participants said level 1<br>1 out of 12 participants said level 5<br>1 out of 12 participants said level 6 |
| **According to abilities, on a scale from 1-5, 5 being highest ability how would you rate your ability to make these eating decisions according to the food guide?** | 5 out of 12 participants said level 5<br>5 out of 12 participants said level 3<br>2 out of 12 participants said level 4<br>- 1 participant who rated level 3 noted " if he wanted to follow it" |
| **Do you feel you're motivated to make healthy eating decisions on a regular basis?** | 7 out of 12participant said they weren't motivated 5 out of 12 participants said yes |

| | |
|---|---|
| | - 1 participant experienced a health scare<br>- 1 participant likes to maintain health |
| **What motivates you?** | Being productive<br>Making it a life choice<br>Being healthy<br>Maintaining body weight<br>Family<br>Experiencing a sense of community/learning from others<br>Setting a goal |
| **What prevents you from being motivated?** | Being busy<br>Laziness<br>Lack of caring<br>Unhealthy foods/Instant gratification |
| **On a scale from 1-5 again 5 being the highest motivation how would you rate your level of motivation to make healthy eating decisions?** | 6 out of 12 participants said level 4<br>5 out of 12 participants said level 3<br>1 out of 12 participants said level 5<br>1 out of 12 participants said level 2 |

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# Appendix

## A. Photographs

Participant1

Participant 2

Participant 3

Participant 4

Participant 5


Participant 6

Participant 7

Participant 8

Participant 9


Participant 10

Participant 11

Participant 12

**B. Recruitment Poster**

## What's on Your Plate?
## Looking for Individuals to Participate in a Fun and Exciting Research Study!

### Who can participate?

- Members of Aboriginal populations over the age of 18
- Looking for 10 males and 10 females
- Excludes individuals with the following medical conditions:
  - Diabetes
  - Pregnancy
  - Breast Feeding or Lactating
  - Kidney disease
  - Celiac Disease or Gluten intolerance
  - Cancer

### Involves:

- Participants will be provided basic disposable cameras to create a food photo diary of snacks and meals for 3 days
- Completion of the food photo diary will be followed by a private one on one interview with the researcher at the Odawa Friendship Centre.
- All information shared will remain confidential and all participants will remain anonymous.
- Participants will be chosen on a first-come first-served basis.
- Research is independent from the Odawa Friendship Centre.

**For further information or if you would like to participate, please contact the primary researcher, Maria Sultan-Khan by phone [redacted] or email [redacted]**

## C. REB Approval

**File Number:** H04-13-05 **Date (mm/dd/yyyy):** 06/17/2013

Université d'Ottawa University of Ottawa
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

### Ethics Approval Notice

### Health Sciences and Science REB

**Principal Investigator / Supervisor / Co-investigator(s) / Student(s)**

| First Name | Last Name | Affiliation | Role |
|---|---|---|---|
| Sanni | Yaya | Health Sciences / Others | Supervisor |
| Maria | Sultan-Khan | Health Sciences / Others | Student Researcher |

**File Number:** H04-13-05

**Type of Project:** Master's Thesis

**Title:** An Aboriginal Perspective on the Influences of Food Intake

| Approval Date (mm/dd/yyyy) | Expiry Date (mm/dd/yyyy) | Approval Type |
|---|---|---|
| 06/17/2013 | 06/16/2014 | Ia |

**(Ia: Approval, Ib: Approval for initial stage only)**

**Special Conditions / Comments:**
N/A

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**File Number:** H04-13-05 **Date (mm/dd/yyyy):** 06/17/2013

Université d'Ottawa University of Ottawa
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

This is to confirm that the University of Ottawa Research Ethics Board identified above, which operates in accordance with the Tri-Council Policy Statement and other applicable laws and regulations in Ontario, has examined and approved the application for ethical approval for the above named research project as of the Ethics Approval Date indicated for the period above and subject to the conditions listed the section above entitled "Special Conditions / Comments".

During the course of the study the protocol may not be modified without prior written approval from the REB except when necessary to remove subjects from immediate endangerment or when the modification(s) pertain to only administrative or logistical components of the study (e.g. change of telephone number). Investigators must also promptly alert the REB of any changes which increase the risk to participant(s), any changes which considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project and safety of the participant(s). Modifications to the project, information/consent documentation, and/or recruitment documentation, should be submitted to this office for approval using the "Modification to research project" form available at:
http://www.research.uottawa.ca/ethics/forms.html

Please submit an annual status report to the Protocol Officer 4 weeks before the above-referenced expiry date to either close the file or request a renewal of ethics approval. This document can be found at:
http://www.research.uottawa.ca/ethics/forms.html

If you have any questions, please do not hesitate to contact the Ethics Office at extension 5387 or by e-mail at: ethics@uOttawa.ca.

**Signature:**

Riana Marcotte
Protocol Officer for Ethics in Research
For Daniel Lagarec, Chair of the Sciences and Health Sciences REB



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