Dietitian's perceptions, knowledge and attitudes regarding their role in the assessment of food insecurity in Alberta

by

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Abstract

During 2012, four million Canadians struggled to bring healthy foods to their tables. Dietitians play a key role in assessing food insecurity and in supporting individuals, families, and communities experiencing this problem. Yet, the detection of food insecurity is often missed during the routine nutritional assessment, and it is not clear why and to what extent this occurs.

A grounded theory approach was used to understand the perceptions, knowledge and attitudes of Alberta dietitians from different areas of practice towards addressing household food insecurity in the dietetic practice. The findings revealed that complexity in addressing food insecurity was the central category associated with subcategories: perception of role, continuing education and training, availability of information, resources and support from health system, involvement in advocacy actions, and source of occupational stress. The central category referred to individual, community and organizational level barriers in screening and supporting clients living in food insecurity. These results point to dietitians' need for assistance in developing appropriate skills, and having access to training and resources for screening and discussing food insecurity with clients. Advocating for food security issues was perceived as an important but informal part of the dietitian's job, yet few dietitians reported being involved in food security advocacy. As well, feelings of constant discomfort, helplessness and inadequacy when screening clients for food insecurity were reported by dietitians.

These findings will inform the gaps in knowledge for supporting dietitians in different settings to overcome barriers in incorporating food insecurity in routine nutritional assessments.

Findings from this study will be used for the development of quantitative surveys aimed at further study of factors associated with poor screening of food insecurity in dietetic practice at a national level.

Preface

The research conducted for this thesis forms part of collaborative work between the University of Alberta and Alberta Health Services, Nutrition Services. Collaborators from Alberta Health Services: Carlota Basualdo-Hammond, Sheila Tyminski, Suzanne Galesloot, and Tanis Fenton assisted with the recruitment of participants. Under the supervision of Dr. Anna Farmer, I was responsible for data collection, analysis and concluding analysis, as well as the literature review of this thesis. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board on April 22, 2013. Study ID: Pro00037252, project name: Development and validation of a questionnaire to assess dietitian knowledge and practice regarding household food insecurity in Alberta.

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List of Abbreviations

Alberta Health Services (AHS)

Canadian Community Health Survey (CCHS)

Chronic Kidney Disease (CKD)

Dietitians of Canada (DC)

Food and Agriculture Organization (FAO)

Grounded Theory (GT)

Household Food Security Survey Module (HFSSM)

Registered Dietitians (RD)

Research to identify policy options to reduce food insecurity (PROOF)

Social Cognitive Theory (SCT)

Chapter 1. Introduction

1.1 Background

While the definition of food security has many variants, this thesis adopts the definition proposed by the Food and Agriculture Organization (FAO) of the United Nations: “Food security exists when all people, at all times, have physical, social, and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 1996). At the community level, community food security is defined as "a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes self-reliance and social justice" (Hamm & Bellows, 2003). On the other hand, food insecurity is defined as: "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (Anderson, 1990).

Food insecurity has been a problem traditionally associated with third world countries. However, according to data from the Canadian Community Health Survey (CCHS) 2012, this public health concern also affects four million Canadians, including 1.15 million children; representing about 12.6% of Canadian households (Tarasuk, Mitchell, & Dachner, 2014).

The number of Canadians living with food insecurity has been continually rising since 2008. Data from the CCHS (2012) showed that Northwest Territories and Nunavut were the most affected having the highest prevalence of household food insecurity (HFI) 20.4% and 45.2%. Meanwhile, Alberta and Ontario had the lowest rates of food insecurity with 11.5% and 11.7% of households affected, respectively.

The Household Food Security Survey Module (HFSSM) used by Statistics Canada is a validated tool based on responses to 18 items to assess the existence and frequency of food insecurity over the previous 12 months (Health Canada, 2012). Ten of the 18 items focus on the food security of adults while the other eight items focus on the food security experiences of children as reported by adults. The HFSSM classifies households' food security in three categories: food secure, food insecure (moderate) and food insecure (severe) (Health Canada, 2012). According to the CCHS (2012), members of a household were food insecure if during the previous year "they were uncertain of having, or unable to acquire, enough food to meet the need of all their members because they had insufficient money for food" (Health Canada, 2012). One of the limitations of the HSSM is its inability to assess the food security status of each member of a household.

The first HFSSM assessment held in 2004 observed a higher prevalence of food insecurity in various vulnerable households in Canada (Health Canada, 2007; Tarasuk, 2005). In the CCHS (2012) households vulnerable for food insecurity had the following characteristics: dependent on social assistance for income, single mothers, incomes below the low income measure, respondent was Aboriginal or Black, and renting rather than owning their home (Tarasuk et al., 2014). Also, food insecurity was considerably higher among recent immigrants to Canada (Vahabi & Damba, 2013).

Food insecurity is an important determinant of health because when food availability is limited, households may experience diverse health problems. Individuals with poor food access have a higher incidence and risk of chronic diseases such as heart disease, diabetes, high blood pressure and food allergies (Crews et al., 2014; Hanson & Olson, 2012; Holben & Pheley 2006; Kirkpatrick, McIntyre & Potestio, 2010; Weigel, Armijos, Hall, Ramirez & Orozco, 2007) along

with poor weight management (Bawadi et al., 2012; Galesloot, McIntyre, Fenton & Tyminski, 2012; Hanson & Olson, 2012; Seligman, Jacobs, López, Tschann & Fernandez, 2012). Older adults are another group vulnerable for food insecurity in which many chronic health problems may be exacerbated by limited food access (Bhattacharya, Currie & Haider, 2004). Food insecurity has been associated with higher levels of C-protein reactive, a biomarker of inflammation that may increase susceptibility to other chronic diseases (Gowda, Hadley & Aiello, 2012).

In children and adolescents, inadequate nutrient intakes can also lead to low levels of serum nutrients (Kirkpatrick & Tarasuk, 2008), lower weight (Reis, 2012), and high risk of poor development (Cutts et al., 2011). Conversely, physical and health conditions can increase the vulnerability to household food insecurity (Tarasuk, Mitchell, McLaren & McIntyre, 2013). Food insecurity has been associated with non-nutritional related outcomes, such as poor academic performance in children (Howard, 2011) and behavioural problems in adolescents (McLaughlin et al., 2012).

Food insecurity is considered an independent risk factor for poor glycemic control. Clients living with food insecurity cannot afford the basic foods to follow a diabetic diet that includes vegetables and fruits, and therefore, to meet their caloric needs, they eat more low-cost foods that usually are high in carbohydrates, sugar and fat (Galesloot et al., 2012; Seligman et al., 2012). In addition, these clients may also have difficulties filling their prescriptions when money is extremely limited because they may have to choose between buying medication or buying food (Billimek & Sorkin, 2012), which directly influences their metabolic control (Berkowitz, Baggett, Wexler, Huskey & Wee, 2013).

Women are predominantly affected by food insecurity (Ivers & Cullen, 2011; Matheson & McIntyre, 2014), and typically, they are the ones in charge of buying, preparing and distributing food in the family (Engler, Stringer & Haines, 2011). In some cases when food is not adequate, women restrict themselves from eating in order to feed their family (McIntyre et al., 2002; McIntyre et al., 2003; Sim, Glanville & McIntyre, 2011). A recent qualitative study revealed how mothers living with food insecurity struggled every month to provide their families with food (Williams et al., 2012). Household food insecurity is an important risk factor for elevated depressive symptoms, stress during pregnancy and birth defects (Carmichael, Shaw, Yang, Abrams & Lammer, 2007; Hromi-Fiedler, Bermudez-Millan, Segura-Perez & Perez-Escamilla, 2011; Huddleston-Casas, Charnigo & Simmons, 2009).

Pregnant women and their offspring have a higher chance of developing health problems when exposed to food insecurity during pregnancy. For instance, obesity, higher gestational weight gain as well as gestational diabetes mellitus have been linked to food insecurity in pregnancy (Laraia, Epel & Siega-Riz, 2013; Olson, 2010). Dubois et al (2006) reported that children born to mothers who experienced food insufficiency during pregnancy were at higher risk for being overweight and obese at 4.5 years of age. Furthermore, food insecurity has also been associated with increased risk of obesity at 2 years postpartum (Olson & Strawderman, 2008).

Studies have shown that food insecurity is associated with overweight and obesity, primarily in women (Tayie & Zizza, 2009; Townsend, Peerson, Love, Achterberg & Murphy, 2001; Zizza, Duffy & Gerrior, 2008). This paradox has been studied in children and adolescents (Casey et al., 2006; Olson & Strawderman, 2008), where children from hungry families were more likely to be obese and to report poor health than food secure counterparts. This paradoxical

effect may be an outcome of consuming energy-dense foods but also from over-eating when food is available, as well as experiencing anxiety and distress related to food insecurity (Whitaker, Phillips, & Orzol, 2006).

Systematic identification of food insecurity and discussion of this issue with clients during the standard diet history are currently not undertaken by health providers in the clinical setting (Hoisington, Braverman, Hargunani, Adams & Alto, 2012; Messer & Ross, 2002). Although reliable food security questionnaires such as the HFSSM and other quick and sensitive tools are available (Blumberg, Bialostosky, Hamilton, & Briefel, 1999; Hager et al., 2010; Kleinman et al., 2007; Urke, Cao & Egeland, 2014), screening and identifying family hunger during the standard nutritional assessment is rarely done by dietitians. Factors affecting the use of reliable tools for screening food insecure clients, the extent of screening, selecting programs or individuals to screen, and dietitians' responses at the individual and community level are not completely understood (Boeing & Holben, 2003).

Research conducted by Boeing & Holben (2003) found that few dietitians were concerned with their patients' food insecurity situation, and of those, they were the ones who had more years of practice, worked as community dietitians or worked in urban areas (Boeing & Holben, 2003; Tscholl & Holben, 2006). Food insecurity is hardly identified by health providers because often it is not obvious or visible that a person is living in this circumstance. As well, health providers face diverse challenges and barriers in their practice making it difficult to screen for household food insecurity in varied work settings. Identifying strategies to address these challenges in practice is fundamental to facilitating the food insecurity screening process, but it is equally important for supporting individuals who might be struggling to access a healthy diet. The lack of knowledge and inconsistent practices of dietitians toward the assessment of food

insecurity are particularly important since such practices can negatively impact the nutritional care of clients.

1.2 Rationale

Screening for food insecurity is an important part of dietetic practice. Equally important for dietitians is to have well developed skills in assessing, counselling and supporting clients who experience moderate or severe food insecurity (Boeing & Holben, 2003; Holben, 2005; Messer & Ross, 2002; Power, Sheeshka & Heron, 1998). Additionally, dietitians play an important role in advocating at different levels and supporting clients experiencing food insecurity. Screening for household food insecurity enables dietitians to prioritize clients' needs to access a dietitian, to inform counselling and program priorities. Yet, there is a concern that dietitians experience challenges with their role, knowledge, scope and organizational support in the area of food insecurity which are similar to those encountered by other health professionals (Devitt, 2011; Granger & Holben, 2004). Nevertheless, dietitians are key health professionals who should possess knowledge and competencies to assess household food insecurity.

In 2012, a full-day workshop funded by Campus Alberta Health and Public Health was held by health professionals at Alberta Health Services, Nutrition Services to engage other practitioners and academics involved in food insecurity research in a discussion to address strategies that can help to identify and respond to food insecurity within Alberta's health system (McIntyre et al., 2012). A variety of key themes were identified in the workshop to include: limited practitioner awareness and training, lack of resources to support health professionals, lack of awareness of who, where and when to screen for food insecurity, lack of appropriate

tools, the need for more education about household food insecurity, the need to reorient the health care system and the need for more data surveillance and research.

It is imperative for dietetic professionals to gain direction on ways to assist clients and to assess food insecurity at the individual and community level. Therefore, in this thesis, the intent is to develop a substantive theory that explains the knowledge, perceptions and attitudes of dietitians regarding their role in the assessment of food insecurity in different settings and regions of the province of Alberta. The results of this study are intended to clarify registered dietitians' scope of practice related to food insecurity assessment in different health settings (e.g., community and acute care).

The qualitative approach used in this study is Strauss and Corbin's grounded theory (GT) (Strauss & Corbin, 1998). Grounded theory is an appropriate choice because the focus of this study is on identifying and contextualizing the perceptions and attitudes of dietitians regarding the process of assessing household food insecurity. Through focus groups interviews with dietitians working in different health zones of Alberta, we explore dietitians' salient beliefs, barriers to and needs for screening and providing support to clients living with food insecurity. It is hoped that GT will help to explain how dietitians perceive their role in assessing food insecurity among their clients. It is also anticipated that these findings will aid future dietetic training and educational resources required for enhancing and supporting RD's knowledge and professional practice.

For the purpose of this study, a dietitian is defined as a registered dietitian (RD). In the Canadian context, a dietitian is a health care professional who has earned a bachelor's degree specializing in food and nutrition and has completed supervised practical training through a

university program or an approved hospital or community setting. All dietitians in Canada must be registered with their Provincial Regulatory Bodies (Dietitians of Canada, 2013).

1.3 Significance of the Problem

It is important to explore the way in which dietitians effectively identify, counsel and support clients experiencing household food insecurity. It is essential to understand dietitians' practices because nutritional guidance offered by dietitians may impact clients' health outcomes. Dietetic practice changes over time requiring an update of the evidence for best practices. This qualitative study provides an opportunity for RDs to express their views, experiences, barriers, and beliefs about their role in assessing household food insecurity in practice. The results of the study may inform: future implementation strategies, continuing professional education and increase awareness of the importance of screening for food insecurity in different settings.

1.4 Objectives

The objectives of this qualitative study are:

1. To explore how RDs from different areas of practice and settings employed by Alberta Health Services, Nutrition Services understand the concept of household food insecurity (HFI) and their relevance to their practice.
2. To identify RDs' perceptions of their role and challenges, including barriers and enablers in assessing and responding to HFI.
3. To understand RDs attitudes towards educational and training needs for effective identification and support of clients experiencing HFI.

4. To develop a substantive theory using GT that explains how RDs perceive their role, and challenges including barriers and enablers in the assessment of and response to HFI.

1.5 Definition of terms

Attitude: An Attitude is a mental and neural state of readiness, organized through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related (Allport, 1935).

Axial Coding: The process of relating categories to their subcategories, termed "axial" because coding occurs around the axis of a category, linking categories at the level of properties and dimensions (Strauss & Corbin, 1998).

Category: Category is the term used in grounded theory that represents the phenomena under study (Strauss & Corbin, 1998).

Coding: The analytic processes through which data are fractured, conceptualized, and integrated to form theory (Strauss & Corbin, 1998)

Community food security: "A situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice" (Hamm & Bellows, 2003)

Dimensions: The range along which general properties of a category vary giving specification to a category and variation to the theory (Strauss & Corbin, 1998)

Food Security: All people at all times have physical and economic access to sufficient, safe and nutritious foods to meet their dietary needs and food preferences for an active healthy life (FAO, 1996).

Food insecurity: The inability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so (Davis & Tarasuk, 1994).

Household food insecurity: “Household`s experience of food insecurity or the inadequate or insecure access to adequate food due to financial constraints" (Tarasuk, Mitchell & Dachner, 2014).

Memos: This is the term used in grounded theory to represent the researcher's record of analysis, thoughts, interpretations, questions, and directions for further data collection (Strauss & Corbin, 1998)

Open coding: Initial analytical process through which concepts are identified and their properties and dimensions are discovered in data (Strauss & Corbin, 1998).

Perception: Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the world (Lindsay & Norman, 1977).

Phenomena: In grounded theory, phenomena refer to the central ideas in the data represented as concepts (Strauss & Corbin, 1998).

Properties: Characteristics of a category, the delineation of which defines and gives it meaning (Strauss & Corbin, 1998).

Self-efficacy: Self-efficacy is defined as a person’s belief about her or his ability to organise and execute courses of action to manage situations (Bandura, 1997).

Selective coding: Selective coding is the term used in grounded theory to represent the process of integrating and refining the theory (Strauss & Corbin, 1998).

Sub-category: Concepts that pertain to a category, giving the category further clarification and specification (Strauss & Corbin, 1998).

Theoretical sampling: Data gathering driven by concepts derived from the evolving theory and based on the concept of “making comparisons,” whose purpose is to go to places,

people, or events that will maximize opportunities to discover variations among concepts and to densify categories in terms of their properties and dimensions (Strauss & Corbin, 1998).

Theoretical saturation: The point in category development at which no new properties, dimensions, or relationships emerge during analysis (Strauss & Corbin, 1998).

Theory: According to grounded theory, a theory is a set of well-developed concepts related through statements of relationships, which together constitute an integrated framework that can be used to explain or predict phenomena (Strauss & Corbin, 1998).

1.6 Summary

This chapter introduced a study that is concerned with the question of how registered dietitians employed by Alberta Health Services, Nutrition Services, in Alberta perceive their role in assessing and supporting food insecure clients. In this introductory chapter, the nature of the problem was discussed, and the aims and significance of the study were highlighted. As well, an in-depth discussion of the use and appropriateness of GT was provided.

In support of this study, the next chapter contains a review of the literature to introduce the phenomena under study.

Chapter 2. Literature Review

This chapter provides a review of the literature of what is known about household food insecurity in general, food security in Canada, and the relationship between food security and health, and the relevance of food security screening to dietetic practice, while also identifying gaps in the knowledge of best practices for dietitians that support the need for this study. This chapter also examines the conceptual models of municipal-level responses to HFI problems of the population.

2.1 Food Security

In 1996, the World Food Summit stated that food security exists only when all people have physical and economic access to sufficient food; and not only when the country is able to produce such foods (FAO, 1996). Over the years, the concept of food security has been slightly modified since it was endorsed by Health Canada in 2004. The most current definition of food security provided by the FAO (1996) is that food and nutrition security exist "when all people at all times have physical, social and economic access to food, which is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life." This concept of food security recognizes that healthy eating competes with obtaining other basic needs and desires of a family, and achieving household food security is, therefore, only feasible when there are sufficient resources to be spent on food and simultaneously on other basic needs.

2.2 Food Security Dimensions

Based on the definition, four food security dimensions can be identified: 1) food availability, 2) economic and physical access to food, 3) food utilization and 4) stability of food over time (FAO, 2006). The first refers to sufficient availability of healthy food required for a healthy, active and productive life for all household members and is determined by the level of food production, stock levels and net trade. The economic and physical access refers to having the set of resources and opportunities available to the household to produce, buy and exchange food. The third dimension refers to nutritious and safe diets and the ability of the body to consume and metabolise them. Combined with good and adequate biological and socio-environments, this dimension determines the nutritional status of individuals, considering a favourable balance among vulnerability, risk and resources. While vulnerability refers to characteristics inherent to the home, the risk factors are external variables that undermine the possibility for households to access available food. As an example, large families with children and/or pregnant women are more vulnerable than those of smaller size and less nutritionally vulnerable members. Moreover, sudden changes in pricing policies or wages in the country increase the risk of food insecurity of poor families. Finally, stability refers to the time factor and that food insecurity may be chronic, temporary or cyclical (Gross, Schoeneberger, Pfeifer & Preuss, 2000). Chronic food insecurity is long-term and it is associated with poverty and lower socioeconomic status, most commonly among families who live in poverty. For instance, chronic food insecurity refers to those who do not earn enough to cover the cost of a basic food basket, while transitory is short-term. Cyclical food insecurity is also called seasonal and occurs when there is a cyclical pattern of inadequate access to food (e.g., during certain times of the year between planting and harvest).

2.3 Household Food Insecurity

In contrast to household food security, household food insecurity in Canada is defined as a “household`s experience of food insecurity or the inadequate or insecure access to adequate food due to financial constraints" (Tarasuk, Mitchell & Dachner, 2014). Inadequate or insecure access encompasses the ability to acquire such foods in an acceptable manner from a social and cultural perspective. Household food insecurity also involves not only the availability of food but also the access to economic resources for food under diverse conditions and for long-term availability. Furthermore, it involves the ability of families to obtain, produce or buy enough food to meet the dietary needs of their members and this can only be achieved when they have food supplies, physically and economically accessible to all. Food supply at this level depends on factors such as cost, storage capacity and environmental influences.

There are two types of household food insecurity: chronic and transitory. Chronic food insecurity is due to continuous poor diet for prolonged periods because of the sustained inability of households to purchase needed food, and therefore has its origin in poverty (FAO, 2005). Transitory food insecurity stems from a temporary decrease in access to the food needed by households due to factors such as the instability of food prices, income or product supply; seasonal variation in production and prices also contribute to transitory food insecurity of poor households. This situation can lead to chronic food insecurity and a deteriorating state of nutrition (Barrett & Sahn, 2001).

No conceptual framework is capable of modeling all aspects involved in the complex process that determines household food security. This is mainly because the factors which contribute to household food security depend on the unique circumstances of a particular household. Identifying factors which ensure household food security, and a better understanding

of the interrelationships between them are essential for the design of more efficient and more effective solutions to ensure household food security (Tarasuk, Mitchell & Dachner, 2014).

2.4 Responses to Food Insecurity

The state of health of an individual depends on, among other things, their nutritional status, nutrition knowledge, health conditions, home and community hygiene, and the care provided by their health providers. Priorities for clients living in food insecurity are usually to pay other expenses such as rent, heat, and electricity rather than food. This is particularly important among clients who also experience health conditions since, in addition, to a healthy diet, they also need to pay for medications and other specials needs (Berkowitz et al., 2014). Several studies have shown that healthy and special diets (i.e., diabetes, gluten-free, renal failure, HIV/AIDS) are significantly more expensive than non-healthy diets (Aggarwal et al., 2012). Therefore, food insecurity compromises people's health to a greater degree.

Conceptual Models of Municipal Responses to HFI. In Canada, municipal responses to household food security are mainly food-based and have been conceptualized in three models: 1) charitable, 2) household improvements and supports, and 3) community food systems (Collins, Power & Little, 2014). First, the charitable model encompasses food banks, which rely on food and cash donations from the public. The Edmonton Food Bank opened in 1981, and it was the first food bank in Canada. Since then, food banks have been used nationally as the main short-term form of hunger relief. In Canada, obstacles faced by food bank users include: lack foods of nutritional quality, cannot supply all the food needs of the food insecure households, and are often unable to meet cultural food preferences. Other barriers play an important role to accessing food banks such as restricted operating hours, the number of times clients can access food, long

line-ups, eligibility criteria, and the lack of transportation necessary to get to a food bank (Loopstra & Tarasuk, 2012). Other reasons for individuals not using food banks is a lack of information regarding how to use banks, feeling ashamed to use them, and a misunderstanding about the assistance food banks can offer in relation to their perceived needs (Loopstra & Tarasuk, 2012).

The second model of municipal responses to household food insecurity is household improvements and supports which consists of: soup kitchens, school snack or meal programs, group cooking programs (e.g., community kitchens, collective kitchens, cooking circles), community gardens, food co-ops, the Canada Prenatal Nutrition Program and food boxes in response to the needs of Aboriginal and non-Aboriginal populations. These programs provide basic foods and assist individuals with cooking, food preparation skill building, and opportunities for social interactions (Mercille, Receveur & Potvin, 2012; Wiig & Smith, 2009). Yet, these community food programs only provide temporary or short-term relief for some households (Bocskei & Ostry, 2010; Ford, Lardeau & Vanderbilt, 2012), and are insufficient to solve food insecurity.

The third model represents community food systems which work towards ensuring food security through sustainable food actions that emphasize self-reliance and empowerment and exclude emergency and charity food relief (Hamm & Bellows, 2003). This model promotes social equity where community members have better access to fruits and vegetables; it ensures the safety of the food supply allowing local decision making and citizen engagement. Since every community has different food security needs, some of the challenges of this model are determining what evidence-based strategies can be implemented. Additionally, the strategies of this model are often medium and long-term in duration; therefore, it could be difficult to

associate the results and success of each strategy that have been implemented. This implies that appropriate evaluation tools should be developed along with each particular strategy.

Special Diet Supplementary Funding. In Alberta, a special diet supplementary fund is available for individuals who require a special diet for health reasons. Individuals or families eligible for income support and that require a medical nutritional supplement, or are on a special diet prescribed by their medical practitioner, are eligible to receive special diet supplementary funding. This funding is intended to cover the difference between the regulated food cost and the cost of the food required for a special diet (Ministry of Health, 2014). However, evidence regarding whether or not this supplementary funding is enough to cover additional food costs remains unknown. A lack of evidence does not necessarily mean that these supports do not work or do not have positive results, and therefore, there is a need for evaluation studies that can determine whether these supplemental programs are efficient and effective. Information derived from evaluation studies will contribute to improving the programs to combat nutrition problems.

Tailored Intervention Programs. Programs tailored to specific groups, in particular children, allow adequate nutrition and contribute to their physical and mental development. Additionally, programs need to provide attention and support to physical, mental and social needs of growing children and other family members. The nutrition of children (including breastfeeding and eating practices) depends on the nutritional and emotional support of the caregivers, particularly mothers so that nutritional education is indispensable. Therefore, the development of appropriate programs should consider the knowledge, time constraints, income and resources and motivations of members of the household and the community, in general.

Actions are important at all levels; however, the action, as much as possible, should be generated in direct response to the needs as identified by families. Keeping in mind that nutrition

security for individual members is the ultimate goal, adequacy, stability and access to food must be established, as well as care, proper prevention and disease control.

2.5 Measurement of Household Food Insecurity in Canada

Measuring household food insecurity is necessary to identify people living with food insecurity, characterize the severity and nature of the problem, to analyze trends, and to provide a basis for measuring impact of programs. In Canada, the CCHS is an annual cross-sectional survey that collects health-related data on the Canadian population, including health care utilization and determinants of health (Health Canada, 2007). Since 2004, Canadian national surveys have included a validated measurement tool for household food security: The Household Food Security Survey Module (HFSSM) (Health Canada, 2008). This module includes eighteen questions assessing the degree of food security experienced by households over the previous 12 months across all provinces and territories in Canada. Ten questions explore the experiences of adults and eight concern respondents' experiences of providing food to children in their households.

Measuring household food security provides information that forms the basis of making policy decisions for improving food security in Canada. Because of the complexity that this concept involves, it is necessary to use validated indicators. There are few validated short-screening instruments that rapidly identify and monitor household food insecurity in a variety of settings with different populations. In Canada, the HFSSM is the only gold standard instrument used to collect information on food security at a national and a provincial level (Kleinman et al., 2007; Young, Jeganathan, Houtzager, Di Guilmi & Purnomo, 2009; Hager et al., 2010; Nord & Hopwood, 2007; Swindle, Whiteside-Mansell, & McKelvey, 2013).

The HFSSM is purposely short to avoid respondent burden and annoyance; however, it does not measure all possible dimensions of food insecurity (i.e., nutritional status, socially acceptable ways of acquiring food, sources of food, food safety). Therefore, the HFSSM does not provide information on the nutritional status of the individuals who live with food insecurity or the sources of food in the household. Furthermore, the CCHS does not include homeless persons, households in some remote locations, or households located on reserves, which may result in an undercount of the number of more severely food-insecure persons.

2.6 Evidence of Household Food Insecurity in Canada

Poverty is one of the root causes of food insecurity. Although having a low income does not necessarily cause food insecurity, low income households or households reliant on unemployment insurance are more likely to experience food insecurity since insufficient income challenges the ability to purchase sufficient food for the household. In Canada, the problem for many food insecure households is that most of their income is barely enough to cover their basic needs under normal circumstances (Loopstra & Tarasuk, 2013).

In the case of Canada, despite the actions made to reduce food insecurity, most provinces have not made much progress. The prevalence of food insecurity in Canada seems to be increasing every year along with the negative health implications in adults and children (Kirkpatrick, McIntyre& Potestio, 2010; Tarasuk, Mitchell, McLaren & McIntyre, 2013; Tarasuk et al., 2014). Studies have shown that although improvements in food security were observed in some years in a few provinces, the prevalence of food insecurity still persists among vulnerable populations, such as Aboriginal people and people who identify ethnically as ‘black’, households

with children, households reliant on social assistance, those renting rather than owning a house, and single parents (Tarasuk et al., 2014).

Today, there are more than 4 million (slightly more than 12% of households) people in Canada who are living in households suffering some level of food insecurity and who may not enjoy a healthy and active life. Included are more than 1.5 million children under the age of 18. These people live deprived from the most fundamental human right: the right to food. The most recent report, Research to identify *policy options to reduce food insecurity* (PROOF), found that of the 12% of Canadian households living with food insecurity, 4.1% were marginally food insecure, 6% reported moderate food insecurity, and 2.6% reported severe food insecurity. Food insecurity was highest in Nunavut and the Northwestern Territories (Tarasuk et al., 2014). It is important to mention that not all the members of households suffer from food insecurity to the same degree and that the CCHS underestimates the true prevalence of food insecurity in Canada because this survey does not include people living on reserves, individuals living in institutions or who do not have a residence, member of the armed forces and residents in some remote locations.

According to the Canadian Community Health Survey (CCHS) in 2012, "84% of the food insecure households in Canada, 1.4 million, were located in Ontario, Québec, Alberta, and British Columbia, Canada's most populous provinces". Results from 2004 reported 8.8% of the population, or approximately 2.7 million Canadians, lived in households experiencing food insecurity. In Alberta, this rate of household food insecurity was 10.7% (one out of every ten households). Data suggest that household food insecurity rates in Alberta have remained at or above the levels experienced in prior years and food insecurity was more prevalent among adults than children, particularly when the experience of food insecurity was severe.

Several studies have consistently reported that food insecurity is highly associated with low income (Kirkpatrick & Tarasuk, 2007; Kirkpatrick & Tarasuk, 2009; Kirkpatrick & Tarasuk, 2011) and the cost of basic needs (Gregory & Coleman-Jensen, 2013; Williams et al., 2012). In 2008, an Alberta study reported that the average monthly cost of the basic food basket, for a family of four, was $774 which was 10% more expensive than during 2007. This study also explored the costs of basic needs such as shelter, food, transportation and child care in diverse lower income household scenarios and revealed that food costs ranged from 14% to 32% of the total income while the cost of shelter ranged from 23% to 73% of the total before tax income (Dietitians of Canada, 2009). These results show the lack of affordability of a healthy diet and the important role of local prices in determining the food security of vulnerable populations, which in turn, may lead to the consumption of less healthy diets (Aggarwal, Monsivais & Drewnowski, 2012; Drewnowski & Specter, 2004). The geographical variation of food prices and the economic ability to access a healthy diet have been reported in some Canadian provinces: British Columbia (Dietitians of Canada, 2011), Saskatchewan (Dietitians of Canada, 2012), and Nova Scotia (Williams et al., 2012).

Various governments and multinational agencies have emphasised reducing hunger and malnutrition since, according to statements of the United Nations and the Food and Agriculture Organization (FAO), the problem of malnutrition due to inadequate consumption lies in the unequal access to food (FAO, 2012). Therefore, it is necessary to clarify the issues involved in achieving food security and help to formulate and adopt appropriate policies that reinforce household access to sufficient and healthy food.

2.7 Groups at Risk for Household Food Insecurity in Canada

In general, households at risk for food insecurity live in areas where there is a combination of several factors: poor food availability, low income, isolation and limited access to health services and education (Ford & Beaumier, 2011; Loopstra & Tarasuk, 2013). According to the PROOF 2012 report, the most vulnerable families to food insecurity are: households headed by women, households with many members, households located in ecologically disadvantaged areas, and households with very low incomes that do not allow them to acquire adequate supplies of food in terms of quality and quantity. Low income families are at risk of becoming food insecure as they make just enough to pay rent and other priorities rather than food. Children in the early years of life are the most vulnerable to food insecurity and nutritional risks as indicated by mortality trends, therefore the need to ensure children access to food (Bhattacharya, Currie & Haider, 2004; Ryu & Bartfeld, 2012).

In Canada, new immigrants are a group vulnerable to food insecurity. Around the world, individuals migrate with their families to improve their access to food. However, a newcomer's access to sufficient and nutritious food can be adversely affected by powerful factors, such as social exclusion, dietary and nutritional preferences, and environmental factors that can significantly limit access to food in the host countries (Girard & Sercia, 2013; Vahabi & Damba, C. 2013; Sanou, O'Reilly, Ngnie-Teta, Batal, Mondain, Andrew, & Bourgeault, 2014). The vulnerability for a large number of immigrants in Canada is often the lack of employment (Reitz, 2007). Newcomers may struggle to find a job, and this is particularly important, since job availability influences whether a family has basic services such as housing, food, clothing, health and education (Girard & Sercia, 2013; Vahabi, Damba, Rocha & Montoya, 2011).

Several studies indicate that people living in food insecure households are vulnerable to physical and mental health problems (Compton, 2014; Muldoon, Duff, Fielden & Anema, 2013). The Aboriginal population in Canada is particularly vulnerable, given the prevalence of food insecurity among this population is significantly higher than the national average and their diets are poor (Huet, Rosol & Egeland, 2012). Poor diet quality has been, in turn, one of the factors contributing to the epidemic proportion of diabetes among First Nation's people. According to the CCHS, in comparison to other ethnic groups in Canada, Aboriginal have higher rates of different chronic diseases (Willows, Veugelers, Raine & Kuhle, 2011; Willows, Veugelers, Raine & Kuhle, 2009) including diabetes, obesity, cardiovascular disease and mental health problems, like depression and suicide.

2.8 Food Insecurity as a Determinant of Health

Children living in food insecurity may not have the calories and essential proteins that their body needs to grow (Tarasuk et al., 2014). Nutritional deficiencies in early childhood can have long-term consequences that affect subsequent academic performance of children. In school-age children, nutritional deficiencies, and the circumstances which cause them, are responsible, in part, for the low enrollment in schools, absenteeism, early dropout and poor educational performance (Howard, 2011). If inadequate consumption of nutrients occurs during pregnancy and the first two years of life, it becomes a serious risk factor for morbidity and mortality during childhood including adverse effects on long term mental and physical development (Saha et al., 2010).

Adults who believe they will suffer food shortages in the future may be more likely to consume in excess at times when they have good access to food (Franklin et al., 2012;

Mohammadi et al., 2013). Food insecurity has been associated with episodes of binge eating when food is available, which may lead to energy storage and consequently, insulin resistance if the individual becomes obese (Sarlio-Lahteenkorva & Lahelma, 2001). Cyclic food restriction (e.g., voluntary and involuntary) is associated with preferences for high-calorie and low protein foods, resulting in increased body fat and decreased lean muscle mass (Townsend, Peerson, Love, Achterberg & Murphy, 2001). Food insecure households are more likely to buy food with a higher proportion of fats and carbohydrates and consume fewer fruits and vegetables because of the lower cost per calorie of processed food (Drewnowski & Specter, 2004). Research supports the notion that food security is associated not only with diabetes, but also obesity, hypertension and cardiovascular disease (Castillo et al., 2012; Ramsey, Giskes, Turrell & Gallegos, 2012) and kidney disease (Crews et al., 2014). Low diet quality coupled with food insecurity can limit the dietary management of health conditions, such as overweight, diabetes and chronic liver disease. For instance, food insecurity limits one's ability to control the risk factors for weight gain and hyperglycemia (Bawadi et al., 2012; Berkowitz, Baggett, Wexler, Huskey & Wee, 2013; Holben & Pheley, 2006; Pan, Sherry, Njai, & Blanck, 2012; Seligman, Jacobs, López, Tschann, & Fernandez, 2012).

People living in food insecurity are more likely to experience stress, depression, sleep disturbances, and fatigue (Black et al., 2012; Liu, Njai, Greenlund, Chapman & Croft, 2014; Whitaker, Phillips & Orzol, 2006). Adults with chronic conditions are more vulnerable to food insecurity; at the same time this vulnerability is linked to a poor adherence to prescribed diets. Furthermore the likelihood of living with food insecurity increases with the duration of the chronic conditions (Berkowitz, Seligman, & Choudhry, 2014; Galesloot, McIntyre, Fenton, & Tyminski, 2012; Gucciardi, DeMelo, Vogt, Stewart, 2009; Sattler & Lee, 2013).

The association between food insecurity and diabetes has important consequences for the quality, safety and use of health services (Oglesby, Secnik, Barron, Al-Zakwani & Lage, 2006). A growing body of evidence indicates that food insecurity is a predisposing factor for poor glycemic control among clients with diabetes (Galesloot et al., 2012; Seligman et al., 2011; Seligman et al., 2012). In Canada, the rates of household food insecurity are significantly higher among Canadians with diabetes compared to those without diabetes (Gucciardi, Vogt, DeMelo, & Stewart, 2009). Individuals with diabetes who have fewer resources are more likely to suffer from frequent and severe hypoglycaemia compared to those with diabetes who have enough resources to eat healthy (Seligman et al., 2011; Seligman, Bolger, Guzman, Lopez & Bibbins-Domingo, 2014; Seligman et al., 2012). Diabetes is an illustrative example of how food insecurity affects the incidence and treatment of chronic diseases (Berkowitz et al., 2014). Food insecure adults also report taking less medication in order to have enough money to buy food (Bengle et al., 2010; Berkowitz et al., 2014; Sattler & Lee, 2013), and conversely, very often they go through episodes of hunger to be able to buy their medication.

Furthermore, among other chronic diseases, food insecurity is also strongly associated with chronic kidney disease. Crews and colleagues (2014) studied the relationship between food insecure individuals and chronic kidney disease (CKD) and found that food insecurity was associated with greater odds of CKD among participants with either hypertension or obesity.

2.9 Dietetic Practice and Food Insecurity

Dietitians face many challenges both in their work, and as a profession, in nudging the food security movement across key sectors and at multiple levels to build food security in Canada. Within the scope of practice of registered dietitians specified by the Academy of

Nutrition and Dietetics, one of the roles includes educating the public regarding food security, sustainable and resilient healthy food and water systems, and environmental food and nutrition issues (Slater, 2007; Power, 2005). Registered dietitians are key professionals who can get involved in advocating and implementing effective and sustainable policies, systems, programs, and practices that support individual, household and community food security initiatives. However, to date, there are no specific guidelines that guide dietetic practice in this area. Therefore, continuing education is necessary to prepare dietitians to get involved in food security practices.

Because household food insecurity has strong implications for health, including the increased risk of several diseases, the position paper of Dietitians of Canada (DC) 2005, stated that dietitians should play an active role in addressing food security and encourage them to introduce its assessment into the dietetics preparation. Furthermore "DC strongly encourages dietitians to educate themselves about the issues and processes to achieve food security through social change, to use empowering strategies in community-based food programming, to conduct and apply research, and to participate in coalitions that advocate to create the conditions in which all Canadians can achieve food security" (Dietitians of Canada, 2007).

In comparison to the volume of literature published on the continuing education needs of dietitians, very little has focused on the continuing education needs for the assessment of individual, household and community food security. More studies are needed regarding dietitians' competencies in assessing household food security in their practice. Until now, only a few studies with dietitians, nurses and physicians as participants have reported a lack of knowledge and skills in screening and counselling clients living with food insecurity (Boeing &

Holben, 2003; Granger & Holben, 2004; Shih, Holben & Holcomb, 2004; Tscholl & Holben, 2006).

2.9.1 Continuing Education Needs of Dietitians

Continuing education is necessary for dietitians to gain food security competencies to continue to provide competent patient care, (Holben, 2005). Such competencies include: 1) participate in legislative and public policy processes as they affect food, food security, nutrition, and healthcare, 2) participate in development and measurement of outcomes for food and nutrition services and practice, 3) participate in development and evaluation of a community-based food and nutrition program, 4) refer patients/clients to appropriate community services for general health and nutrition needs and to other primary care providers as appropriate, and 5) conduct assessment of the nutritional status of the population and/or community groups (Holben, 2005). Further research is needed to determine dietitians' needs to incorporate and conduct food security competencies into dietetic practices.

Albeit many dietitians may not have experienced first-hand the burden of living in poverty, it is widely understood in dietetic practice that there is a link between poverty and poor physical and mental health. As a way of bridging this gap, recent studies examined the impact of poverty simulations mainly among nursing and dietetic students on students' attitudes toward poverty to generate a deeper understanding of the importance of understanding poverty and its influence on health care decisions (Menzel, Willson & Doolen, 2014; Noone, Sideras, Gubrud-Howe, Voss & Mathews, 2012; Patterson & Hulton, 2012; Syler, Gosche & Lueders, 1997). These studies showed that even small and short interactive interventions can have an impact by

providing basic information about individuals who live in poverty and stimulate their interest in poverty issues.

Assessing dietitians' counselling self-efficacy and their perceptions of food insecurity and poverty is fundamental to understanding the basic education needs of dietitians. Counselling self-efficacy has been defined as a counsellor's beliefs or judgments about his/her ability to perform counselling-related behaviours or to negotiate particular clinical situations (Larson & Daniels, 1998). For instance, a dietitian's ability to determine when to stop giving information to clients, how to collaborate with clients to establish mutual goals, how to interpret clients' nonverbal messages, and development of rapport is linked to self-efficacy.

2.10 Theoretical Framework: The Social Cognitive Theory

The theoretical framework used to guide the interview protocols in this study is the social cognitive theory (SCT) developed by Albert Bandura. In his theory, Bandura (1997) indicates that people have initiative and are equipped with capabilities of self-organization, self-regulation and self-reflection, in which self-efficacy influences the goals and behaviours, which in turn are influenced by the actions and conditions environment. In a more concise way, we can say that self-efficacy is related to personal skills to identify the opportunities around them and interpret the perceived obstacles.

This framework was used because one of the aims of this study was to understand how confident dietitians feel regarding effective identification, counselling and support of clients experiencing household food insecurity. This is because perception of self-efficacy can significantly impact nutrition guidance offered by dietitians and impact health outcomes of clients. Self-efficacy is defined as people's beliefs in their capabilities to organise and execute

the courses of action required to produce given attainments. Self-efficacy strongly influences those beliefs in different ways: how people act, their choices, how they face obstacles and how people think, feel, motivate themselves, and act (Bandura, 1997).

Because self-efficacy and reflexivity play an important role in dietitians' practice, it is important to expect them to be potential factors that can contribute to the quality of the nutritional assessment, and to the screening of food insecurity. To our knowledge, it is unknown the extent to which dietitians in Alberta currently assess food insecurity as a strategy for increasing the adherence to therapeutic diets among clients with chronic diseases or as an approach to decreasing food insecurity in the province.

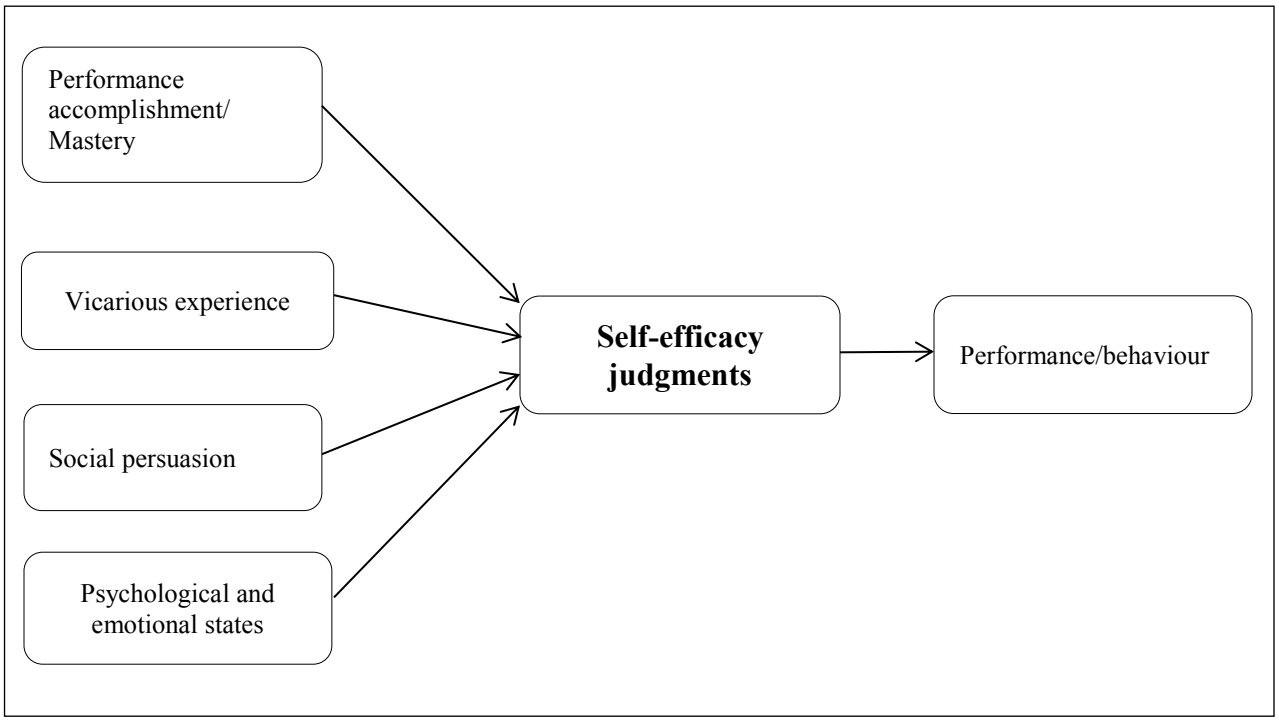
In order for a practitioner to execute an assessment and counsel clients regarding food insecurity, they must possess knowledge of current assessment tools, knowledge of the procedures to use them, and a certain degree of confidence in their ability to effectively perform the counselling. The SCT identifies variables, such as knowledge, attitudes, subjective norms, outcome expectations, self-efficacy, and barriers to be predictive of self-motivation for behaviour change (Bandura, 2004). In SCT, it is assumed that three motivational variables predict the intention to perform the target behaviour. These variables are: self-efficacy, outcome expectations and cultural barriers. Health practitioners with high levels of self-efficacy are more likely to perform a procedure, and are more likely to do so. A person's feeling of self-efficacy is usually determined by their knowledge and experience.

According to Bandura (1997), self-efficacy beliefs develop in response to four sources of information: 1) performance accomplishment, 2) vicarious experience, 3) social persuasion, and 4) physiological and emotional state. Performance accomplishment refers to earlier experiences in accomplishing a task and it is considered the strongest source of self-efficacy. Vicarious

experience refers to watching others performing a task (i.e., role models). By observing if someone performs or fails at a task influences one's own self-efficacy. Social persuasion refers to others' judgments, feedback, and support. Positive feedback from someone who is considered knowledgeable about the task can increase someone's self-efficacy; meanwhile negative feedback can decrease the performer's efficacy. The fourth source of self-efficacy is determined by psychological and emotional states, the interpretation of physiological signals and emotional reactions toward a task can influence one's judgments of one's own capability to performance a task.

For Bandura (1987) these efficacy beliefs are better predictors of future behaviour skills than past accomplishments, or knowledge that the subject possesses to perform the activity. However, a competent functioning requires both accurate self-perceptions of effectiveness as well as actual possession of skills, in addition, to the judgments about the outcomes that produce a given behaviour (expectations results). All these components maintain a complex relationship with each other, which should be considered to study the predictive utility of self-efficacy beliefs (Britner & Pajares, 2006). Furthermore, in addition to the previous components, motivating factors can contribute to a successful performance, while factors of demotivation may be predictors of poor performance.

Figure 1:1 Sources of self-efficacy information



From Bandura's point of view, a dietitian's self-efficacy implies that depending on the perceived personal competence, a dietitian could assess food insecurity among their clients and feel competent to provide counselling for those clients living with food insecurity. This perceived competency could be associated with previous professional experiences with food insecure clients, training, barriers and other factors.

The practice of reflexivity concerning existing habits, routines and personal competence in applying appropriate approaches in the health-care process is another characteristic that may influence dietitians' motivation to assess their client's food insecurity status. FitzGerald (1994) defined reflection as the retrospective contemplation of practice in order to uncover the knowledge used in a particular situation, by analyzing and interpreting the information recalled. The reflective process also enriches and provides insights on the problem being studied and helps with the interpretation of what is revealed and facilitates its understanding. In dietitians, the

reflective practice could be applied if practitioners question themselves about how effective they are in providing counseling to their clients and their families. These practices could help to improve professional skills and make appropriate choices to meet client's needs.

2.11 Summary

This chapter provided a review of the literature of the definitions of food insecurity in Canada, the household food security situation, prevalence, health consequences of the problem and the groups at risk of food insecurity. The economic inability to purchase healthy foods is the likely mechanism of the association between food insecurity, increased incidence of chronic disease and poor management of chronic disease. This chapter also examined government and non-government, non-profit and private sector's responses to the problem and opportunities for improvement.

Finally this chapter provided a brief overview of the social cognitive theory and how self-efficacy beliefs affect human behaviour and health professionals' practice. Bandura's self-efficacy theory describes a reciprocal relationship between a person's self-efficacy and their performance at work. The importance of socio-cognitive approach is crucial in the study of dietitians' sense of efficacy because dietitians play an important role to address potential modifiable factors to support clients living with food insecurity.

Chapter 3. Research Methodology

This chapter begins with an explanation of the research focus and justification of the use of grounded theory (GT) for the present study. The study methods begin with a discussion on the recruitment of the participants and the sampling approaches used. Subsequently, data collection methods are also discussed along with data analysis procedures. According to grounded theory, data collection and data analysis were simultaneously conducted. Data analysis commenced immediately following the completion of the first focus group discussion and continued until completion of the study.

3.1 Research Design

The primary objective of this study was to develop a theory that explains how registered dietitians perceived their role in the assessment of food insecurity in the practice setting. This study used a qualitative design using methodology of GT (Strauss & Corbin, 1998) through four video-based focus groups discussions as the primary data collection method and individual and paired interviews with key informants as part of the theoretical sampling process used in GT. The focus group method was chosen initially for its convenience and ability to capture the viewpoint of a variety of subjects within a short time frame. Also, using focus groups as a starting point to the data collection process allowed the investigators to capture the most relevant concepts that helped to develop question guides for the individual and paired interviews.

Using focus groups as a data collection strategy was useful because this study aimed to investigate participants' thoughts about HFI, but it was especially valuable because it helped to determine the underlying reasons for these thoughts.

In this study, a total four focus groups were conducted. Although twenty eligible dietitians contacted the research team to participate in the study, only seventeen participated in the focus groups (n=4+5+4+4). The participants inclusion criteria were: be a registered dietitian and work for AHS in the areas of population public health, home care and child health, primary care, chronic disease management and general clinical nutrition. All dietitians working in those areas were eligible to participate, regardless of temporary/permanent status, gender, part/full-time work hours or length of time with the employer. Other health professionals were not eligible because of the main objective of the broad initiative.

Further recruitment of dietitians and key informants was necessary as part of the theoretical sampling. To continue with data collection, individual and paired interviews were conducted. Two dietitians participated in the individual interviews who had previously participated in the focus groups. There were seven new participants for the paired interviews. The justification for additional recruitment is discussed later in this chapter.

Theoretical sampling proposes a simultaneous analysis and coding processes, in order to start generating a theory, using specific coding and analytical procedures (Strauss & Corbin, 1998). An advantage of this method was that it facilitated the generation of theory that was based on the relationship of dietitians' concepts grounded in the data. In other words, each of the events were compared with other events or compared with the properties of a category.

The process of developing a GT consisted of different procedures: 1) theoretical sampling, 2) coding and categorization of information, and 3) constant comparison between categories. According to Strauss & Corbin (1998), following these steps allows the creation of a GT. The process of developing the GT started with obtaining records that are called "memos". These memos were products of observations and interpretations of the focus groups and

interviews produced by the principal investigator (AMC). The process continued with coding the data and establishing categories from the data. Conceptualization of the theory became an abstract and simplified perspective of the knowledge of the population being explored, followed by the generation of the substantive theory that explained the relationship between the categories.

3.2 Rationale for Choosing Grounded Theory and Focus Groups

Grounded theory is a qualitative research methodology that aims to identify social processes and such theory emerges from the data (Glaser & Strauss, 1967). Therefore, in this study, GT was used to understand the factors affecting the screening of food insecurity during the habitual nutritional assessment conducted by registered dietitians in Alberta. In order to build a substantive theory, the GT aimed to build concepts arising from the information obtained from dietitians living the experiences of screening and supporting clients living with food insecurity. By understanding this phenomenon, future new strategies can be implemented to improve the screening of household food insecurity.

The original grounded theory was created by Barney Glaser and Anselm Strauss in 1967, from his work on awareness of dying (Glaser & Strauss, 1967). The Strauss-Corbin trend appeared in 1990, with a more structured method than the original from Glaser and Strauss. In this new trend Strauss and Corbin give a more detailed explanation of the process to develop an emerging theory from the data. By coding, using theoretical sampling and constant comparisons with the data obtained, they were able to create a theory that helps to explain the relationships between the categories of the observed reality.

The fundamental difference between the methods of Glaser and Strauss-Corbin is that Glaser stresses the creativity of the researcher as part of the development stages in the research.

Glaser states that what matters is the ability of the researcher to discover what is in the data and propose hypotheses that can explain the phenomena. On the other hand, Strauss and Corbin rely more on a technique that allows the researcher to achieve the desired theory no matter the skills or creativity of the researcher. The research team chose to use the Strauss-Corbin method because its systematic, rigorous and continuous process can guide and facilitate novice researchers (i.e., AMC) to use grounded theory.

The focus group is a qualitative research strategy and is an excellent method to collect information in health research due to its sensitivity to explore knowledge, perceptions and values of certain groups regarding a variety of topics (Casey & Krueger, 2000). Kitzinger & Barbour (1999) define a focus group as a form of group interview that uses communication between researcher and participants, with the purpose of obtaining information. A focus group is a collectivist research method that focuses on the plurality and variety of attitudes, experiences and beliefs of the participants, and does so in a relatively short period of time (Casey & Krueger, 2000).

The application of focus groups in the design and evaluation of programs and services is multiple: assessment of needs and preferences of patients, identifying obstacles for the implementation of a program, development of educational materials or evaluation of the quality of services. Focus groups are also related to in-depth research of a particular phenomenon of interest, especially when it comes to understanding attitudes and perceptions against unsafe behaviors and to analyze the dominant cultural beliefs and values. Another utility of focus groups is to develop appropriate measuring instruments for specific population (O'Brien, 1993).

Working with a group facilitates discussion and encourages participants to discuss and review even uncomfortable topics. By discussing a topic in a group, researchers can generate

richer data (Morse & Richards, 2013). Focus group size influences the dynamics of the discussion (Tang & Davis, 1995). Small groups generate more intense and detailed discussions, including more information about each participant, but if they are too small, it creates more tension and passivity. All people express more freely when they are in a group of people who have lived the same experiences (Myers, 1998). There is no firm rule for the number of groups to perform. For some authors, at least two groups should be conducted for each variable (concepts or categories) that is being explored, but a flexible approach would be to perform enough groups that the researcher reaches saturation of a topic (Morse, 1995; Sandelowski & Barroso, 2008). In this study, the original intent was to conduct focus groups as a data collection method; however, individual interviews were needed to fully understand the categories and dimensions of the theory. Saturation occurred once no new codes and categories emerged from the interviews.

3.3 Selection of Participants - Recruitment

Grounded theory uses non-probabilistic sampling. Non-probability sampling is a sampling technique where samples are collected in a process that does not give all individuals in the population equal chances of being selected (Statistics Canada, 2013). Grounded theory uses this type of sampling process because of the selection of units from the population is based on easy availability and accessibility. However, it is recommended to group the participants homogeneously with respect to those characteristics that can hinder communication, while facilitating in-depth analysis of those common themes between the group members, (Kitzinger & Barbour, 1999). As mentioned in the previous chapter, our informants were dietitians working at AHS who are partners in this study. Since these dietitians were all working within AHS, they

have lived the phenomena being explored, they had their own vision and perspective according to their experience and according to how they conceive the reality analyzed.

Registered dietitians are key members in the health system in Alberta and must be registered with their provincial regulatory body. Registered dietitians work in different areas such as clinical, community health promotion, food service management, research, consulting and industry. Alberta Health Services (AHS) employs approximately 500 dietitians working across five zones (e.g., north, south) in the province. Registered dietitians in this organization are oriented to provide nutrition expertise for AHS for the diverse nutrition services. In AHS quality is achieved through: Evidence informed nutrition recommendations and standards, consistent nutrition messages appropriate for target audience and ongoing improvement of practice through practice-based research/evaluation (Alberta Health Services, 2010).

Dietitians employed at AHS are organized to work in different practice areas such as: chronic disease management, acute inpatient care, home care/home enteral and parenteral nutrition supportive living, and acute care: specialty clinics/ general outpatients, etc. In these areas, dietitians are responsible to conduct client/parent assessment and nutrition care for high risk patients and to provide nutrition education, through individual and group counselling. Other programs and services in AHS serve community health centres by providing professional and client education resources, group education, and client education such as prenatal nutrition programs. Dietitians working in AHS are also responsible for peer education through nutrition practice guidelines, distributions of client handouts as well as group classes using standardized nutrition presentations.

In this study, dietitians were identified and approached on a convenience basis and through AHS's nutrition managers. Senior managers at Nutrition Services played a primary role

in recruiting participants for this study. Initial contact was made via email to the respective departments at AHS. An invitation was sent to potential participants employed by AHS to participate in video-based focus groups. An effort was made to ensure that dietitians across all five zones in the province received the invitation as a way to ensure participation from different areas in Alberta. This invitation included an explanation of the study and initial information (Appendix A). Participants were asked to contact the research team to register their interest and availability for focus groups. Participants interested in volunteering had two options to provide their name and contact information to the investigator by: (1) leaving a voice mail for the investigator at the University of Alberta or (2) emailing the investigator. Participants interested in participating in the study completed and sent the consent form to the research team. All participants who had initially consented, and who were subsequently able to be contacted were willing to participate in this study.

Four focus groups were conducted, and each session lasted between 45 to 60 minutes. Two focus groups were conducted during the first week of June 2013 and 2 more on the following week (June 12, 13, 19, 20). This allowed the researchers to synthesize and analyze information in order to better prepare the following sessions.

Theoretical sampling was done meticulously, however it is necessary to emphasize that this was not necessarily an inflexible process. Sampling and analysis occurred sequentially, because the analysis guided the data collection.

3.3.1 Ethical considerations

This study was guided by the ethical principles of research with human participants set out by the University of Alberta. The ethical approval was obtained prior to the commencement

of the study. Registered dietitians were recruited across Alberta via list server from AHS through an informational email with our regional partners in Nutrition Services, AHS. Participants were informed of the subject of the study. All participants provided written informed consent prior to participating in the focus group discussions and individual interviews. Participants had the opportunity to terminate their participation in the focus groups or refuse any question at any time.

Furthermore participants' responses were considered as group responses and were not linked to individual respondents. However, complete anonymity is not possible in focus group discussions due to the nature of the method; therefore, it is impractical to guarantee participants absolute confidentiality because the researcher has no control over the participants after they leave the session. Since participants were recruited through an existing relationship with AHS, they were informed that their participation in this research was completely voluntary. If they chose not to participate, that was not going to affect their relationship with AHS. AHS was an appropriate intermediary given that it is an established organization with an existing relationship with the University of Alberta.

All audio-recorded interviews were transcribed verbatim by the principal investigator. Once computerized, all data were maintained in password protected computers and password protected files accessible only to the investigators on this project. Data in hard copy were kept in locked cabinets in a closed office only accessible to the PI (AMC) and graduate supervisor (APF). The list of participants' names was also kept confidential; names were known only by the principal investigator, the supervisor and other participants in the same group.

Data will be deleted from the computer and no records will be kept after 5 years. Hard copies of the data will be shredded and disposed of using secure measures. The shredded

documents will be secured in a locked container and disposed of by the secure services employed by the University.

3.4 Development of Interview Guide

The interview guide is a list of topics or issues to be addressed during the meeting that serves to ensure that it contains all of the information necessary to meet the objectives of the study.

In this study, a broad interview guide (Appendix C) was used as a framework to facilitate initial data collection with focus group participants. The semi-structured interview guide used in focus groups contained six core questions on the areas of relevance of FI in dietetic practice: perceived susceptibility of patient, perceived role, self-efficacy, perceived barriers, support and resources. Interview questions were modified as the study progressed and as new concepts were identified.

3.4.1 Pilot test of interview guide

A pilot test of the interview guide was administrated to MSc students (n=4) and a research expert in food security at the University of Alberta. The aims of the pilot study were twofold: firstly, to assess the feasibility of the interview guide; and secondly, to ensure logistics and practice for the moderator. During the pilot test, the nature of the problem and the purpose of the study were briefly introduced and explained to members of the group, and the group was told what they were being asked to do. Questions asked during the interview were primarily based on a tentative interview guide developed according to the objectives of the study. Based on the suggestions made by the group, questions were added and removed from the initial interview guide. The participants in the pilot test suggested reducing the length of the introduction in order

to have more time for the participants to talk about their experiences. Table 3.1 provides examples of the core questions which were revised after conducting the pilot test.

Table 3.1. Initial interview guide

Theme	Example of question
Relevance of F.I. in dietetic practice	Can you tell me what you understand about food insecurity and is this definition relevant to your practice?
Perceived susceptibility of patient	How do you think food insecurity impacts peoples' health – individual, community or health system level?
Perceived role	What do you think your role is, as a dietitian, in the assessment of food insecurity?
Self-efficacy	How confident do you feel about asking your clients about food insecurity?
Perceived barriers	What do you see as the greatest barriers in addressing household food insecurity with your clients?
Support and resources	Is there a resource that actually has a lot of this information, so if you're new or if somebody leaves the job and comes into the situation – what's your starting point?

3.5 Data Collection

3.5.1 Procedures in conducting video-based focus groups

Data were collected using semi-structured focus group interviews facilitated by two researchers (AMC and APF). The focus groups were held in a telehealth room (i.e., free of disturbances) at the KAYE Edmonton Clinic. Focus group participants had a choice to participate by telehealth or telephone. The majority of dietitians participated by telehealth hosted by AHS while some dietitians participated by telephone. The two methods were synchronized during each focus group.

Two people were involved in executing a focus group: a moderator (APF) who was responsible for the animation of the debate and an observer/note taker (AMC). The observer was responsible for recording, taking notes even of the most informal aspects of how participants behaved, their facial expression, their body language, their way of interacting with other participants, etc. It was fundamental to record the participants' words whenever possible, since it is very important to analyze the material with the vocabulary used by the participants. The moderator and the observer also wrote down questions that arose during the discussion and that were useful to other focus groups or nonverbal messages that provided information about whether the group liked the topic of discussion or not. All focus group were developed in four stages.

The moderator welcomed the participants and outlined, in general terms, the purpose of the focus group, specified why they have been selected, how data will be handled and encouraged the expression of divergent opinions. General rules were established for the session, emphasizing both confidentiality and the interaction between the participants. All focus groups started with a personal presentation of the participants which helped to break the ice and give everyone the chance to talk. The purpose of this step was to transform the meeting of several individuals in to a group that interacts with each other. To ensure that participants were aware of the focus of the questions, the definition of food insecurity was read out by the interviewer at the beginning of each session: "Food insecurity is limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."

Upon further questioning, the participants were also asked whether the definition was relevant to their practice. Each focus group started with the following question:

Can you tell me what you understand about food insecurity? And is this definition relevant to your practice?

After this question, an in-depth discussion occurred. At this point, moderation became more complex, since the moderator had to display active listening skills and judgment, while driving the discussion to the relevant topics. Probing questions were used to expand on new concepts as to facilitate researcher's understanding. Back-up questions were used as needed to probe and stimulate participants to tell their own story as recommended by Corbin and Strauss (2008) for grounded theory research. It was important to prevent some participants from dominating the discussion and imposing their views (Kitzinger & Barbour, 1999).

Although the focus groups were planned to last one hour, the sessions ended when the researcher ran out of information that emerged about the topics from the group. Typically, this took approximately forty-five minutes, since all the information was new, the first session lasted longer. To close the session, the facilitator summarized the main issues identified, said how important their participation was and ended by thanking participants for their cooperation. After the meeting, the moderator and observer discussed and organized the content and meaning of what was said during the focus group. After conducting the first focus group, it was necessary to reorganize the topic guide. Reorganizing the topic guide helped to explore in-depth the most relevant concepts identified in each of the interviews. During the following sessions, the researcher tried to confirm the meaning of the concepts and other information from the previous group and explore new concepts. The sessions were completed faster after the second focus group. At this point, data collection focused on other issues that were not sufficiently addressed in the first focus groups.

3.5.2 Individual and paired interviews

Individual and paired interviews were conducted as part of theoretical sampling to fill in gaps or points requiring further clarity or expansion in the data collected during focus groups. Two individual interviews (June 25, and June 30, 2013) were conducted, after identifying the most relevant concepts from these interviews the research team decided to conduct one paired interview (July 25, 2013) to explore these concepts in detail. To ensure data saturation, two more paired interviews were conducted via telephone during January 14 and 15, 2014. The time gap between the individual interviews and paired interviews allowed the researchers to analyze the data and decide whether or not more data were necessary. Procedures were guided by recommendations for qualitative data collection by telephone (Burke & Miller, 2001; Horrocks & King, 2010).

3.5.3 Sample profile - Focus groups

The group of participants was composed of registered dietitians working in four different practice areas, although the majority came from population public health practice.

Table 3.2 Area of practice of participants

Setting	n
Population public health	10
Acute care	3
Chronic disease	2
General clinical nutrition	7
Home care	3

Table 2.3 Participants by zone

Zone	N
Calgary zone	10
Edmonton zone	7
Central zone	3
South zone	3
North zone	2

3.5.4 Procedures for storing and transcribing interview data

All interviews were digitally recorded and transcribed verbatim. To ensure accuracy of the transcriptions, audio-recordings were replayed while rereading the transcribed interviews. This method allowed consistent immersion in data. Transcription of the interviews also allowed the researcher the opportunity to return to every interview to look for exact statements made by the participants as new concepts emerged from the data. Transcripts were organized in a particular way in Microsoft Word™: First, all transcripts from focus groups and individual interviews were grouped by question according to the interview guide. After highlighting the transcripts, the data were grouped in tables with codes and concepts. This helped to efficiently organise the data, and thus, facilitated the analysis and identification of the categories. Another way to chronicle the data used by the investigator (AMC) was to develop integrative diagrams (Appendix D) like conceptual maps during the data collection and analysis by relating categories and establish hierarchies between them (Strauss & Corbin, 1998). These schemes were used as theory that helped to extend theoretical findings.

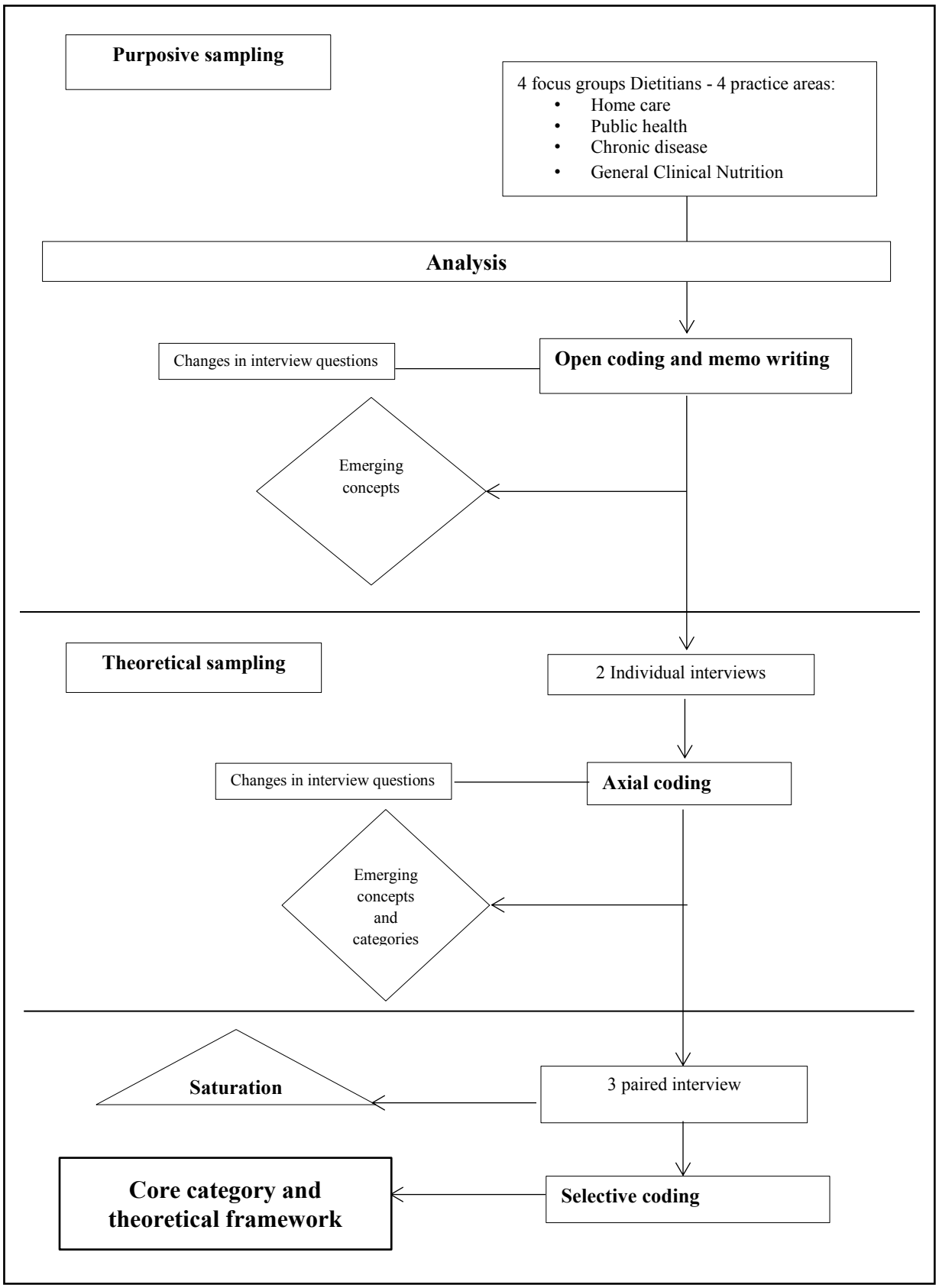
3.6 Data Analysis

A framework that outlines the types of qualitative analysis techniques that are available to researchers who use focus groups (Leech & Onwuegbuzie, 2008; Onwuegbuzie, Dickinson, Leech & Zoran, 2009) suggest several techniques that can be used to analyze this kind of data, some of the most appropriate ones are: constant comparison, discourse analysis, and the classical content analysis. As explained previously, for the purpose of this study, we used constant comparison as part of the grounded theory approach for data analysis. The constant process of recording information was also important for the analysis using the notes, thoughts, coding and questions.

In accordance to the GT, the investigator listened to each transcript before conducting the next focus group. This helped to make minor modifications to the interview guide based on the relevant concepts found in the previous focus group. Sampling was controlled by the emerging theory as in theoretical sampling, according to Glaser, 1978.

The coding and categorization was performed in light of the research objectives and assumptions of the study. The analysis of grounded theory (Corbin & Strauss, 1990; Strauss & Corbin, 1998) involved a systematic analysis that began with describing, conceptualizing, ordering the data according to properties of the topic, and ended with theorizing. The process of generating a category was made on the basis of the constant comparison between analysis units, that is, each unit was classified as similar or different from one another and was identified by name and label.

Figure 3:1 Sequence of data collection



3.6.1 Open coding

In GT, open coding is the first phase in theory building and it begins with the identification of concepts that describe the phenomena. In this study, the researcher thoroughly examined and compared for similarities and differences among events, objects, actions, interactions, etc. The concepts that were similar in nature or related in meaning were grouped under more abstract concepts called categories. The way categories were classified was also influenced by objects, events, actions, and interactions resulting from the classification process. These attributes helped the researcher to define, interpret and assign meaning.

In this study, categories are the classification of the concepts under more abstract explanatory terms. Categories were created when the concepts began to accumulate, and subsequently, subcategories were identified which gave greater specificity to each category.

In this study, open coding was done using a "line by line analysis" by using the highlight function in Microsoft word to highlight text areas. This way of coding involved a detailed and thorough study of the data, phrase by phrase and sometimes word by word. Concepts were grouped into categories by constantly asking: What does this category mean? Why? When? How? What properties does it have? When and where does this category occur? Another method used in this study but with less frequency was analyzing a "sentence or paragraph". With this method, the researcher continuously asked the question: What is the main idea in this paragraph or sentence?

Data were continuously subjected to constant comparative analysis during the data collection and analysis process. During this process, the researcher simultaneously coded and analyzed the data to develop concepts. Continually comparing the data allowed the refinement of

concepts by identifying their properties, exploring their relationships and integrating them into a coherent theory. Every piece of data was compared with each of the other pieces of relevant information as suggested by Strauss and Corbin, 1998.

3.6.2 Memos

Memos and observational notes were important elements for understanding the phenomena that was being explored. Memos are written ideas about codes and their relationships, leading to more abstract concepts that arise during the data analysis process. In this study, memos were developed since the beginning of the analysis and helped to establish the properties of each category, as well as hypotheses about connections between categories. During the data analysis, memos became the basis for the study and also contributed to raising the level of abstraction and continuing with advanced processes (Strauss & Corbin, 1998).

3.6.3 Axial coding

The second phase in developing this GT is axial coding. The purpose of axial coding was to identify possible relationships between the dimensions of the properties of the categories. In these terms, a property is defined as a characteristic of a category, the delineation of which defines and gives it meaning. (Strauss and Corbin, 1998).The integration of categories and properties was considered as a process of organization by increasing development of the elements of the theory. As recommended by Strauss and Corbin, 1998, in the axial coding process for each category, the following questions were considered to find relationship between categories and subcategories: Why, where, when (events and happenings that create the situation, issue, problem pertaining to this category)? Whom and how? How was the situation, issue,

problem handled? What happened as a result of those actions/interactions or the failure to respond to a situation by actions/interactions?

In grounded theory, diagrams represent the relationships between different categories. In this study, diagrams (Appendix D) were developed in the form of concept maps. Such diagrams aimed to illustrate the relationships that existed between various categories, subcategories and concepts.

3.6.4 Selective coding

The third phase is the process of selecting the core category and its relationship to all other categories. This process integrated the theory and explained the core category and the others categories that helped to understand the phenomenon. The intent of selective coding was to code systematically and concertedly trying to identify the central category. After the initial coding, the process became more complex and went in ascending order, the concepts were constantly compared, transformed and evolved going from comparing incidents to comparing the properties of a category.

3.7 Writing the theory

During the process of generating theory, the constant comparison method can become a stressful activity, in the sense that it may fall into a state of endless comparison. Therefore, it was necessary for the researcher of this study to define the theory, meaning that the changes were done progressively smaller each time, and compared incidents from a category with its properties. Likewise, these modifications were intended to select relevant information and

remove those that were not relevant. Moreover, the definition of the theory was intended to reduce the initial list of categories and select only relevant categories.

To write the theory, codes, memos, notes, interpretations or reflections of the researchers were used. It was a cyclic and continuous process in which some concepts appeared more prominently than others. In theory development, the connections between the categories began to surface with certain patterns and connections that were identified through the use of constant comparison.

3.8 Evaluation of grounded theory

As noted in grounded theory, Strauss and Corbin, 1998 suggest that reliability and validity should be maintained in qualitative research. To ensure reliability and validity of the results, several strategies were used in this study.

In this grounded theory, the processes of verification occurred throughout the entire study, and some of these processes have already been described in the previous sections. In keeping with grounded theory methods, data analysis of the interview transcripts began right after conducting the interviews with line by line coding as described by (Strauss & Corbin, 1998).

Methodological notes helped track recognition of process considerations that were revealed through the data (Rodgers & Cowles, 1993). As suggested (Creswell & Clark, 2007), peer debriefing sessions were also held to provide feedback of the research process.

In keeping with theoretical sampling, interview guides were modified in response to concepts emerging from the data in the initials focus groups interviews (Corbin & Strauss, 1990). To ensure trustworthiness of the study and its findings, verbatim transcription, constant

comparison, and persistent and prolonged engagement with the data were used (Corbin & Strauss, 1990; Strauss, 1987; Strauss & Corbin, 1998).

To ensure credibility (Streubert & Carpenter, 1995), two dietetic professionals reviewed the emerging findings from the focus groups, individuals and paired interviews and reflected on the emerging categories and revised the interpretation (Cutcliffe, 2000; Strauss & Corbin, 1998).

To ensure theoretical sensitivity, prolonged engagement with the data was used (Glaser & Strauss, 1967). Audio recorded interviews were listened to several times and the list of codes was revised continuously to recode them. To ensure auditability, memos were written throughout the process to keep track of thoughts and ideas during the data analysis (Corbin & Strauss, 1990; Hutchinson, 2001), including also interpretations and descriptions displayed in form of diagrams, concept maps, drawings and diagrams (Carey & Smith, 1994).

In the final stage of the analysis, efforts were made to ensure credibility of the theory by confirming the findings with the initial raw data. Some of the activities used to ensure credibility of the findings included listening to the audio recorded interviews, reviewing notes, initial codes, diagrams, and reflecting on the categories.

Preliminary analysis, codes, concepts and categories were presented at the Dietitians of Canada National Conference 2014. Dietitians in attendance indicated that they recognized the plausibility of the results and the interpretation of the data. The exposure of the categories and codes generates confidence in the rigour of the analysis process (Rolfe, 2006) and the suitability of this work for dissemination.

3.9 Summary

This chapter justified the decision to adopt GT to achieve an understanding of the assessment of food insecurity in the routine practice of dietitians. Grounded theory approach was used for sampling, data collections and analysis of data. As mentioned previously, in GT, there are three types of coding: open coding, axial coding and selective coding. The first two prevailed at the beginning of the research while the latter was used in the final stages of the research process. This constant comparison of data also made the analysis a systematic process (Strauss & Corbin, 1998). This process of interaction continued until a core category was identified and theoretical saturation was achieved. According to Strauss and Corbin (1998), this procedure ensured that the theory was grounded in the data and enhanced the quality of the study. Diagrams and memos were reviewed with the help of the principal advisor to facilitate the integration processes. The findings that led to the emergence of the theory will be discussed in detail in chapter four.

Chapter 4. Results and Discussion

This chapter highlights and discusses the factors influencing the assessment of clients' household food insecurity by registered dietitians (RD) in varied work settings in Alberta.

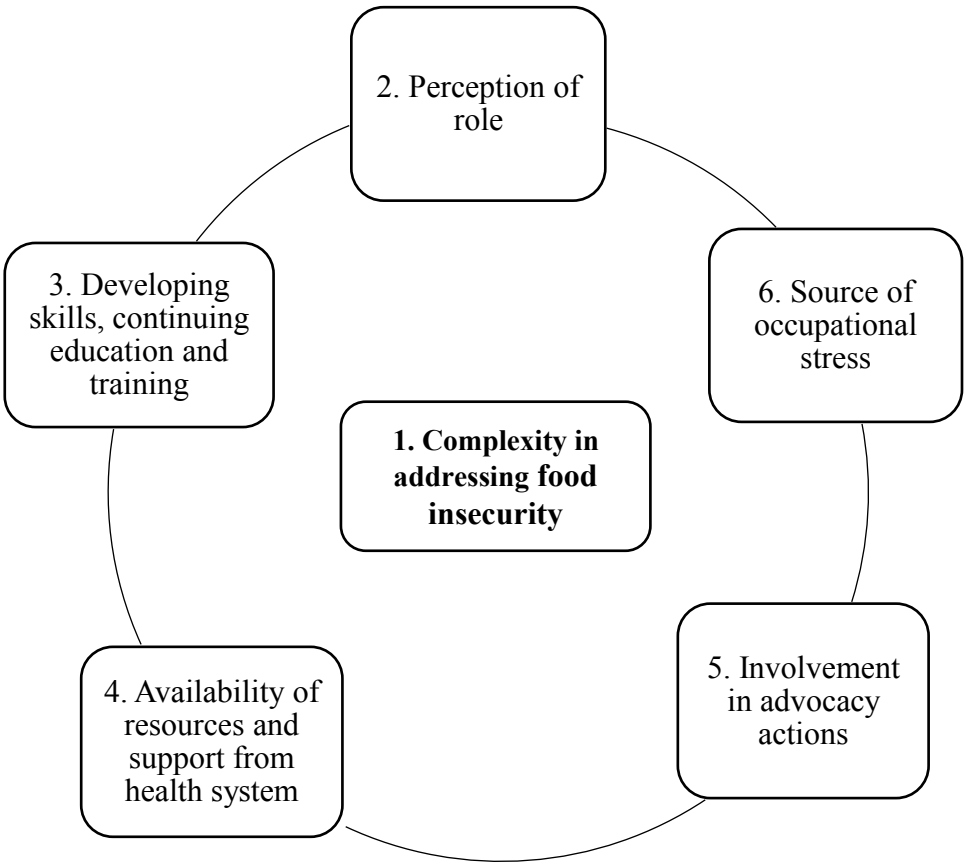
Categories emerged from the data lead to the identification of a basic social process: *A complexity in addressing food insecurity*, which was identified as the core category (category 1). Under the overarching category, five categories interacted to explain the factors influencing the assessment of food insecurity as well as RD's understanding of food insecurity and perceived role. These categories are: (category 2) *perception of role*; (category 3) *developing skills, continuing education and training*; (category 4) *availability of information, resources and support from health care system*; (category 5) *involvement in advocacy actions*; and (category 6) *source of occupational stress.*

In this chapter, key findings begin with a description of the central overarching category grounded in this study's data, followed by five main categories that helped to logically organize the participant's thoughts. Findings from each category are presented, including sub-categories and the properties and dimensions of each category (Figure 4.1). Exemplar quotations are provided using participants' words to enrich the interpretations, to illustrate theoretical concepts and to increase trustworthiness (Strauss & Corbin, 2008).

This chapter also integrates the findings with existing literature, provides an evaluation of the grounded theory study that forms the basis of the complexity in addressing household food insecurity in the dietetic practice, and emphasises the implications for dietetic practice, dietetic education and further research.

Finally, the chapter ends with a brief discussion and graphic representation of the theory that emerged from the data, and logically links all concepts that were revealed through exploration of participants' perception.

Figure 4.1 A model for the integration of the core category



Note: This model describes how the core category "Complexity in addressing food insecurity" integrates with other categories

4.1 The central category (category 1): A complexity in addressing food insecurity

Food insecurity is a complex and multidimensional issue in the Canadian society that affects a diverse group of people with low income. This complexity represented a challenge for registered dietitians to address food security issues with their clients across the different settings in which dietitians work. Figure 4.1 illustrated the interactions and intersection of all categories that at a given point and place in time resulted in the identification of the basic problem *'complexity in addressing food insecurity'*. This central category anchored all aspects of the processes participants described during the interviews and how these problems affected the process of assessing food insecurity in their practice.

The complexity in addressing food insecurity referred to the notion that dietitians still perceived several challenges and barriers to screening and supporting clients who are living with food insecurity. Some of the challenges dietitians reported included: the lack of resources, accessibility for clients in rural areas, and the need to develop more counselling skills for vulnerable groups.

Under the overreaching category *'complexity in addressing food insecurity'*, dietitians explained how the process of including food security screening in the nutritional assessment was complicated. Participants in this study were willing and open to discuss their feelings and experiences in this study. During the focus groups, they supported the need to include a formal assessment in dietetic practice for the nutritional care of food insecure clients. The participants' descriptions clearly illustrated that addressing food insecurity among their clients was not easy; addressing food insecurity involves screening coupled with having appropriate resources for supporting clients. Despite that, there are studies that have indicated that dietitians need to consider factors that can negatively impact the nutritional care such as food insecurity, dietitians

often do not consider asking their clients about food insecurity during the nutritional care (Hoisington, Braverman, Hargunani Adams & Alto, 2012; Holben & Myles, 2004). During Dietitians of Canada National Conference 2014, the Food Security Network announced that they soon will reveal a role paper that delineates the extent to which dietitians can assist clients living with food insecurity. Dr. Anna Farmer has been commissioned by DC to write the role paper. However, currently there are no existing guidelines and tools to assist dietitians in different health care settings to assist them in their role in screening and supporting clients.

Although the dietitians interviewed are working in various healthcare settings, they shared a common understanding of food insecurity as a situation in which dietitians *cannot do much* as part of their role. This was best illustrated in the statement by one of the participants:

> *"Obviously as you're getting into an assessment when you see clients individually you have, you know, some perspective and then you're able to address those questions. But sometimes it can be a bit challenging and you know, the cultural sensitivity issues come up sometimes, as to when it's appropriate to ask that or not. But certainly in the work I have done with, for example, refugee population is something I'm assuming, pretty much at that point in their stay in Canada that they're going to be food insecure. So you know, you do the best you can to ask those questions and try to help them as best you can. It's not a perfect world, you'd love to be able to give them exactly what they need, but unfortunately that's not the reality."*
>
> FG 1 – June, 2013

Given the complexity of food insecurity, the possible consequences of this category, is that, in some situations dietitians reported they may have to assume that someone is food insecure because of the circumstances in which the client lives. Although some dietitians

mentioned that sometimes they were aware that clients might be living with food insecurity, they were hesitant to ask a direct question about insecurity because by asking, the dietitian may be perceived as not being culturally sensitive. Dietitians considered cultural sensitivity as being very important, specifically when working with refuges or newcomers to Canada. For instance, participants thought that depending on the client's culture, a conversation about financial issues may be uncomfortable for the client, especially if this takes place during the first visit. In order to thoroughly screen clients, dietitians felt they needed to first establish a rapport with clients which was not always feasible under time constraints during the clinical visit. Furthermore, in some ways, it seemed almost futile to ask the question about food insecurity because dietitians aren't able to provide the resources that clients are seeking to acquire the healthy foods they need.

a. Addressing client barriers

Addressing client barriers was the main characteristic of the complexity in addressing food insecurity. Food insecurity is a complex problem, and according to some participants, the barriers to identifying food insecurity were present at the individual, household, community and organizational level. In fact, during several interviews, participants described food insecurity as a multi-sectorial problem due to its diversity, causes and consequences. Therefore, they emphasised that dietitians should screen for other social and environmental factors that go beyond finances. For instance, a client's cognitive status, abilities to cook, or access to food (i.e., home care perspective), only to name a few. As such, dietitians reported identifying factors associated with food insecurity was not always an easy task for them, and it became even more complex when they had to pay attention to groups with specific nutrient requirements.

Dietitians in this study worked in different settings, and the majority of them indicated that clients rarely disclosed that they were food insecure. On the other hand, Population Public Health (PPH) dietitians said that in their practice, they perceived they had a greater opportunity to see a larger percentage of clients living with food insecurity as a result of working with high risk populations compared to the clinic setting. Furthermore, this perception may exist among dietitians working in other settings because often they do not often ask their clients about their food security situation. However, all participants reiterated that it is a big challenge for the system to address the variety of factors that influence the clients' food security situation. Participants indicated that it may be very difficult to find solutions to address the root causes of people's food insecurity. Participants specified that all clients needed resources to overcome the problems of food insecurity. But in the case of clients with limited abilities to cook who reside in assisted living or other institutions, they would need assistance from skilled staff who can prepare healthy meals for them. Participants in this study constantly reiterated the importance of addressing as many barriers as possible.

"So there are many barriers, I guess you could say, so it's always from a dietitian's point of view, there are lots of barriers to health, to trying to figure out some solutions or some ways of helping people be more food secure."

FG 1 - June, 2013

Although participants were aware that food insecurity was not a problem exclusively related to income, some of them identified the client's situation as one who is caught in a "poverty trap". In this is case, a poverty trap refers to a spiralling mechanism which forces people to remain poor (Azariadis &Stachurski, 2005). This poverty situation may arise when someone holds a low paying job or is dependent on social assistance benefits preventing from

them escaping poverty. When a client has an unstable economic situation, participants felt that resources in Alberta were not intended to help clients living in chronic food insecurity. As stated by a participant:

> *"They may be jumping job to job and not really know what their income could be from, you know, two months from now it could be totally different. So they're sort of insecure around their work situation as well. But – and when they were working, they often can't apply for certain types of financial assistance that someone who's not working is able to access"*
>
> FG 2 - June, 2013

Food insecurity influences both the physical health and psychological well-being of people. During the focus groups, participants also commented on seeing clients who have diverse mental health problems likely resulting from the lack of access to nutritious, affordable, and culturally appropriate food to feed themselves and their families. Participants in this study perceived themselves as being capable of recognizing the social impact of food insecurity, such as shame and anxiety experienced by their clients.

> *"There are people who have kind of that persistent and consistent anxiety around whether or not they will be food insecure. So they may actually have access to enough food and maybe even access to good enough quality, but there may always be the risk that at any given day they could be food insecure."*
>
> FG 2 - June, 2013

Participants felt they should address the client's psychological and social aspects of food insecurity more frequently, but they felt they lacked the appropriate training as a dietitian to address these issues with clients. Not to mention that addressing mental issues may out of their

scope of practice. As well, some dietitians admitted lacking resources and required counselling skills to address mental distress among their clients.

b. Feasibility of assessing food insecurity in the practice setting

The feasibility of assessing food insecurity in the practice setting was the second main characteristic of the core category. Participants stated the feasibility of assessing food insecurity in the practice setting was impacted by: lack of time and ability to deliver appropriate messages.

i. Lack of time

Assessing food insecurity was not considered in the routine nutritional assessment. Dietitians in this study highlighted there were several organizational barriers such as time and resources that prevented them from screening for food insecurity. Participants often mentioned that they did not anticipate having time to screen or discuss with their clients whether or not they have the ability to acquire a healthful diet. Time was also an issue when dietitians discussed "digging up", that is, identifying and retrieving information about available resources in their communities. Participants referred to taking time to "dig up" as time needed for searching for information on suitable resources for their clients, which included becoming familiar with resources that clients can access in the community. Dietitians stated this activity was time consuming and took a lot of time from their job which was not formally recognized. Addressing these two issues was critical in order for dietitians to screen and support clients.

> *"You can't know everything about everything right and it is more of a challenge in the rural areas because we do have to know and unlike in the city you* [dietitians] *are responsible for you community and there other people that might dig out resources and be those*

resources while here we are rural right so it makes it more of a challenge."

Paired interview – January, 2014

Considering and including time to discuss food security related issues with clients was definitely key to approaching this issue, however, this responsibility may not be part of a dietitian's formal job role. Furthermore, the availability of resources plays another important role that also influences the decision of discussing food insecurity. In other words, when dietitians perceived there were not enough resources to support clients, they hesitated to discuss food insecurity with them, since they felt that nutrition counselling was impractical without food access.

ii. Culturally appropriate foods and health messaging

From the dietitians' point of view, counselling was challenging to conduct with specific populations. For instance, clients with language barriers, new immigrants, and Aboriginals may have low reading levels and health literacy. They also mentioned that some clients were aware of the benefits of healthy eating; however, for some clients like newcomers to Canada, it was challenging to adopt a healthy eating pattern based on the Eating Well with Canada's Food Guide because many of the foods presented in the food guide lacked cultural relevance. Furthermore, new immigrants to Canada often are lower income making it economically challenging to acquire more expensive ethnic foods that are available in Canada. Moreover, new immigrants may lack familiarity with Canadian foods which may be affordable options or foods they are unwilling to try which is particularly important because it affects their consumption patterns.

"They're new Canadians and they're refugees and there's not a lot of control yet over their lives that they do have the experience of food insecurity related not so much to getting enough to eat, but getting the right sort of foods to eat."

FG 1 - June, 2013

Summary of the central category

Delivering an appropriate message and providing support and information on available community resources to food insecure clients were important to participants. The previous quotations suggested there was a need to create resources that were more suitable for different groups such as new immigrants, single mothers, and clients with disabilities. Dietitians also felt they were not doing an "outstanding job" with their clients. As mentioned by some participants, dietitians have been doing a lot of nutritional counselling with their clients; however, this has been on general nutrition counselling, without considering the specific needs of vulnerable clients. Participants also mentioned that with time and experience, they have become more aware of the community resources available around them, in comparison to years ago when dealing with vulnerable clients seemed to be less of a concern among dietitians. Nevertheless, despite the increasing awareness of the importance of screening for food insecurity, evidence-based counseling for these clients was still not extensively available.

Table 4.1 The central category: A complexity in addressing food insecurity

CODE	CONCEPT
Diversity consequences and causes Harder to assess F.I. in groups Having educational understanding but unable to acquire food Shame and lack of willingness to discuss F.I. Clients with depression refuse counselling Difficult sometimes due to additional barriers for clients Hard issue to address Create community support Multi-sector problem Mobility the main factor Healing is not achievable F.I. and immigrant population Uncomfortable dealing with homeless Sometimes we create feelings of guilt in people Special population doing appropriated screening asking about social support Asking clients for barriers asking general questions Observing the client's history what's impacting them other than food Considering other factors Evaluating other factors affecting F.I. Identifying all factors	Addressing peoples' barriers
Going beyond the realm of practice Sit with sort of an uncomfortable topic Felt F.I. was out of my scope No time to develop list of resource Spending extra time Applying for financial assistance The lack of really understanding the situation Wrong assumptions in the practice Training is needed for anyone working with F.I. Being afraid of delivering the wrong message Feeling uncomfortable	Lack of time in practice and need of appropriate message

4.2 Category 2: Perception of role

This category reflected how dietitians perceived their role of the assessment of food insecurity in their practice. Dietitians in this study reported facing barriers that existed at the client, practitioner and organizational level that got in the way of screening and effectively addressing food insecurity in practice. In addition, at the same time, the lack of clarity of their role resulted in confusion in delineating their scope of practice.

a. Role confusion

Some participants identified addressing food insecurity as a formal role of their jobs while others, particularly those working in clinical practice, felt that their jobs started and ended with providing clients with information about available resources. Participants alleged that in some cases that these practices were inevitable because they felt there was not much else they could do to help clients. Albeit, such attitudes and practices differed among those working in different practice settings. Despite this, the majority of dietitians were eager to broaden their scope of experiences related to food security and to familiarize themselves and learn more about household and community needs.

In general, community dietitians and dietitians with extensive experience with vulnerable populations identified, as part of their jobs, being responsible for addressing food insecurity in their practice and advocating on behalf of clients to eliminate social, economic and environmental barriers to food access. These differences in perceptions among this group of dietitians regarding their role helped to explain the underlying reasons for the role confusion among dietitians not working in community positions. The major contributor to this role

confusion was based on the dietitian's lack of understanding of how to screen and support food insecurity at individual, household and community levels.

> *"With the groups, unfortunately it is harder unless someone approaches you at the end and tells you something in a more, in a confidential way and it's only between you and that person that question is being posed only to you – that's when you can try to help and maybe talk and give more advice"*
>
> FG 1 – June 2013

The participants had some confusion and lacked clarity over their role related to the assessment of household food insecurity in their practice. They expressed having a poor understanding of the dietitian's scope of practice regarding screening for food insecurity, and required actions once food insecurity was identified among their clients. Participants reported that within the healthcare system, it was not evident there was a structure in place for screening for food insecurity and specific instructions for delineating dietitians' response to food insecure clients.

All participants discussed food insecurity in relation to their clients and their work setting. Curiously, this topic was perceived less relevant to clinical dietitians than it was to community dietitians. It is unclear the reasons why some clinical dietitians perceived the assessment of food insecurity as a role that was more likely to be done by community dietitians. This finding points to the need for clarification of the role of dietitians in different settings. Perhaps, time constraints may be a barrier for discussing food insecurity during the clinic visits which in turn complicating the assessment of food insecurity. However, the wrong perception towards the role of community and clinical dietitians needs to be clarified among these health professionals. Dietitians need to understand that is not only the responsibility of community

dietitians to assess and support communities living in food insecurity but also that clinical dietitians play an important role in addressing this issue.

Some participants suggested that it was important to be mindful of clients' issues related to acquiring food, as well as making appropriate recommendations for different types of clients (e.g., limited abilities to cook, appropriate place to cook, for instance, homeless clients, social support, access to grocery stores, income, single moms, size of families, etc.). The following statement exemplified the disconnection:

"It's just like that, for me, that lack of really understanding the situation. I think that that is a barrier."

FG 3 – June 2013

The blurred lines regarding dietitians' role and response to food insecurity also reflected that dietitians may not be familiar with or may have misconceptions about how food insecurity fits into the dietetic practice and how they can respond to clients' needs. In addition, participants also commented on lacking an understanding of how food insecurity affected clients and how it should be approached, which by itself, is a barrier to their role as a dietitian. As mentioned before, the disconnection seemed to be such that some participants considered that addressing food insecurity was the community dietitian's responsibility. This perhaps is because food insecurity was often seen as a community issue, and it was frequently forgotten during one-on-one assessments. A few participants stated that they saw it as something that community dietitians do:

"I certainly can't have an impact on improving food security. That's more of – more something that the community dietitians do. But I certainly see how it presents in practice."

FG 4 – June, 2013

This quotation demonstrated that perceptions of lacking an understanding about their role and the impact they can have on clients by screening for food insecurity. Other participants emphasized the need for more of an organized and formal role that was specific enough regarding the actions that dietitians should take after identifying a food insecure client and specifying the limits to that support. A formal role may guide the dietetic practice and reframe the competencies around food insecurity.

> *"I don't like the way that, that competence is worded, that's another discussion right, but it shouldn't just be in the competence domain of community it* [the competence] *need it also needs to be pull into other competencies right so like in clinical there could be a whole module a whole way to approach."*
>
> Paired interview - July, 2013

In Canada, a food security group or network is a group that works towards developing food security strategies. Role confusion was also observed when some participants mentioned that being a part or not being part of a provincial or national food security group defines a dietitian's role. For example, some participants mentioned that because they were not member of Alberta Health Services' Provincial Food Security Group, they felt they shouldn't be concerned or involved in food security oriented activities. In other words, some participants perceived that only those dietitians who were part of the food security group should be involved in evaluating and assisting populations at risk, whether it was at the individual or community level.

b. Self-efficacy to screen for HFI

Dietitians readily commented on their perceptions and beliefs about their own ability to screen for household food insecurity among clients. *Self-efficacy* has been shown to be essential

in the acquisition of a new skill, including confidence in overcoming the barriers to performing a task (Bandura, 1992; Bandura, 1994; Bandura, 1997).

In this qualitative study, perceived *self –efficacy* was linked to four sources of self-efficacy as explained by (Bandura, 1986) to include: successful performance, vicarious experience, support from others, and self-judgment of capability. In this study, sources of *self-efficacy* seemed to influence dietitians' perceived ability to address food insecurity. First, few dietitians felt they were successful in addressing the problem. Second, dietitians who had ongoing exposure to people with food insecurity had higher perceptions of their *self–efficacy* for addressing food insecurity. Findings from this study suggest that dietitians' perceptions of *self-efficacy* were related to an array of interrelated factors that may be associated with personal and socio-environmental factors. For example, the previous experiences with client living in food insecurity, the community where they work and the exposure to vulnerable populations may increase their *self-efficacy*. Many of the participants expressed feelings of ignorance and inadequacy, and they often were not sure about appropriate approaches that were required for identifying and counseling clients with food insecurity. These feelings were interpreted as role confusion and dietitians related this to their self-efficacy perceptions. Support from other colleagues was also considered important for discussing and resolving everyday difficulties. As well, debriefing with colleagues helped some participants to deal with stressful situations that they encountered with clients.

Summary of category 2

Self-efficacy capability was found to influence participants' perceptions of their ability to address food insecurity with clients. It was observed that dietitians with more experience and

public health dietitians with more exposure to working with vulnerable populations were more inclined to consider food insecurity to a greater degree, and felt more confident addressing this issue. Previous studies found that dietitians who reported having inadequate behaviour change training were less likely to use various behavioural and motivational skills to communicate with their clients during the interviewing and counselling process (Glanz, 1979; Rapopport & Perry, 2000). These results are also similar to those reported by Lu & Dollahite (2010) indicating that dietitians with more years of experience had higher self-efficacy in counselling and were more likely to perform the counselling skills.

It was also evident that role confusion was related to dietitians' lack of understanding of their scope for different areas of practice, and they recognized the need for further training and education. Although the perception of role in dietetics has not been widely studied, studies conducted with nursing practitioners have noted that role confusion may result from a lack of training and uncertainty regarding the role and scope of practice (Gardner, Chang & Duffield, 2007; Gray, White & Brooks-Buck, 2013).

Table 4.2 Category 2: Perception of role

CODE	CONCEPT
I don't know how, I don't know even if I can Misunderstanding food insecurity Going beyond the realm of practice You have to sit with sort of an uncomfortable topic Felt F.I. was out of my scope Need more exposure to F.I. Wrong concept of F.I. F.I. is seen mainly just as a financial issue Uncomfortable dealing with homeless Need to address more frequently and effectively Challenging F.I. more often leads to find more resources I should address it more frequently Our responsibility to find resources Our responsibility to navigate the system Advocating but is not always possible resolve the problems Help to meet goals with resources Community dietitians' role Know about F.I. in a broad sense Need to be mindful in terms of recommendations Keeping F.I. in mind Dig deeper in the assessment More cognizant of F.I. compared to before Trying to connect and develop relationship with the client	Perception of role
Feeling more confident because it happens often Don't feel very efficient without help Attitude in front of clients Confident depends on the causes of F.I. Confident in some realms Continuous exposure to F.I. increase confidence Sometimes is beyond my scope Felt F.I. was out of my scope My job is to help Feeling confident in being aware	Self-efficacy

4.3 Category 3: Developing skills and continuing education and training

Despite having limited training in addressing food insecurity with clients, some community dietitians sought opportunities to work outside of their scope of practice as a way of gaining a favourable learning experience. Regardless of their area of practice, dietitians were eager to improve their knowledge and skills through professional development. Three subcategories emerged under this category: *Learning through experience, formal continuing education* and *cultural competency*. The first subcategory referred to participants' perceptions of the need for experiential learning opportunities to develop their skills in identifying and supporting clients living with food insecurity. The second subcategory referred to the need for continuing education for dietitians already in the workforce. Finally the third category referred to the need of cultural competency in the dietetic training. Since people living with food insecurity were regarded as those requiring special help, participants believed these clients required the services of professionals who were able to listen, talk, and be knowledgeable on how to approach barriers to food access. Therefore, *formal continuing education* for dietitians in the workforce was identified as necessary to provide effective counselling.

> *"Certainly sometimes I feel like I've gone beyond my realm of practice when I'm sort of looking into well things I'm not as familiar with, like the Leisure Access pass in Edmonton that they can get, looking into the details of who qualifies for that, or looking into, I guess just sort of other programs and spending time trying to find more information of what else is available to them."*
>
> FG 4 – June, 2013

In this category, it is clear that dietitians struggle to distinguish between patients living in food insecurity and patients with physical barriers to access food or that are not necessarily

living in food insecurity. For example, participants felt that this inability to cook should be considered as a form of food insecurity and highlighted the importance of looking for solutions and social support services for these clients.

> *"Since most of my clients are seniors, definitely evaluating their cognitive status or mobility and their social supports if they have family available to help bring in food or help prepare food. Even it's like, if they have texture-modified diet, they might be able to access food but then they might not be able to modify it for themselves in a safe way. So I would consider that as part of their insecurity too is that incorporating that functional aspect of it"*
>
> FG 2 – June, 2013

a. Learning to address food insecurity through experience

There is room for improving today's dietetic practices related to food insecurity given the gaps in dietetic education and the complex scenario of food insecurity faced by clients. Therefore, the dietetic field needs flexible ways to respond to these situations and learn from them, to go further in their professional experience. This theme addresses how participants identified food insecurity and how they have learnt to do it as well as their experiences in learning through their practice. In other words, dietitians developed their skills on ways to address food insecurity by "doing" on the job.

When participants were asked about the ways they usually identified food insecurity and how they felt about discussing food access with their clients, the majority of participants said that food insecurity was usually identified through an *informal* practice and usually it happened by "accident" during client interactions. For participants, informal practice referred to questions that are not part of the formal nutritional screening. The informal part of the interview may include

questions about clients' food and social environment. Through this informal routine, dietitians were able to determine whether or not their clients were living with food insecurity when clients mentioned getting their food through socially unacceptable ways. In other cases, participants described that they identified food insecurity through assumptions rather than an assessment and stated that their responses to food insecure clients were often reactive. For dietitians, these informal practices were essential for client care.

> *"I think you know, the more experience you have with working with clients where that is an issue, you know, a common issue, then you learn what approach to take, when to take it in your interviewing, like these are practical questions to ask, how to ask and all of those sorts of questions. So it's kind of developing your communication skills"*
>
> FG 1 – June, 2013

Dietitians discussed that in their practice they frequently come across clients who have a variety of barriers to accessing food. Dietitians reported there were direct and indirect ways to approach the issue of food insecurity with clients and reiterated that using direct measures such as a one-question screening tool was not always appropriate. In some cases, it was better to use indirect methods that usually were time consuming and involved developing rapport with clients. Dietitians consistently remarked that a major challenge was communication with their clients. They discussed having the "food insecurity discourse" at their fingertips was very important, and often they did not have this ability to seamlessly address the topic in a conversation with clients. All participants agreed that this is a skill that dietitians developed over the time through practice.

"I still struggle with that. I really find it kind of comes down to building rapport and making them more comfortable with you. And I found it's a really tough thing to deal with. I find it's almost like they have to come to grips with their current situation, psychologically, which I feel it's a little bit hard from my end of practice.

FG 4 – June, 2013

Participants described how interacting with clients and trying to help them made them aware of the gap between the knowledge they acquired during their university training and the skills that were required to effectively interact with their clients to address their economic and social issues.

"I just don't think in our training as dietitians we're given a lot of skills and tools on how to access that within, self-manage it and learn to sort of sit with a lot of the darker things that exist in the world. Because we still can't help."

FG 2 – June, 2013

b. Formal continuing education

Participants commented that being a more experienced dietitian does not necessarily lead to improved or better dietetic practices. Being able to effectively address food insecurity comes from rich experiences with a variety of clients, which is a learned skill. To overcome this gap in practice, dietitians stated they required formal continuing education to address issues regarding food insecurity. For instance, proud clients may be hesitant to disclose their food insecurity status makes it difficult for them to develop rapport, which is pivotal during the food security assessment. Furthermore, having the ability to develop rapport with clients is not a skill that

every dietitian possesses. In fact, some participants mentioned that their confidence in being able to discuss food security issues with clients depended on the root cause. Dietitians mentioned that it was easier to provide support to clients who have problems with food accessibility or low cooking skills rather than financial constraints. Directing clients to the resources was all they felt that they could do to assist clients. Participants felt they should be doing things differently, but often they were not aware of the best way to approach this issue. They admitted to doing their best in the service they were providing despite having minimal or any formal training on dealing with clients living with food insecurity and poverty.

Participants alleged that assessing food insecurity is a competency that should be developed during their academic dietetic training and dietetic internship. Participants in the study expressed the need to "model" this practice to new dietitians. Modelling was referred to as teaching new dietitians on ways to approach food insecurity at different levels in different settings and helping them to develop skills and providing enough opportunities to practice. Teaching new dietitians on ways to deal with the discomfort of talking about food insecurity and related issues can prepare students to work with vulnerable populations. From the participants' point of view, this would provide new graduates with experiences in effectively dealing with clients. And at the same time, it would assist future dietitians to gain confidence in working with clients living with food insecurity and material deprivation.

> *"I definitely think it* [food insecurity education] *is worth raising in the curricula, in university in courses that definitely should be a dedication of a piece of time, it's obviously not a three week topic, but there should be dedication of some of that time and there should be some sort of seamless follow through that comes to the actual internship and having interns that observe an experience."*
>
> Individual interview – June, 2013

Participants expressed a desire for developing their skills in screening for food insecurity and providing appropriate services according to their clients' need. Continuing education aimed at different levels (i.e., introductory, intermediate and advanced) to suit those with different levels of expertise are needed for skill development. As well, professional development could be mandatory for all dietetic practitioners to maintain standards in dietetic practice. Participants suggested training modules and opportunities in the form of workshops on an annual basis, and discussions or web-based sessions (e.g., webinar) accessible at any time. Having access to such professional development resources would enable dietitians to maintain an up-to-date knowledge base for developing competencies in this area. Additionally, such educational materials may be used to assist dietitians in developing other reference materials for screening for food insecurity and linking clients with the most appropriate resources. Participants expressed a common desire to learn more:

> *"I mean for dietitians who are working specifically with people who live near or below the poverty line is important, I actually would like to have access some of the education"*
>
> Individual interview – June, 2013

Understanding the concept of food insecurity and being aware of clients was may be living with limited access to food were very important issues to participants. Participants highlighted there was a lot of confusion among dietitians regarding their understanding and use of the concepts of food insecurity. Moreover, participants stated that in health practice the concept of food insecurity if often confused with food safety, food security, and food sovereignty. Therefore, participants considered that it is necessary to include food literacy and standardization of terms in the continuing education of dietitians. It is imperative for dietitians to

embrace the notion that addressing food insecurity is a responsibility of not only community dietitians, but also of *all* dietetic professionals. Further training in this area will help dietitians to develop their interviewing skills when dealing with clients with food insecurity and other sensitive issues in dietetic practice. Some participants also commented on how motivational interviewing and counselling skills should be as part of their training.

> *"I think to some extent, some training or including some motivational counseling skills training in that kind of way – training module would be helpful because oftentimes you're really trying to allow the person to, you know, find their own solutions to a certain degree"*
>
> FG 1 – June, 2013

c. Cultural competency

Among the suggestions for continuing education of dietitians, participants proposed having some training in cultural competence. This type of training would be useful since vulnerable groups, such as new immigrants, are at higher risk for food insecurity, and are also faced with other barriers: language barriers, adaptation to new environments, new foods and a new culture. Dietitians described their experience of working with a culturally diverse population.

> *"The cultural competence, in terms of dealing with other cultures out there – something that I would love to gain a little bit more skill in. Certainly I've run across immigrants not eating very much vegetables and fruits because they're – they come from such a different place that they don't recognize most of the vegetables and fruits that are in our grocery stores and the ones that they are familiar with are too expensive to buy."*
>
> FG 4 – June, 2013

Participants stated that many of their clients were not aware of the variety of resources to help them deal with food insecurity in their communities. Participants also expressed the importance of making this type of information widely available to practicing dietitians. It is important to disseminate information on community resources to dietitians in all areas of practice, including dietitians working in rural areas where resources may be limited. Also, it was noted, there was room for improving the way information of available resources was accessed by and disseminated to dietitians.

Furthermore under this category, participants emphasised there was a need for important research to understand the needs of different groups affected by food insecurity and the type of services they were expecting from dietitians (e.g., food information, links to community resources, counselling). A participant added that there was "knowledge ignorance" around what type of assistance food insecure people would like to receive from dietitians. As well, more research was needed to inform evidence-based practices with different ethnic groups.

Many of the participants in this study indicated having developed their skills over the time, learning on their own, from talking to other people. As stated by Schön (1983) people learn on the job by "reflecting in practice." Reflection can be conceptualized as a process that involves the ability to think in a structured way about a past experience, looking for new ways of doing things and drawing conclusions for future actions. FitzGerald (1994) defined reflection as "the retrospective contemplation of practice in order to uncover the knowledge used in a particular situation, by analysing and interpreting the information recalled."

Lack of training appeared to have some impact on participants' perception of their performance in the delivery of care to clients. Many participants also had doubts about having appropriate skills for effectively communicating and counselling clients. They perceived that

nutritional care of food insecure clients has been ignored in dietetic education. The field of dietetics lacks a theoretical framework specifically intended to inform best practices of food insecurity assessment and food insecurity care. As well, food insecurity in dietetic practice has been particularly difficult because there have been no research-based studies to develop a standard approach to address food insecurity.

Canadian dietitians are trained and evaluated based on a competency-based model of education. The competency-based education is essential to gain specific skills to perform certain specific tasks of their professional work. The training of professionals to work with vulnerable groups is often different from the traditional program content during their education, because usually programs do not include skills for socialization, personal development and skills to deal with sensitive issues with clients.

Although participants reported sometimes having tried to approach the issue in a way they believed was appropriate, they understood there was room for improvement and were receptive to having more training to increase their knowledge of food insecurity in their respective communities and being able to incorporate and discuss this information with more confidence in their practice. There was also a desire among the participants in this study to improve their cultural competence, which is particularly important in health professions to address the needs of a diverse population (Hall, Guidry, McKyer, Outley & Ballard, 2013; Heiss et al., 2013; Perkin & Rodriguez, 2013; Rodriguez, 2010).

Continuing education is essential to providing dietitians with the necessary knowledge and skills to assess food insecurity; however, limited information is available on the training and practices of dietitians that can work as the basis for the development of continuing education. In this study, participants made suggestions regarding the use of Web-based technologies to

facilitate the delivery of new information and resources - this will be particularly useful for those dietitians working in distant locations (da Silva, Brody, Byham-Gray & Parrott, 2014).

Web-based learning methods have become increasingly popular among health professionals and these methods have shown to be effective in professional development (de Jong, Savin-Baden, Cunningham & Verstegen, 2014; Slomanson, 2014). Furthermore, the use of distant education has shown to have some advantages including convenience, flexibility for the health professionals and result in low cost for the provider (Bromley, 2010; Penz et al., 2007).

Summary of category 3

Table 4.3 sets out the open and axial codes that form this category. The previous category was associated with implications on education and training. Although participants in this study have had experiences with clients living with food insecurity, they perceived the need of formal continuing education and training not only for those dietitians in the work force but also for the dietetic students. This need was also observed due to the poor understanding of dietitians' scope of practice regarding screening for food insecurity, lack of understanding in relation to what actions should be taken once they identify food insecurity among their clients.

Table 4.3 Category 3: Developing skills, continuing education and training

Open coding	**Axial Coding**
I have learnt a lot on my own Getting practical meaning over the time Gaining counselling skills on my own It takes skill and experience It's a communication skill It's something that you learn over the time Making assumptions to provide counselling Making indirect questions Putting the question in the assessment form Need to be willing to ask F.I. questions Using Direct and indirect measures	Learning through experience
Is not a priority at the university level Information changes constantly It's hard to keep updated Need in-person workshops Need online module Open to continuing education Need forum discussions Dietitians aren't trained to assist food insecure clients There is a lot of necessary special training Need training for sensitive questions Need to increase exposure Further education is needed among interns New grads need some exposure Food insecurity wasn't part of my training	Need of formal continuing education
Lack of experience facing food insecurity among different groups Need to increase cultural competence Developing the ability to form relationships with clients Need to increase cultural sensitivity Need aboriginal liaison Need skill in cultural competence	Cultural competency

4.4 Category 4: Support and availability of resources at the micro, meso and macro level

The fourth category revealed the need for support and the availability of resources. This category was characterized by three main issues: First, the need for appropriate tools to screen for food insecurity; second, the need for appropriate resources to support their community; and third, support from the health care system to implement change.

a. Appropriate food insecurity screening tools for dietitians

In order to assist clients living with food insecurity, first, it is necessary to screen for it. Therefore, at the micro level, participants emphasized the need for quick and appropriate tools to screen for food insecurity. The findings also revealed that dietitians were constantly working to address some of the barriers to screening and helping clients living with food insecurity; however, these responses and strategies have not been really successful. Screening for food insecurity and all of the barriers to accessing food by clients seemed to be the most difficult challenges. This lack of resources to screen and support clients made dietitians feel unprepared in being able to approach the topic of food insecurity in their practice.

Participants discussed how important it was to screen every client for food insecurity and not to assume that someone was not experiencing it. Since most people try to mask their food insecurity situation, it is necessary that dietitians "dig deeper" during the nutritional assessment of every client to ensure that this issue is addressed.

Because of the lack of appropriate resources, participants said they still rely on informal ways of identifying and supporting clients living with food insecurity. They remarked on the need for a more structured scheme that considered the specific situation of clients, but according

to participants, an informal approach to screening and use of informal resources were filling the gap.

Participants considered that it was particularly important to have an appropriate and effective, brief food insecurity screening tool that may be used in practice. However, participants reiterated that there are no standard questionnaires, protocols, models or simple templates for guiding the practice of screening for food insecurity at the community or clinical level.

> *"I think we need good tools for actually assessing food insecurity that are easy to put into practice, we need awareness that this is a critical issue that impacts both nutritional health and long term health of the populations that we are working with, we need tools that you know we need resources that are sensitive to the food security status of people that we are working with so we are not recommending things that are outside of their control, we actually need to ask the question"*
>
> FG 2 – June, 2013

Many participants reported that due to the lack of appropriate tools, they often needed to adapt available resources, which were not ideal. For food security screening, participants reported using modified questions from the HFSSM and adapting their recommendations according to the client. However, they stated that this strategy was not effective for all clients. For instance, in general, homeless people are food insecure, but none of the HFSSM questions may be used with this population. Participants also highlighted that food insecurity screening tools should be sensitive enough to assess more than just the finances of a household. These tools combined with sensitivity counselling training to communicate with clients may help to provide quality nutritional care in Alberta.

b. Appropriate resources for clients

When participants were asked about the resources they used to counsel and support their clients, they indicated that their main concern was the lack of access to appropriate resources in the community. Given the lack of appropriate resources, they explained that the majority of clients were being given irrelevant educational resources and information about resources in their community.

> *"I think in our experience over and over again is that the wrong resource continues being used, and typically those resources around, how to budget or how to purchase low cost food. And our sense is being that although there is a trend for nutrition education for everybody, that budgeting and that kind of thing is more of a middle class thing and it really has less to do with food insecurity. And so I think, is important to really change our entire mind around what kind of resources we are going to provide for this particular client health"*
>
> Paired interview – July, 2013

Participants also showed their concern for groups with special needs, who lacked physical abilities that were needed for acquiring and preparing food. Several participants mentioned that clients with mental health problems, seniors and others have severe problems that prevent them from accessing healthy food and cooking healthy meals.

Participants also identified resources in Alberta that were designed to assist clients with barriers to shopping and preparing their meals such as Meals on Wheels. Although this program works well addressing physical barriers, participants mentioned that this service is usually unaffordable for a large number of clients. Other participants talked about resources that were very limited to specific periods of time; for instance, the Canada Prenatal Nutrition Program

(CPNP), in which once the mother delivers the baby, depending on the community, the support could be removed. In the case of aboriginal communities, the program continues for infants up to 12 months of age who live on reserve or in Inuit communities, particularly those identified as high risk. Participants mentioned that these types of resources were not endless and do not solve food insecurity. So, when clients run out of their resources, they need to look for alternatives that may be socially unacceptable solutions such as purchasing out-dated foods or getting food at shelters, from friends or neighbors.

"I did have a chance to come across patients that would rather stay at the hospital, because they had food and they also had access to the supplements that were being given."

FG 1 – June, 2013

i. Macro – Community level resources and responses

Participants expressed that although resources were created to ameliorate food insecurity in Alberta, it appears the food insecurity situation has not been improving. Participants identified several examples of resources available in Alberta that were not necessarily adequate to fulfill the needs of the food insecure population. These resources included: food banks, soup kitchens, group cooking programs, community gardens and educational materials. Through constant comparative analysis, it was evident that participants generally did not consider these programs as helpful resources for clients with chronic conditions. In fact, food banks which are charitable organizations may not always be able to provide healthy or special foods to clients with specific needs. For instance, they may not stock gluten-free or low-sodium foods, which are required for clients with celiac or kidney disease, respectively.

Participants considered that food banks have been used as one of the main band-aid solutions for food insecurity; however, food banks have shown that they are not having an impact on achieving long-term food security. Although participants were aware of the quality of the food provided by the food banks, participants usually encouraged their clients to visit this resource since it is one of the very few available. They also talked about the importance of collaborating with food banks to help improve the quality of food, maybe through the implementation of guidelines for food donations. This probably would be helpful to increase awareness among donors about the importance of donating healthy foods to food banks.

"There are certain clients that well not that I would recommend the food bank but that it would not meet their needs at home so if you don't have a home, so if you don't have cooking facilities or abilities to prepare food a lot of food that has to offer may not work for you, other than certain fresh produces"

FG 3 – June, 2013

Participants talked about food bank users and explained why it would be necessary to make some changes to food banks before they can be considered an appropriate resource for vulnerable populations. Participants indicated that food banks should not be considered a resource that is part of the food structure in the health system; it should be considered as "something else". By "something else", participants underlined that food banks are just emergency resource to relieve hunger and that can be accessed only a couple of times per month. Some other suggestions made by participants included: reorganizing the list of healthy foods that adhere to the Alberta Nutrition Guidelines to show donors which foods are considered healthy options (i.e., choose often, choose sometimes and least often) that could be available in food

banks. Improving the quality of food seemed something that all participants thought would be good to implement, but they just don't know how and where to start.

Participants reported that food banks had poor acceptability among food bank users, and they lacked the appropriate foods for clients with chronic conditions. Another barrier in supporting clients was the stigma felt by clients using the food banks; participants often mentioned that clients still remain reluctant to use this service.

> *"If they resist going to food banks, sometimes it's just a conversation around well what's that resistance about and what would make that okay for you? What would make it easier? And you get them to the space where they realize there isn't as much shame in the food bank as they thought"*
>
> FG 2 – June, 2013

Developing rapport with clients is an important approach used by dietitians to persuade clients to use resources and to help them disclose their problems in accessing food in their community. From this point of view, participants suggested using their counselling skills to encourage clients to use food banks and other community-based programs. Participants also strongly believed that through sensitive counselling, it was possible to minimize the stigma of using food banks and increase their acceptability.

Participants noted there seemed to be some confusion among dietitians about the difference between food insecurity issues and the purpose of supporting the local food system. Participants said that some dietitians within the health care system held the belief that consuming locally produced food helped to reduce food insecurity in the community. This partial fallacy about buying locally produced foods has influenced the recommendations that some dietitians make to their clients by encouraging them to visit local food markets. Participants mentioned that

it was imperative to create awareness among dietitians that supporting the local food system does not necessarily solve the problem of household food insecurity. In fact, some participants indicated that they had done some comparisons of prices, and indeed, prices were not less expensive in local food markets.

> *"Having local food in the community does not show by the evidence to actually help those that are more vulnerable you can't and the whole food.... piece is another piece that I wonder how we work with it because it tends to include everything in and the poverty part gets lost, the very vulnerable population gets lost"*
> Paired interview – July, 2013

Participants identified food banks as a resource with poor quality foods that were often not appropriate for populations with chronic diseases. They sometimes encouraged clients to use food banks as a resource. Because there are stigmas associated with food banks, dietitians often spend some time trying to change the perceptions of their clients and encouraged them to use this resource. This reflects that dietitians were often unaware that most food banks were operating with limited resources and that often they do not have enough food to meet the existing demand. Therefore, it is imperative that dietitians become aware that food banks are not a solution for clients and that these should not be recommended during the counselling.

Participants also suggested that one of the strategies to improve the quality of food in the food banks was through the development of food donations guidelines. However, these strategies may not necessarily improve the availability of healthy foods but also may affect the amount of food donated to food banks. And furthermore, these guidelines cannot guarantee that people accessing this service will eat the healthy foods (Schnurr, 2014).

c. Support from the health system

As explained in the literature review, food insecurity is highly correlated to low income households. In response to food insecurity and financial constraints, the health care system in Alberta has introduced approaches to delivering financial support to those clients living with food insecurity and need a special diet as part of their nutrition therapy. This financial support ranges from 20 to 110 Canadian dollars (CAD) per month. For instance, special diet supplementary funding for patients who need a high protein diet is 20 CAD per month, while patients with renal failure receive 110 CAD per month, (Alberta Health Services, 2013). However, both the impact and the effectiveness of such financial support is not enough for these clients. Additionally, dietitians talked about how difficult it was sometimes for clients to get help from the system.

According to participants, when clients suffered from some chronic disease, there were many factors that compromised their ability to acquire food. For example, the cost of foods that were needed to meet their specific dietary needs (e.g., gluten-free) were higher, in addition to other costs (i.e., medication) to meet their special health needs. Such vulnerable groups were susceptible to food insecurity and the extra money clients receive from the government was inadequate to cover those higher costs of managing their chronic disease.

> *"It's ridiculous how much extra money they'll get if they have like heart disease or diabetes. They might get $40 more a month or something, and it's just – I think it's a joke and I don't know how people manage to eat."*
>
> FG 3 - June, 2013

To the participants, the health care system's support was considered crucial in making changes to alleviate food insecurity. During the interviews, participants talked about how

important it was to partner with the government and to explore how to address the gap between the amount of money people receive and the disproportionately low amount they have to allocate to food when they live on a low budget. According to participants, the government needs to take a proactive role in dealing with this issue.

> *"We are often asked to do letters to advocate for clients to get more funding through AHS and well, there are definitely some issues around that, just even in terms of being able to contact those people within that system that are the decision-makers, is very, very difficult to access anybody within that government program."*
>
> FG 2 - June, 2013

Most respondents suggested that an evaluation of the adoption and effectiveness of all of the resources was necessary to ensure these resources were actually addressing the issue. For participants, it was also important for the health care system to consider redirecting and reorganizing the resources. Making clear what resources should be part of the public health structure, paying attention to feasibility, availability and accessibility of those resources, which are key in making them work.

> *"If I'm reflective, people want to do something right, so I think that sometimes when we want to do something we do sometimes the wrong thing right or we don't do it based on evidence so you know to me that's where the food bank and collective kitchen and community gardens sort of came up to fill up that* [the resources]*, without really thinking about are we are we doing this and this is solving the problem"*
>
> Paired interview – July, 2013

Furthermore, participants added that the health care system plays a key role in supporting the development of educational resources targeting all types of clients at different levels and those with different needs.

> *"In healthcare, we have a habit of developing key nutrition messages for the universal population, the mainstream population. Maybe we need to start with the vulnerable populations instead and so in our program planning or in our messaging, maybe it's something like, when you're developing a key message or program planning, consider these points in the food insecure population. And this is how you could frame your message."*
>
> FG 2 – June, 2013

More than half of the respondents identified the need for building a tailored resources list based on geographical location that can be frequently updated. These lists may include formal and informal resources to help clients. Given the gap in available resources, many participants reported searching for information and creating resource lists for their own use, however, developing such resources took a considerable amount of time. Participants complained that this should be something that is provided by their organization.

> *"The resources were you know, that information kept together, up to date and have as much – I mean, we have some of it already, I think probably, but maybe elaboration of that. And then support in terms of resource or how, you know, the training side of things."*
>
> FG 1 – June, 2013

Summary of category 4

From the constant comparative analysis, it was interesting to discover that the majority of dietitians were not aware of the list of resources available to them, particularly among dietitians working in rural areas. As part of the theoretical sampling, individual interviews provided information, that there was list of resources available to them. However, it seemed as though most of the participants were not aware of its existence. It was also noted that information about resources (such as programs, accessibility, requirements) were constantly changing, and for some dietitians, updating these resources was not realistic. Thus, they emphasized the need for a communication plan with dietitians for spreading information, and ensuring the resource lists are widely available.

Participants explained that the cost of living in the province of Alberta does not allow the vulnerable population to acquire healthy foods. Participants highlighted that the health care system plays also an important role in developing policies that can focus on solving barriers and provide the ability to all Albertans to buy healthy foods.

Organizational support was considered indispensable for developing strategies that can help food insecure clients. Participants recognised that addressing food insecurity on their own was too complex and realised the benefits of addressing it with the help of other professionals. Participants stated being willing to work on interdisciplinary teams and to take an active role in seeking collaborations with social workers when this option was available. Participants spoke of the ways in which a social worker may be helpful to their practice.

Table 4.4 Category 4: Support and availability of resources at the micro, meso and macro level

CODE	CONCEPTS
Dig deeper in the assessment Need action plan that address F.I. according to the cause F.I. in assisted living Barriers in private facilities Canadian health survey questions do not work with homeless population The questions from CCHS survey are helpful Making sure to ask every client There is anything established, no standard Need of tools to address F.I. Kept the information all together Appropriated tools for chronic populations	Appropriate screening tools
Acceptable but poor quality Making info widely available Rural resources out of date Using the appropriate recommendations Need resources enough to support someone Need to have the information and resources to help Using the right resources Making information widely available Creating list of cheap and healthy foods Update resources Building resources list Other resources filling the gaps Make sure that patients can access the services Clients recognize that food in food banks are not appropriate	Appropriate resources for clients
Need some more research about what clients expect from us Clients will cost more in the future Make sure that patients can access the services Look at the public health literature Help to provide a best service Rural areas have less opportunities Nutrition manager need to understand F.I. issues Nutrition services responsibility to publish resources list Evaluation of resources Income support is not enough in chronic disease People need to be poor enough to get resources Difficulties in accessing people working in government	Support from health system

4.5 Category 5: Involvement in advocacy actions

Involvement in advocacy actions is the fifth category of this study, and this section provides a description of the way participants perceived their advocacy role in food insecurity issues, what they do as part of their advocacy role and what needs to be done in this area.

Outside of what participants perceived to be part of their scope of practice, they talked about actions that were not necessarily part of their formal role, which were discussed as "advocacy actions". Under this category, some participants described activities that they were involved in advocating for food security. However, participants agreed that advocacy was not a highly regarded activity in dietetic practice.

For the majority of participants, their advocacy role in food insecurity was still very controversial. For some dietitians, advocacy was not a recognised activity in their formal role as a dietitian. Of those participants who mentioned not participating in advocacy activities, most of them stated it was because there was no time allocated in their job for these activities. Although few participants initially considered advocacy as one of their professional roles, only three participants were able to discuss and explain their role of incorporating advocacy actions. Particularly for those dietitians with little experience or exposure to food insecurity, advocacy was not part of their practice. But for those dietitians who had exposure to advocacy and continuously came across food insecurity issues, addressing food insecurity was in fact important to them.

a. Learning to advocate

Sharma (1997) defined advocacy as "action aimed at changing the policies, positions or programs of any type of institution" (p. 4). In this study, working with food banks, creating lists

of resources and writing letters of financial support for clients were frequent activities that dietitians identified as examples of what they described as advocacy. Although participants strongly emphasized the importance of understanding how policy actions affect food insecurity, policy development and knowledge translation activities were implemented less frequently. Dietitians also discussed the implications of understanding policy development in dietetic practice and training

Although participants perceived that dietitians should have an active role in addressing food insecurity, they indicated that assessing food insecurity has been more of a reactive rather than a proactive action. In other words, they tried to support food insecure clients when clients disclosed barriers to accessing food. Only a few dietitians felt that they have made efforts to be proactively involved in solving issues around food insecurity.

From the interviews, it was apparent that dietitians considered advocacy as a key attempt to change and improve the lives of people living with food insecurity. One of their concerns was that relatively little is known on which advocacy strategies are effective. And, dietitians often practiced advocacy without a clear conceptual scheme to guide them and improve their work in aspects related to advocacy.

Several participants suggested that practical training on ways to advocate was required. Others argued for education on developing advocacy plans. This education may also provide exposure to alternative communication skills to assist dietitians in addressing the difficulties related to advocating for clients.

b. Collaborating with other health professionals

Among the issues addressed, many participants felt that creating connections in their community can be a starting point, getting involved in the challenge and volunteering time and expertise can strengthen the profession in building networks and organizational capacity. Participants emphasised the importance of talking with members of the community, and gatekeepers to establish connections. One public health dietitian described it like this:

> *"I think sometimes in terms of very practical practice, I just find collaborating where we can with other professionals to help move the agenda forward so that these individuals are not, you know, sort of in a stuck situation where they can't feed their children properly. And then the other side of it I guess, is you know, learning more, I don't know, just creative ways to assist them in a different, you know, instead of a very traditional way, you need to do this, feed this, this and this. But other you know, practical sources of nutrition are based on what the community provides or is able to provide."*
>
> FG 1 – June, 2013

Collaborating with other professionals was usually associated with working together with social workers. Participants indicated that if they identified a food insecure client, they tried to handle the issue without help from other professionals. Nevertheless, they all agreed that when they worked in partnership with a social worker, the social worker helped them to provide better assistance to clients. According to participants, a social worker is the professional who was most aware of food insecurity issues and was usually very well-informed about the resources available in the community. Certainly, dietitians play an important role in addressing food insecurity issues, however, participants considered it necessary to integrate other professions and expand

the food security group in the province. This group could collaborate not only on studying food insecurity issues, but also advocating to implement programs aimed to eliminate hunger in Canada.

"I think that interdisciplinary team is really good in that way no matter where your area of practice is, I think you have those partners that you are working with."

Paired interview - January, 2014

Working with organizations to push the idea to the forefront, and sensitizing society, specifically those working in the government, was also considered important. The participants elaborated the need for dietitians to adopt a knowledge broker role of translating the information to clients on ways to optimize money in low income households and evidence-based training. Furthermore, some of the participants highlighted dietetic actions that were particularly beneficial to assist their clients. Participants commented on activities conducted in their work setting:

"We invited a group of dietitians as well as other stakeholders from community to look at resources out in the community to help with identifying services, to help with grocery shopping, you know, less expensive types of food hampers, emergency food hampers, that sort of thing. And what we found is that that information changes constantly. It was really difficult to keep that up to date. And every time we did it, every year, it took a lot of manpower."

FG 2 – June, 2013

Summary of category 5

Food insecurity is an important determinant of health and should be seen as one working outside of the health care system. Dietetic professionals must work together to promote the profession and its value to the public (i.e., local, provincial and national government representatives) and other health care professionals.

The need for a more comprehensive understanding of the dietitians' advocacy role was another key finding. Although this study was not intended to explore what dietitians think advocacy means, it was clear that some participants were confused about the concept of advocacy. Interesting to note is that some participants were able to articulate one experience that they believed as advocacy, including writing letters to support clients as advocacy activities. These results illuminate the need to include advocacy as a formal part of the educational curriculum so that all dietitians will have a clear perception of what the advocacy role for dietitians should entail.

Although advocacy hasn't been explored in dietetic practice as in other health professions, it plays an important role in the care of patients, specifically to protect and promote the food security of the clients. This study may act as a catalyst for further research in this area, as stated by Rodriguez (2012), in order to advance in this profession; advocacy needs to be a natural part of a dietitian's life and work. Defining advocacy roles and addressing the barriers to advocate for food security as part of the dietetic practice could be the first step.

Furthermore, exploring perceptions of advocacy among dietitians is needed to understand the advocacy role of dietitians. Dietitians can play an important role in advocating for vulnerable and marginalized groups since they deal with this issue frequently in their practice. Dietitians could help by supporting and empowering clients to achieve food access for an active and healthy life

of the most vulnerable individuals in our society. It is important to consider that these groups have a long term high cost that significantly impacts the health care system (Hawkes, 2012; Johnson, 2013; Lee, 2013) and that advocacy involves collaborations for changing the pattern of decision making (Loo, 2014; Rock, McIntyre, Persaud & Thomas, 2011). Thus, to influence decision making, it is imperative to increase awareness among dietitians to cooperate and work together to achieve desirable changes at the individual, community and organizational level. Without advocacy, achieving national food security becomes more challenging.

Table 4.5 Category 5: Involvement in advocacy actions

Codes	**Concepts**
Working with the government Connections in community Being proactive Advocate politically Develop strategies to ask Avoid traditional way Referring clients to resources available Making initial contact with community Difficulties in accessing people working in government Sensibilizing society Pushing the idea to the forefront Need to start with the vulnerable population Program planning	Learning to advocate
Accessing skilled staff challenges Social workers a are very helpful That information the doctor will find it important as well Need support from a social worker Working as a team Get in contact with people who knows resources Networking Help individuals connect with informal organizations Informal network Informal resources churches: people tend to feel connected Work with large organizations	Collaborating with other professionals

4.6 Category 6: Source of stress

The sixth category delineated dietitians' emotional response to dealing with food insecure clients. Many participants felt too overwhelmed by their responsibility to effectively screen for food insecurity and provide an appropriate intervention for their clients. Stress was found to be connected to the lack of communication skills and training.

"So it does, I do feel sometimes like I wish I could do more, but I don't know how. I don't know even if I can."

FG 2 – June 2013

a. The feeling of failure

Participants felt confused about the extent to which they should be helping their clients and knowing what is and what is not part of their role. They constantly identified assessing food insecurity as a time consuming practice, mentioning that there was not much they can do other than providing information on resources. There was a perception among participants that despite providing counselling to their clients, participants felt that clients would still be unable to follow the recommendations due to their financial situation.

"Sometimes you do feel hopeless and helpless in a way, when you do come across a group, a whole group of people that you are sure they needed so much more than I can provide. It is stressful which breaks your heart; it makes you realize that it kind of disrupts our bubbles"

FG 1 – June 2013

Other participants described situations when they felt that they have failed in providing care:

> *"I think it would be frustrating and stressful when you would try to counsel a client on eating according to Canada's food guide when the only answer is a Band-Aid solution with the food bank and it doesn't address the root causes of their situation. So then you're possibly creating feelings of failure and guilt in these people. So then you walk away with that."*
>
> FG 2 – June 2013

The feeling of failure caused frustration among dietitians, and many of them expressed a need for support and procedures that could guide dietitians to identify household food insecurity and provide support for each particular client and populations living in food insecurity. Several of the dietitians seemed to struggle with helping their clients with limited resources, skills and time available. They discussed the stress of managing clients with chronic conditions and also with limited financial resources. The findings indicated that participants used two ways of dealing with the stress. The first, which is one of the most common practices, was debriefing with others, or talking to other dietitians about the client`s situation. The debriefing sometimes helped them to develop strategies and find solutions, and most of the time, it helped them to take control and move forward.

On the other hand, rural dietitians commonly said that because they lived in small communities and due to issues of confidentiality, they cannot discuss specific cases with other professionals. However, some dietitians working in urban areas stated that they often sought the help of social workers.

"I'm lucky that I work – in one of my jobs I work with a team of people. So we have a couple of social workers on staff, so that if I have the need, I could always take a few minutes to talk to them or to – like my supervisor, if I just needed to have someone to talk to about that."

FG 3 – June 2013

Participants referred to it as opening Pandora's Box when clients disclosed their food insecurity situation. Discussing food insecurity and other related problems with clients created a feeling of helplessness among participants. When one participant mentioned doing a lot of nutrition education, she suggested that education was not enough to achieve nutritional goals with clients, and without having the resources to help clients to improve their food insecurity, this was a difficult objective to achieve. Participants recognised that clients deal with all kind of things in their lives, beyond nutrition. By not being able to address the root causes of food insecurity, participants expressed feelings of failure and guilt.

"I guess from a clinical perspective, you know, me – we do a lot of education with clients but we feel, I feel helpless with those clients who don't have endless resources to go out and actually implement them."

FG 4 – June 2013

For example, participants discussed the challenges around purchasing food on a limited budget and situations in which the family did not use the money for food. This category of 'source of stress" was important as it was the means by which the participants in this study attempted to control and minimise the effects of working with clients with food insecurity.

Participants who had been frequently involved in dealing with vulnerable clients felt more comfortable and recounted experiences of how working with other health professionals aided to channel their stress. The participants felt compelled to initiate active problem-solving processes and engaged in significant information-seeking activities. From the data, it was clear that dietitians adopted very similar strategies in their approach. When dietitians identified food insecurity among their clients, dietitians must cope with a Pandora's Box in which they do not often know what to do. Table 4.2 sets out the open and axial codes that comprise this core category.

b. Addressing uncomfortable feelings with clients

The issue of feeling uncomfortable in talking about food insecurity with clients also arose when participants were asked about their role. Some participants affirmed that having an opportunity to get involved in activities related to assessing/addressing food insecurity has helped them to feel comfortable with the issue. It seemed that it was complicated for dietitians to address food insecurity without looking at aspects beyond financial factors. For instance, participants indicated that they often ended up doing things that they felt were beyond their scope of practice, for example, looking at transportation passes and tickets, food bank distribution centers, etc.

The uncomfortable feelings experienced by most of the participants likely were due to discussions with clients on the barriers to accessing food. Participants usually found that clients had a variety of barriers that cannot be solved through counselling or resources available in the community. Discussing the variety of barriers with clients might not be part of a dietitian's formal role, however, it was something that they cannot avoid in order to help a client.

"It's definitely something over time you get more comfortable with. And I do find that you do end up, as you probe into it, you do end up going a little bit outside the realm of dietetics. Like discussing a little bit smoking cessation and how that could help improve their grocery budget"

FG 4 – June 2013

Talking about food insecurity, financial constraints and other barriers to food were uncomfortable topics not only for dietitians, but also for clients. Dietitians perceived that clients felt uncomfortable, and in some cases ashamed; and sometimes dietitians felt guilty and thought that the client's situation may not change. Dietitians commented that some clients basically visited AHS' facilities just to see if they could get extra support.

"…But we rarely look at the financial or access to food pieces affordability and access, we don't really look at those as much as you probably could…. if you want to know why is because people aren't probably comfortable asking people about their financial situation…"

Individual Interview - June 2013

Furthermore, participants indicated that food insecurity was often not on their mind since it was not perceived as a priority in the nutritional assessment. The majority of participants indicated that they were not used to monitoring food insecurity as part of their role.

Despite feeling some discomfort with addressing issues of food insecurity with clients, the majority of community dietitians participating in this study seemed to be concerned about how food insecurity was affecting their clients. As well, they seemed to have increased awareness of programs and strategies to help clients. They recognized the importance of being

aware of clients' eating patterns, and how clients living with food insecurity secured food during periods when there is substantially more money to afford food, and in particular, lean financial times. Disclosing food insecurity is a sensitive topic, and therefore, dietitians require abilities to develop rapport with their clients. Dietitians in this study showed willingness to build their knowledge to improve their practice with this group of clients.

Stress is a nonspecific reaction of the body to any demand generated for general adaptation, which comprises three phases: reaction alarm, resistance and fatigue. Stress leads the individual to make attempts to deal the situation that causes stress or stress themselves. These attempts to solve situations are called coping strategies, and enable the individual to confront his situations. Therefore, stress affects the overall health in the physical, psychological and social, and job performance (Selye, 1956).

Summary of category 6

Although documentation regarding stress levels of dietitians is very limited, a few studies have identified burnout associated to diverse variables among dietetic professionals (Gingras, de Jonge & Purdy, 2010; Milosavljevic & Noble, 2014). In this study, the use of grounded theory helped to reveal that participants sometimes felt helpless and they considered that supporting their clients with food insecurity could be sometimes stressful. To our knowledge, this is the first study that has identified that dealing with food insecure clients may potentially become a stress factor for dietetic professionals. Participants felt responsible to help clients in any way they can to achieve nutritional goals; however, they believed their actions only provided short-term solutions. Among the majority of participants, the main cause of the feeling of helplessness was the lack of resources available to their clients. Without resources, they felt the support they can

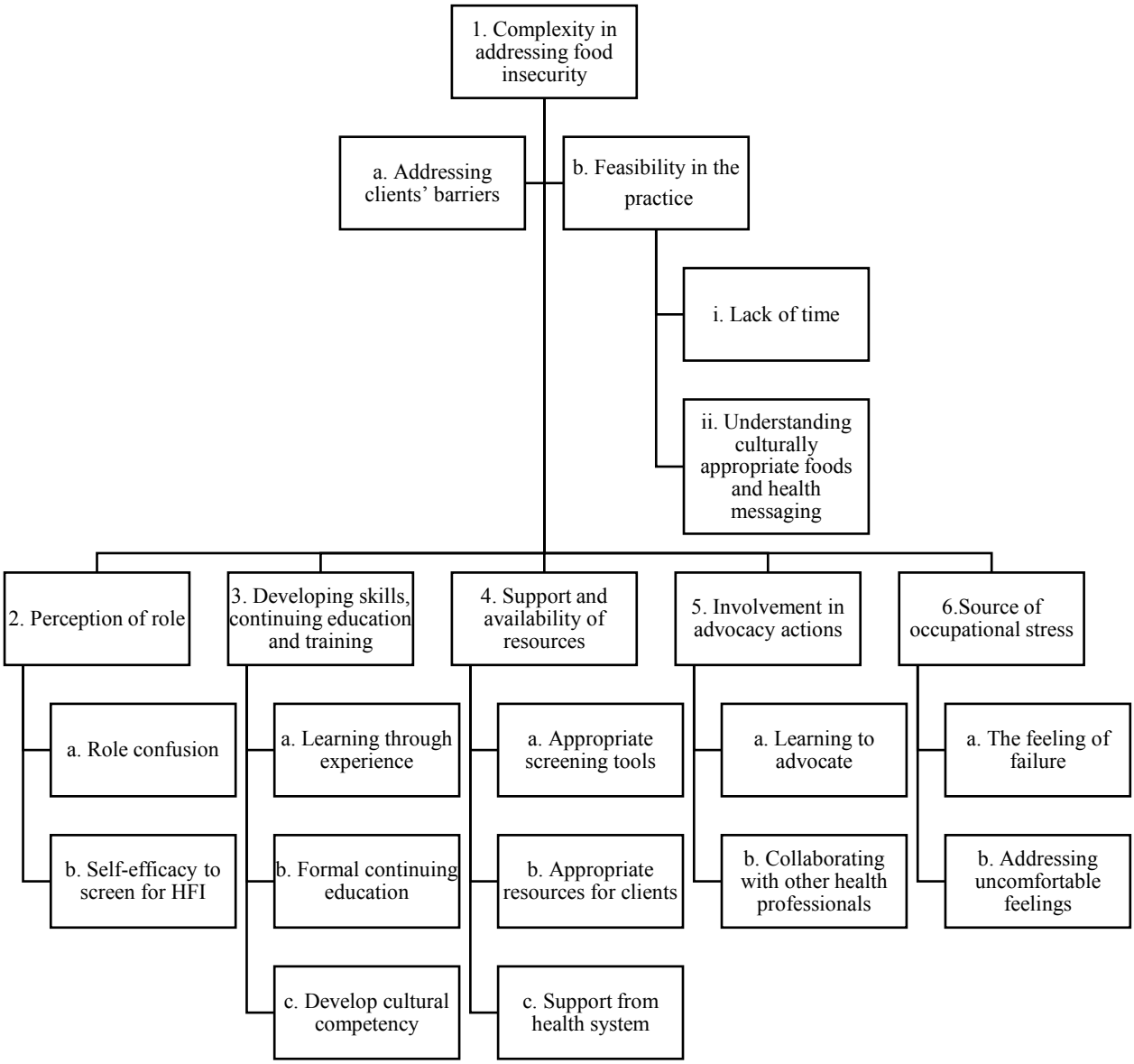
provide was very limited. These findings are somewhat similar to those reported by researchers in the field of nursing (Demerouti, Bakker, Nachreiner & Schaufeli, 2000; Parahoo, 2000) in which the lack of knowledge and resources to deal with specific clients had emotional effects on nurse practitioners.

Participants in this study considered that, when possible, opportunities must be created that engage in face-to-face meetings to debrief with other professionals (i.e., dietitians, social workers) and learn how to address barriers or simply just to discuss difficulties in their practice. These results have also implications in the implementation of strategies to cope with emotional effects of dealing with sensitive issues in their practice. These strategies should enable dietitians to perceive events at work in a more balanced perspective. Coping strategies could help to reduce the discomforts and adjust to stressful work situations as well as it could influence their self-efficacy.

Table 4.6 Category 6: Source of stress

Open coding	**Concepts**
Talking to coworkers and at home is enough to help with my stress I just need to have someone to talk to Having someone to share the information The barriers are beyond our abilities Going beyond the realm of practice Clients deal with all kind of things in their lives, it's not only nutrition Feeling guilty and responsible after opening the topic Mental health clients need more than just food Developing the ability to form relationships with clients People deal with so many things that we cannot help It is stressful which breaks your heart It's frustrating not addressing the root causes of the situation Sometimes I feel I waste time educating people who can't afford to buy food	Feeling of failure

Figure 4.2 Substantive theory: Complexity in addressing food insecurity



4.7 Summary of results

Through the application of the methods explicated in Chapter 3, one core category and other five categories emerged from the data. The core category of the theoretical framework was the complexity in addressing food insecurity. Other categories branching out from the core included: perception of role, developing skills, continuing education and training, availability of information, resources and support from health system, involvement in advocacy actions and source of occupational stress.

This study has resulted in a substantive grounded theory that explained how dietitians perceived their role in addressing food insecurity with their clients. This grounded theory was also generated to guide dietitians toward developing the necessary knowledge to fulfill dietitians' role in the assessment of food insecurity.

The core category of this theory explained the reasons why dietitians perceived there was a complexity to addressing food insecurity. They discussed the absence of effective tools to assess food insecurity in the nutritional assessment, the need to develop appropriate skills to discuss food insecurity and other sensitive issues with their clients. They emphasized that it was necessary not only to develop strategies for the screening of household food insecurity, but also the need of food security continuing education for dietitians. Other categories from the study highlighted the need for resources to support clients living with food insecurity and highlighted how several barriers affect the interventions they can provide to clients.

Most participants mentioned that in few occasions they have been engaged in food security activities; however, an important confusion surrounding their role was perceived among participants. They didn't know whether addressing food insecurity was part of their role or that of other professionals (i.e., social workers), and they simply did not know what to do. Dietitians

also indicated the need to learn food security interviewing and counseling skills that respond to client's needs, underlining the importance of incorporating the content into the dietetics curricula and its immediate real-world applicability. In addition to the perceived need of resources and skills, dietitians had certain assumptions about what information would be needed and they emphasized that lack of information is another barrier to doing a better job. They highlighted the need for information to be widely available not only for dietitians, but also for other health professionals which can help to reduce their perceived stress and frustration when they are not able to provide appropriate support to their clients.

This theory adds to existing understanding of dietitians' practices regarding the assessment of food insecurity in dietetic practice. Chapter five emphasised the implications and recommendations for dietetic education, dietetic practice, theory and research. Chapter five also provided an evaluation of the grounded theory study that forms the basis of this thesis.

Chapter 5. Implications, Conclusions and Recommendations

There are several key findings from this study that add to the existing understanding of the ways of addressing food insecurity in dietetic practice that have implications for future education and training and professional development of dietitians, development of screening tools, redirection of resources and involvement of dietitians in advocacy actions. The grounded theory of the complexity in addressing food insecurity contributes to filling gaps in current knowledge about how dietitians perceive their role in assessing and responding to food insecurity. This grounded theory also provides insight into the understanding of current perceived barriers to addressing food insecurity more frequently and effectively. The findings from the current study are unique and highlight new findings that establish links between role confusion, lack of understanding of food insecurity assessment, and dietitians' perceptions about their own ability to perform the screening and support of clients living in food insecurity.

5.1 Implications for dietetic practice

Dietitians can support food insecure clients through facilitating access to resources and empowering clients to cook healthy meals on a limited budget by making them aware of resources such as The Basic Shelf Cookbook (Canadian Public Health Association, 2011). Findings from this study have implications for incorporating a food security lens in practice to address peoples' barriers to food security. For this, dietitians should be able to identify the level of food insecurity of their clients and the main causes of the problem by looking at clients' environment, socioeconomic status, and education among other factors. This also includes developing strategies to ask uncomfortable questions such as learning interviewing skills and

how to approach sensitive topics in counselling. Mastering counselling skills can have a positive impact on self-efficacy and performance. Moreover, dietitians should consider spending more time with their clients to develop rapport and partner with their clients to achieve nutritional goals. However, as participants mentioned, several structural barriers play a role in preventing this, including time constrains, the need of continuing education in food insecurity issues, confusion of their role in assessing food insecurity and the need of appropriated resources to support clients.

To address poverty and food security issues, the health care system in Canada also needs to be redirected, and dietitians can play a role in this by getting involved in advocacy actions such as partnering and collaborating with organizations and other professionals to address the issue. Incorporating advocacy actions in dietetic practice implicates that advocacy training in the dietetic curricula is needed. This barrier can be addressed by implementing modules in which dietetic students can discuss and apply advocacy strategies not only to address food insecurity, but other issues faced in the dietetic practice.

Findings also have implications for the design of, food programs and evaluations of actual programs to identify weaknesses and appropriateness for diverse populations. Programs need to focus on long-term support, be more accessible and specific for groups, for example, immigrants, mental health clients, single parents, pregnant women and other vulnerable groups.

This study also suggested that dietitians should include the use of strategies to reduce their own stress and other emotional effects of stress. These methods may include creating small groups of co-workers to discuss and resolve problems. In turn, this may help to release the generated stress at work and strengthen relationships at work and establish networks.

5.2 Implication for dietetic education and future research

The findings in this research study add to the body of dietetic knowledge by creating evidence about dietitians' barriers to address food insecurity in their practice. This knowledge has implications for: 1) Improving dietetic curricula, 2) Continuing formal education of dietitians already in the workforce and 3) Implications for further research to develop HFI screening tools and to support dietitians to cope with stress in their practice.

It is important to consider that the dietetics curricula should be developed in an accessible manner that enables the end-user to readily access the content and related supports on-line. Additionally, continuing education regarding the assessment of food insecurity should be considered mandatory in order to maintain competency among all dietitians across Canada. However, figuring out the appropriate training remains as one of the challenges to developing the content and delineate the scope of practice.

Debriefing was one of the strategies used by participants to cope with the stress caused by trying to address barriers faced by food insecure clients, and it provided an opportunity for participants to reflect on their practice. To our knowledge, there is still a research gap on how to conduct debriefing sessions in dietetic practice. Extensive research has been done in the field of nursing and other areas of health care (Ahmed et al., 2012; Chronister & Brown, 2012; Grant, Moss, Epps & Watts, 2010); these studies have shown the impact of using different debriefing methods on enhancing the workplace-based learning and applying new learning in practice. The results of this study have implications for further research to identify effective debriefing practices that could inform techniques that can be implemented in dietetic practice.

The majority of dietetic students and registered dietitians already in the workforce understand that there is a link between poverty and poor physical and mental health, however,

many of them have not experienced poverty themselves or worked with vulnerable groups. Studies have examined the impact of poverty simulation mainly among nursing and dietetic students (Menzel, Willson & Doolen, 2014; Noone, Sideras, Gubrud-Howe, Voss & Mathews, 2012; Patterson & Hulton, 2012; Syler, Gosche & Lueders, 1997). The goals of these studies were to explore nursing and dietetic students' attitudes regarding poverty and generate a deeper understanding and awareness among students about the importance of understanding poverty and its influence in health care decisions. These studies prove that even small, short interactive interventions among students and health professionals can have an impact on providing basic information about individuals who live in poverty and stimulate their interest about poverty among vulnerable populations.

This grounded theory provides guidance to further study methods for assessing and providing support for clients living in food insecurity. Moreover, research is needed to develop appropriate screening instruments to identify household food insecurity. These instruments would need to be quick and sensitive enough to be used in the nutritional assessment.

Finally, more research on the advocacy role of the dietitians is necessary to ensure that the future dietitians can participate in advocacy actions. For instance, future studies could focus on the analysis of the dietetic curriculum in relation to food security advocacy.

5.3 Conclusions

Grounded theory sustained the development of these findings from the beginning to the conclusion of this dissertation's work. The research presented in the previous chapters contributes towards understanding a key research problem: How do dietitians perceive their role in addressing food insecurity?

The study's major findings created a theory that represented the complexity to effectively address food insecurity in dietitians' practice. The theory provided a process for understanding dietitians' attitudes and perceptions of barriers to assessing food insecurity in dietetic practice. Although participants in this study reported experiences with clients living with food insecurity, they perceived there was role confusion and lack of role clarity. This confusion was not only limited to a poor understanding of the dietitians scope of practice regarding screening for food insecurity, but rather a lack of understanding in relation to what actions should be taken once they identified food insecurity among their clients.

Other barriers to identifying clients experiencing food insecurity, lack of food security measurement instruments, lack of training on how to approach the problem and limited resources for supporting clients living with food insecurity. The lack of resources had an important impact on the stress levels of the participants, which was found to be less frequent among those participants who were more exposed to work with vulnerable groups. Moreover, the theory also provided an explanation of how an advocacy role was perceived among participants. Also, it provided an insight into the issues associated with the importance of collaborating with a multidisciplinary team, including social workers who may play a key role in helping to solve other issues affecting clients in food insecurity.

5.4 Strengths and limitations

The strengths of this study include: First, the use of the theoretical saturation, and the constant comparative method which helped to enhance the generalizability of the results. Second, in contrast to the individual interviews, the main advantage of the focus groups was the interaction among the participants. The presence of other dietitians provided an opportunity to stimulate the generation of ideas and interaction between participants. One advantage that the focus group shares with other qualitative methods was to provide information respecting the options and the terms used by the participants themselves. This characteristic gives the information a high degree of subjective validity, especially in comparison with data obtained through a questionnaire. There are also several limitations in this research that must be acknowledged: Although an effort was made to include a wide demographic of dietitians, consistent with the grounded theory method, the results of this study were specific to the study sample from which it was developed. Second, the focus group shares the advantages and limitations of any qualitative method. In this study, focus groups could also have caused a limitation if participants felt constrained by the presence of the group or by the dominance of some members. Therefore, to mitigate these potential problems in this study, different interview approaches were used, participants were also invited to provide additional information through email or through individual interviews, in case that they may have felt intimidated during the focus groups.

5.5 Reflections

In this final section of the thesis, I will provide some personal reflections from my perspective as a dietitian trained in Mexico. To me, the main responsibility of dietitians is to protect the health of their clients and support them. When I started the undergraduate program of human nutrition nine years ago in Mexico, as many students, I was not unmindful of the dietitian's responsibilities of addressing sensitive issues with clients. During my undergraduate education and training, I was not taught about the basics of counselling or had the opportunity to practice these counselling skills with clients, nor was I sure of what to do with vulnerable clients. It was not until I started my dietetic internship in rural communities in Mexico, which is when I realized how important it is for practitioners to support clients who struggle to bring food to their table. In Mexico and other countries, I also had an opportunity to work with marginalised populations, and the majority of them lived under the poverty line, and because of this, food insecurity was merely assumed, and there was no need to ask them about their circumstance.

Engaging as a researcher in this study helped me to better understand how dietitians in the Canadian context experience dealing with clients living with food insecurity and the concepts involved in this issue. Given my previous experience in working in communities, and some have been in developing countries, throughout the writing of this thesis, I tried to put aside my beliefs and previous experiences as a dietitian working in varied contexts. At times, it was difficult to remain neutral, particularly when I disagreed with some of the statements made by participants during the focus group discussions and interviews. The biggest challenge in writing this grounded theory was to stay objective and reflect on what participants said and to bring all of the data together and conceptualizing participants' words. As well, having the opportunity to discuss and debrief with my supervisor and committee members was incredibly useful for organizing

ideas throughout the process of analysis and writing, as well as addressing the limitations of this study. I spent many hours transcribing and analysing the data, which allowed me to be immersed in the data and to fully understand the perceptions of dietitians. For the purpose of this study, I am convinced that the grounded theory method was an excellent choice and provided a necessary framework for exploring this phenomenon.

I believe that this study has generated an original and substantive theory of the complexity in addressing food insecurity in the dietetic practice. It was very satisfying to have insights on the participants' experiences toward this issue, how they improvised in their jobs and how they connected with other health professionals to help their clients.

Although further research is still needed, I hope that this grounded theory reflects new perspectives for change in this profession. This theory can contribute toward building a conceptual approach to action for improving the practices in the assessment of household food insecurity. It is also hoped that it will stimulate academic staff employed at educational institutions to modify their curriculum and engage in further discussions.

I also hope that this thesis will stimulate other dietetic professionals who are eager to discuss strategies, learn and advocate for the food security of the Canadian population. I believe that monitoring households for food insecurity may potentially have positive results on the health of Canadians, making a difference in the quality of life of the people who are struggling to bring food to their homes.

5.6 Recommendations

There are five main recommendations stemming from this study. First, dietitians' suggestions should be taken into account when developing food security training modules which are integrated in future dietetic curriculum. It is important for dietitians in different areas of practice including various career stages to be involved in informing the content and the method of delivery of such training.

Second, dietetic interns, and dietitians in the workforce, need to have training and access to continuing professional development opportunities to enhance their skills in identifying and assessing food insecurity. This education could be in the form of training modules and other formats, like annual workshops, Web-based discussions and forums or Webinars, which are particularly important options for reaching dietitians in remote areas. Having access to online discussions with members of the Food Security Working Group in Alberta is a way of keeping abreast of food insecurity issues and resources available in the province. Hands-on training and simulation exercises on ways to deal with food insecure clients and those living in poverty can provide opportunities for experiential learning to undergraduates as well as new graduates. And at the same time, it will assist future dietitians to gain more confidence in working with clients living with food insecurity and material deprivation. Further research in this area will help to identify specific educational materials and training needs of dietitians that are required for providing appropriate nutrition care to counsel clients when addressing sensitive and cultural issues.

The third recommendation relates to key health organizations and regulatory bodies (i.e., AHS, College of Dietitians of Alberta and Dietitians of Canada) to make it a priority to develop food insecurity scope of practice and best practices guidelines that are evidence-based for

dietitians. The food insecurity scope of practice should include: information of when and how to identify, what questions dietitians can use to identify vulnerable groups or clients, and perhaps the inclusion of validated items that can be standardized in the nutritional assessment across different practice settings. It should also consider the particular roles and delimitations for dietitians working in different areas, in addition to the steps required for counseling and supporting clients who experience moderate or severe food insecurity.

Furthermore, these guidelines should be disseminated to dietitians, managers and health professionals in AHS who work with vulnerable and marginalized populations. Methods for disseminating the information may include the use of systematic reviews, executive summaries, seminars, and a discussion panel among experts for the development of evidence-based guidelines. This information also needs to be distributed and updated on a regular basis by health care professionals in both rural and urban facilities to raise awareness of food security resources in their area. This will result in an increased understanding of the role of dietitians in assessing and managing food insecurity in different settings. The creation of a nutrition resource centre that collaborates with AHS and other organizations could be also useful to collect and monitor the most recent information regarding resources for clients living in food insecurity.

Fourth, as a means of assisting dietitians with the assessment of food insecurity, sensitive and short tools need to be developed: to help with reading and interpreting cues that clients send or do not send; to assist in recognizing and responding to clients' degree of food insecurity; and to aid in selecting appropriate interventions to minimize the negative consequences of not providing appropriate support to food insecure clients. Examples of tools may include using a two-item tool to screen in a fast-paced environment during the one-on-one assessments or a one-item tool to screen food insecurity in a community. And finally, a food

insecurity algorithm that could be adapted to different settings may also be useful to guide dietitians in the process of screening and counselling.

The fifth and final recommendation, refers to the limited available evidence on how dietitians and other professionals can work together to help clients living with food insecurity. More research is needed to describe and characterize how health care professionals can work together to address food insecurity in their practice, and how they can support each other to cope with the occupational stress caused when working with food insecure populations.

In conclusion, findings from this grounded theory research revealed that consideration needs to be given to increase RDs' awareness regarding a better understanding of advocacy actions as an integrated part of dietitians' practice. Dietitians need to work with organizations to push the idea to the forefront, and specifically those working in government could also make an impact by linking stakeholders and creating partnerships to influence decision making at the individual, community and organizational level.

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Appendices

Appendix A

INFORMATION LETTER

Project: Development and validation of a questionnaire to assess dietitians' knowledge and practices regarding household food insecurity in Alberta

Research Investigator:

Ana Luisa Medrano Chávez
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Edmonton, Alberta T6G 1C9
(780) 492.2693
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Supervisor (if Applicable):

Dr. Anna Farmer
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Background

You have been asked to participate in a study so that we can gain a better understanding of the perceptions and experiences of dietitians in Alberta regarding household food insecurity. The results of this study will be used to support my thesis project funded by the University of Alberta and the Centre for Health Promotion Studies.

Purpose

This research study aims to explore dietitians' perceptions regarding household food insecurity. The information learned in the focus groups will be used to design a questionnaire that will evaluate the knowledge and practice of dietitians in Alberta regarding food insecurity.

Study Procedures

You would take part in a focus group (with a maximum of 6 other Dietitians). Focus groups will be facilitated by two University of Alberta's researchers and the discussion will focus on your experiences on assessing food insecurity among your clients. The agenda will however be flexible, so that you can raise the issues of particular relevance to you. Focus groups will last a maximum of one hour and will be tape recorded, transcribed into print and then analyzed by University of Alberta's researchers.

Benefits

The possible benefits to you for participating in this study are that you will learn about the concept of household food insecurity and this may increase your awareness of the importance of screening for household food insecurity among your clients.

Risk

There are no foreseen risks anticipated in participating in this study. There may be risks to being in this study that are not known, if we learn anything during the research that may affect your willingness to continue in the study, we will tell you right away.

Voluntary Participation

Your participation in this research is completely VOLUNTARY. If you choose to participate you may subsequently withdraw from the study at any time without penalty or consequences of any kind. If you choose not to participate, that will not affect your relationship with Alberta Health Services. Although the focus group will be tape recorded, your responses will remain anonymous and no names will be mentioned in the report.

Confidentiality

The focus group will be audio-recorded to ensure an accurate recording of participants' responses. Participation in this study is ANONYMOUS (your name will not be used) and the results collected will be reported for the group, and not for specific individuals, making it impossible to be identified. Only the researchers and research assistant will have access to the consent forms, tapes, and notes.

To ensure confidentiality Dr. Anna Farmer at the University of Alberta will be store the information in a locked office at the University of Alberta in Dr. Farmer's office located at the Edmonton Clinic Health Academy 4-370. Study data will be kept for 5 years after the study is over, at which time it will be destroyed.

Further Information

If you have any further questions regarding this study, please do not hesitate to contact:

Anna Farmer, PhD, RD, Assistant Professor, Department of Agricultural, Food and Nutritional Science and the Centre for Health Promotion Studies, 780.492.2693 anna.farmer@ualberta.ca

Ana Medrano BSc. MSc Candidate, Department of Agriculture, Food and Nutritional Science. ECHA 4-390. medranoc@ualberta.ca

If you have concerns about this study, you may contact the Research Ethics Office, at 492-2615. This office has no direct involvement with this project.

Thank you!

Appendix B

Consent form

Title of Project:
Development and validation of a questionnaire to assess dietitians' knowledge and practices regarding household food insecurity in Alberta

Principal Investigator(s):
Ana Luisa Medrano Chávez BSc, University of Alberta (780) 492.2693 medranoc@ualberta.ca
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Noreen Willows PhD,University of Alberta

Do you understand that you have been asked to be in a research study?	Yes	No
Have you read and received a copy of the attached Information Sheet	Yes	No
Do you understand the benefits and risks involved in taking part in this research study?	Yes	No
Have you had an opportunity to ask questions and discuss this study?	Yes	No
Do you understand that you are free to refuse to participate, or to withdraw from the study at any time, without consequence, and that your information will be withdrawn at your request?	Yes	No
Has the issue of confidentiality been explained to you? Do you understand who will have access to your information?	Yes	No

This study was explained to me by: _____

I have read and understood the attached information letter and agree to take part in this study:

_____ _____
Signature of Research Participant Date

_____
Printed Name

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

_____ _____
Signature of Investigator or Designee Date

Appendix C

FOCUS GROUPS SCRIPT

1. Welcome (3 minutes)

GOOD MORNING
---We'd like to start off by thanking **each of you** for taking time to come today
My name is _____ and I'm a master student at the University of Alberta. I also would like to introduce Dr. Anna Farmer, from the University of Alberta my thesis and project supervisor. She will be recording our discussion today and taking notes for my report. We'll be here for about an hour from now.

2. Consent Process, Review the following:

This qualitative study is a collaborative project of the University of Alberta and Alberta Health Services a broader initiative in which the overall goal is to evaluate the knowledge and practices of dietitians in Alberta regarding food insecurity trough a survey. The first phase consist of focus groups to explore the perceptions of clinical and community dietitians regarding their role in the assessment of food insecurity. The purpose of these focus groups is to learn how dietitians understand the concept of food insecurity and to identify dietitians' salient beliefs regarding the assessment of household food insecurity. These results will help to develop the items of a questionnaire that will evaluate the knowledge and practice of dietitians in the province of Alberta.
The information you give us is completely confidential, and we will not associate your name with anything you say in the focus group.
We would like to tape the focus groups so that we can make sure to capture the thoughts, opinions, and ideas we hear from the group. No names will be attached to the focus groups and the tapes will be destroyed as soon as they are transcribed.
You may refuse to answer any question or withdraw from the study at any time.
We understand how important it is that this information is kept private and confidential. We will ask participants to respect each other's confidentiality.
If you have any questions now or after you have completed the questionnaire, you can always contact a study team member like me, or you can call us, the phone numbers are on this form.
Please \ sign to show you agree to participate in this focus group.

3. Explanation of the process

Have you participate in a focus group before?

4. Introduction of participants

Could you please introduce yourself and give us some background about your work setting?

5. Ground Rules

- We would like that everyone participate in all of the questions
- Information provided in the focus group must be kept confidential
- Stay with the group and please don't have side conversations

<u>Is there any question before we get started?</u>

6. Specific questions (45 minutes)

--------Turn on Tape Recorder

[The moderator read the following definition:]

<u>FOOD INSECURITY "Food insecurity is limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."</u>

1) **Given this definition, can you tell me what you understand about food insecurity? And if this definition relevant to your practice?**

Probe question*: how is this related to your practice?*
[This probe question would be ask base on what the group said]

Probe: *Impact, food access, availability*

[In each question the moderator must summarize what the group said and ask them whether they would like to ask something else]

<u>Moderator:</u> *<u>Does this summarize what was said?</u>*
<u>Is there anything else that you would like to add?</u>

2) **How do you think FI impact people's health?**

Probe: *Impact at individual level, community and health system*
Psychological consequences
Implication to dietetic practice

3) **What do you think is your role as a dietitian in the assessment of food insecurity?**

Probe question: *Do you think would be appropriate to ask clients in your setting about this issue?*

Probe: *Responsibilities, activities, etc.*

4) **In your practice setting, do you routinely ask your clients about their household food status?**

Probe: *Whether or not they have access to healthy food?*
If they have trouble in feeding their families?

If not why?

If yes, continue with question 5

5) **Can you please tell us how do you/would you approach this issue with your client?**

Probe question: *What FI indicators do you/would you pay attention to?*
(standards, tools) Access, availability, stability.

Probe question: *At what point of the nutritional assessment do you discuss this with your client?*

Probe question: *What tools would be useful in your setting to assess FI?*

6) **How confident would you feel in asking clients about food insecurity issues?**

Probe question*:What skills do you have that enable you to address the topic FI of food insecurity?*

7) **What kind of training would you need to address FI with a client?**

Probe*: Education, conferences,*

8) **What do you see as the greatest barriers in addressing household food insecurity with your clients?**

Probe question: *what barriers have you experienced?*
What barriers do you run into when trying to help a client experiencing food insecurity?
Training
Education, resources

9) **What kind of support and resources are available to you to handle food insecurity issues with your clients?**

***Probes**: Programs, tools, in your setting*

10) **What kind of resources/ support would you like to have access to help clients deal with food insecurity?**

***Probes**: In Academia, at work, from government, associations.*

We need more specific examples here to use as probes.

11) **Exit question**

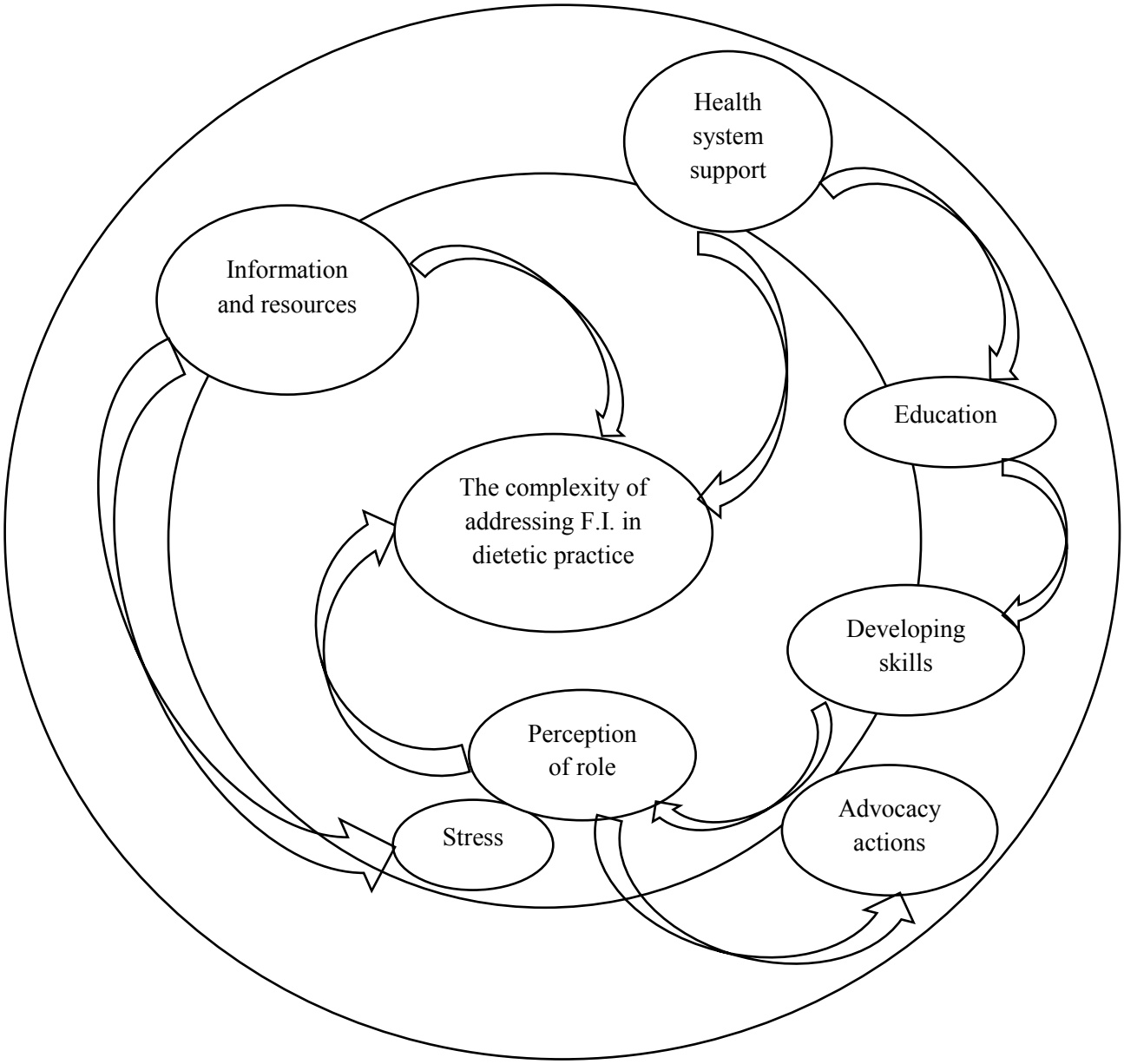
Is there anything else you would like to say about why you do or do assess household food insecurity among your clients?

7. Closing (2 minutes)

That concludes our focus group. Thank you so much for coming and sharing your thoughts and opinions with us. I thank you for your time.
We have a short evaluation form that we would like you to fill out if you time. If you have additional information that you did not get to say in the focus group, please feel free to write it on this evaluation form.

Appendix D

Model illustrating the relationships between the data used in developing the grounded theory



Initial categories and concepts in the development of the grounded theory