

A PLACE TO COOK: A SCOPING REVIEW

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Submitted By

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## ABSTRACT

There has been a growing concern with health equity in public health systems worldwide. It is well known that the primary drivers shaping health are not medical treatments or genetics, but the conditions in which we live. Conditions, such as food and housing insecurity are pervasive problems in North America, but their relationship is not well understood. While housing and food security remain to be problems in high-income countries, there is minimal research linking the two conditions. The objectives of this research are to identify literature involving housing and food as a means to addressing health inequities and to inform future research. As well, we identify barriers and opportunities on how to address multiple social determinants of health (SDH) from an intersectoral approach. We used Arksey and O'Malley (2005) scoping review design and Dahlgren and Whitehead's (2007) SDH as a conceptual framework. The most prominent drivers shaping health that are associated with housing and food insecurity are income and material needs, housing status, the built environment, social support networks, and the food environment, but they do not occur in isolation. Three research themes emerged from this review: (1) healthcare access and utilization consequences; (2) typifying the causes and solutions to housing and food insecurity; (2) gaps in research design. There are two emerging challenges to addressing multiple SDH challenges: (a) public health paradigms that frame causes and solutions to health inequalities, and (b) the effect on professional roles, structural-level decision making, and contribution to silo interventions. Opportunities to overcome challenges and advance the SDH agenda are guaranteed income, intersectionality and intersectoral collaboration, and approaching health inequalities with a social justice orientation. Silo interventions are ineffective in achieving health equity and addressing the SDH. Pathways to address food and housing insecurity require coordinated efforts and recognition of the structural determinants guided by political ideology. The task of addressing the SDH in a coordinated way is a daunting mission, given the recognizably challenging domination of the neoliberalism and individualism guiding policy and interventions. However, if reducing inequities is truly a health and population challenge worth striving for, political and structural change is essential.

*Keywords:* Food security, housing, social determinants of health, literature review, public health

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## **DEDICATION**

This thesis is dedicated to my family. Your support, encouragement, and sacrifice motivated me to pursue my academic goals, and strive for excellence in all that I do.

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## **ACRONYMS**

AIDS: Acquired Immune Deficiency Syndrome

CBPR: Community-Based Participatory Research

CIHR: Canadian Institute of Health Research

CMHC: Canadian Mortgage and Housing Corporation

CSDH: Commission on the Social Determinants of Health

DM: Diabetes Mellitus

HF: Housing First

HIV: Human Immunodeficiency Virus

KT: Knowledge Translation

PHSA: Provincial Health Services Authority

REB: Research Ethics Board

SDH: Social Determinants of Health

SES: Socioeconomic Status

SNAP: Supplemental Nutrition Assistance Program

TB: Tuberculosis

UN: United Nations

WHO: World Health Organization

## DEFINITIONS

*Food environment* – a set of conditions in which one person (or a group of persons) has access to, chooses, prepares, and eats food (Apparicio & Sequin, 2006, p. 187)

*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, p. 37)

*Health inequalities* – differences in health status or in the distribution of health determinants between different population groups (WHO, 2017)

*Health inequities* – differences in health that are avoidable, unfair, and unjust (Dalhgren & Whitehead, 2007)

*Healthy housing* – is socially just, environmentally friendly, energy-efficient, and gentrifies the neighbourhood, whereby additional supports are available, and transforms devalued neighbourhoods into well-developed areas with greater economic value without ghettoizing

*Housing security* – is a situation in which individuals have access to tenured housing of reasonable quality, stability, and cleanliness, which is affordable through a system that enables autonomy (Frederick, Chwalek, Hughes, Karabanow, & Kidd, 2014; Waterston, Grueger, & Samson, 2015)

*Intersectionality* – is an approach that considers multiple intersecting social positions of disadvantage

*Material needs* – the basic goods or resources necessary to maintain health and livelihoods (non-basic needs) (Heflin & Butler, 2013)

*Neoliberalism* – is an ideology emphasizes rational, scientific, and objective thinking and operates in a ridged, binary fashion which endorses the market as the mover of the economy and the key instrument through which social problems can now be solved

*Silos* – are a system, intervention, or sector that operates in isolation from others

*Social gradient* – refers to social partitioning in population health that create trajectories in human life course whereby, according to social position, the health and development of least

privileged population groups decline gradually, and those with the most privilege experience positive outcomes (Hertzman & Boyce, 2010)

*The Social Determinants of Health* – are the conditions in which people are born, grow, live, work and age, which are shaped by the distribution of money, power and resources at global, national and local levels (Mikkonen & Raphael, 2010)

## CHAPTER 1 INTRODUCTION

The primary drivers shaping health are the difference in social conditions between groups on the social gradient (Wilkinson & Marmot, 2003; Graham, 2004). The social origins of disease result from structural conditions and embody poor access to important resources affecting multiple disease outcomes through multiple mechanisms (Link & Phelan, 1995; Raphael, 2006). Social origins of disease maintain an association with disease even when intervening mechanisms change (Link & Phelan, 1995; Raphael, 2006). These conditions are the social determinants of health (SDH). The living conditions – income and income distribution, housing, social exclusion, social safety net, unemployment and job security, disability, early life development, employment and working conditions, food insecurity, health services, and colonialism – that we interact with or that are imposed upon us, determine the quality of our lives and communities (Mikkonen & Raphael, 2010; Czyzewski, 2011). The combination of poor social policies and programmes with unfair economic arrangements can result in poor health outcomes in communities.

Those who suffer from adverse social and environmental living conditions may also be subject to health inequities. Health inequities are differences in health that are avoidable, unfair, and unjust (Dalhgren & Whitehead, 2007). Some public health interventions attempt to mitigate the suffering from unfair and unjust conditions by intervening at the individual level of SDH. For example, income assistance programs, such as welfare, have a housing allowance program which aim to supplement inadequate income for shelter, but the allowance is not sufficient in the realities of the current market place. Food banks are staple in many communities, yet the living conditions of those who need support in obtaining food are not addressed. While dominate political discourses continue to focus on increasing funding to health care, the underlying social and environmental causes are missed. Further suffering is compounded by the compartmentalizing the problems into separate professions and interventions, rather than working in a more integrative fashion increasing collaboration both within the health care system and with other sectors. Those who are most affected by poverty, a widening income gap, and segregation will likely continue to suffer from silo interventions.

Housing is an important determinant of health. Both food and housing are basic life supportive measure. Traditional approaches to food security and housing research connect food security to physical health, as well as housing to physical health, but not housing to food security.

Although there are associations between poor health and housing instability (Krieger & Higgins, 2002; Vijayaraghavan, Jacobs, Seligman, & Fernandez, 2011), the relationship between housing and food security is not firmly established. Poor housing conditions affect a wide range of health conditions, including respiratory infections, asthma, chronic illnesses, injuries, and mental health (Krieger & Higgins, 2002). Housing instability often exacerbates food insecurity, whereby low-income families need to make food purchasing decisions based on the context of competing demands for scarce resources, such as income (Kirkpatrick & Tarasuk, 2011). While food expenditures are flexible for other needs, shelter costs (rent and mortgage payments) are inelastic (Kirkpatrick & Tarasuk, 2011). In other words, to maintain some level of residence at a fixed cost, families must juggle priorities and make sacrifices where they can easily redistribute funds, such as food expenditures.

The purpose of this scoping review is to understand the range and depth of evidence describing the relationship between food insecurity and housing, but also to differentiate structural origins leading to housing and food related inequities and describe specific opportunities for targeted strategies.

### **1.1 Thesis Overview**

The format of this thesis is paper-based with traditional chapters adding to the context. Chapter one is an introduction to the thesis and describes the problem. Chapter two reviews the relevant literature and the purpose and aim of the thesis. Chapter three presents methodology of the research. Chapter four presents the results of this thesis and introducing the two manuscripts (chapters five and six). At the beginning of each manuscript, I provide a foreword as an introduction to the paper. Each manuscript will be submitted for publication to different journals. In the last chapter, chapter seven, I synthesize findings from both manuscripts and discuss implications for public health practice, research, and policy. I discuss additional findings that do not fit into the manuscripts. I articulate how the findings from this scoping review contribute to the housing and food relationship knowledge base. Finally, limitations are discussed and I reflect the research process and how this study applies to nursing.

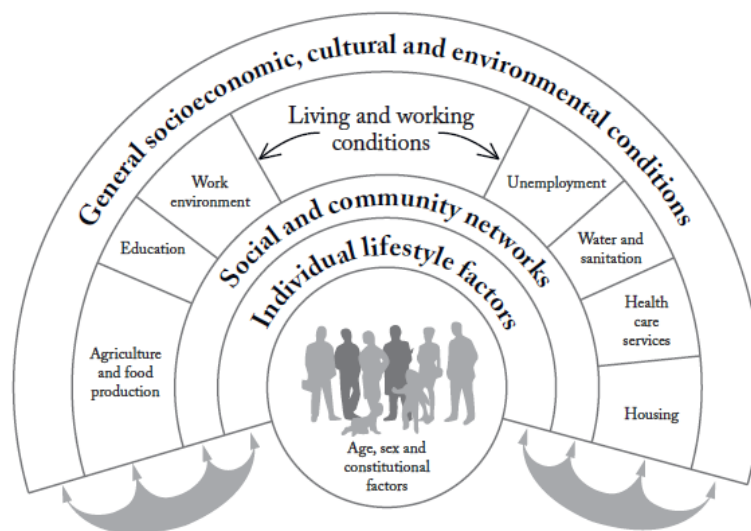
### **1.2 Conceptual Approach**

The scoping review is framed in reference to a conceptual framework on the SDH. Dahlgren and Whitehead's (1993, in Dahlgren and Whitehead, 2007) conceptual framework



proposes a general framework for diagramming the relationship between several different types of determinants and multiple behaviours. Their conceptual framework illustrates the influence of various factors on individual health and wellbeing, beginning with the most foundational (socio-economic, cultural and environmental conditions) and extending to the most malleable (individual lifestyle factors). Figure 1 provides a visual representation of the conceptual framework.

Firstly, the conceptual framework is used as a model to frame and sort the literature within this scoping review. Four categories guide how data is sorted based on how each topic is studied or addressed in the literature. The four broad categories are as follows; (1) housing, (2) food, (3) income, (4) and water and sanitation. For this review, income is inclusive of the work environment, education, and unemployment because income is often determined by the level of education obtained, thus the type of employment and therefore the work environment. While water and sanitation is available in the majority of Canada, the categorization of the literature in this category did not prove to be useful during the literature search. I recognize that water and sanitation are a challenge in the Canadian North and in low-income countries. Yet, to keep this review within a manageable scope, only high-income countries were included in the review.



**Figure 1 The main determinants of health (Dahlgren & Whitehead, 2007)**

Secondly, the conceptual framework provides a foundation for outlining how extracted literature discusses multiple SDH in unison, such as housing, food, and income. Visually, the conceptual framework demonstrates how differing sectors can intervene at multiple determinants

in a complex system. Essentially, complex systems, such as the SDH, are nonlinear and self-organizing, interconnected, and evolving (Castellani & Hafferty, 2009). Meaning that while Dahlgren and Whitehead have discrete categories for the living and working conditions that affect health, each category changes and responds to events in other categories.

Thirdly, I developed several diagrams to capture the complex relationship between food, housing, income, and other health determinants and ultimately, health equity. A list of figures is provided on page xi. The conceptual framework is a simplistic representation of the complex network that is the SDH.

### **1.3 Significance**

Results from this review may lead to improvements at the community level, facilitating treatment of housing insecurity and increasing knowledge about secure access to food. Strong collaboration between community partners (e.g. stake holders, health and building departments, and city council), may facilitate an effective response to upstream interventions in addressing the SDH. Use of the SDH conceptual framework will help clarify contextual factors, opportunities for intervention, and highlight the importance of structural determinants of health equities specifically related to housing and food.

The study's resulting data can provide a greater understanding of the connection between housing and food insecurity within existing literature to support public health interventions aimed at reducing health inequities. Using Dahlgren and Whitehead's (2007) conceptual framework as a foundation, the results provide a framework for action from a complex systems perspective, to identify leverage points for systems change (Meadows, 1999). Using the conceptual framework to broadly organize complex literature, in this thesis I identified arenas for multiple parallel SDH interventions, leverage points for intersectoral action, and gaps and opportunities for further research. From the vantage point of this scoping review, we can see a clearer association between housing and food in the context of the SDH. The housing and food association can begin to be understood in tracing the literature to structural determinants.

## **CHAPTER 2 LITERATURE REVIEW**

While housing and food are both critical for health and wellbeing, these determinants of health are often researched separately. Food security and housing research have evolved to

assessing broader health-influencing factors, such as income. Income adequacy is necessary to afford basic essentials, such as housing, food, and other resources. Food insecurity and housing instability disproportionately affect those living in poverty. Low-income families are more likely to be food insecure, and poverty is a significant predictor of food insecurity (Townsend et al., 2001; Bocquier, Vieux, Lioret, Dubuisson, Caillavet, & Darmon, 2015). Housing is a fixed cost and income directly determines the type and quality of housing one can afford and maintain (Krieger & Higgins, 2002). Although this is valuable knowledge, we know little about food security and housing combined. There is a growing recognition that the food system is creating health problems (Dowler & O'Connor, 2012). An inequitable system can exacerbate existing conditions faced by low-income or marginalized populations, which may be those living in unstable housing. In this section, I will provide a review of literature related to health equity, food security, housing, and income.

## **2.1 Status of Health Equity, Food Security, and Housing Status**

Health equity.

Although community programs help individuals, and families' immediate or emergency food insecurity, understanding the cause of inequities are central to the development of effective interventions. Public health practitioners can generate an effective response to health inequities through the understanding of the nature, magnitude, and structural origins of the causes of poverty and food insecurity in our communities, rather than developing ad hoc programming that construct solutions to individual behaviours (Tarasuk, 2001a). Many key health behaviours follow the social gradient. Smoking, poor nutrition, and lack of physical activity are more common in the labour class than professional class (Marmot & Bell, 2012). People's position in social stratification has important consequences for their lives. Position in the social hierarchy, combined with the lived environment, determines individuals' exposure and vulnerability to health-enhancing or health-damaging conditions (Sadana & Blas, 2013). Social class represents the ability of ownership or control of productive resources (i.e. physical/transportation, financial/fluid income, and organizational/child care), which extend to individual's ability to acquire income (Muntaner, Borrell, Kunst, Chung, Benach, and Ibrahim, 2006), therefore contributing to an individuals' social position. To elaborate, the inability to gain substantial control over resources will affect an individual's ability to acquire safe housing and nutritious food.

By focusing on the need for action across the gradient, which runs from top to bottom of the socioeconomic spectrum, we can recognize the disadvantage accumulating over a person's lifetime, and the need to address wider determinants of health. Interventions that target disease may only partially advance health. However, to further advance health, addressing mechanisms that link poor health to structural determinants, such as socioeconomic status, may achieve greater equity in health (Link & Phelan, 1995). For example, in England, life expectancy between the poorest and most affluent areas exceeds nine years for men and six years for women (Marmot & Bell, 2012). Those lower on the social gradient live in energy-inefficient housing and are less likely to have resources to cope with adverse impacts of cold homes and reduced income (Marmot & Bell, 2012). Winter deaths are three times higher in the coldest quarter of housing stock compared to the remaining three quarters of housing (Marmot & Bell, 2012). Those living in cold homes follow the social gradient of inadequate housing, poor nutrition, and therefore poor health outcomes. Their poor health outcomes are attributable to their social position, environment, wider health determinants, and to a lesser extent individual behaviours.

Health equity in public health systems is a growing concern worldwide (Commission on the Social Determinants of Health, 2008). Public health efforts are beginning to shift to focusing on health equity (Provincial Health Services Authority [PHSA], 2016). While the SDH and health inequities are related, they are not the same. A change in focus to health equity promotion simultaneously draws attention to the social drivers contributing to ill health, thereby targeting the SDH. Action on the SDH is considered an essential approach to improving health equity by the World Health Organization (WHO) CSDH (Mikkonen & Raphael, 2010; Marmot & Bell, 2012, CSDH, 2008). Despite the growing body of evidence displaying the intersectionality of SDH, little effort has been made to improve the SDH through public policy action (Mikkonen & Raphael, 2010). Expanding our understanding of wider determinants of health may help guide and influence public policy action and act as a catalyst for change.

Food security status.

Food insecurity is a growing concern worldwide and a pervasive problem in North America. Most recently in 2014, 4.4% of Canadian households experience moderate food insecurity and 2.1% experience severe food insecurity (Statistics Canada, 2014). Even in a high-income country like Canada, food insecurity exists and is far too common. Hamm and Bellows

(2003) describe community food security as “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” (p. 37). Hamm and Bellows (2003) food security definition emphasizes human and economic rights, community empowerment, self-reliance, and social justice.

Families residing in high-poverty urban neighbourhoods have reported food insecurity related to their sociodemographic characteristics and participation in community programs (Kirkpatrick & Tarasuk, 2011). Food insecurity rates were three times higher in households where government benefits (i.e. social assistance) were the primary source of income (Roshanafshar & Hawkins, 2015). Considering the proportion of Canadians who experience food insecurity, especially those most vulnerable, there is potential and significant long-term health, social, and economic consequences for Canadians. Food insecurity is a complex issue that includes food affordability, as well as issues of access and availability of healthy food, income, and position on the social gradient.

Housing status.

In 2017, Canada does not have a national housing strategy. As of 2011, 12.5% of Canadians experience core housing need (Canadian Mortgage and Housing Corporation [CMHC], n.d.). Core housing need is housing that does not meet one or more of the adequacy, suitability or affordability standards and is 30% of household income (CMHC, 2016). Quality, accessibility, and affordability of housing are a public health concern, however, of particular growing concern is the relation of housing to food security. Housing instability and food insecurity commonly coexist as people sporadically allocate or compromise on scarce resources, such as financial resources, for housing and food (Kirkpatrick & Tarasuk, 2011; Vijayaraghavan et al., 2011). Although researchers have made associations between housing instability and food insecurity in the literature, their relationship remains poorly understood.

Despite changes in intervening mechanisms and increases in the healthfulness of some people, there is a persistent association between social conditions and poor health (Link & Phelan, 1995). The persistent association, a defining feature of fundamental determinants, is that they involve access to resources used to avoid risks or to minimize the consequences of the disease once it occurs (Link & Phelan, 1995). For example, the development and exacerbation of

asthma, especially among vulnerable populations, such as those living in poverty and children, is implicated by the home environment (mould and poor air quality) (Colton, Laurent, MacNaughton, Kane, Bennett-Fripp, Spengler, & Adamkiewicz, 2015). Similarly, tuberculosis (TB) is associated with home overcrowding, which is especially concerning for immunocompromised individuals, such as those living with human immunodeficiency virus (HIV) (Krieger & Higgins, 2002). It is evident that poor housing and social conditions have bounding health effects.

Associations between housing and health are not limited to internal housing conditions, but also geographic location. Deprived areas may experience higher levels of crimes, making it more stressful to reside there and negatively impacting social cohesion (Gibson et al., 2011). Access to amenities may be more difficult than more affluent areas, whereas more health-promoting resources are more likely to be found in a higher-income neighborhood (Miller, Pollack, & Williams, 2011; Gibson et al., 2011). Health is impacted not only by the type of housing but by the community environment. For example, those living in food deserts (community-level disparities in minimal or nonexistence availability and access to affordable, healthy food) lack affordable and nutritious food resources, such as grocery stores (Moffat, 2008; Carter, Dubois & Tremblay, 2014; Miewald & Ostry, 2014).

#### *Defining levels of housing security.*

In the research literature, there is no standard definition of housing insecurity (Ma, Gee & Kushel, 2008). For purposes of this scoping review, housing insecurity is inclusive of a variety of definitions from the literature review. I define housing insecurity is present when community members do not have continual access to quality, affordable, and appropriate housing. This definition includes; (1) absolute homelessness, whereby those living in shelters, on the street, or sporadic accommodation with friends/family (Holton, Gogosis, & Hwang, 2010); (2) vulnerable housing, where persons have housing, but were homeless at one point in a year or moved at least twice; (3) social or low-income housing when household income is equal to or less than 80 percent of median family income (Breysse et al., 2016); and (4) precarious housing that is unaffordable, overcrowded and/or sub-standard (Shapcott, Blickstead, Gardner, & Roche, 2010).

I offer a summarized description of levels of housing security based on levels from Waterston, Grueger, and Samson (2016) and definitions from Holton, Gogosis, and Hwang

(2010). Table 1 presents summarized definitions describing levels of housing security and is conceptualized in Figure 2. I offer a definition of healthy housing that I address further in Chapter 5. For the remainder of this thesis, I define housing security as a situation in which individuals have access to tenured housing of reasonable quality, stability, and cleanliness, which is affordable through a system that enables autonomy (Frederick, Chwalek, Hughes, Karabanow, & Kidd, 2014; Waterston, Grueger, & Samson, 2015).

**Table 1 Levels of Housing Security**

Term	Definition
1. Healthy Housing	Is socially just, environmentally friendly, energy-efficient, and gentrifies the neighbourhood, whereby additional supports are available, and transforms devalued neighbourhoods into well-developed areas with greater economic value without ghettoizing.
2. Adequate Housing	Minimally acceptable standards of decent and good quality, stable, affordable, and appropriate that provides warmth, water, sanitation, and cleanliness.
3. Unacceptable: Inadequate, Unsuitable, Unaffordable Housing	Unacceptable housing is either: <ul style="list-style-type: none"> <li>– In need of repairs</li> <li>– Fails to meet the National Occupancy Standard requirements for number of bedrooms for the size and make-up of household i.e. overcrowding</li> <li>– 30% or more of household income spent on shelter costs</li> </ul>
4. Core Housing Need	Unacceptable housing <i>and</i> household would have to spend 30% or more of their gross household income to access acceptable housing in their community.
5. Absolute Homelessness	Those living in shelters, on the street, or sporadic accommodation with friends/family.

### *Adequate housing.*

Adequate housing is minimally acceptable standards of decent and of good quality, stable, affordable, and appropriate that provides warmth, water, sanitation, and cleanliness (Waterston, Grueger, & Samson, 2016). Much of the current housing in high-income countries can be considered adequate housing and is socially just if it meets their basic needs such as privacy, security, and protection from dangerous hot and cold temperatures.

### *Unacceptable housing.*

Unacceptable housing is either “in need of repairs, fails to meet the National Occupancy Standard requirements for number of bedrooms for the size and make-up of household (i.e. overcrowding), or is 30% or more of gross household income spent on shelter costs (Waterston, Grueger, & Samson, 2016, p. 2). Overcrowded housing is associated with direct health implications, such as communicable diseases and psychological distress (Waterston, Grueger, & Samson, 2016). Any housing need that meets one of these standards is unacceptable.

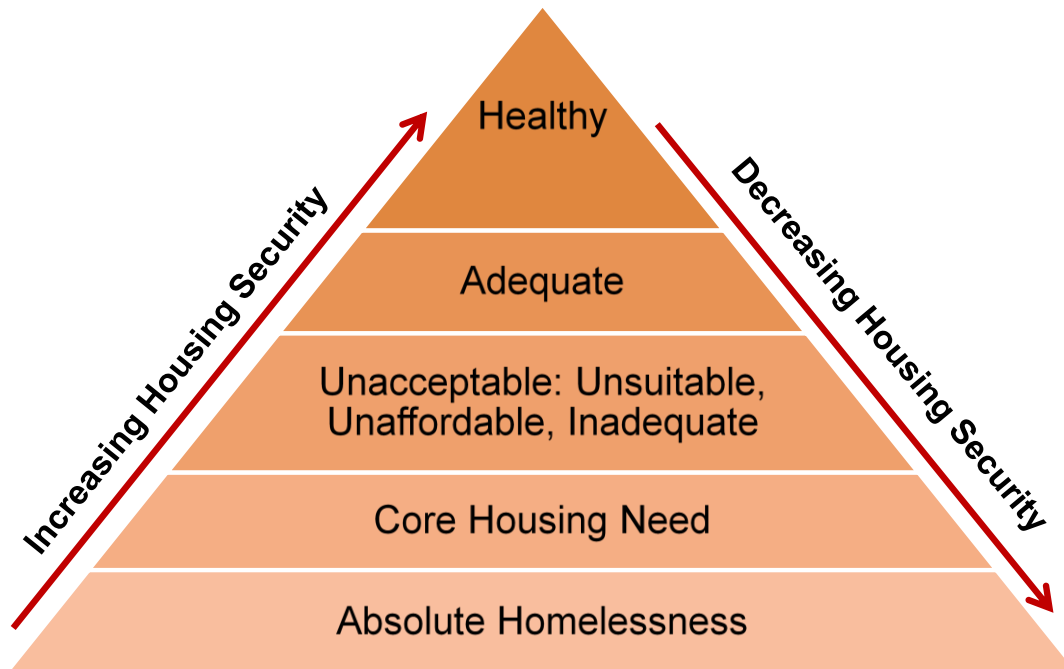
### *Core housing need.*

Core housing need is any housing need that meets any unacceptable housing criteria and in addition to the household spending 30% or more of their gross household income on housing costs (CMHC, 2016; Waterston, Grueger, & Samson, 2016).

### *Absolute homelessness.*

The growing social concern of absolute homelessness is anyone living in shelters, on the street, or in sporadic accommodation with friends/family (Waterston, Grueger, & Samson, 2016). Although shelter counts do not include people who are sleeping on the street or couch surfing, they are included in this population because of the complex social situations related to homelessness.





**Figure 2 Levels of housing security.**

Income.

Evidence for the negative effects of poverty on individual and population health continues to accumulate and gain much-needed focus. Poverty or socioeconomic status is thought to be among some the greatest determinants of ill health (Reutter, Veenstra, Stewart, Raphael, Makwarimba, & McMurray, 2010). Most recently in 2011, 8.8% of Canadians live in poverty (Statistics Canada, 2013). Absolute poverty is an inability to have one's basic human needs met, such as starving people in developing countries and homeless Canadians (Raphael, 2009). Relative poverty is an inability to obtain the economic and social resources necessary to engage in the kinds of behaviour expected of members of a particular society, such as attending educational events, maintaining a healthy diet, or securing adequate housing (Raphael, 2009). Both definitions of poverty relate poverty to social deprivation or position on the social gradient and maldistribution of resources.

## **2.2 Summary**

Poor housing and food insecurity are pervasive problems, yet are basic life supportive resources. Traditionally, research pathways connect food security to physical health, as well as housing to physical health, but not housing to food security or their structural determinants. The purpose of this scoping review is to describe the housing and food security relationship for future

research and intervention. Housing and food security are generally defined separately and often targeted in silo interventions and research. While as a society, we know the importance of food, housing, and income for good health, there remains a lack of theory and research on the structural forces that secure these social assets, and less still on how to direct system level change. The results of this study provide justification for action targeting complex systems by identifying leverage points for systems change and bringing attention to role of the prevailing determinants in health inequities (Meadows, 1999). Within the scope of this review, I review existing descriptions of the relationship between housing, food insecurity, and income to clarify the relationship and identify gaps in the literature. This review turns the emphasis away from individual risk factors and towards basic social conditions in order to transform health care towards an equity frame.

## CHAPTER 3 METHODOLOGY

### 3.1 Study Purpose and Aims

The purpose of this scoping review is to discover and describe the relationship between housing and food insecurity within existing research and grey literature, and to identify the interrelated nature of these two determinants of health. The objectives are:

1. To identify gaps in the literature on the relationship between housing and food, informing where we need more research.
2. To examine public health interventions considering housing, food, and income together.
3. To identify recommendations on how to address multiple SDH from an intersectoral approach.

The study's resulting data can provide a greater understanding of the connection between housing and food insecurity within existing literature to support public health interventions aimed at reducing health inequities. Using Dahlgren and Whitehead's (2007) conceptual framework as a foundation, the results provide a framework for action from a complex systems perspective, to identify leverage points for systems change (Meadows, 1999). From the vantage point of this scoping review, we will see a clearer association between housing and food in the context of the SDH. Understanding the housing and food security association lies in tracing the literature that appears to link the two. After reviewing the literature, I will note potential public health recommendations on how to address multiple SDH.

### 3.2 Methodological Approach

The methodological approach for this study is a scoping review. Although there is no universal definition of this emerging methodology, there is a consensus about common elements of scoping reviews. The Main Determinants of Health (Dahlgren & Whitehead, 2007) conceptual framework is used as a model to sort, frame, analyze, and map data in this scoping review (see Figure 1 in Chapter 1).

#### Key Characteristics

At a general level, scoping reviews aim to map literature on a particular topic and explore the underpinnings of a research area, as well as identify and clarify the key concepts, theories, sources of evidence and gaps in the research (Arksey & O'Malley, 2005; Davis, Drey, & Gould,

2009; Daudt, van Mossel, & Scott, 2013). Researchers use scoping reviews to address broad topics that can include many different study designs and methods, or explore an area that has not been reviewed comprehensively before (Arksey & O'Malley, 2005). Scoping reviews may be conducted as a stand-alone summary of research, or as part of an ongoing review (Arksey & O'Malley, 2005).

Scoping reviews differ from systematic reviews in that they do not focus on a narrowly-defined question, but address broader topics (Arksey & O'Malley, 2005). As well, scoping reviews are less likely to provide answers to specific questions from a relatively narrow range of quality assessed studies (Arksey & O'Malley, 2005). Scoping reviews are not as intensive as systematic reviews, but that is not to say that scoping reviews are cheap in time or effort. A scoping review is a rigorous process with a purpose that is different from systemic reviews.

Traditionally, scoping reviews do not include a quality appraisal of the evidence, but rather scoping reviews contain existing literature without weighing the evidence (Arksey & O'Malley, 2005). Some researchers are concerned about the traditional frameworks' inability to provide an assessment of the quality of literature. Some researchers recommend appraising literature so the results can be disseminated to others in a useful way for practice, policymakers, or further research (Levac, Colquhoun, & O'Brian, 2010; Daudt, van Mossel, & Scott, 2013). In this review, I am providing a collection of literature without assessing quality of each included document so to not exclude civic sector documents.

The purpose of a scoping review is to examine the extent, range, and nature of a research activity in a particular area under study (Arksey & O'Malley, 2005). Clarifying and linking the purpose of the scoping review to the research question can increase the efficiency and quality of future research synthesis (Levac, Colquhoun, & O'Brian, 2010; Daudt, van Mossel, & Scott, 2013; Shankardass, Solar, Murphy, Greaves, & O'Campo, 2012). This review will examine research in housing, food security, and intersectoral approaches to multiple SDH to achieve health equity.

### **3.3 Methods**

The multi-step descriptive, analytical method by Arksey and O'Malley (2005) determines the nature of each document included in the view. The intent of this review process is to develop a research question broadly and from a wide breadth of literature. Arksey and O'Malley (2005)

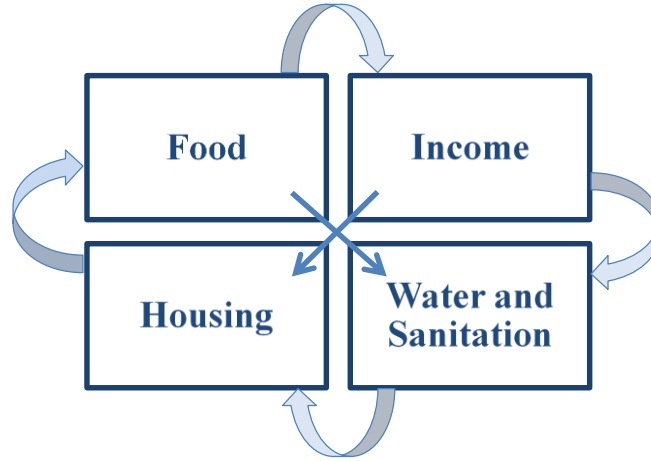
recommend a five-step process for conducting scoping reviews and the process is further complemented by recommendations from other researchers. I describe the steps below.

### Research Question

Step 1: Identify a broad research question. Originally, my intent was to review literature associated with substandard housing and food security. As I progressed into the literature, my research question evolved to examine the association between housing and food insecurity in the context of multiple determinants of health. In this way, health equity is a result of multiple determinants of health and social conditions. Identifying public health interventions considering housing and food together will create meaningful results that may influence future research. The preliminary research question driving my literature search is “What are the surrounding factors that affect equity and wellbeing in studies that focus on both housing instability and food insecurity?”

### Broad Identification of Literature

Step 2: Identify relevant studies covering a wide breadth of literature and a variety of sources via databases, reference lists, internet browsing, or consultation with key stakeholders. Flexibility and comprehensive searches are necessary to scoping studies that require researchers to engage in a reflexive way at each step (Arksey & O’Malley, 2005; Daudt, van Mossel, & Scott, 2013). The searches were not limited to scholarly articles, but included a variety sources such as government documents and reference lists, so to collect a broad range of literature. The review was conducted to assemble sufficient information to ensure an extensive examination of existing sources highlighting food security or insecurity and housing descriptors. I systematically searched scholarly and grey literature for information on a combination of food security, housing, and income using a purposely broad list of key word combination and phrases. Water and sanitation was originally considered as part of the conceptual framework, but the search proved it to be less of an issue in the Canadian context. The search is based on Figure 3.



**Figure 3 Conceptualization of search strategy**

Appendix A includes a broad list of key word combination and phrases, Mesh headings, and free text key words that were applicable to housing and food security in combinations using the Boolean operators ‘AND’ and ‘OR’. The search strategy is included in Appendix B. The following eight databases, available through the University of Saskatchewan library, were included as searches resources: Public Health Database, PsycINFO, FOODnetBASE, AGRICOLA, ProQuest Dissertations & Theses Global, PubMed, CINAHL, and Web of Science. Manual searches of reference lists, and governmental and non-governmental organizations are also included in the search.

#### Inclusion and Exclusion Criteria

Step 3: Identify inclusion and exclusion criteria evolve as the review progresses, but some have recommended that at the outset of the study, inclusion criteria is established to yield relevant data and clarify the research concept (Levac, Colquhoun, & O’Brian, 2010; Daudt, van Mossel, & Scott, 2013). Inclusion and exclusion criteria were established before the onset of the review but were adjusted as the review progressed. The documents included in the search must have met the following inclusion criteria:

1. The English terms identified above are included as keywords, or in title or abstract of the document.
2. Geographic location in high-income countries as defined by the United Nations (UN).
3. Selected documents are written in English.

The UN defines countries are high income by Gross National Income, education index, and life expectancy index (UN, 2015). As housing and food security are relatively understudied, there was no time limitation in the criteria. Articles were excluded from the search based on the following exclusion criteria:

1. The setting of the study was in a low-income country as defined by the UN.
2. Articles were not written in English.
3. Housing or food was not a measured variable or a major concept.
4. Subjects were identified as First Nations, Inuit, Metis, or living on reservation lands.

First Nation, Inuit or Metis individuals and communities live in unique contexts and that require special considerations in research. As well, individuals living on First Nation reserves or crown lands are not included in the Canadian Community Health Survey (CCHS). Although on-reserve First Nations people comprise relatively small proportions of the populations in each province, their high levels of vulnerability to food and housing insecurity must mean that the true prevalence of insecurity is to some extent underestimated because of their omission. A study with explicit focus on housing and food insecurity in on-reserve and First Nations communities would be an interesting study to undertake in the future to help address the unique concerns with this population.

#### Data Collating and Comparison

Step 4: All references meeting the inclusion criteria were entered into RefWorks (Online bibliographic management program). Key features of each document were extracted. Extracted data included: authorship, year of publication, geographical origin of article, type of study (e.g. qualitative), study design and tools, study question or objective, major findings, study subjects, discipline conducting the study, interventions (if any), variables measured,/major concepts outcomes, and food security definitions used.

Data was organized into a data-charting form to allow for comparison and to ensure a uniform approach. All collected data was sorted into emerging themes and key issues within the conceptual framework. Data was organized into a document in to allow for comparison and ensuring a uniform approach using a thematic coding system. Appendix F provides an example of headings used in my data extraction and collating system. The search strategy is in Appendix

B. The search strategy reports the total number of sorted, selected, excluded, and a final number of documents.

#### Data Summary

Step 5: Finally, all data was summarized into sub-themes, aiding in making sense of complex and diverse data to represent answers to the research questions and link findings to research goals (Levac, Colquhoun, & O'Brian, 2010; Daudt, van Mossel, & Scott, 2013). A second thematic analysis further categorized emerging themes under each SDH. Manuscript I demonstrates the results of the subthemes. Making sense of these complex overarching themes represents the answer to the research objective one of mapping research that links housing and food. Manuscript II summarizes objectives two and three that summarize public health interventions considering housing, food, and income together and recommendations on how to address multiple SDH from an intersectoral approach.

The product of scoping reviews is shaped by the purpose. In general, however, the narrative report provides an overview of all reviewed diverse material and extracted meaning and significance to a topic that is both developmental and intellectually creative (Davis, Drey, & Gould, 2009). The product includes a narrative or descriptive account of available literature that makes it possible to identify gaps, thematic organization of the literature, as well as summarizing what is known and not known and disseminating research findings (Arksey & O'Malley, 2005). A scoping literature review methodological approach is useful in broaching a loosely understood topic, such as the housing and food relationship, through a health equity and whole system lens.

The scoping review process examines a wide body evidence, and it is an important first step before undertaking a more intensive knowledge synthesis, particularly when the phenomenon under investigation is being compiled for the first time or existing literature is limited. The scoping process permits analysts to characterize the extent, range, and nature of research questions, making it useful for determining strategic questions that may be answerable based on available evidence (Shankardass et al., 2012). Products of high-quality scoping reviews increase the efficiency and quality of future evidence synthesis and can guide the direction of future research and intervention strategies (Shankardass et al., 2012).



## Consultation

Step 6: An optional consultation exercise for scoping reviews is including practitioners, scholars, and consumers in the review. Although this step is not required, it may increase usefulness of the product. For this review, consultation is in terms of knowledge translation (KT). KT is defined by the Canadian Institute of Health Research (CIHR) as a “dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the healthcare system” (p. 1) (Grimshaw, 2010).

The key purpose of KT is to address the gap between what is known from research and implementation by stakeholders to improve health outcomes (Grimshaw, 2010; Graham, Logan, Harrison, Straus, Tetroe, Caswell, & Robinson, 2006). A meeting was arranged with public health professionals working in health equity and health promotion departments of Saskatoon Health Region. In this meeting, I presented my findings in a form of PowerPoint presentation. Copies of the presentation is in Appendix E. At this meeting, I reported my key findings to the group and discussed the results with the group of knowledge users as a form of validation of my research. Feedback from the meeting is summarized in Appendix D. This meeting validated the results of this review, thus enhancing the rigor of this scoping review. The meeting was not recorded nor was any personal information recorded, so this portion of the thesis was ethics exempt. Appendix C contains a copy of the ethics exemption.

### **3.4 Rigor**

Authors have raised questions about the rigor of scoping reviews. To improve rigor in scoping reviews, Levac, Colquhoun, & O’Brian (2010) recommend that: (1) decisions surrounding study inclusion and exclusion are included in the beginning of the scoping process; (2) refining the search strategy based on abstracts retrieved from the search; and (3) reviewing full articles for study inclusion by at least two independently reviewing researchers at the beginning, midpoint, and final stages of the abstract review process. Due to the nature of supervisor and graduate student relationship, my supervisor and I regularly met during the review process. My supervisor consulted during the abstract review process to discuss any challenges or uncertainties related to selection. During our peer checking, my supervisor provided feedback on exclusion and inclusion of documents. In order to overcome intrinsic bias from a single-

researcher and single-method study, my supervisor reviewed 10% of the selected items to assert fittingness of included documents and validity of conclusions (Pilot & Beck, 2016).

### **3.5 Ethical Considerations**

The research conducted in this thesis review relies exclusively on information that is publicly available, or made accessible through legislation or regulation, and is exempt from ethical approval by University of Saskatchewan Research Ethics Board (REB). For the purposes of this thesis, *A Place to Eat: A Scoping Review* does not require ethics approval as the information is (a) legally accessible to the public and appropriately protected by law and (b) the information is publicly accessible and there is no reasonable expectation of privacy. The subject matter of the research is literature disseminated through the University of Saskatchewan Library databases and resources available in public domain through print or electronic publications or official publications. There is no expectation of privacy as resources are publicly available information given the uncontrolled access on the Internet. Stage 6 of the scoping review, we plan to meet with public health professionals. This meeting will not be recorded nor will any personal information recorded, so this portion of the thesis is ethics exempt. Appendix C contains a copy of the ethics exemption. Appendix D contains a summary of the feedback from the consultation phase.

## CHAPTER 4 RESULTS

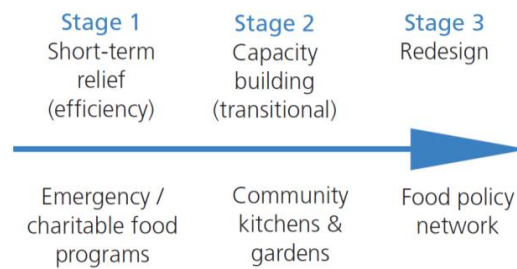
Articles ranged in publication from 1995 to 2016 describing various associations between housing, food, and other determinants across four countries. Literature describing such topics has largely appeared over the last two decades, but most recent housing and food literature appearing in the last decade.

A total of 250 potential articles were retrieved from the eight databases. Of these, I reviewed 121 articles based on their title and abstract (Appendix B for search strategy). Including bibliographic and grey literature searched, a total of 86 potential articles were reviewed. Of these, 46 met the inclusion criteria. Five were grey literature and 41 were peer reviewed. Included data was summarized by where studies were conducted, year, study design, results and implications/recommendations, inclusion of housing, food, and multiple determinants (Appendix F for Data Collection Table). The majority of the papers originated from English speaking countries. The highest contributors being Canada with 25 and United States with 19. In contrast, other countries had much fewer publications. France and South Korea collectively ranked third, each with one paper.

Overall, quantitative designs dominated the included documents, followed by non-participant, and qualitative designs. Cross-sectional (surveys, questionnaires, and secondary analysis) designs were used most often to describe housing and food associations followed by literature reviews (systematic, critical, and reflective), case studies, interviews (key informant, semi-structured, structured, and open), then longitudinal designs. Sources involving governments were rare. The majority of documents were from academic researchers.

The results are in the form of two manuscripts. Manuscript I addresses objective one: to identify gaps in the literature on the relationship between housing and food, informing where we need more research. Manuscript II addresses objective two and three of the thesis: to examine public health interventions considering housing, food, and income together and to identify recommendations on how to address multiple SDH from an intersectoral approach. Each manuscript is written in an orientation to the food security continuum by Beck (2011) in Figure 4. Beck's (2011) continuum was developed in an evaluation report on Vancouver Coastal Health (VCH) Community Food Action Initiative (CFAI). The CFAI was part of a health promotion initiative that supports community-led solutions to improve food security in VCH communities

(Beck, 2011). In Stage 1 of Beck’s (2011) food security continuum, emergency short-term food address food security at the individual and community level. The goal of short-term relief is to provide food for the hungry or housing for the homeless through charitable action (Moffat, 2008). Stage 2 represents community capacity building where community residents identify and enhance skills and assets so they may manage their own health needs (Beck, 2011). Stage 3 represents system redesign to create system level change (Beck, 2011). The goal in this stage is to develop long-term upstream strategies to support housing and food security (Moffatt, 2008). Manuscript I represents Stage 1. Manuscript represents Stage 2 and 3.



**Figure 4 Beck (2011) food security continuum**

I wrote and was the first author of both manuscripts. The coauthor played a critical supervisory role with regard to the writing of the manuscripts. Details regarding the contribution of co-authors are provided below. I also disseminated the research results through presentations and posters at several local, national and international conferences.

**Manuscript I:** A Scoping Review Towards Understanding the Food and Housing Relationship in Research

Submitted to: Housing Studies Journal

Coauthor: Wanda Martin, RN, PhD: Contributed to study design, data interpretation, provided comments on the manuscript and reviewed the final version.

**Manuscript II:** A Canadian Perspective on Addressing Structural Determinants of Health

Submitted to: The Milbank Quarterly

Coauthor: Wanda Martin, RN, PhD: Contributed to study design, data interpretation, provided comments on the manuscript and reviewed the final version.

## **CHAPTER 5 MANUSCRIPT I: A SCOPING REVIEW TOWARDS UNDERSTANDING THE FOOD AND HOUSING RELATIONSHIP IN RESEARCH**

### **5.1 Foreword**

This first manuscript is written for Housing Studies Journal. In this first manuscript, I report on the variety of evidence describing the relationship between housing and food insecurity, as well as identify and describe gaps within housing and food-focused research. In this manuscript, I explore individual and community level challenges to food and housing security.

In the results, the major determinants of food and housing literature are income, housing status, material needs, social supports, and the food environment. In the discussion, three themes emerged from this review: (1) healthcare access and utilization consequences; (2) typifying the causes and solutions to housing and food insecurity; and (3) translating housing and food security research to health equity.

Although literature included in this paper is developed primarily outside the discipline of nursing, exploration of the relationship may assist nurses to recognize and advocate for a holistic interpretation and treatment of the patients they interact with. As well, this work can support nurses in challenging health-damaging policies or advocate for health-promoting policies imposed upon the population. Knowing the prevalence and distribution housing and food insecurities assists nurses in understanding their patients' social determinants and provides rationale for nursing engagement in policy advocacy. The information generated by this paper regarding the housing and food relationship would be of importance in supporting further research with greater attention to the included health determinants and identified gaps.

### **5.2 Abstract**

Lack of housing and food insecurity are pervasive and connected problems but their relationship is not well understood. As determinants of health, housing and food are often targeted in silo interventions and research. In the present study, we identify literature gaps between housing and food security, informing where we need more research and contributions to filling the gaps. We used Arksey and O'Malley (2005) scoping review design. The most prominent conditions associated with housing and food insecurity are income and material needs, housing status, the built environment, social support networks, and the food environment. Three themes emerged: (1) healthcare access and utilization consequences; (2) typifying the causes and

solutions to housing and food insecurity; (3) translating housing and food security research to health equity. Poverty underlies many social problems and lack of resources do not occur in isolation. Pathways to address housing and food insecurity require coordinated efforts in research and practice to consider the simultaneous and dynamic nature of coinciding determinants of health.

*Keywords:* Food security, housing, social determinants of health, scoping review, literature review

### **5.3 Introduction**

There has been a growing concern with improving health equity in public health systems worldwide (Commission on the Social Determinants of Health [CSDH], 2008). The primary drivers shaping health equity are the difference in conditions between groups on the social gradient (Wilkinson & Marmot, 2003; Graham, 2004). The social gradient refers to social partitioning in population health that create trajectories in human life course whereby, according to social position, the health and development of the least privileged groups decline gradually, and those with the most privilege experience positive health outcomes (Hertzman & Boyce, 2010). Health inequities are systemic, socially produced and therefore modifiable, and unfair (Dahlgren & Whitehead, 2007). The social origins of disease are perpetuated through structural causes of poor health, because they embody access to important and basic resources, affect multiple disease processes through multiple pathways, and maintain an association with disease even when intervening mechanisms change (Link & Phelan, 1995; Raphael, 2006). These intertwined conditions are the social determinants of health (SDH), such as income, housing, and food security (Mikkonen & Raphael, 2010).

#### **5.3 .1 The Research Problem**

We define food security as present when “community members have a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice” (Hamm & Bellows, 2003, p. 37). We define housing security as a situation in which individuals have access to tenured housing of reasonable quality and cleanliness through a system that enables autonomy (Frederick, Chwalek, Hughes, Karabanow, & Kidd, 2014; Waterston, Grueger, & Samson, 2015). Many Canadians experience housing and food insecurity. In 2014, 4.4% of Canadian households experience moderate food

insecurity and 2.1% experience severe food insecurity (Statistics Canada, 2014). Core housing need is housing that does not meet one or more of the adequacy, suitability or affordability standards *and* is 30% or more of household income (Canadian Mortgage and Housing Corporation [CMHC], 2016). In 2011, 12.5% of Canadian households experienced core housing need (CMHC, n.d.). The reasons for poor housing and food insecurity are complex. There is increasing attention in research and theory to understand these reasons but the relationship between housing and food security is not firmly established (Miewald & Ostry, 2014). There is extensive research linking housing to health (Krieger & Higgins, 2002; Holton, Gogosis, & Hwang, 2010; Cutts et al., 2011) and food to health (Tarasuk, 2001a, b; Tarasuk & Kirkpatrick, 2007, 2009, 2011; Baer, Scherer, Fleegler, & Hassan, 2015), however, a gap exists linking housing to food.

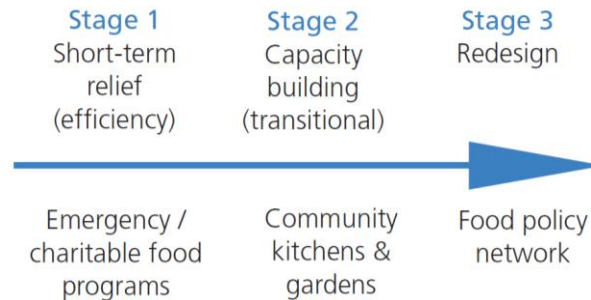
Housing and food insecurity are often targeted in silo interventions and research (Miewald & Ostry, 2014). Silo interventions, or processes that operate in isolation from others, can be ineffective in achieving health equity and addressing the SDH because of the interdependent nature of basic resources (Miewald & Ostry, 2014). In our scoping review, we intend to bridge the gap between housing and food security research and address the silos by examining the literature highlighting coinciding SDH related to housing and food security. Approaching housing and food insecurity as a barrier in achieving health equity, takes into account how those who are of less privilege on the social gradient experience unjust health outcomes.

### 5.3.2 Research Purpose

The purpose of this paper is to identify gaps in the literature on the relationship between housing and food, informing where we need more research. We completed a scoping review using the Arksey and O'Malley (2005) method. The scoping process enables us to search a wide scope of information about what is known from published studies, reviews, and grey literature (Arksey & O'Malley, 2005).

This paper makes two contributions to housing and food security literature. First is a summary of the housing and food relationship from a wide scope of sources. Unlike systematic reviews that focus primarily on scholarly literature, scoping reviews are inclusive of a wide breadth of evidence (Arksey & O'Malley, 2005), which, in this case, includes publications from

local health authorities who work directly with those experiencing housing and food insecurity. The results section of this paper presents individual and community level capacity building strategies and interventions related to housing and food security (Beck, 2011).



**Figure 5 Beck (2011) food security continuum**

Second, in the discussion section of this paper, we attempt to contribute to a greater understanding of the housing and food relationship by examining underlying assumptions in the differing definitions of housing and food security, discuss how security in this area translates to health equity, identifying gaps in the research and future recommendations for research and practice.

Using Dalhgren and Whitehead’s (1993) conceptual framework of the main determinants of health as a conceptual foundation, the results of this study provide a framework for action from a complex systems perspective by identifying leverage points for systems change (Meadows, 1999). We review the scoping review method and report on results of income, housing status, social supports, material needs, and the built and food environment, concluding with recommendations for future research. From the vantage point of this scoping review, we will see a clearer association between housing and food in the context of the SDH and what conditions from the literature have the most notable influence on achieving housing and food security and equity in health.

## **5.4 Methods**

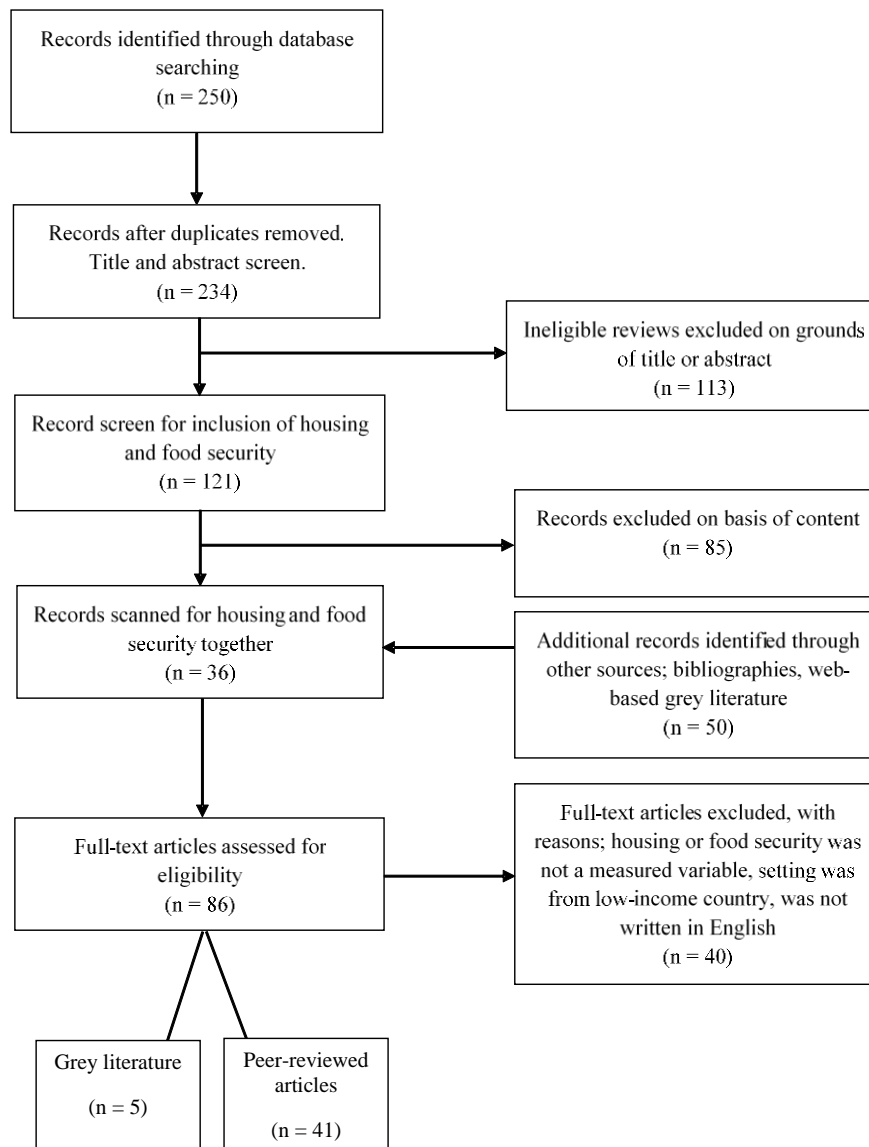
This research was guided by the method set out by Arksey and O’Malley (2005). The aim of scoping reviews is to map literature on fields of interest, as well as identify and clarify the key concepts, theories, and sources of evidence and gaps in the research (Arksey & O’Malley, 2005; Davis, Drey, & Gould, 2009; Daudt, van Mossel, & Scott, 2013). We chose the scoping review



method for this research topic due to its comprehensive search to explore the relatively understudied housing and food linking literature. This method is designed to map a relatively understudied topic and compile necessary literature (Arksey & O'Malley, 2005). The scoping review framework consists of the following six stages: (1) identifying the research question; (2) identify relevant studies; (3) study selection; (4) data charting; (5) collating, summarizing, and reporting results; and (6) consultation (Arksey & O'Malley, 2005). The first step in this method is to identify a research question. Our research question driving our search is “What are the surrounding factors that affect equity and wellbeing in studies that focus on both housing instability and food insecurity?”

#### 5.4.1 Search Strategy

In stage two, we started by targeting scholarly literature. Eight electronic databases, available through the University of Saskatchewan library, were searched in August and September 2016 in consultation with a University librarian. Public Health Database, PsycINFO, FOODnetBASE, AGRICOLA, ProQuest Dissertations & Theses Global, PubMed, CINAHL, and Web of Science were searched using a systematic search strategy (Figure 6). Table 2 provides a list of key terms searched and the Boolean search expression.



**Figure 6 Search strategy**

In selecting studies for stage three, the scholarly and grey literature was required to meet the following inclusion criteria; (1) English terms as keywords; (2) high-income countries as defined by the UN Human Development Index (HDI), which is based on Gross National Income, education index, and life expectancy index (2015); and (3) articles written in English. As housing and food security are relatively understudied, there was no time restriction in the criteria. Articles were excluded if the setting of the study was in a low-income country, not written in English, or if housing or food was not a measured variable. Articles were excluded from the search based on

the following criteria: (1) setting of the study was in a low-income country as defined by the UN; (2) articles were not written in English; (3) housing or food was not a measured variable or a major concept; and (4) subjects were identified as First Nations, Inuit, Metis, or living on reservation lands. A total of 250 references were downloaded from the eight databases. Titles and abstracts were scanned for relevance. After scanning 36 articles for inclusion of housing and food, we hand searched reference lists and identified 11 additional documents. We reviewed a total of 86 documents.

At stage four, we extracted a total of 46 articles to include in this review. Extracted data included: authorship, year of publication, geographical origin of article, type of study (e.g. qualitative), study design and tools, study question or objective, major findings, study subjects, discipline conducting the study, interventions (if any), variables measured/major concepts, outcomes, and food security definitions used.

**Table 2 Search Terms**

<b>Housing Search Terms</b>		<b>Food Security Search Terms</b>
Searched with “OR”		Searched with “OR”
Housing instability	“AND”	Food security
Housing stability		Food insecurity
Substandard housing		Food
Housing conditions		Food supply
Housing insecurity		
Housing security		
Housing		

## 5.5 Results

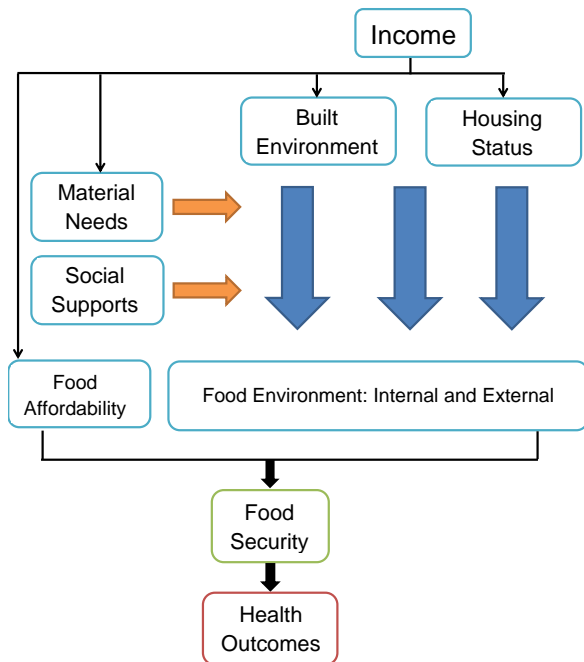
The following four steps of the scoping review framework generated a wide variety of publications that were published between 1995 and 2016. The majority of publications were written by researchers in Canada ( $n=25$ ). There were a considerable number of papers from the

United States ( $n= 19$ ). In contrast, other countries had much fewer publications. France and South Korea collectively ranked third with one paper each. Overall, quantitative designs dominated, followed by non-participant study reports, then qualitative designs, and one mix-methods design. We organized the information into overarching themes based on the conceptual framework, of housing, food, income, and water and sanitation. Except for water and sanitation, which are issues dominant in low-income nations and Canada's North, the themes of housing, food, and income were identified to include sub-themes of social support networks, health outcomes, and the built and food environment. Congruent with the methodology, the articles were not analyzed in depth (Arksey & O'Malley, 2005).

Cross-sectional research designs most often described housing and food associations. Sources involving governments, were rare. In addition, the majority of articles came from academic researchers. Articles varied in the food security and housing richness. Generally, the focus of the article shifted to either housing or food security, emphasising one and mentioning the other in passing. In particular, while details about how or why government sectors made specific decisions about their participation in housing and food action were commonly reported, such information was often minimal (e.g., one or two sentences) and made in passing (i.e., not a topic of focus).

We made five observations. Figure 8, formulated after Miewald and Ostry (2014) and Bryant (2003), is a visual representation of the intertwined nature of our findings. The conditions of 1) income and material needs, 2) housing status, 3) the built environment, 4) social support networks, and 5) the food environment influence the pathway to food security and resulting health and wellbeing. The structural origins of food insecurity and poor health begin with income. Inadequate income perpetuates poor outcomes by dictating access, use, and quality of material needs (e.g. utilities, transportation, medications). Income is reflected in housing status, the built environment, material needs, and affordability of food. Housing status reflects housing tenure, quality of shelter, and social housing. The built environment encompasses the neighbourhood, housing affordability, and social cohesion and safety. Material needs and social supports influence and mediate the balance and juggling of resources. Food affordability is directly determined by adequacy of income. The internal food environment includes home food storage and food preparation capacity, as well as communal kitchens and in-house food

programs. The external food environment includes community gardens, proximity to food resources and services. If all variables move concurrently, food security could be achieved and resulting health outcomes.



**Figure 7 The social determinants of health shaping housing and food security**

### 5.5.1 Income

Our first observation is the negative effects of poverty on individual and population health. Multiple studies have documented the vulnerability of housing and food insecurity to income and financial insecurity (Friendly, 2008; Tarasuk & Vogt, 2009; Kirkpatrick & Tarasuk, 2010; Kim, Kim, Shin, & Lee, 2011; Loopstra & Tarasuk, 2013; Baer, Scherer, Flegler, & Hassan, 2015; Waterston, Grueger, and Samson, 2016; Sriram & Tarasuk, 2016). The following results present inadequate income as one of the most significant barriers to food security and the provision of housing. We first discuss material need and hardship. Next, we review food affordability and coping with financial strain. Table 3 is a summary of income-related characteristics associated with an increased risk of food insecurity.

**Table 3 Income Related Characteristics**

<b>Income-related characteristic</b>	<b>Source author(s)</b>
Lack of home ownership	Bocquier et al., 2015; Kirkpatrick & Tarasuk, 2003; Loopstra & Tarasuk, 2013; McIntrye, Wu, Fleisch, & Herbert Emery, 2015; Sriram & Tarasuk, 2016; Tarasuk, Mitchell, Dachner, 2016; Kim, Kim, Shin, & Lee, 2011; Kirkpatrick & Tarasuk, 2003; Kirkpatrick & Tarasuk, 2007; Kirkpatrick & Tarasuk, 2009; Kirkpatrick & Tarasuk, 2010; Kirkpatrick & Tarasuk, 2011; Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015; Liu, Rashid, Greenlund, Chapman, & Croft, 2014; Loopstra & Tarasuk, 2013; Ma, Gee, & Kushel, 2008; McIntrye, Wu, Fleisch, Herbert, & Emery, 2015; Palar et al., 2015; Richards & Smith, 2006; Sriram & Tarasuk, 2016; Towers, 2009; Vijayaraghavan, Jacobs, Seligman, Fernandez, 2011
Low household generated income	Bocquier et al., 2015; Loopstra & Tarasuk, 2013; Tarasuk, Mitchell, Dachner, 2016; Heflin & Butler, 2012; Kim, Kim, Shin, & Lee, 2011; Kirkpatrick & Tarasuk, 2003; Kirkpatrick & Tarasuk, 2007; Kirkpatrick & Tarasuk, 2009; Kirkpatrick & Tarasuk, 2011; Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015; Liu, Rashid, Greenlund, Chapman, & Croft, 2014; Loopstra & Tarasuk, 2013; Ma, Gee, & Kushel, 2008; Mammen, Bauer, & Richards, 2009; McIntrye, Wu, Fleisch, Herbert, & Emery, 2015; Richards & Smith, 2006; Sriram & Tarasuk, 2016; Tarasuk, 2001; Towers, 2009
Lower education level (Grade 12 or lower)	McIntrye, Wu, Fleisch, Herbert, & Emery, 2015; Sriram & Tarasuk, 2016; Kirkpatrick & Tarasuk, 2009; Kirkpatrick &

	Tarasuk, 2010; McIntrye, Wu, Fleisch, Herbert, & Emery, 2015; Sriram & Tarasuk, 2016; Towers, 2009
Receiving welfare or social assistance	Sriram & Tarasuk, 2016; Tarasuk, Mitchell, Dachner, 2016; Heflin & Butler, 2012; Kirkpatrick & Tarasuk, 2009; Loopstra & Tarasuk, 2013; Mammen, Bauer, & Richards, 2009; Richards & Smith, 2006; Sriram & Tarasuk, 2016; Towers, 2009
Single mother or single person headed households	Bocquier et al., 2015; Gundersen, Weinreb, Wehler, & Hosmer, 2003; Heflin & Butler, 2012; Sriram & Tarasuk, 2016; Kim, Kim, Shin, & Lee, 2011; Kirkpatrick & Tarasuk, 2009; Loopstra & Tarasuk, 2013; Mammen, Bauer, & Richards, 2009; McIntrye, Wu, Fleisch, Herbert, & Emery, 2015; Tarasuk, 2001
Elders in the household	Kim, Kim, Shin, & Lee, 2011
Unstable job status, unemployment, or lack of full-time status	Hassan et al., 2013; Kim, Kim, Shin, & Lee, 2011; Kirkpatrick & Tarasuk, 2009; Liu, Rashid, Greenlund, Chapman, & Croft, 2014; Loopstra & Tarasuk, 2013; Sriram & Tarasuk, 2016

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These characteristics point to the underlying condition of financial vulnerability. This demonstrates how income is linked to housing and food by the potential employment income or lack thereof, fluid financial assets, and level of education determining employability. Interestingly, a South Korean study found that receiving public assistance or participating in food programs, even among low-income households, was not associated with food insecurity; however, living in a leased or rented home was significantly associated with increased food insecurity (Kim, Kim, Shin, & Lee, 2011). This finding suggests that food insecurity exists outside of participating in food and income programs. To elaborate, despite receiving food and income supplementation, families continue to experience food insecurity and suggesting that determinants outside of food and income may be influencing their ability to obtain healthy food.

In Canada, labour market restructuring resulted in increasing precarious employment and growing income inequality (Bryant, Raphael, Schrecker, & Labonte, 2011). Also, not surprisingly, income inequality, housing unaffordability, and food insecurity has become strikingly apparent (Bryant, Raphael, Schrecker, & Labonte, 2011). Despite Canada being an affluent country with a strong economy, housing inequities exist.

### *Material Needs.*

In an extension of inadequate income, material hardship or unmet material needs refer to a lack of or decrease in the basic goods or resources necessary to maintain health and livelihoods (non-basic needs) (Heflin & Butler, 2013). Examples of material needs include food, medications, housing, utilities, telecommunications, and transportation. Material hardships signal that resources are inadequate for a household (Barnard, Wexler, DeWalt, & Berkowitz, 2015). Traditionally, measures of household income indicate economic well-being, however, basic and non-basic needs are not identical across families and can exist with adequate income (Berkowitz et al., 2015). Therefore, income alone does not explain if a family can afford both basic needs and activities to increase well-being, such as recreation and transportation (Berkowitz et al., 2015). While formally defined poverty levels or low-income cut-off levels attempt to represent the minimum income to meet basic needs, material hardships can occur in households above the low-income cut-off or poverty level because well-being requires more than food and shelter (Barnard, Wexler, DeWalt, & Berkowitz, 2015).

Material hardships require families to make trade-offs between resources (Ma, Gee & Kushel, 2008; Bocquier et al., 2015). This balancing act between material hardships and finances directly predicts food and housing adequacy (Ma, Gee & Kushel, 2008; Mammen, Bauer, & Richards, 2009). Material hardships are also associated with long-lasting toxic physical and emotional stress, increased risk of diabetes and poor diabetic outcomes, and increased use of health care services (Mammen, Bauer, & Richards, 2009; Barnard, Wexler, DeWalt, & Berkowitz, 2015; Berkowitz et al., 2015; Heflin & Butler, 2013; Knowles, Rabinowich, Ettinger De Cuba, Cutts, & Chilton, 2016). Household income is just one measure of health and well-being. Material hardship is an additional measure of basic determinants of health and more accurately reflects the living conditions and the context of individuals lives.

An American study that estimated the effects of the Supplemental Nutrition Assistance Program (SNAP), on non-food material hardships found recipients redirect their resources to build capacity to meet other needs with financial spillover effects by redirecting money originally spent on food to other expenses (Shaefer & Gutierrez, 2013). Although these authors advocate for no changes or reductions to SNAP, the spillover effects represent the ability for families to



redirect financial benefits to address their material hardships, or in other words, increasing their financial power to address the maldistribution of resources and not directly to income.

*Food Affordability.*

The trend of rising food prices and unaffordable housing is of mounting concern for households in the developed world. Several studies comment on the affordable housing standards and questioned cut-offs for affordable housing (Kirkpatrick & Tarasuk, 2011; McIntyre et al., 2016). Other studies have commented on the rising cost of healthy food, which is concerning for those living in a world of competing financial demands (Monsivais & Drewnowski, 2007; Walsh, 2016). The cost of healthy, nutritious food is more expensive per calorie than energy dense food. Low-income households consume or purchase fewer fruits, vegetables, and milk products (Kirkpatrick & Tarasuk, 2003; Vijayaraghavan et al., 2011). Furthermore, food prices for healthy items have increased up to 20%, while energy dense foods have decreased 2% and become resistant to inflation (Monsivais & Drewnowski, 2007; Moffat, 2008). This finding may help explain why obesity rates are high in low-income groups (Monsivais & Drewnowski, 2007). The sharp price increase for vegetables and fruits suggest it is harder to adopt healthful diets for those with limited incomes, even though it is well known that healthful diets are associated with better health outcomes (Monsivais & Drewnowski, 2007; Walsh, 2016).

*Coping with Financial Strain.*

The juggle act between finances and meeting basic needs is common throughout the literature. To mediate the effects of financial strain, families and individuals are required to make purchasing decisions in the context of competing demands for scarce resources. Examples of household coping mechanisms are in Table 4.

**Table 4 Financial Strain Coping Mechanisms**

<b>Financial strain coping mechanisms</b>	<b>Source author(s)</b>
Food stamp or food bank utilization	Gundersen, Weinreb, Wehler, & Hosmer, 2003; Kim, Kim, Shin, & Lee, 2011; Kirkpatrick & Tarasuk, 2009; Kirkpatrick & Tarasuk, 2010; Mammen, Bauer, &

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	Richards, 2009; Richards & Smith, 2006; Tarasuk, 2001; Towers, 2009; Walsh, 2016
Forgoing or delaying health, medical or dental services	Bocquier et al., 2015; Kirkpatrick & Tarasuk, 2009; Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee, & Kushel, 2008; Palar et al., 2015; Richards & Smith, 2006; Tarasuk, 2001
Modifying shopping habits	Kirkpatrick & Tarasuk, 2003; Kirkpatrick & Tarasuk, 2007; Mammen, Bauer, & Richards, 2009; Richards & Smith, 2006
Obtaining food from non-traditional sources (scavenging in dumpsters)	Richards & Smith, 2006
Parental sacrificing food, so children can eat	Bocquier et al., 2015; Kirkpatrick & Tarasuk, 2009; Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015; Richards & Smith, 2006; Tarasuk, 2001
Pawning items for greater disposable income	Kirkpatrick & Tarasuk, 2009; Richards & Smith, 2006
Stretching food until the end of the month	Mammen, Bauer, & Richards, 2009; Richards & Smith, 2006
Substituting healthy food for inexpensive and energy dense foods	Bocquier et al., 2015; Kirkpatrick & Tarasuk, 2003; Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015; Richards & Smith, 2006
Terminating services (i.e. telecommunications, utilities)	Bailey et al., 2016; Heflin & Butler, 2012; Kirkpatrick & Tarasuk, 2009; Kirkpatrick & Tarasuk, 2011; Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015; Tarasuk, 2001

Trading-off between utilities,  
delaying bill payments, delaying  
rent payments

Bailey et al., 2016; Heflin & Butler, 2012; Kirkpatrick &  
Tarasuk, 2009; Kirkpatrick & Tarasuk, 2011; Knowles,  
Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015;  
Kushel, Gupta, Gee, & Haas, 2006; Tarasuk, 2001

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Table 4 highlights a variety of strategies that families and individuals utilize to cope and manage food and housing insecurity. Housing coping strategies are limited in capacity relative to food strategies, but may provide a leverage point against food insecurity. Households that were behind on rent or mortgage payments (i.e. insufficient income), more frequently experienced food, and made trade-offs among housing, utilities, food, or other expenses to pay medical bills (Bailey et al., 2016; Breysse et al., 2016). Social housing, through the provision of rent subsidies or the provision of housing, has the potential to improve the food insecurity situation of residents by freeing up more disposable income to purchase food and, more directly, provide shelter (Ostry, 2012). Some authors have found the lack of access to proper housing and cooking facilities in social housing contributes to the use of charitable food programs (Ostry, 2012). While social housing and housing subsidies meet families and individuals imminent and emergency food and shelter needs, they fail to address the underlying root problems related to income.

### 5.5.2 Housing Status

Although many studies were not primarily concerned with housing tenure, quality, and their relation to food security, this relationship is identified as an important characteristic influencing food insecurity risk. In some cases, homeownership is protective against food insecurity versus non-homeownership (renting or leasing). In a study by McIntrye, Wu, Fleisch, and Emery (2016), homeownership represented 30% of an overall difference in food insecurity risk between homeowners and non-homeowners. A possible interpretation of this result is that homeownership represents the presence of household wealth/assets (McIntrye et al., 2016). This wealth enables households to access credit/borrowing, which may provide a buffering effect against food insecurity when household members face financial constraints (McIntrye et al., 2016). Homeownership insulates household members against price inflation of rental housing in a good economic market housing (McIntrye et al., 2016).

Interestingly, home ownership may confer a psychological benefit. Besides an economic benefit, homeownership provides the owner with an increased sense of control related to “social status and area amenities, and feelings of security, safety, and control” (McIntyre et al., 2016, p. 361). Additionally, reassurance of sustained accommodation decreases chronic stress or worry related to poor housing or acquiring housing (Liu, Njai, Greenlund, Chapman, & Croft, 2014). Psychological benefits of integrating food into social housing are increased feelings of security, self-determination, autonomy, improved sense of self-worth and dignity, self-expression, and increased social inclusion (Stone, 1993; Bryant, 2003; Carley, 2013). For housing providers, improved tenant well-being also increases social capital, stable environments, improves rehabilitation, which contribute to improved capacity of the tenant to reciprocate to the housing community (Carley, 2013). The psychological benefit of home ownership may counter the chaos creating situations related to non-homeownership.

More disturbingly, non-homeownership appears to increase vulnerability to food insecurity. Tenants or those who do not own their home have less security against shelter displacement, less control over the forms and uses of their dwellings, and have been considered of lower status than those who own their residences (Stone, 1993, p. 18). For low-income households, living in a leased or rented home was significantly associated with higher risk of food insecurity (Kim, Kim, Shin, & Lee, 2011; Bocquier, Vieux, Lioret, Dubuisson, Caillavet, & Darmon, 2015; McIntyre et al., 2016). Those living in the rental accommodations typically do not have the financial capacity to leverage against sudden financial strains (McIntyre et al., 2016). Therefore, households lose the buffering effect of homeownership and are required to make immediate reorganization of resource distribution (McIntyre et al., 2016). Among low-income households, those with housing payments in the form of mortgages or rent spent significantly less on food in total (Kirkpatrick & Tarasuk, 2003). Further highlighting the impact of financial constraints is if most household income allocated to rent or mortgage payments it reduces households to purchasing less expensive and energy dense foods (Kirkpatrick & Tarasuk, 2003; Moffat, 2008). In turn, limiting their intake of fruits, vegetables, and milk products (Kirkpatrick & Tarasuk, 2003; Moffat, 2008).

Compromises in housing quality are associated with food insecurity. There is a positive association between living in a dwelling in need of major repair and food insecurity, suggesting

that families experiencing financial strain are forced to make many serious compromises in basic needs (Kirkpatrick & Tarasuk, 2011), such as those decisions that maintain poor quality of housing. In contrast, in the same study by Kirkpatrick and Tarasuk (2011), families living in crowded housing have less heightened odds of food insecurity, which may reflect a conscious effort in reducing housing costs by living in overcrowded conditions to free up money for non-shelter related costs.

### 5.5.3 The Built Environment

The built environment extends to the environment outside the home. The built environment encompasses housing affordability, the neighbourhood, and social cohesion and safety. Supportive neighbourhood environments may increase food accessibility related to public transportation and housing standards.

#### *Housing affordability.*

After paying for shelter, food and housing insecure households have limited choices towards other expenditures. Food purchasing decisions are made in the context of competing demands for scarce resources (Kirkpatrick & Tarasuk, 2003). Tenure of homeownership, the distinction between renting and owning one's dwelling, is a characteristic of housing that many people seek to obtain (Stone, 1993). Beyond subsidized housing, the financial requirements of homeownership are substantial, involving the accumulation of considerable savings for a down payment, meeting mortgage criteria, and weaving affordability together with certain material needs outside of shelter, such as utilities, medications, and transportation (Stone, 1993). In North America, housing is affordable if shelter costs (rent or mortgage) are less than 30% total household income (Kirkpatrick & Tarasuk, 2011; McIntyre et al., 2016). The 30% norm, regardless of income level, may not be adequate for families in poverty, as it does not consider the sufficiency of the amount of income remaining after paid shelter costs for other necessities (Kirkpatrick & Tarasuk, 2003, 2011; Mammen, Bauer, & Richards, 2009).

#### *The neighbourhood.*

The neighbourhood one occupies confers advantages and disadvantages associated with features and resources. The type of neighbourhood one lives in is often determined by the type of housing one can afford. Some articles discuss food security within the neighbourhood context and food deserts and food swamps. Food deserts are community-level disparities in minimal or

nonexistence availability and access to affordable, healthy food (Carter, Dubois & Tremblay, 2014; Moffat, 2008). Whereas, food swamps are community-level disparities consisting of minimal availability and access to affordable healthy food, and readily available more affordable energy dense foods (Moffat, 2008).

Yet, there is conflicting evidence among geographic accessibility in mitigating household food security status. Kirkpatrick and Tarasuk (2010) suggest distances to travel to retail food do not predict household food security status because they observed high rates of food insecurity in communities with proximity to discount supermarkets. While others attribute proximity and transportation to supermarkets to healthier eating, increased availability of more affordable food, and healthy options (Moffat, 2008; Carter, Dubois & Tremblay, 2014; Miewald & Ostry, 2014; Breyse et al., 2016). The notion of food insecurity as a function of the neighbourhood requires further analysis.

#### *Social cohesion and safety.*

The level of social cohesion in a neighbourhood is linked to a sense of safety. Neighbourhood perceptions of social cohesion and feelings of safety and trust in one's community has been found to have positive implications for health (Ostry, 2012; Ruijsbroek, Droomers, Groenewegen, Hardyns, & Stronks, 2014; Ruiu, 2015). In neighbourhoods where residents feel a sense of cohesion and safety, they make use of local resources to maintain health (Ruijsbroek et al., 2014). In contrast, being fearful to leave one's dwelling decreases the feelings of social cohesion and protective factors associated with available support networks (Tarasuk, 2001a; Heflin & Butler, 2013).

#### 5.5.4 Social Support Networks

Social support affects health, health behaviours, and health care utilization (Carpiano, 2007) through practical, emotional, and informational support (House, 1981). Those with limited incomes often rely on friends and family for additional supports related to finances, feeding children, and meeting material needs. Housing and food insecurity predispose families to poor health care access and poor diabetes self-management (Ma, Gee & Kushel, 2008). Ma, Gee, and Kushel (2008) suggest social disorganization related to frequent moves, increased effort in finding housing and food, and attempts to keep employment make it difficult to attend routine medical visits. In a diabetes self-management study, Vijayaraghavan and colleagues (2011) found

those unstably housed required additional supports for self-management. For those living with HIV, food insecurity can undermine social relationships because of feelings of anxiety, deprivation, and alienation, as well as lead to low self-efficacy, including the ability to adhere to medications (Palar, Kushel, Frongillo, Riley, Grede, Bangsberg, & Weiser, 2015). All the above factors are worrisome considering the potential vulnerability of those living with chronic conditions and low resources.

Support from families and friends and informal and formal groups can provide practical aid during times of crisis and emotional support in times of distress and change, but those facing housing and food insecurity risk exhausting this resource (Heflin & Butler, 2013). Heflin and Butler (2013) explain how low-income households exhaust their savings and social networks over time, therefore making it harder to meet their basic needs. Similar to their findings, Tarasuk (2001b) found that women who perceived themselves to be socially isolated had higher odds of reporting moderate or severe hunger. This finding suggests these socially isolated women may endure more severe household food insecurity because they lacked supportive social networks (Tarasuk, 2001b). Low-income households often cope with competing demands by making trade-offs between bills and services. The compounding effects of incurring debt, eviction risk, and exhausting social support networks increases their vulnerability risk (Kirkpatrick & Tarasuk, 2009). Indirectly, greater social support may help households achieve food security by breaking down social isolation (Tarasuk, 2001a).

#### 5.5.5 Food Environment

##### *The external food environment.*

The neighbourhood that one occupies confers advantages and disadvantages of location, such as features of the local environment, transportation, and retail food access. On the rural-urban continuum, food and housing insecurity is largely an urban issue as presented in the literature. The studies report food insecurity within in the context of urban centers, predominantly in greater metropolitan areas. Studies that commented on rural food security mark rurality as a protective factor against food insecurity, but the protective mechanism is unclear (Carter, Dubois & Tremblay, 2014). Rural food security requires further analysis.

External to the home, community gardens confer benefits of increasing access to healthy foods, positive diet effects, and a therapeutic effect on mental health (Carley, 2008). Community

gardens appear to improve food security through increased social capital and network formation (Ostry, 2012). While community partnerships and networks have demonstrated positive effects on health, the success of these programs is often dependent on resources, time, and commitment that may not be acceptable to all community members (Moffatt, 2008).

#### *The internal food environment.*

The food environment, as defined by Apparicio and Sequin (2006), is “a set of conditions in which one person (or a group of persons) has access to, chooses, prepares, and eats food” (p. 187). The food environment is important to those living in social or public housing. Social housing projects can be equipped with in-suite kitchens or communal kitchens (Miewald & Ostry, 2014). Being housed in a positive food environment improves food security through access to amenities, increased sense of self-governance, and increased accessibility to healthy foods (Moffat, 2008; Miewald & Ostry, 2014). People living in single rooms or basic accommodations have limited space for food preparation and storage. Lack of a positive food environment decreases ability to buy bulk, therefore decreasing the ability to save money (Moffat, 2008). Especially for those in social housing, having access to in-house food storage, preparation, and cooking facilities allows for greater food autonomy in their choice and preparation of food, increases food access, and meeting of nutritional requirements (Richards & Smith, 2006; Ostry, 2012; Miewald & Ostry, 2014; Walsh, 2016). Positive food environments strategically situated in social housing offer strategies to promote health and wellbeing.

#### 5.5.6 Housing and Food Insecurity Health Consequences

The lack of housing and the barriers of access, such as financial and geographical location, to healthy and nutritious food have obvious health consequences. The pathways linking food insecurity to health are through management and control of chronic health condition management, and healthcare access and use, mental health status, and life altering effects on the very young. Food and housing insecurity are associated with a number of adverse health outcomes that are presented in Table 5.



**Table 5 Associated Adverse Health Outcomes**

<b>Associated adverse health outcome</b>	<b>Source author(s)</b>
Decreased access to healthcare	Baer, Scherer, Fleegler, & Hassan, 2015; Hassan et al., 2013; Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee, & Kushel, 2008; Sriram & Tarasuk, 2016
Greater incidence of multiple chronic health conditions	Tarasuk, 2001; Towers, 2009
Increased use of acute care hospitalization and emergency room visits	Berkowitz et al., 2015; Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee, & Kushel, 2008; Towers, 2009
Insufficient sleep	Liu, Rashid, Greenlund, Chapman, & Croft, 2014
Medication underuse (cost-related)	Berkowitz et al., 2015; Ma, Gee, & Kushel, 2008
Poor childhood development and health	Cutts et al., 2011; Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015; Ma, Gee, & Kushel, 2008
Poor diabetes mellitus (DM) outcomes or management	Barnard, Wexler, DeWalt, & Berkowitz, 2015; Berkowitz et al., 2015; Vijayaraghavan, Jacobs, Seligman, Fernandez, 2011
Poor human immunodeficiency virus (HIV) management	Choi et al., 2015; Palar et al., 2015
Poor or decreased mental health status	Choi et al., 2015; Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015; Liu, Rashid, Greenlund, Chapman, & Croft, 2014; Palar et al., 2015; Walsh, 2016
Substance use	Baer, Scherer, Fleegler, & Hassan, 2015; Hassan et al., 2013

In the context of DM, food insecurity was strongly and independently associated with poor glycemic control and outpatient visits, increased use of health care resources, medication underuse, and lower self-efficacy score (Berkowitz et al., 2015; Vijayaraghavan et al., 2011). Many of these effects have an additive relationship among material needs insecurity in the care of DM. In a study of adults with DM who lived in unstable housing, they were less able to perform DM self-management behaviours, such as preparing and eating nutritious food at regular intervals and eating fruits and vegetables, because of their inability to afford nutritious food (Vijayaraghavan et al., 2011).

For those living with HIV/AIDS, a nutritious diet and stable housing are particularly vital for their protective capacity against opportunistic infections and adequate nutrient intake. Food insecurity is negatively associated with physical and mental outcomes (Choi et al., 2015; Palar et al., 2015). Food insecurity heightens distress related to the inability to maintain physical health and adherence to antiretroviral (ART) medication (Palar et al., 2015). Food insecure persons with HIV living in poverty are often in a financially constrained environment and may not be able to allocate money towards a nutritious diet (Choi et al., 2015; Palar et al., 2015). This position leads to inadequate dietary intake and micronutrient levels, which may in turn inhibit normal brain function and contribute to depression (Choi et al., 2015; Palar et al., 2015). While adequate nutrition is vital in HIV/AIDS treatment, the role of adequate housing is underscored in this research.

## **5.6 Discussion**

This scoping review mapped the published literature on housing and food security from high-income countries affecting wellbeing and health equity (Figure 8). The objective of this paper was to explore the literature describing the relationship between housing and food insecurity, but also to identify gaps within housing and food focused research, and identify moments of synergy to break down silos. To the best of our knowledge, this scoping review represents an initial comprehensive overview of housing and food security related literature. We begin the discussion by reviewing issues related to healthcare access and utilization; followed by the primary tensions in literature, specifically between defining the causes and solutions to housing and food security, and defining housing security. We also provide an overview of how

housing and food insecurity creates barriers to wellbeing and equity in health. The concluding discussion examines the gap in research and future moments of synergistic intervention.

#### 5.6.1 Healthcare Access and Utilization Consequences

Food and housing insecurity may be considered predisposing factors for poor access and increased health care utilization, or they are residual effects of unmeasured components of socioeconomic status, which leads to the theme of families prioritizing housing needs over their pursuit of health care and other needs (Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee & Kushel, 2008). A number of articles we reviewed suggest that families with children with the most severe levels of insecurity have higher odds of poor healthcare access and increased utilization (Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee & Kushel, 2008; Baer, Scherer, Fleegler, & Hassan, 2015). In a study that used a two-item security screen showed that those patients who screened positive for food insecurity on an SDH primary healthcare screening tool found that their patients also screened positive for a variety of other problems, including housing and income (Baer, Scherer, Fleegler, & Hassan, 2015). In another primary healthcare screening of youth, housing and food security counted for second and third ranking major problems following health care access (Hassan et al., 2013). These studies indicate people simultaneously experience overlapping of multiple health-related social problems, which can be a barrier to healthcare access.

#### *Long-term Effects.*

The potential life-course altering effects of housing and food insecurity during early childhood are important. Children living in food insecure and unstable households experience dual threats (Cutts et al., 2011). Poor housing and food insecurity can have serious adverse effects on health, growth, and development in young children (Cutts et al., 2011; Bailey et al., 2016). Food and housing insecurity has been independently associated with children's risk for hospitalization, poor health, developmental delays, anemia, decreased potential in academic success, and educational attainment (Cutts et al., 2011; Bailey et al., 2016). Seniors are also at risk. Evidence shows that malnourishment of seniors is associated with increased healthcare spending (Towers, 2009). There is an urgent need for housing programs that increase the availability of affordable housing for families with young children to mitigate the potential life altering outcomes for individuals, society, and human capital. Table 5 provides a summarized list of adverse health outcome associated with housing and food insecurity.

## 5.6.2 Typifying Causes and Solutions of Food and Housing Security

### *Defining Food Security.*

Through this scoping review, we also identified multiple definitions of housing and food security. The terms and definitions used to describe food insecurity are without consensus from respective research, civic organizations, and policy makers. Despite the considerable amount of research devoted to food security, the definitions within the results of this review vary. Table 6 summarizes which authors use each definition. Two dominate discourses of food security and insecurity definitions exist. The first definition is framed within limited income and the second is a definition framed within social justice. For example, Kirkpatrick and Tarasuk (2010) describe food insecurity as “inadequate or insecure access to food in the context of financial constraints” (p. 1139). While Ostry (2012) uses the Food and Agricultural Organization (1996) definition of food security as the “situation that 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” (p. 5).

The first definition narrowly focuses on the inability to obtain adequate food due to financial constraints, but perhaps it is purposefully narrow. The typifying of a problem sets the stage for the response to that problem by emphasizing some aspects and not others (Poppendieck, 1995). For example, if food insecurity is defined by the lack of food, the solution will be providing more food. This type of response embodies the response of improving and increasing the availability of food to address food insecurity commonly seen in food bank discourse. The emphasis of food promotes a food specific orientation in addressing food insecurity. Using income as the defining feature is also true. The definition used in each study may relate to the goals and recommendations within the discussion of the paper by emphasizing some aspects and ignoring others to shape the context of their claim and their generated recommendations (Poppendieck, 1995). To elaborate, basic income is cited as a solution to address food insecurity. In the instance of Kirkpatrick and Tarasuk (2010), their final recommendations are to address the income disparities underlying food insecurity.

**Table 6 Summary of Authors and Definitions**

<b>Definition</b>	<b>Author(s)</b>
Social justice based definition	Bocquier, Vieux, Lioret, Dubuisson, Caillavet, & Darmon, 2015; Carley, 2013; Carter, Dubois, & Tremblay, 2013; Friendly, 2008; Kim, Kim, Shin, & Lee, 2011; Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee, & Kushel, 2008; Mammen, Bauer, & Richards, 2009; Moffat, 2008; Ostry, 2012; Palar et al., 2015; Rideout, Riches, Ostry, Buckingham, & MacRae, 2007; Tarasuk, 2001; Towers, 2009; Walsh, 2016; Baer, Scherer, Fleegler, & Hassan, 2015; Barnard, Wexler, DeWalt, & Berkowitz, 2015; Berkowitz et al., 2015; Choi et al., 2015; Cutts et al., 2011;
Financial insecurity based definition	Kirkpatrick & Tarasuk, 2007; Kirkpatrick & Tarasuk, 2010; Kirkpatrick & Tarasuk, 2011; Liu, Rashid, Greenlund, Chapman, & Croft, 2014; Sriram & Tarasuk, 2016; Tarasuk, Mitchell, Dachner, 2016; Vijayaraghavan, Jacobs, Seligman, Fernandez, 2011

Although income is a major determinant underlying food insecurity, income alone may not be the solution. Walking the path of dependency, selecting only one solution, such as of basic income, ignores alternative solutions to the existing problem. Basic income may not be sufficient. Poverty rates or income indicators may eclipse other associated or independent barriers related to food insecurity (Walsh, 2016), such as material hardship, housing and food affordability, social support networks, housing characteristics, and the built and food environment. In a study that used a SDH screening tool found that as food insecurity increased, a variety of other social problems, including housing and income also increased (Baer, Scherer, Fleegler, & Hassan, 2015). Their study indicates that their patients simultaneously experience an overlap of multiple health-related social problems. Using epidemiological study designs, it is difficult to infer if income insecurity is a precursor or co-occurring determinant of food and housing insecurity.

Those using the FAO definition are using a more socially just framed definition. The FAO definition recognizes that the problem encompasses more than inadequate income, framing food insecurity as human rights and basic life supportive issues.

### 5.6.3 Defining Housing Security

The literature holds multiple definitions of housing security. There is a vast body of housing devoted research. Within the results, levels of housing insecurity have been investigated but there is no standard definition. For example, precarious housing has been defined by experiencing two or more moves, housing costs (rent/mortgage) in excess of 30% of gross household income, or experiencing a forced move in the preceding 12 months (Beer et al., 2016). Similarly, housing instability has also been defined by difficulty paying rent, being evicted, and living in overcrowded conditions (Ma & Gee, 2008). Clearly, there is little consistency in defining housing insecurity. We created our definition of housing security as a situation in which individuals have access to tenured housing of reasonable quality through a system that enables autonomy (Frederick, Chwalek, Hughes, Karabanow, & Kidd, 2014; Waterston, Grueger, & Samson, 2015). Our definition acknowledges social justice and freedom of choice in the context of an environment where households have financial security.

#### *Healthy Housing.*

We define optimal housing security as healthy housing. Whereby, healthy housing is socially just, environmentally friendly, energy-efficient, and gentrifies the neighbourhood, provides additional supports such as food programming, communal kitchens or gardens, and transforms devalued neighbourhoods into well-developed areas with greater economic value without ghettoizing (Maschaykh, 2015; Waterston, Grueger, & Samson, 2016).

Healthy housing benefits the occupants, community, and environment while promoting social cohesion. For example, cohousing could be considered healthy housing as common areas promote social cohesion, social interaction, sense of community, and emphasize social capital, and are often built around green space (Ruiu, 2015). Additionally, mixed-income housing models reduce socioeconomic imbalances, build sustainable dwelling options, and settle heterogeneous residents into a diverse and inclusive community (Maschaykh, 2015). Another example of healthy housing, is supportive social housing that provides tenants with on-site or closely linked medical, mental health, and substance abuse and misuse services while allowing them to live

dependently and promotes social cohesion (Mammen, Bauer, & Richards, 2009; Miewald & Ostry, 2014; Carley, 2013). The process of creating healthy housing encompasses working towards “healthy communities” that enhance the social, economic and environmental realms (Friendly, 2008). Healthy housing and environments entail conceptualizing health and well-being outside of the realm of health and bring together the broader environmental and social concepts.

#### 5.6.4 Translating Housing and Food Security Research to Health Equity

Strengthening health equity means moving beyond concentration on the immediate causes of disease and illness. The fundamental structures of social hierarchy and the socially determined conditions create the conditions in which people grow, live, work, and age, ultimately impact the health of the individual and population (Dahlgren & Whitehead, 2007). Unequal access to the available nutritionally beneficial food and adequate healthy housing leads to inequities and growing health disparities between the affluent and the poor. Compounding inequities, like poor housing and food insecurity, weakens the individual’s ability to provide for themselves and contribute to their wellbeing. Furthermore, the weakening of individual wellbeing can further translate to the greater stratification of societal health.

Understanding the determinants of food insecurity and poor housing is a precondition for developing preventive policy responses and SDH targeted research. Finding commonalities between poor housing and food insecurity in research is required. Greater engagement with targeting multiple determinants in research may dispel many of contrived isolated variables and gaps in research by providing enriched data that reflects the origins of health (Raphael, Curry-Stevens, & Bryant, 2008). Rich insights into the lived experience of those lower on the social spectrum may later provide means of influencing public policy and advancing the health equity agenda (Raphael, Curry-Stevens, & Bryant, 2008). Critical reflections of the experiences of health inequities provide accurate data about the state of food and housing need, and may supplement the development and implementation of effective national strategies to improve health equity (Raphael, Curry-Stevens, & Bryant, 2008; Waterston, Grueger, & Samson, 2016). Translating community concerns may be an important strength-based discourse in the resistance of pathologizing the poor and creation of movements for change (Raphael, Curry-Stevens, & Bryant, 2008; Friedli, 2016).

## 5.7 Gaps in Research

In this section, we discuss the methodological limitations and gaps within the research and recommendations for future research in improving wellbeing and equity in health. There is a prominent theme among research subjects and study designs found in this review. Those living with low-income and in social housing are the most frequent subjects in dually targeted housing and food literature. While this demographic may be those with the least amount of power and greatest vulnerability on the social gradient, the sampling frame did not capture those living in the market housing or the middle class. Cross-sectional studies represent 55% of research design in the included literature. While ease of design is relatively high compared to longitudinal and qualitative designs, the generalizability of cross-sectional designs is limited and prevents any casual inference. We advocate for greater diversity in research design, particularly for an increase in qualitative and longitudinal methods, expansion in the range of subject sampling frames, as well as interdisciplinary research to break down silos.

### 5.7.1 Lack of diversify in research subjects.

Excluding nationally representative samples (n=13), low-income families with children (n=10), social/supportive housing residents (n=7) and homeless/temporarily housing individuals (n=4) held the majority focus of research subjects. Arguably, these subjects may be some of the most vulnerable of the population, other vulnerable and non-vulnerable are underrepresented in this body of literature. While population-based surveys provide a broad picture of food and housing insecurity, population-based samples that do not focus exclusively on low-income or largely urban populations may be informative for policy and intervention (Carter, Dubois & Tremblay, 2013).

### 5.7.2 Epidemiological methods dominance.

Using cross-sectional studies, authors have found food insecurity to be significantly associated with income, material hardship, social supports, and housing, but we cannot establish the causality between low income and food insecurity. Yet, a causal relationship between income, food and housing is certainly plausible. Research that attempts to isolate the effect of poor housing or food insecurity is unable to measure or capture the complexity of the interaction among other determinants of health (Bryant, 2003) and this isolation contributes to silo research. Housing assistance (subsidies or social housing) and food assistance programs (food stamps or



food banks) are generally separate programs within local or national government. This separation is mirrored in the research where the connection between housing and food has largely been ignored (Gundersen, Weinreb, Wehler & Hosmer, 2003). Insofar, as the determinants of housing and food insecurity are similar (e.g., low income, less education, single parenthood), it is expected that families at higher risk of homelessness also are food insecure (Gundersen, Weinreb, Wehler & Hosmer, 2003). However, once they control for these observed characteristics, the relationship is not as transparent (Gundersen, Weinreb, Wehler & Hosmer, 2003). Contrived isolated variables provide pinhole insight into a complex problem, like the SDH. Separating variables in housing and food security does not reflect the rich and dynamic condition which people grow, live, work, and age. Designing research that reflects the rich condition of people lives provides critical reflections on society, power and inequity (Raphael, Curry-Stevens, and Bryant, 2008).

Epidemiological methods dominate in this review representing over half of included study design. Isolation of variables and their associated outcomes do not easily lend to understanding the complex lives of those living in insecure houses with or without food (Bryant, 2003). According to Bryant (2003), the issue with epidemiological research is that “it has tended to focus on aspects of housing and health that can be isolated for measurement such mould and respiratory impact, overcrowding and mental health” (p. 53). The isolation of variables may exclude other elements of in and outside of the home environment. The same can be said about food insecurity research and the dominate focus on income. Epidemiological methods, by nature of the design, ignore contextual variables that are not quantifiable (Bryant, 2003).

## **5.8 Recommendations Noted in Research and Practice**

### **5.8.1 Recommendations for research.**

We advocate for greater diversity in research design. While epidemiological methods are valuable in quantifying variables in housing and food security, other methods may offer valuable insights about the complexity of inequities. Qualitative designs, along with longitudinal methods would decrease the ambiguity of results and increase conceptualization of how life situations interact with environments to create situations of disadvantaged housing and food insecurity (Bryant, 2003).

### *Intervention-based research.*

One option for future research is intervention-based research design. In order to point towards the pathways linking housing and food security, intervention based research may provide answers to intervention questions, as random assignment into treatment or non-treatment groups allows for known and unknown determinants of the outcome to give rise from each group (LoBiondo-Wood, Haber, Cameron, & Singh, 2013). If a promising intervention, such as primary health care SDH screening or Housing First participation, is implemented and there are differences in outcome between groups, the differences are more likely to be due to the actual intervention as opposed to any underlying differences in the groups (LoBiondo-Wood, Haber, Cameron, & Singh, 2013). Housing First (HF) is a model characterised by rapid placement from homeless into permeant housing (Srebnik, Connor, & Sylla, 2013). For example, HF participants showed a greater reduction in emergency room visits and a sobering center use relative to their comparison group (Srebnik, Connor, & Sylla, 2013). As much of the recommendations are theoretical, intervention-based research may provide much needed empirical evidence in addressing housing and food security by outlining promising interventions.

### *Interdisciplinary research.*

People experience multiple overlapping problems in health care access, housing, and food security (Hassan et al., 2013; Baer, Scherer, Fleegler, & Hassan, 2015). The isolation of variables in epidemiological research is methodologically restrictive. In particular, the lack of consideration of the contextual factors affecting both housing and food leaves ambiguity in the lived experience of the results. While there is evidence of overlapping problems in multiple SDH, there appears to be a reluctance in engaging in research that examines the overlapping of conditions. Examining overlapping conditions may be a daunting task for one discipline or may lack discipline knowledge to assess other dimensions.

For these reasons, we advocate for interdisciplinary research. The literature in this review is interdisciplinary in nature. Disciplines conducting the majority of housing and food security research are medicine, public health, and nutrition. The benefits of interdisciplinary is two-fold. Interdisciplinary research will lead to methodological diversity and transcend disciplines to a whole systems approach in breaking down silos. Embracing various disciplines (multidisciplinary) with overlapping interests from different fields of science to work as one

(interdisciplinary) unit in research, is one way of attending to increasingly complex problems facing society (Hubbard, 2006). As health problems and wellbeing become increasingly complex, it is increasingly important that SDH research incorporates members who have diverse expertise (Hubbard, 2006). Approaching health equity problems from a broad scope of disciplines may collaboratively address disciplines and sectors spanning problems. More interdisciplinary research is needed to understand the relationship between housing and food, identify and fill gaps in research, and discover additional moments of synergy to breakdown silos.

#### *Qualitative and longitudinal designs.*

A qualitative and longitudinal understanding of these issues may help to design strategies to target needs housing and food needs. As well, qualitative designs will help identify the directionality between housing and food insecurity and developed additional indicators of the social and structural dimensions of housing and food insecurity (Powers, 2005). Breyse and colleagues (2016) recommend a participatory approach in creation of housing initiatives by involving potential or existing residents throughout conceptualization to initiation of the project. As well, Rideout and colleagues (2007) advocate for civil society involvement in targeting action plans and research. Carley (2012) recommends housing providers and researchers advocate for promoting the use of a community-based participatory research model (CBPR). CBPR recognizes members' equal voices, power, and decision-making capacity in the research project to benefit the community (Carley, 2012). Ethnographic and qualitative approaches may provide vivid illustrations of housing, food security, and income interact (Raphael, Curry-Stevens, & Bryant, 2008). Through longitudinal data, understanding time-ordered links between food, housing, and income will help delineate pathways.

#### 5.8.2 Recommendations for practice.

The separation of the housing and food insecurity in research is mirrored in the separation in practice. Within the constraints of their resources, and guided by the literature that does exist, practitioners are left to make the most within in their current capacities. Some interventions in our findings address food and housing insecurity within their practice centers. Some interventions for practice in patient assessments of the quality of their SDH (Ma, Gee, & Kushel, 2008; Heflin & Butler, 2012; Hassan et al., 2013; Baer, Scherer, Fleegler, & Hassan, 2015; Palar et al., 2015; Waterson, Grueger, & Samson, 2015). Researchers assessed the implementation of SDH

screening prior to appointment with primary care provider or their community resource worker. Also, food security outcomes were assessed in community resources such as community gardens and kitchens, as well as the integration of food security into social housing projects (Friendly, 2008; Moffat, 2008; Kirkpatrick & Tarasuk, 2009, 2010; Ostry, 2012; Carley, 2013; Miewald & Ostry, 2014; Barnard, Wexler, DeWalt, & Berkowitz, 2015).

As housing and food insecurity are multifaceted problems, a multipronged intersectoral approach likely requires a change of current approach to inequities in health. Yet, there is little research spanning multiple SDH, and many interventions operate within silos. Because individuals and communities are embedded within larger social, economic, and environmental structures, creating sustainable health improvements is most effective with simultaneous targeting across the individual-environment spectrum (Golden & Earp, 2012). To create more enduring health impacts, our current efforts need to expand to better address structural levels of influence on the individual and community (Golden & Earp, 2012).

## **5.9 Conclusion**

This review turns emphasis away from individual factors and towards basic supports to understand the housing and food security relationship. The SDH do not occur in a vacuum. The evidence within this paper presents the simultaneous and dynamic nature of coinciding determinants, specifically income, social support networks, the built and food environment, and health. The bottom-line in this body of research, is that housing and food insecurity are an issue of poverty. Health inequity is entrenched within this literature. Poverty underlies many social problems and the lack of resources do not occur in isolation. In this era of austerity and increasing health care costs, there is a critical need to improve health equity.

There is a pressing need for the expansion of evidence-based housing and food policies that reduce insecurity. This review represents a small step in an adequate holistic perspective calling for an integrated, long-term strategy linking all the determinants of health, which would result in health-in-all policies (WHO, 2010; Kickbusch, 2013; Walsh, 2016). Many of the associated determinants of health presented here are outside the health realm. There has been relatively little research consciously linking housing and food security, but the evidence summarized in this review supports the relationship between food and housing security and their accompanying determinants. If housing and food policies are guided by documented successes in

practice and evidence in research, we can work locally and nationally to mitigate harm from poor policies. Eventually, we can work together to move toward an equitable society whereby we dissolve the paradox of those in need amid plenty.

## **CHAPTER 6 MANUSCRIPT II: A CANADIAN PERSPECTIVE ON ADDRESSING STRUCTURAL DETERMINANTS OF HEALTH**

### **6.1 Foreword**

This second manuscript is written for Milbank Quarterly. In this manuscript, we examine public health interventions considering housing, food, and income together. As well, to identify challenges and opportunities on how to address multiple SDH from an intersectoral approach.

The results from this review are framed on a three-stage continuum. The continuum, by Beck (2011), summarizes housing and food interventions in three ways: (1) short-term/efficiency; (2) capacity building/transitional; and (3) system change/redesign. In this manuscript, we focus on Stages 2 and 3. In the discussion, we offer five challenges and four opportunities for furthering the SDH agenda. There are five emerging challenges: (a) positivist science, (b) pluralist approach, (c) materialist approach, (d) neoliberalism, and (e) individualism. Opportunities to overcome barriers and advance the SDH agenda are guaranteed income, intersectionality and intersectoral collaboration, and approaching health inequalities with a social justice orientation.

An impetus exists in addressing political discourse in public health and wellbeing. While political discourse is minimal in the SDH literature, solely focusing on disadvantage obscures the role of the powerful within inequity. Moving forward in health equity and wellbeing requires framing the problem around structural and political influence. The information generated in this paper provides evidence for the impetus to understand and address structural level determinants and ways to advocate for the provision of fundamental life supports of housing, food, and adequate income.

### **6.2 Abstract**

There has been a growing concern with health equity in public health systems worldwide. The primary drivers shaping health are not medical treatments or genetics, but the living conditions we interact with or that are imposed upon us. Food and housing insecurity are pervasive problems in North America, but the relationship between both is not well understood and is often targeted in silo interventions. In the present study, we examine public health literature considering housing and food together to identify barriers and opportunities on how to address multiple SDH from an intersectoral approach. We used Arksey and O'Malley (2005)

scoping review design and Dahlgren and Whitehead's (2007) Social Determinants of Health as a conceptual framework. A three-stage continuum summarizes housing and food interventions: (1) short-term/efficiency, (2) capacity building/transitional, and (3) system change/redesign.

There are five emerging challenges to addressing multiple SDH: (a) positivist science, (b) pluralist approach, (c) materialist approach, (d) neoliberalism, and (e) individualism. Opportunities to overcome barriers and advance the SDH agenda are guaranteed income, intersectionality and intersectoral collaboration, and approaching health inequalities with a social justice orientation. The task of addressing the SDH in a coordinated way is a daunting mission, given the recognizably challenging domination of the neoliberalism and individualism approaches guiding policy and interventions. However, if reducing inequities is truly a health and population challenge worth striving for, political and structural change is essential.

*Keywords:* Food security, housing security, social determinants of health, review, public health

### **6.3 Introduction**

There is growing concern about health equity in health systems worldwide (Commission on the Social Determinants of Health [CSDH], 2008). Researchers have suggested that the difference in conditions between groups on the social gradient contribute to poor health outcomes (Wilkinson & Marmot, 2003; Graham, 2004). These differences result in health inequities that are widespread and socially produced, and therefore modifiable and unfair (Dahlgren & Whitehead, 2007). There are patterns in health differences that are consistent across countries suggesting the structure of society can have negative health effects (Dahlgren & Whitehead, 2007). Poor health embodies issues related to accessibility of basic life supports that manifest through multiple pathways and maintained through structural conditions (Link & Phelan, 1995; Raphael, 2006). These intertwining structural conditions are the root of the social determinants of health (SDH) (Mikkonen & Raphael, 2010).

In spite of knowing what contributes to poor health in society, there is little application of that knowledge to restructure the system toward healthy outcomes. We use Dahlgren and Whitehead's (1993) framework of the determinants of health as a conceptual foundation for this research to consider ways for system level change. Broadly scoping the literature provided us with a view of the complex system in which the SDH function. The results of this study provide justification for action from a complex systems perspective by identifying leverage points for

systems change, and brings attention to the role of the structural conditions of health inequities (Meadows, 1999).

While housing and food are both critical for health and wellbeing, researchers often examine these determinants of health separately and from an individualist perspective. Traditional approaches to food security and housing research connect food security to physical health, as well as housing to physical health, but not housing to food security or their structural determinants. While the reasons for poor housing and food insecurity are complex, addressing the SDH may require attention to system level decisions. The wider set of structural forces shaping the SDH are most notably economics and financing, societal norms and values, social policies and politics (CSDH, 2008). System level interventions that affect SDH continue to operate in silos and therefore can be ineffective in achieving health equity and addressing health outcomes.

In this article, we focus on conditions surrounding housing and food security that affect health equity and wellbeing on a systems and structural level. We also emphasize challenges and opportunities to addressing the SDH. Exclusive investigation of people experiencing disadvantaged conditions obscures the reasons for inequities and the role structural and system level decisions play in producing the inequities (Walby, Armstrong, & Strid, 2012). To extend beyond a focus on the individual, our review takes a system level approach to health equity and wellbeing, while reviewing public health interventions related to food security and housing.

Despite the existing evidence on how unequal access to SDH contribute to poor health, there is little attention to structural and system level determinants in health research. Addressing structural determinants in a coordinated way is challenging, particularly when professionals and researchers continue to operate separately. Nevertheless, the undertaking of shrinking the gap in health between groups is important to create a healthy society. Distinguishing health as right and not as a privilege will require health research, interventions, and policy to look beyond the individual. Shifting perspective to structural-level determinants is the focus of this article.

## **6.4 Methods**

We conducted a scoping review of scholarly and grey literature in August to October 2016 to identify research, practice, and policy interventions that dually address housing and food security. Our research question was “What are the surrounding factors in studies that focus on housing instability and food security that affect equity in health and wellbeing?” Our search



examined literature describing the effect of any program, intervention, policy, investigation, or service associated with promoting wellbeing and health equity related to food security and housing. We provide a detailed description of the methodology set out by Arksey and O'Malley (2005) in an earlier manuscript (Vold & Martin, 2017).

Table 7 provides a list of search terms and Boolean operators representing housing and food security in eight databases from health and social science collections. We searched Public Health Database, PsycINFO, FOODnetBASE, AGRICOLA, ProQuest Dissertations & Theses Global, PubMed, CINAHL, and Web of Science. The systematic search, in Figure 8, resulted in 250 papers to review. We included scholarly and grey literature that met the following inclusion criteria; (1) English terms as keywords; (2) high-income countries as defined by the United Nations Human Development Index (HDI) (2015); and (3) articles written in English. We excluded papers that were if the set in a low-income country, not written in English, or if housing or food was not a measured variable or a major concept. Our final data set resulted in 46 papers, 26 were focused on individual interventions or outcomes, while 24 discussed the structural conditions contributing to health inequities or structural opportunities to address health inequities. In interest of brevity, table 8 provides a list of total included authors. The focus of this paper is on the 24 articles.

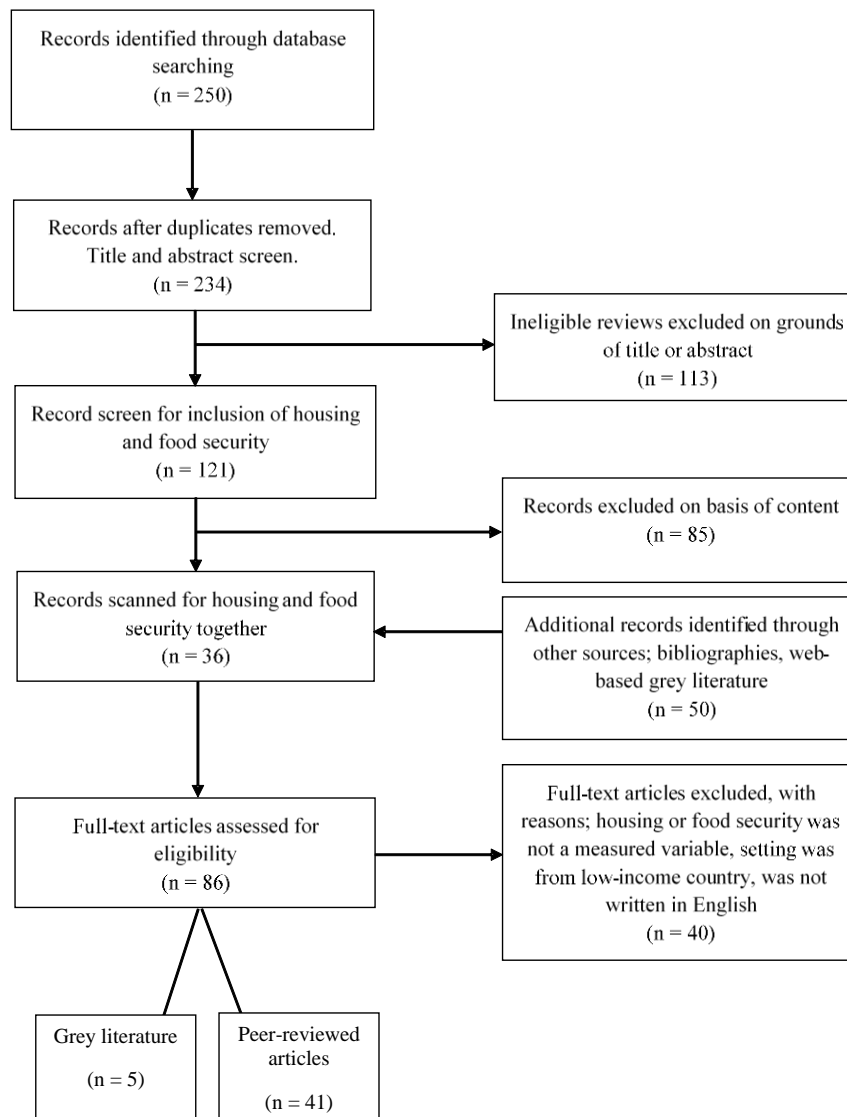
Table 7 Search Terms

Housing Search Terms		Food Security Search Terms
Searched with “OR”		Searched with “OR”
Housing instability	“AND”	Food security
Housing stability		Food insecurity
Substandard housing		Food
Housing conditions		Food supply
Housing insecurity		
Housing security		
Housing		

Table 8 Author(s) Included in Scoping Review

Baer, Scherer, Fleegler, & Hassan, 2015	Kim, Kim, Shin, & Lee, 2011	Palar et al., 2015
Bailey et al., 2015	Kirkpatrick & Tarasuk, 2003	Raphael, Curry-Stevens, & Bryant, 2008
Barnard, Wexler, DeWalt, & Berkowitz, 2015	Kirkpatrick & Tarasuk, 2007	Richards & Smith, 2006
Berkowitz et al., 2015	Kirkpatrick & Tarasuk, 2009	Rideout, Riches, Ostry, Buckingham, & MacRae, 2007
Bocquier, Vieux, Lioret, Dubuisson, Caillavet, & Darmon, 2015	Kirkpatrick & Tarasuk, 2010	Seed, Lang, Caraher, & Ostry, 2014
Breysse et al., 2016	Kirkpatrick & Tarasuk, 2011	Shaefer & Gutierrez, 2013

Bryant, 2003	Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015	Sriram & Tarasuk, 2016
Bryant, Raphael, Schrecker, Labonte, 2010	Kushel, Gupta, Gee, & Haas, 2006	Tarasuk, 2001a
Carley, 2013	Liu, Rashid, Greenlund, Chapman, & Croft, 2014	Tarasuk, 2001b
Carter, Dubois, & Tremblay, 2013	Loopstra & Tarasuk, 2013	Tarasuk, Mitchell, Dachner, 2016
Choi et al., 2015	Ma, Gee, & Kushel, 2008	Towers, 2009
Cutts et al., 2011	Mammen, Bauer, & Richards, 2009	Vijayaraghavan, Jacobs, Seligman, Fernandez, 2011
Friendly, 2008	McIntyre, Wu, Fleisch, Herbert, & Emery, 2015	Walsh, 2016
Gundersen, Weinreb, Wehler, & Hosmer, 2003	Miewald & Ostry, 2014	Waterson, Grueger, & Samson, 2015
Hassan et al., 2013	Moffat, 2008	
Heflin & Butler, 2012	Ostry, 2012	



**Figure 8 Search strategy**

## 6.5 Results

### 6.5.1 Overview

Our review identified over 250 sources associated with housing and food security that were potentially relevant. However, few studies provided direct associations between housing and food security, or specifically mentioned system-level and structural determinants.

Furthermore, we found very little literature on how improving housing and food security can improve health equity and the further the SDH agenda. The Food Security Continuum (Beck,

2011) captures the practice and policy results from this scoping review. Three stages, presented in Table 9, depict levels of food security and housing interventions, where each stage builds upon the last, ranging from immediate to long-term needs (Beck, 2011). We categorized papers describing interventions into the level of change they aimed to address: individual, community, and system level. We addressed individual and community level challenges to food and housing security in a previous paper (Vold & Martin, 2017). We target this work towards system level change. The analysis follows this continuum depicted in Table 9 beginning with a brief mention of stages 1 and 2, then a more substantial discussion about stage 3. We end with a discussion of barriers and opportunities we identified through the results to improve health equity and wellbeing.

Our search uncovered a vast amount of literature aimed at the community level, however much of this effort was directed toward one health condition with minor mentions of others. We found only a handful of interventions that specifically mentioned housing and food together. The reviewed articles fell into two major groupings: challenges and opportunities to furthering the SDH agenda. The five challenges we identified in furthering the SDH agenda are: 1) positivist science, 2) pluralist approach, 3) materialist approach, 4) neoliberalism, and 5) individualism. Four potential opportunities to overcome barriers are 1) providing a guaranteed income, 2) adopting an intersectionality perspective, 3) engaging in intersectoral collaboration, and 4) taking a social justice approach.

**Table 9 Food and Housing Continuum**

Stage 1	Stage 2	Stage 3
Short-term Relief (Efficiency)	Community Capacity Building (Transitional)	System Change (Redesign)



Examples of interventions in stage:

Meal provision/soup kitchens	On-site gardening	Development of partnerships, networks, and policy
Gleaning programs	Community gardens	Modification of built environment
Food banks	Community kitchens	Food and housing policy networks
Homeless shelters	Buying clubs	Community gentrification
Couch surfing/staying with friends	Singe room occupancy buildings (SRO)	
	Transitional housing	
	Non-market rental housing	
	Rent geared to income 30%	
	Market rental housing	
	Homeownership	
	SDH primary care screening	

### 6.5.2 Stage 1: Short-Term Relief

Stage 1 represents emergency short-term food and housing relief. The goal of short-term relief is to provide food for the hungry or housing for the homeless through donations and charitable action (Moffat, 2008). Unfortunately, families and individuals need to utilize emergency housing and food services. The myriad of community-level charitable interventions to offset food insecurity, and to a lesser extent housing, still dominate areas of action. Examples of

short-term community charitable resources include food banks, food drives, gleaning programs, and shelters. While research describes that charitable food action and emergency shelter do not solve the underlying problem of inadequate income (Kirkpatrick & Tarasuk, 2009), simply removing them will leave many hungry and homeless. An alternative action is to facilitate a transition along the continuum towards options in stage 2.

### 6.5.3 Stage 2: Community Capacity Building

Stage 2 represents community capacity building where community residents identify and enhance skills and assets in community members so they may manage their own health needs (Beck, 2011). This stage is a departure from the food bank model. The goal of stage 2 is to pair food and housing related activities with health promotion strategies (Moffatt, 2008). Non-charitable interventions represent a new mantra of community building rather than community helping, which emphasises social cohesion and capacity building as opposed to mobilization of resources (Tarasuk, 2001).

While interventions in this stage transition away from charitable action, the self-help orientation of these programs may be problematic, as it frames the problem and response to food insecurity as an individual behaviour (i.e. better budgeting or improving food preparation skills) (Tarasuk, 2001). To offset this danger, individual-level programs can take place in concert with strategies designed to address more systemic issues of inequity (Tarasuk, 2001). A few examples include providing environmentally healthful and safe housing for low-income residents, food subsidy programs, and educational technology programs to enable low-income individuals to re-enter the workforce with new skills, advocating for guaranteed income, or by giving a voice to those who are not heard (Raphael, Curry-Stevens, & Bryant, 2008; Liu, Njai, Greenlund, Chapman, and Croft, 2014; Segal, 2016). Combining programs with strategies to address inequity is a shift to work conducted in stage 3.

### 6.5.4 Stage 3: System Change

Stage 3 represents redesigning of the system to create system level change (Beck, 2011). The goal in this stage is to develop long-term upstream strategies to support housing and food security (Moffatt, 2008). System change is the redesigning of policies to achieve sustainable housing and food security (Moffatt, 2008). Avenues for change include supporting economic and

political redesign, advocating for social equality, and relocating the food system (Tarasuk, 2001; Moffatt, 2008).

The tension between maintaining shelter and feeding members of the household is evident throughout the literature (Vold & Martin, 2017), namely due to financial inadequacy. As the proportion of income spent on housing increases, resources available to support other determinants of health and basic life supports become secondary in households (Friendly, 2008). In addition to privatization of essential services and inadequate income, researchers argue that the nature and organization of our current food and political system are problematic in achieving health equity (Tarasuk, 2001; Raphael, Curry-Stevens, & Bryant, 2008; Raphael, 2015). To counter this, addressing housing and food security requires coordinated and collaborative effort among key sectors, including health, social services, urban planning, food systems, and all levels of government to provide basic life supportive measures (Tarasuk, 2001; Moffat, 2008; Waterston, Grueger, & Samson, 2016).

While many authors advocate for policy level interventions, much of the recommendations are theoretical. There is inaction at the policy level to address inequities in health (Raphael, 2015). It is not for the lack of evidence or the knowledge of potential pathways to address inequities. Authors advocate for a variety of changes at the system level. Some call for government investment in expanding and increasingly the availability of affordable housing stock and restoration of current housing programs and policies to increase homeownership (Tarasuk, 2001a, 2001b; Bryant, 2003; Kushel, Gupta, Gee, & Haas, 2006; Kirkpatrick & Tarasuk, 2007, 2010; Cutts et al., 2011; Loopstra & Tarasuk, 2013; Bailey et al., 2015; McIntyre, Wu, Fleisch, Herbert, & Emery, 2015; Waterston, Grueger, & Samson, 2015; Sriram & Tarasuk, 2016). Existing and future programs may gather greater support by economic evaluation of programs or initiatives providing basic needs (Kirkpatrick & Tarasuk, 2007; Shaefer & Gutierrez, 2013; Barnard, Wexler, DeWalt, & Berkowitz, 2015). Basic life supportive policies and a national strategy to address housing and food security would help establish safe, adequate, accessible, suitable, and affordable basic needs (Moffat, 2008; Waterston, Grueger, & Samson, 2016).

To increase household income adequacy, some advocate for revisiting of income measures before the termination of social services and income adequacy measures, and addressing unemployment with employment based policy decisions (Tarasuk, 2001a, 2001b;



Kirkpatrick & Tarasuk, 2007, 2009, 2010; Kim, Kim, Shin, & Lee, 2011; Heflin & Butler, 2012; Ostry, 2012; Loopstra & Tarasuk, 2013; McIntyre, Wu, Fleisch, Herbert, & Emery, 2015). Given all of these recommendations, overall, a greater political, professional, and educational leadership is fundamental in strengthening the SDH agenda and reducing of inequities in health (Rideout, Riches, Ostry, Buckingham, & MacRae, 2007; Bryant, Raphael, Schrecker, & Labonte, 2010).

## **6.6 Discussion**

Using Arksey and O'Malley (2005) scoping review method, we reviewed research, practice, and policy interventions targeting housing and food security, which affect equity in health and wellbeing. We made five observations concerning challenges and four identifying opportunities to reduce health inequities. To begin, we discuss challenges and how a positivist science approach is congruent with neoliberalism and attributes health inequities to problems of individuals, which are then quantified in research and emphasize depolitical action to address the problem. Then we explore how the pluralist approach is theoretically positive in the competition of ideas to improve health, but it underscores the influence and favoritism of corporations and industry. We address how the materialist approach falls short in conceptualizing health equity, whereby wealth determines exposure to health-damaging conditions, therefore emphasizing individualism, and underplaying the existence of health inequities in high-income countries. This leads to a description of how neoliberalism continues to depoliticise and desocialize health equities, while favouring the erosion of social welfare. The final challenge concerns how individualism places the individual as the cause of poor health and justifies the retreat of governments from collective health.

Opportunities involve how a guaranteed income may be a means of shrinking the income gap and favour the reduction of poverty. Additionally, an intersectionality approach to health inequities encourages focus on structural drivers and their intersections. We discuss how intersectoral collaboration can strengthen the connection at intersections of the SDH, thereby spanning disciplines and breaking down silos. Finally, we identify how a social justice approach orientates food security, housing, and adequate income as basic human rights highlighting the critical role structural level decisions.

### 6.6.1 Challenges to Improving the Social Determinants of Health

Researchers sporadically discuss the paradigms shaping public health in this collection of health sciences literature, but the paradigms appear especially important to implementing a SDH agenda (Raphael, Curry-Stevens, & Bryant, 2008). We summarized the authors and the paradigms that are reflected in the papers in Table 10. There is increasing evidence of political ideology shaping the quality of SDH in political party jurisdiction (Raphael, Curry-Stevens, & Bryant, 2008). Raphael and colleagues (2008) offer three dominate paradigms influencing public health decision making: positivist science, pluralist approach, and materialistic approach. Collectively, these challenges establish and maintain silo interventions in research, practice, and policy, further reducing the role of powerful and structural determinants in contribution in health inequities.

**Table 10 Summary of Authors and Paradigms**

<b>Author(s)</b>	<b>Paradigm(s)</b>
Bryant, 2003	Neoliberalism and individualism
Bryant, Raphael, Schrecker, and Labonte, 2011	Neoliberalism, individualism, pluralist approach
Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015	Intersectoral approach
Raphael, Curry-Stevens, and Bryant, 2008	Positivist science, pluralist approach, materialistic approach, neoliberalism, and individualism
Rideout, Riches, Ostry, Buckingham, & MacRae, 2007	Social justice and intersectoral approach
Seed, Lang, Caraher, and Ostry, 2014	Pluralist approach
Tarasuk, 2001	Neoliberalism and individualism
Walsh, 2016	Social justice, individualism, intersectoral approach

### *Positivist science.*

Adherence to positivist science prefers understanding health and its determinants through quantitative and statistical approaches emanating from individual dispositions and actions, a commitment to objectivity, and profound depoliticizing of health issues (Raphael, Curry-Stevens, & Bryant, 2008). Positivist science is reductionist in that specific measurable variables quantify “causes” and “effects” and by nature, ignore contextual variables (Bryant, 2003; Raphael & Curry-Stevens, 2016). Traditional health sciences and epidemiological approaches or highly empirical research approaches can be problematic in studying health, because they avoid dealing with aspects of the broader environment and focus on behavioural risk factors and bodily systems (Raphael, Curry-Stevens, & Bryant, 2008). To Raphael and colleagues (2008), “positivist-oriented health and social science also avoids analysis of the abstract, implying the study of the underlying economic, political, and social structures of society are beyond its analytical and methodological grasp” (p. 225). Such an approach is congruent with neoliberal political ideology, whereby researchers frame social problems such as housing and food insecurity as individual problems (Coburn, 2004; Raphael & Curry-Stevens, 2016). Emphasis of individualism retracts the importance of environments, political, economic, and social forces that are imposed upon the individual.

### *Pluralist approach.*

A pluralist approach views policy development as primarily driven by the quality and competition of ideas in the public arena (Raphael, Curry-Stevens, & Bryant, 2008; Raphael & Curry-Stevens, 2016). Competition of ideas can come from non-governmental groups who lobby governments to accept their position and share power (Seed, Lang, Caraher, & Ostry, 2014; Raphael & Curry-Stevens, 2016), which may be advocates and allies who work in housing and food security provisioning. In Canada, research and advocate activities often work within a pluralist model of policy change by which the quality of ideas and related evidence are shaping forms of public policy and strengthening community engagement (Bryant et al., 2011; Seed, Lang, Caraher, & Ostry, 2014). Taking this view at face value, we assume that Canadian policy making is democratic and all communities, agencies, organized groups, and individuals have a place at the policy making table (Raphael & Curry-Stevens, 2016), but this may not be the reality.

In a pluralist approach, creating and providing evidence to policymakers to benefit SDH-related public policy should assure implementation of such policy. However, despite 30 years of SDH policy recommendations, little has changed in the political arena (Raphael & Curry-Stevens, 2016). Pluralism appears to be an adequate approach when the interests of industry, organized labour, and civil society sectors are balanced, but falls short when government makes public policy in the service of the economy (Raphael, 2015).

While a pluralist approach is theoretically positive in producing quality ideas, it underscores the influence and favoritism of industry. Advocating for SDH policy certainly has not led to substantial SDH related public policy action in Canada (Raphael, 2015). A pluralist approach to policy may be an opportunity to equitable decision-making, but the current political environment needs to be conducive to such a process. As some authors suggest, the political economy does not reflect this approach (Raphael, 2015; Raphael & Curry-Stevens, 2016).

#### *Materialistic approach.*

Another alternative approach to public policy is the materialist approach. Materialist explanations focus on how the various conditions in which people live, impact health (Raphael, 2016). These conditions include the availability of resources for life, such as housing, food, and transportation. The quality of material circumstance is associated with a position on the social gradient and related wealth (Raphael, 2016). By way of illustration, “material wealth can enable greater success to health care, transport, an adequate diet, good-quality education and housing, and opportunities for social participation, all of which are recognized as promoting health” (Smith, Bambra, & Hill, 2016, p. 9). Material wealth also enables people to limit their exposures to known risk factors for disease such as physical hazards at work or adverse environmental exposures (mould in poor housing) (Smith, Bambra, & Hill, 2016).

However, public policies and services that shape the extent to which basic goods and services, such as schools, transport, and welfare, are dependent on wealth (Smith, Bambra, & Hill, 2016). Indeed, there is a significant consensus that material goods/needs do affect health and, in this sense, the materialist explanation remains a favoured explanation for health inequalities (Smith, Bambra, & Hill, 2016). Yet, there have also been criticisms, one of the most common being that material approaches fail to account fully for why inequalities in health persist within countries where the material standard of living is high, such as Canada (Smith, Bambra, &

Hill, 2016). Unfortunately, powerful interests who assure that their concerns receive more attention than those not so aptly situated drive policy development (Raphael, Curry-Stevens, & Bryant, 2008). This influence places the SDH within broader frameworks of resource distribution influenced by power and wealth and falls short in conceptualizing health equity (Raphael, 2016).

### *Neoliberalism.*

In housing and food security literature, particularly in structural determinant and policy discussions, neoliberalism is a hindrance in furthering the SDH agenda (Bryant, 2003; Raphael, Curry-Stevens, and Bryant, 2008). According to Heron (2008), “the neoliberal ideology emphasizes rational, scientific, and objective thinking and operates in a ridged, binary fashion” (p. 89). The neoliberalism critique is that this orientationshifts away from established social policy settings and erosion of social systems (Tarasuk, 2001; Bryant, 2003)

Starting with economic systems enwrapped by political systems, neoliberal reform focuses on individualism, deregulation, competition, and allowing the markets to direct action (Coburn, 2000, 2004; Raphael, Curry-Stevens, & Bryant, 2008). The resulting discourse favours the privatization of health, erosion of social systems that affect access to resources for health, and emphasises individual responsibility for health (Raphael, Curry-Stevens, & Bryant, 2008; Collins, McCartney & Garnham, 2016). This individuality discourse fosters stigmatization and discrimination of poverty, homelessness, and food insecurity, thus further contributing to the marginalization of those already at greater disadvantage on the social gradient (Raphael, Curry-Stevens, and Bryant, 2008; Collins, McCartney & Garnham, 2016).

Neoliberalism has become an ideology that has pervaded health care systems and contributed to health inequities. The traditional biomedical model of health is congruent with neoliberal ideology whereby health problems remain individualized, desocialized, and de-politicized (Raphael, Curry-Stevens, & Bryant, 2008). This approach frames health problems as individual ones rather than societal ones rooted in inequity (e.g. poverty, racism, and unemployment) (Raphael, Curry-Stevens, & Bryant, 2008). Forms of neoliberalism vary between countries and removing universally provided social welfare programs are a casual force in exacerbating health inequalities (Collins, McCartney & Garnham, 2016).

The neoliberal ideology is particularly evident and problematic in food charity and the housing crisis. Despite celebrating donations by corporate goodwill or food drives, researchers

have reported that food banks create a demeaning experience of receiving charity and waiting in line (Tarasuk, 2001a; Moffatt, 2008). Stigma associated with receiving charitable assistance, such as food donations or income assistance, further contributes to health inequities and marginalization of those already disadvantaged.

The increase of housing instability has been, in part, as a result of reduced government funding for social housing, lack of affordable rental accommodation, and an increase in promoting homeownership through a variety of incentives rather than focusing on housing affordability (Bryant, 2003; Hulchanski, 2007). In Canada, the social housing provision has decreased since the 1990s and some provincial governments have abolished rent control in private markets (Bryant, Raphael, Schrecker, & Labonte, 2011). As the SDH do not function in isolation, these changes coincided with the retrenchment of more social programming (Bryant, Raphael, Schrecker, & Labonte, 2011), particularly during the 1990s when governments withdrew the provisioning of social housing (Bryant, 2003). The decrease in availability of social housing represents a neoliberal decision in the withdrawal of government support for investment in new public rental housing and a structural failure in housing supply (Bryant, 2003). Additionally, those experiencing food and/or housing insecurity often require costly health services that financially burden the individual (Towers, 2009). This burden may have the potential to decrease government spending on social programs and increase strain on existing health programs (Towers, 2009).

### *Individualism.*

Neoliberalism and positivist science emphasize the individual, rather than the system or environment. Individualism assumes that the current system provides sufficient and equal opportunity for individuals to move within the system as per their abilities (Raphael, 2016). Within this ideological construct, poverty results from the individual's failure to seize the opportunity to work or to work hard enough within the current structure (Raphael, 2016). Typifying problems around the individual sets the stage for response to be an individual one (Poppendieck, 1995). Policy solutions are responding to problems on a one person-at-a-time silo mechanism, such as targeted medical, social, or psychological interventions. Traditional health science approaches are congruent with such an ideology and serve to justify the retreat of

governments from investing in the collective health and wellbeing of citizens and ignoring opposing voices (Bryant, 2003; Raphael, Curry-Stevens, & Bryant, 2008).

Silo interventions translate into institutional and professional role barriers. In practice, professionals continue to operate in their silos. Challenges to working on issues beyond an individual's traditional professional practice include a perceived threat to career advancement, institutional unwillingness to engage in broader SDH areas, and lack of time or employer support to advocate for SDH (Tarasuk, 2001; Raphael, Curry-Stevens, & Bryant, 2008). This pervading individualism discourse in practice and research decontextualizes food and housing problems of the poor and accepting their structural origins as given (Tarasuk, 2001). This orientation gives rise to programs designed to help people cope better with their poverty rather than decrease poverty (Tarasuk, 2001).

#### 6.6.2 Opportunities to Improving the Social Determinants of Health

##### *Guaranteed income.*

The widening income gap is driven by redistributing wealth in favour of the rich and transferring public assets to privatization, therefore increasing the unaffordability of assets (Collins, McCartnery & Garnham, 2016). Income is one of the most significant determinants in food security. As income declines and unemployment rises, probability of food insecurity rises (Kirkpatrick & Tarasuk, 2010; Tarasuk, Mitchell, & Dachner, 2014; Sriram & Tarasuk, 2016). An increase in housing costs can exacerbate food insecurity, whereby a \$100 increase in renter shelter costs can increase food security risk by 22% (Sriram & Tarasuk, 2016). Those receiving welfare or who are minimum wage earners have inadequate income to reach a healthy diet (Power, 2005). Families with limited incomes operate in periods of decreased autonomy whereby their food choices are limited in selection or they access charitable food donations and make shelter compromises (Walsh, 2016).

While community-level interventions build capacity, community-level interventions may not be an effective strategy to ameliorate the problems of food and housing insecurity that are rooted in inadequate financial resources, poverty, and structural determinants (Kirkpatrick & Tarasuk, 2010). Canadian authors suggest that a shift in income support and a comprehensive poverty reduction program may have profound and cumulative implications on many dimensions of life, especially on housing, income, and food security by increasing available income

(Raphael, Curry-Stevens, & Bryant, 2008; Ostry, 2012). One of the ways to meet the needs of citizens is to produce public policies to decrease poverty and protect the vulnerable.

A group of individuals, researchers, and members of government in Ontario, Canada propose a basic income pilot project. Similar projects are surfacing around the globe, for example, in Finland and Kenya (Basic Income Network, 2016). The purpose of the pilot project is to test the success of building upon minimum wage policies and child benefits by providing consistent and predictable financial support (Segal, 2016). Ensuring that individuals reach minimum level of income may be a means of poverty abatement, but research and evidence in policy implementation is scarce and these pilot projects may provide the required evidence (Segal, 2016).

With inadequate income as one of the primary drivers of food insecurity, it is easy to imagine how less financial strain may, at the most basic level, improve nutrition, but also other dimensions of life. Housing and food insecurity indicate severe financial strain, which affect the households' ability to meet basic needs, such as transportation and utilities (Ma, Gee & Kushel, 2008; Bocquier et al., 2015). Material hardships require families to make trade-offs between resources that ultimately affect their health and well-being (Ma, Gee & Kushel, 2008; Bocquier et al., 2015). A study by Heflin and Butler (2013) found little evidence that short-term increases (one month) in income aid in pulling households out of hardship, except for unmet medical needs. Heflin and Butler (2013) make the assertion that income-based approaches to address material hardship, at least within the current structure of social programs, are not as effective. These findings suggest the provision of basic material needs may exist even when income is satisfied. In this case, once the participants incurred higher income, some of their welfare benefits were retracted (Heflin & Butler, 2013). The issue here is the retraction of other basic benefits once individuals reach an income threshold. The goals of Ontario's Basic income project are to assess outcomes after 12 months and guarantee income regardless of current welfare benefits (Segal, 2016), so this project may indicate the benefits of longer income supplementation. Ontario's pilot project may provide insight into the benefits of basic income in a Canadian context.



### *Intersectionality.*

Although housing, food and income, occur at various axes, researchers often study them in isolation. The silo approach to research, policy, and intervention reflects a positivist science approach to knowledge and understanding. Favouring objectivity and empiricism are central ontological and epistemological features of this approach. However, the reality of peoples' experiences is not isolated and involves ongoing intersections across different axes (Smith, Bamba, & Hill, 2016). Intersectionality describes the multiple intersecting aspects of social identity and structure, particularly experiences of exclusion or subordination (Walby, Armstrong, & Strid, 2012). As intersectionality recognizes the complexity of identity, social position, and inequality, it offers a useful framework for understanding the multiple layers of advantage and disadvantage that have relevance for health and wellbeing (Hill, 2016; Smith, Bamba, & Hill, 2016).

An intersectionality approach to understanding health inequalities encourages focus by researchers and policymakers on the structural drivers of health inequalities, pointing to the power relations and their fundamental causes of inequalities (Hill, 2016). As evidenced by the results in this review, researchers often study health inequalities for significance in a particular social context and for a particular health outcome. Yet our understanding of the links between social position and health will remain incomplete if we continue to research and work in this type of silo thinking.

Intersectionality offers two principles for examining how public health interventions can target multiple SDH. First, it acknowledges that social position is multifaceted with each person occupying multiple identities to their social position within society (Hill, 2016). Second, intersectionality directs attention away from the individual and emphasizes ways in which systems intersect to produce health inequalities (Walby, 2007; Hill, 2016). Intersectionality as an approach does not privilege class and/or income, but sees income as one of many factors that affect individuals relative to their social position (Walby, 2007). Crudely categorizing groups, such as food insecure households, creates homogenous groups framed within one social construct (Hill, 2016). However, additional constructs are necessary for generating depictions of health inequities (Hill, 2016). Additionally, common indicators of social positions are best suited for

dominant groups within society, but may not accurately capture experiences of minority groups, such as refugee or immigrant food insecure households (Hill, 2016).

Policy efforts directed at one aspect of social inequity, such as income insecurity, may be less effective for some population groups (Walsh, 2016). Thus, interventions targeting inequities may fail to address ethnic inequities, despite over representation of ethnic minorities in low-income brackets (Hill, 2016). Therefore, housing and food authors emphasize a cautionary note by recommending a comprehensive approach when implementing an intervention (Carley, 2008; Moffatt, 2008). In ensuring policies and interventions are widely effective, policymakers and health professionals must consider the target group needs, and how target groups and dominant groups differ (Hill, 2016). This requires sophisticated evidence, and therefore research is needed that highlights differences between social groups (Hill, 2016).

Directing attention away from the individual emphasizes ways in which systems intersect to produce health inequities and facilitates a shared understanding on the underlying causes of health inequities (Walby, 2007; Hill, 2016). It is important for researchers and policy makers to take a ‘both/and’ rather than an ‘either/or’ approach to studying and addressing health inequities (Hill, 2016). This opens the possibility, that groups do not fit into a dichotomy and challenges the search for the single best trajectory (Walby, Armstrong, & Strid, 2012). Alternatively, an intersectional understanding requires us to examine explanations for health inequalities outside of the individual, such as genetics or choice, and focus on underlying axes of power that shape experiences of privilege and disadvantage in society (Hill, 2016). By ignoring discourses on how individualism shapes health inequities, we have the freedom to search for upstream drivers of social inequity, highlighting ways in which social structures and ideology create power imbalance across social categories (Hill, 2016). Intersectionality shifts perspective from viewing separate socially constructed forces as acting on individuals, to an understanding of the intersections between factors relative to social positioning. Such a perspective could shift a health practitioner’s approach in their role in addressing health inequities and extend to political arenas for action on health equity.

#### *Intersectoral collaboration.*

International evidence suggests strengthening the SDH and wellbeing is essential to reducing health inequities (Shankardass, Solar, Murphy, Greaves, & O'Campo, 2012).

Intersectionality focuses on the way in which systems intersect to produce health inequities, while intersectoral action emphasizes the importance of developing healthy public policy, health promotion, and the role of partnerships in the promotion of health equity (Walby, 2007; Shankardass et al., 2012). Intersectoral approaches move beyond the provision of health care services and involve multiple actors including multiple government sectors, the private sector and civil society to address complex equity problems (Shankardass et al., 2012). The inclusion of a variety of corroborators places health promotion, including food, shelter, income, social justice, and equity on the agenda of many sectors and at all levels, by directing them to be aware of health consequences of their decisions and accept their responsibilities (Ottawa Health Charter for Health Promotion, 1986; Walby, 2009; Shankardass et al., 2012). An intersectoral approach targeting SDH with an intersectionality perspective requires members of all sectors to begin realizing their part in affecting multiple determinants and ultimately affecting quality of life. Particularly, when an intersectoral approaches features government in a central role, it encourages government to design and assess the effectiveness of policies with health outcomes in mind (Shankardass et al., 2012).

The shape of multiple inequalities form due to their intersecting nature rather than by building upon each other through mutual constitution, whereby complex systems mutually adapt, changing each other, but remaining visible, although changed (Walby, Armstrong, & Strid, 2012). An intersectoral approach, along with an intersectionality perspective, is important in public health for reducing health inequities and the promotion of health equity. While conceptualization of intersectoral action is complex, research in this review is written from the perspective of one sector (e.g. health) or from an academic perspective (Shankardass et al., 2012). This suggests that academics need to do more work to clarify why and how to employ intersectoral approaches to address health equity (Shankardass et al., 2012). Using housing, food, and income as exemplars, we consider how overlapping and intersecting institutional structures, political ideology, and sets of social conditions influence the development of health inequities in relation to social position. While promising initiatives exist in poverty abatement, a patchwork system of uncoordinated solutions remains (Segal, 2016). This uncoordinated system continues to operate outside the realm of comprehensive government action (Segal, 2016), which signals the need for high level policy development.

*Social justice approach.*

Framing the issue as an individual problem depoliticizes the issue legitimizing hunger and homelessness as a charitable concern, rather than social justice. Rights-based and social justice approaches to food and housing policy are based on principles of entitlement, participation and empowerment rather than charity (Rideout et al., 2007). Researchers have linked the emergence and entrenchment of charitable food assistance and decrease in affordable housing in Canada with the erosion of publicly funded social programs (Tarasuk, 2001; Bryant, 2003). Social justice approaches are associated with non-materialist position, in that income cannot replace a sense of belonging, and wellbeing does not solely depend on economic assets (Friedli, 2016).

While guaranteed income is a worthy and socially just intervention, other influencing factors, such as political discourse and power cannot be ignored. Ignoring issues of power and political discourse misses an important condition in structural determinants, as those who experience food and housing insecurity are commonly of the lowest income and with the least amount of power. There are downstream consequences to framing a problem in a particular way. Income security is not synonymous with food security. Structural and policy level decisions are exacerbating the distressing paradox of severe need amid plenty. Evidence for the negative effects of poverty on individual and population health continues to accumulate as illustrated in this review.

There is a prominent mindset in the literature that favours charitable or non-governmental organisations role over governmental organizations in addressing food and housing insecurity. Canada is the only G8 country without a national housing strategy. Canada has made numerous domestic and international commitments to the Right to Food through such agreements as The Right to Adequate Food, Committee on Economic, Social and Cultural Rights (CESCR), and Canada's Action Plan for Food Security (Rideout et al., 2007). Furthermore, commitment creates moral, legal, and ethical imperative to bring human rights and social justice framework to address food insecurity in Canada (Rideout et al., 2007). While this imperative exists, the right to food and housing is not a reality for many. An example from Carter and colleagues (2013):

“Everyone should have access to healthy, acceptable food, regardless of income, and that developing redistributive income and other equitable policies is socio-politically complex, time consuming and contentious in some high-income democratic countries, focusing on

how the immediate local environments may improve or inhibit food security could be a potentially fruitful area of research, especially in today's economic climate.” (p. 110)

This commentary highlights the dominating mindset within research and the current attitude towards addressing food security. There is a myriad of community-level interventions to offset housing and food insecurity (Kirkpatrick & Tarasuk, 2010). The moral and ethical imperative is missing in addressing food insecurity, and similarly, the state has failed in addressing homelessness, which is another violation of the Charter of Rights and Freedoms (Hulchanski, 2007). The Ottawa Charter for Health Promotion (1986) recognized shelter, income, food, social justice, and equity among prerequisites for health. Clearly, these fundamental conditions for health are lacking.

### **6.7 Future Considerations**

Our results highlight some of the current challenges in promoting wellbeing and equity in health, and signal areas for future research, practice, and policy. While the challenges to improving wellbeing and equity appear to be large and discouraging, given the influence of the neoliberalism and individualism discourse, system redesign (Stage 3 of the food and housing continuum) is essential for sustained improvement. Despite this, we recommend a continued emphasis focusing on the integration of long-term strategies linking structural determinants of health to improved outcomes, which calls for health-in-all policies (WHO, 2010; Kickbusch, 2013; Walsh, 2016). Most housing and food security interventions in this review aim to prevent or intervene in the development or abating of poor housing or food insecurity, rather than promoting health equity and wellbeing.

Many research projects have investigated the relationship between housing to health (Krieger & Higgins, 2002; Holton, Gogosis, & Hwang, 2010; Cutts et al., 2011) and food to health (Tarasuk, 2001a, b; Tarasuk & Kirkpatrick, 2007, 2009, 2011; Baer, Scherer, Fleegler, & Hassan, 2015), yet a scarcity of research linking or recognizing political discourse and health remains. As policymakers and researchers, we need to question the notion that community-level interventions are the solution to addressing housing and food insecurity. Community-level interventions may not be an effective strategy to ameliorate the problems of food and housing insecurity that are rooted in inadequate financial resources, poverty, and broad structural determinants (Kirkpatrick & Tarasuk, 2010). The growth and institutionalization of food banks

and non-governmental organisations approach to food security has shifted the solution to food security to the benevolence of community rather than a policy debate of rights and social justice (Rideout et al., 2007). Thus, the burden of food insecurity has fallen to charity providing evidence of the breakdown of the social safety net, therefore permitting the state to deny the right to food (Rideout et al., 2007). Typifying food insecurity as a *hunger emergency* contributed to the proliferation of food banking systems, but perhaps shifting to food and housing insecurity as an outcome of government failure will contribute to equitable structural policy changes (Poppendieck, 1995). The continued lack of political will and reliance on charity-based solutions may impede the recognition and implementation of the right to food and housing. Future research highlighting structural determinants and political ideology may provide a pathway to target inadequate resources.

## **6.8 Conclusion**

The task of addressing the SDH in a coordinated way is a large and daunting mission, given the recognizably challenging domination of the neoliberalism and individualism discourse guiding policy and interventions. However, if reducing inequities is truly a health and population challenge worth striving for, political and structural change is essential. An intersectionality perspective in a social justice approach appears as a potential approach in establishing equity in health.. Moving towards intersectoral collaboration may be an asset in achieving systems change. Housing, food, and income are basic life support systems and results from this paper support the movement to providing fundamental life support to the population.

An impetus exists in addressing political discourse in public health and wellbeing. To Walby and colleagues (2012) exclusive investigation of the activities of the disadvantaged conceals reasons that inequities emerge and the role of power in the process. Focusing solely on disadvantage obscures the role of power within inequity (Walby, Armstrong, & Strid, 2012). When attempting to understand, and address the nature of systems and determinants of inequity, it is necessary to understand the ontology of relations and politics in health literature (Walby, Armstrong, & Strid, 2012). One of the ways society can meet the basic life supportive needs of their citizens is to produce public policies aimed to decrease poverty and increase basic life supportive measures. Moving toward health equity and wellbeing requires framing the problem around structural and political influence.

## CHAPTER 7 DISCUSSION

### 7.1 Introduction

In this scoping review, I identified scholarly and grey literature that begins to clarify the strategies, actors, and structures used in governments, community organizations, and academia to address and understand the housing and food intersection. This included literature across a range of global contexts over the last 21 years. The objectives of this review were to:

1. To identify gaps in the literature on the relationship between housing and food, informing where we need more research.
2. To examine public health interventions considering housing, food, and income together.
3. To identify recommendations on how to address multiple SDH from an intersectoral approach.

The overarching research question was “What are the surrounding factors that affect equity and wellbeing in studies that focus on both housing instability and food insecurity?” The previous chapter consisted of two manuscripts prepared for publication. Both manuscripts represent three stages of a continuum of approaches to housing and food security research. The first paper addressed stage 1 and 2, while the second paper addresses stage 3.

In this final chapter, I provide greater detail on findings that did not fit into Manuscripts I and II, such as healthy housing and levels of recommended interventions. First, I review additional information on healthy housing. Second, I present implications for practice, research, and policy from a social ecological perspective. Third, I consider my contribution to knowledge base, and how my study contributes to nursing. Lastly, I finish by reflecting on the limitations of this research, the research process, my motivation for the study, and challenges to my thinking.

### 7.2 Additional Findings on Healthy Housing

As of 2011, 12.5% of Canadians experience core housing need (CMHC, n.d.). Core housing need is when shelter does not meet one or more of the adequacy, suitability or affordability standards, and is 30% or more of household income (CMHC, 2016). While quality, accessibility, and affordability of housing are a public health concern, especially when many Canadians are in such dire straits, I suggest going beyond basic provisioning to optimal housing. In this review, the housing research operated on a spectrum between homeless and affordable

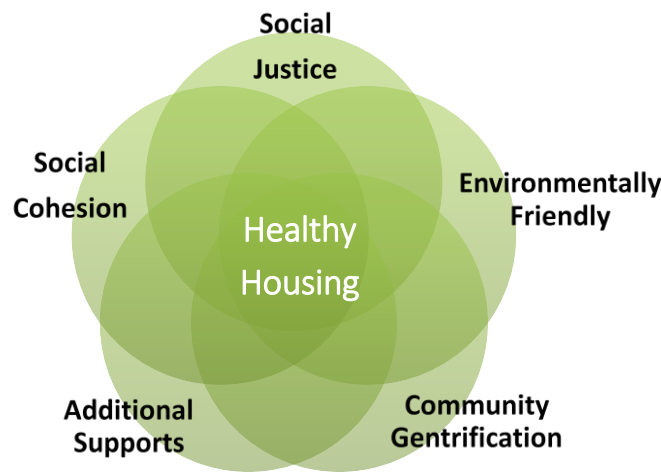
housing. Researchers did not mention going beyond provisioning of basic shelter and affordability, which leaves a gap in the next step beyond basic shelter needs. The process of creating healthy housing may translate to the creation of healthy communities and society. Healthy housing may be an avenue to optimize health by collectively incorporating social, economic, and environmental realms in shelter provisioning.

The process of creating healthy housing encompasses working towards “healthy communities” that enhance the social, economic, and environmental realms (Friendly, 2008). Friendly (2008) cites The Ottawa Charter reference to healthy communities as “supportive environments” (p. 35). The World Health Organization (1986) recognizes “the need to encourage reciprocal maintenance – to take care of each other, our communities and our natural environment...the way society organizes work should help create...living and working conditions that are safe, stimulating, satisfying and enjoyable” (as cited in Friendly, 2008, p. 35). Supportive housing and environments entail conceptualizing health and well-being outside of the health realm and bring together the broader environmental and social concepts.

The literature included in this review holds multiple definitions of housing security. There is a vast body of housing devoted research. I suggest that researchers and nurses can look beyond the basics and envision an optimal level of housing: healthy housing. I define healthy housing as socially just, environmentally friendly, energy-efficient, and gentrifies the neighbourhood, whereby additional supports are available and transforms devalued neighbourhoods into well-developed areas with greater economic value without ghettoizing (Maschaykh, 2015; Waterston, Grueger, & Samson, 2016). I define housing security as a situation in which individuals have access to tenured housing of reasonable quality, stability, and cleanliness, which is affordable through a system that enables autonomy (Frederick, Chwalek, Hughes, Karabanow, & Kidd, 2014; Waterston, Grueger, & Samson, 2015). Healthy housing contributes to housing security. I created a conceptualization of healthy housing in Figure 9. Healthy housing benefits the occupants, community, and environment while promoting social cohesion. For example, some people consider cohousing healthy housing as communal areas promote social cohesion and social interaction, offer a sense of community, emphasise social capital, and include green space (Ruiu, 2015). Additionally, planners have developed mixed-income housing models to reduce socioeconomic imbalances, build sustainable dwelling options, and to settle heterogeneous



residents into a diverse and inclusive community (Maschaykh, 2015). Another example of healthy housing, could be supportive social housing that provides tenants with on-site or closely linked medical, mental health, and substance abuse and misuse services while allowing them to live dependently but support social cohesion (Mammen, Bauer, & Richards, 2009; Miewald & Ostry, 2014; Carley, 2013).



**Figure 9 Conceptualization of healthy housing**

### **7.3 Supplemental Findings on Social Ecological Theory**

I draw on social ecology theory to present the interventions discussed in the review findings because social ecology theory is useful in presenting the multi-level and interconnection of conditions of health, especially food and housing security. I summarize the interventions through various tables and discuss the level of intervention from social ecology theory. My conceptualization of the SDH influencing food and housing security (Figure 7) presents the intertwined conditions of income, material needs, housing status, the built environment, social support networks, and the food environment influence on the pathway to food security and wellbeing.

The fundamental theoretical assumption of social ecological theory is that the interplay among individuals or communities and their environment influences health (Stokols, 1992). In social ecology theory, there is explicit attention to the social, institutional, and culture contexts of people-environment relations, and it draws on preventative strategies of public health and individual-level strategies of behavioral sciences (Stokols, 1992). Reflective of social ecology

theory, Figure 10 represents the environmental, institutional, and individual context influencing food security, health, and wellbeing (Stokols, 1992). Figure 7 is a visual representation of the intertwined nature of my findings includes the outcomes structural origins of food insecurity and poor health beginning with income. The physical environment represents housing status, material needs, and the built and food environment. Social supports represent the social environment. The pathways in Figure 7 span multiple levels. I am presenting health and wellbeing interventions from a social ecological perspective because this orientation reflects the collaboration from individuals, communities, systems, and populations.

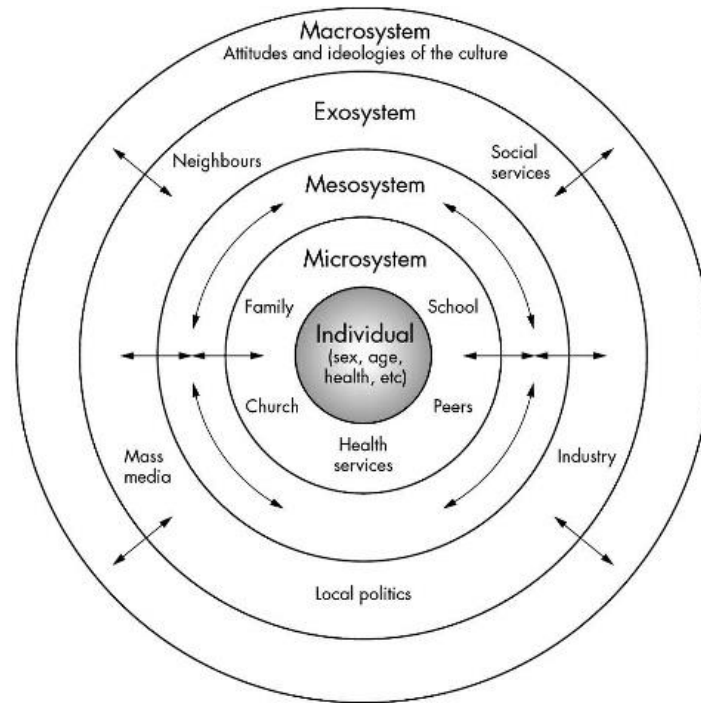
### 7.3.1 Social ecological interventions for health.

The ecological framework, a human development research model, originally conceptualized by Bronfenbrenner (1986), consists of four interrelated systems: the micro system, meso system, exo system, and macro system. Figure 10 is Bronfenbrenner's ecological theory of development from McLaren and Hawe (2005). Bronfenbrenner (1986) original framework aids in the investigation of how the environment impacts human development. Stokols (1992) adapted Bronfenbrenner's framework to develop a Social Ecological Theory as it relates to health promotion.

Ecological perspectives are useful in framing approaches to complex system problems that are interdependent and the interaction within which one system influences other systems (Mammen, Bauer, & Richards, 2009). An ecological approach is useful for guiding research and interventions related to decisions made by the individual in their environments because of the emphasis on multilevel linkages and the relationships among the multiple factors that impact health and well-being (Walsh, 2016). An ecological approach to health recognizes that individuals are embedded within larger social systems, and the interaction between the environment and individual underlie health outcomes (Stokols, 1992; Golden & Earp, 2012).

Bronfenbrenner's (1986) ecological framework spans from the individual to the macro system. Individual and micro system approaches comprise both interventions and processes targeting and used by individuals, and the interpersonal relationships with friends, family, and other social networks (Stokols, 1992; Golden & Earp, 2012). Meso and exo system approaches refer to interplay between the individual, organizations and the community (Stokols, 1992; Golden & Earp, 2012). Lastly, macro system approaches refer to systems and processes related to

policy and structural conditions locally and nationally (Stokols, 1992; Golden & Earp, 2012). By connecting food and housing security, income, well-being, and equity in health requires a system level approach to identify overlapping areas and shared concerns (Walsh, 2016). Identifying levels of approaches aids in recognizing common concerns and gaps. I will now frame recommended interventions and research using an ecological perspective.



**Figure 100** Bronfenbrenner’s ecological theory of development from McLaren & Hawe (2005)

*Individual/Micro system recommendations.*

The focus in these systems is the relations between the individual and other individuals in an immediate situation (McLaren & Hawe, 2005). The micro system includes the connections between persons within the setting, the nature of these connections, and the influence of all these on the individual (McLaren & Hawe, 2005). Individual-level interventions related to food and housing security include assessments and examinations of demographics, the prevalence of insecurities, and health, social, and food service usage or underuse. A list of practice recommendations within the individual/micro system are in Table 11. Primary care screening was the most recommended practice intervention. Much of the micro-connections from the findings of this review emphasize immediate and urgent housing and food needs, such as food provision, individual assessment of insecurities, and prevalence of insecurities in other low-income groups.

While these individual/micro level factors impact food and housing security, the focus on the individual is reflective of positivist science and individualism, rather than the system or environment. Describing housing and food insecurity as individual problems frames the solutions to be an individual one.

**Table 11: Micro System Practice Recommendations**

Author(s)	Intervention(s)
Baer, Scherer, Fleegler, & Hassan, 2015	Online, self-administered tool that screens for and identifies social problems prior to annual medical appointment with primary care provider
Berkowitz et al., 2015	Screening patients for materials needs (food insecurity, housing instability, and energy insecurity) prior to annual medical appointment with primary care provider
Choi et al., 2015	Individual assessments in a community-based AIDS service that incorporate housing and food security
Friendly, 2008	Food delivery services to harder to reach groups and connecting with local growers
Gundersen, Weinreb, Wehler, & Hosmer, 2003	Research investigating the relationship between food insecurity and the propensity towards homelessness among other low-income populations
Hassan et al., 2013	Online, self-administered tool that screens for and identifies social problems prior to annual medical appointment with primary care provider
Heflin & Butler, 2012	Resource worker screening for material hardships in maternal health
Ma, Gee, & Kushel, 2008	Clinician screening for housing and food instability
Moffat, 2008	Housing and food security interventions include (meal provision, food banks, gleaning, food exchange;

	community gardens, kitchens, farmer markets, buying clubs, pocket markets, modifications for the food environment
Palar et al., 2015	Food security and nutrition indicators into HIV monitoring and evaluation and food security screening in primary care
Richards & Smith, 2006	Include nutrition professionals in looking at the building context
Waterson, Grueger, & Samson, 2015	Screening tools for practitioners to identify housing need. A collaborative approach to care involving pro-bono lawyers with a multidisciplinary health team

*Meso and exo system recommendations.*

Meso system connections are interrelated systems from various dimensions such as support, participation, communication, and information in the community, while exo system refers to influential settings in which the person is not directly participating (McLaren & Hawe, 2005). Interactions between the individual and the community include linkages to community resources and programming, community food provision, and community resource modification. Tables 12, 13, and 14 provide a list of meso/exo level recommendations. Shifting to a wider focus from the individual to the linkages or overlapping between settings of which the individual is a participant in their environment directs attention away from the individual, emphasizing ways in which systems intersect to produce health inequities (Walby, 2007; Hill, 2016).

**Table 12: Meso/Exo System Practice Recommendations**

<b>Author(s)</b>	<b>Intervention(s)</b>
Barnard, Wexler, DeWalt, & Berkowitz, 2015	Increase patient linkages to existing community resources and between the healthcare sector and social services sector. Creating diabetes-specific material need support programs in the community

Berkowitz et al., 2015	Provision of resources that can only be used for food (such as Supplemental Nutrition Assistance Program–like assistance or nutritional prescriptions), direct provision of food, or education- and skill-building programs to use available food resources effectively
Carley, 2012	New housing developments to consider food security (in and out of house), retail food environment, urban agriculture, edible landscaping, networks and partnerships with community organizations, food buying clubs, community gardens/kitchens/food markets.
Friendly, 2008	Community gardens in social housing and good food markets to set up food stands in priority neighbourhoods
Gundersen, Weinreb, Wehler, & Hosmer, 2003	Coordination referrals between assistance between programs designed for single mothers with children
Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2015	Partnerships between healthcare providers, policymakers, and parents to address and prevent the poor child health outcomes
Moffat, 2008	Creating social enterprises and community partnerships and networks
Ostry, 2012	Single room occupancy with in-house provision of subsidized meals, expand access to community gardens
Richards & Smith, 2006	Housing should accommodate the food environment
Seed, Lang, Caraher, & Ostry, 2014	Increasing capacity building for civil society
Shaefer & Gutierrez, 2013	Increase and expanding of existing food programs for spillover effects, such as transferable subsidies
Walsh, 2016	Bringing in food security policies and practices into supportive housing

**Table 13: Meso/Exo System Research Recommendations**

<b>Author(s)</b>	<b>Intervention(s)</b>
Barnard, Wexler, DeWalt, & Berkowitz, 2015	Evaluate economic outcomes of programs to create greater support for investment in material need support interventions
Breysse et al., 2016	Participatory action research (PAR) for housing projects Create equity metrics in housing projects
Carley, 2012	Community-based participatory research (CBPR) to benefit the community that involves housing providers and residents
Carter, Dubois, & Tremblay, 2013	Population-based surveys that do not focus on low-income or largely urban, experimental designs, randomization of community interventions
Kirkpatrick & Tarasuk, 2009	Examination of community food programs and assess their relevance to food insecure households
Mammen, Bauer, & Richards, 2009	Examine federal assistance programs in regard to reaching those for whom they are intended, determining if programs adequate, and if the families need another type of assistance
Raphael, Curry-Stevens, & Bryant, 2008	Ethnographic and qualitative research approaches to provide illustrations of housing, food security, and income interaction
Seed, Lang, Caraher, & Ostry, 2014	Understanding of stakeholder limitations Create mutual agendas between public health and the community

**Table 14: Meso/Exo System Policy Recommendations**

<b>Author(s)</b>	<b>Intervention(s)</b>
Friendly, 2008	Social housing providers construct a coherent food security policy that involves tenants, include food policy with non-food policy, create community partnerships
Richards & Smith, 2006	Reevaluate the insufficient aspects of SNAP and other food programs

*Macro system recommendations.*

Macro level interventions play a more distal and indirect role in individual health, yet have a substantial and powerful effect (McLaren & Hawe, 2005). Tables 15, 16, and 17 provide a list of practice, research, and policy recommendations. Macro interventions involve complex structures and resources, and the involvement of multiple groups in a decentralized decision-making process (McLaren & Hawe, 2005). Macro level interventions operate within larger society including housing and food policies or strategies, assistance programs, poverty reduction strategies, and political decision making. While these structural conditions may not directly target food and housing, they remain important factors in broaching housing and food insecurity. Interventions at this level require thinking beyond health within the realm of health to systems level thinking.

**Table 15: Macro System Practice Recommendations**

<b>Author(s)</b>	<b>Intervention(s)</b>
Bryant, 2003	Extension of the federal homeless strategy with expanding new services and shelters
Kim, Kim, Shin, & Lee, 2011	Coordinated food assistance programmes with strategies to address the problems of unemployment and unstable housing
Vijayaraghavan, Jacobs, Seligman, Fernandez, 2011	Structural interventions aimed at expanding access to housing and food for people living in poverty may result in



increased confidence in being able to conduct diabetes self-management

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**Table 16: Macro System Research Recommendations**

<b>Author(s)</b>	<b>Intervention(s)</b>
Kirkpatrick & Tarasuk, 2007	Analysis of food insecurity as a function of economics and re-examine policies related to housing affordability and income adequacy
Kirkpatrick & Tarasuk, 2011	Examination of current housing affordability norms and review of housing interventions to ensure that families can maintain adequate housing and obtain their other basic needs

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**Table 17: Macro System Policy Recommendations**

<b>Author(s)</b>	<b>Intervention(s)</b>
Bailey et al., 2015	State and federal investments in expanding the availability of affordable housing and subsidized housing. Local creation of a trust fund for housing programs using a percentage of home sale revenue for families in poverty
Bocquier, Vieux, Lioret, Dubuisson, Caillavet, & Darmon, 2015	Prioritize financial and geographical accessibility to healthy foods in their nutrition policy
Bryant, 2003	Annual funding for housing \$2 billion from federal government and \$2 billion from provincial and territories. Restoration and renewal of programs resolving housing crisis
Bryant, Raphael, Schrecker, Labonte, 2010	Decisive political and professional leadership for strengthening the SDH and reducing health inequalities. Building of social and political movements that will force the modification of the economic and political structures that shape public policy.
Cutts et al., 2011	Advocate for governmental action and community investment in expanding the supply of affordable housing, increasing funding for housing assistance
Friendly, 2008	Advocate for income security, and all levels of government support in food security
Heflin & Butler, 2012	Revisiting income measures before termination of social services
Kirkpatrick & Tarasuk, 2009	Income policy reform

Kirkpatrick & Tarasuk, 2010	Policy change to address the factors that constrain food purchasing among low-income families (adequate income)
Kushel, Gupta, Gee, & Haas, 2006	Policies to improve housing stability (such as rent support programs, housing vouchers, and expansion of low-income housing availability) and food security (such as through the expansion of the food stamp program) so to improve access to health care and outcomes
Liu, Rashid, Greenlund, Chapman, & Croft, 2014	Policies to improving housing and access to food, environmentally healthful and safe housing for low-income, increase employability to low-income individuals, and food subsidies
Loopstra & Tarasuk, 2013	Income and employment based policy interventions for low-income families
McIntyre, Wu, Fleisch, Herbert, & Emery, 2015	Policies to increase income levels through employment supports, minimum wage increases, and transfers, and policies to increase homeownership
Ostry, 2012	Poverty reduction plan
Rideout, Riches, Ostry, Buckingham, & MacRae, 2007	National action plan for a joined-up food and nutrition policy that involves all sectors, civil servants, and all levels of government. Include policies for education and training of civil servants to accommodate the policies and commitments related to the right to food; food studies and basic human rights education in primary and secondary school curricula and in relevant higher education curricula
Seed, Lang, Caraher, & Ostry, 2014	Increasing capacity building for civil society

Shaefer & Gutierrez, 2013	Policy makers should take economic estimates into account when considering changes to the income transfer program
Sriram & Tarasuk, 2016	Intervening at the level of affordable housing may be an effective strategy to reduce food insecurity in urban areas
Tarasuk, 2001a	Improve household income programming, but also interventions to lessen or offset the costs of other essential goods and services (e.g., subsidized housing), and initiatives to assist low income households in weathering sudden, precipitous changes in income or expenditures
Tarasuk, 2001b	Strategies to improve conditions for low-wageworkers and provide supports for those unable to garner sufficient income, programs to create more affordable housing
Towers, 2009	Food and housing assistance programs in protecting essential resources
Walsh, 2016	An integrative approach to population health equity for tenants in supported housing, produce an integrated, long-term strategy that links all the determinants of health, social justice perspective allows for the concern that the social structural nature of health influences tenants living in supported housing
Waterson, Grueger, & Samson, 2015	National housing strategy, the federal government can lead and facilitate the development of policies and programs to create and maintain affordable housing

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#### **7.4 Implications and Recommendations for Practice**

The findings from this research have several implications for practice that would contribute to reducing food and housing insecurity. Recommendations at the practice level apply to primary health practitioners and community resource workers. From a practice perspective, the

numerous recommendations, which I highlight through Tables 11 to 17, may provide opportunities for addressing multiple SDH.

There appears to be a promising venue for dually targeting SDH interventions in the areas of screening at primary health care clinics and in program integration into social housing projects. These include: 1) integrating food programming into social housing by increasing access to in-house food storage, preparation, and cooking (Richards & Smith, 2006; Miewald & Ostry, 2014; Ostry, 2014; Walsh, 2016); 2) supportive social housing that provides tenants with on-site or closely linked medical, mental health, and substance use and misuse services (Mammen, Bauer, & Richards, 2009; Miewald & Ostry, 2014; Carley, 2013); and 3) implementing a SDH screening tool at annual check-ups to screen patients for a variety of other social problems, including housing and income (Baer, Scherer, Fleegler, & Hassan, 2015; Hassan et al., 2013). Measuring how to implement any of the previous interventions proves to be a challenge for both the researcher and practitioner because of environmental constraints. Practitioners need to be careful with assumptions of their target population, which in turn promotes a comprehensive assessment of the intended intervention and the target audience.

There are few interventions supporting food, housing, and income together. This paucity of interventions may be because of conscious attention to their intersections requires collaboration and investigation that spans and overlaps disciplines. Despite this lack of attention, researchers draw recommendations from their understanding of professional role barriers. This includes: 1) employer willingness, promotion, and support for employees who desire to reach beyond their traditional scope and engage with other sectors (Seed, Lang, Caraher, & Ostry, 2014); and 2) removal of negative recourse of action toward employees who advocate for broad system level change (Tarasuk, 2001; Raphael, Curry-Stevens, & Bryant, 2008).

There is little consensus on how best to approach multiple targeting of the SDH from a programmatic standpoint. For these reasons, I recommend collective responses from multiple stakeholders in research, practice, and policy to address multiple SDH. Democratic participation and inclusion are central to establishing an understanding of the common good (MacDonald, 2015), which requires multiple stakeholders and sectors to be at the decision-making table. This form of public accountability acknowledges individuals right to wellbeing are at stake and the decisions made will affect them (Childress et al., 2002). Ethical practice requires participants to

be explicit about their beliefs and values (Upshur, 2002). Bringing civil society and multiple stakeholders together or a form of regulatory and democratic pluralism has the potential to increase collaborative and accountable work in health and wellbeing decision making.

### **7.5 Implications and Recommendations for Research**

The findings from this research suggest that there is a connection between housing and food security. While this research found diversity in included articles examining housing and food, this variety makes it difficult to draw firm conclusions. Researchers know little about the mechanisms and causal pathways by which food and housing insecurities interact with individual factors to influence health care access and use. It is unclear if food and housing insecurity are predisposing factors for poor access and increased health care utilization, or if there are residual effects of unmeasured components of socioeconomic status (Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee & Kushel, 2008). It would be helpful to conduct secondary research following the completion of a basic income project with a focus on housing and the juggling of resources. In North America, housing is considered unaffordable if shelter costs are 30% or more of total household income (Kirkpatrick & Tarasuk, 2011; McIntyre et al., 2016). Unaffordable housing and competing demands lend to the theme of families prioritizing housing needs over their pursuit of health care and other needs (Kushel, Gupta, Gee, & Haas, 2006; Ma, Gee & Kushel, 2008). Following the completion of the basic income project, a secondary analysis of housing affordability and juggling demands may challenge this affordability norm.

The ecological framework includes community-level factors related to community resources and partnerships, but there is a gap in the evaluation of these programs in fully meeting the needs of their program recipients and a program economic evaluation. Therefore, research is needed to explore economic metrics and service delivery so to garner future support for these programs or consider a more economical and improved delivery model. Findings from this future work may reconcile arguments about returns on investment in SDH programming and provide a much-needed economic evaluative portion.

There is a need for more effective and consistent way to measure and develop the concept of healthy housing. Investigators should endeavor to assess if existing or new co-housing, housing first models, or mixed-income housing benefit the occupants, community, and environment. In particular, how these developments promote social cohesion, community

gentrification, and economic value without ghettoizing (Maschaykh, 2015). This type of research can help justify the existing work of community-level interventions and the possible translation to widespread implementation. Furthermore, this type of research may support upstream and long-term structural level change in urban planning and healthy community development.

## **7.6 Implications and Recommendations for Policy**

There are many implications of this research for policy makers that may improve housing and food security. Unmet health needs and gaps in services would undoubtedly be more visible at a local level generating a response by concerned stakeholders. Local efforts provide a promising venue to address the SDH in a timely matter rather than the often-sluggish governmental response. Nevertheless, this pervading individualism discourse on addressing food and housing insecurity decontextualizes food and housing problems of the poor and accepting their structural origins as given (Tarasuk, 2001). This orientation gives rise to programs designed to help people cope better with their poverty rather than decrease poverty (Tarasuk, 2001). However, this research, especially the lengthy list of policy recommendations by authors in Table 17, shows that it is important for countries and organizations to have policy supports and resources in place to facilitate the development, evaluation, and sustainability of their interventions. Particularly, if the desired impact extends beyond a local level and decreases reliance on charitable services, such as a poverty reduction strategy and expanding the stock of affordable housing.

Table 17 presents a lengthy list of policy level recommendations, which suggests there is a strong recognition of the macro system influence on the SDH. As such, they are amenable to governmental agencies and sectors other than health who manage policies. Thus, solving inequities likely requires collaboration between government departments and cross-sector agencies. Health-in-all policies reaffirm the structural causes of inequities and endorse acting as far upstream as possible to address problems (St-Pierre, 2017). Health-in-all policies is an approach to public policy and research that spans sectors to take in account health implications of decisions, seeks synergies, and avoids harmful impacts to improve population health and health equity (WHO, 2010; Kickbusch, 2013; Walsh, 2016; St-Pierre, 2017). Health-in-all policies reflect an intersectionality perspective in that it requires participation from multiple actors to come together and recognize the intersecting aspects of their disciplines and societal structure (Walby, Armstrong, & Strid, 2012). Drawing on concepts of intersectionality, social justice,

intersectoral collaboration, health-in-all policies establishes a system of intersectoral governance based on the responsibility of all sectors towards equity in health (WHO, 2010; Kickbusch, 2013; Walsh, 2016; St-Pierre, 2017).

Future macro level research, interventions, and policy needs to be more systematic in investigating the food and housing relationship in the context of structural determinants. This strategy may help determine if changes in a more socially just orientated political ideology influence the policies needed for furthering the SDH agenda. It is increasingly important to conduct research, like that conducted by Raphael, Curry-Stevens, and Bryant (2008) and Raphael (2016), to determine the impact of political ideology in influencing system level change. Connecting food security, housing security, economics, poverty, politics, and health would require a systems approach to identify common concerns and areas that overlap (Walsh, 2016). Research that continues to build and disseminate the evidence for collaborative work in integrating food security within housing and how systems impact the SDH will help to inform the best practices to address this need (Walsh, 2016).

## **7.7 Limitations**

This study is not without limitations. The major limitations relate to study design. Firstly, only studies published in English were included, potentially excluding significant research conducted in other languages. Given this language bias, the paper examines studies primarily from English speaking regions of North America, France, and South Korea. This limitation means I am unable to judge whether results from this study are applicable to other international contexts.

The review is further limited because of the manual reviews of articles. During this revision, I was subjective in my interpretation of both the context of housing and food literature and their description in the articles. As a limitation of this review, I may have excluded some of the articles because of their marginal inclusion of both housing and food or marginal context of multiple determinants according to my interpretation.

As well, because of the objectives (i.e., to broadly describe food and housing, identify gaps and suggest future directions for research, practice, and policy), I did not apply quality filters, which is consistent with other scoping reviews but are also not required in the traditional methodology. Despite this, broadly scoping the literature was warranted as the results from this



review show that the literature conceptualization housing and food together is still relatively scarce. Excluding a quality filter enabled me to include documents outside of peer-reviewed articles, such as grassroots publications.

Due to conflicting schedules and time constraints, the final stage of the scoping review methodology is not complete at the time of writing this thesis. The intent of this meeting was to present my findings and engage in a discussion about relevancy of the results and therefore increase the validity of the research. Step 6 in the scoping review methodology is an optional consultation exercise that includes practitioners, scholars, and consumers in the review. Although this step is not required, it may increase usefulness of the product. For this review, consultation is in terms of knowledge translation (KT). KT is defined by the Canadian Institute of Health Research (CIHR) as a “dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the healthcare system” (p. 1) (Grimshaw, 2010).

The key purpose of KT is to address the gap between what is known from research and implementation by stakeholders to improve health outcomes (Grimshaw, 2010; Graham, Logan, Harrison, Straus, Tetroe, Caswell, & Robinson, 2006). A meeting was held with public health professionals working in health equity and health promotion departments. In this meeting, I presented my findings in a form of PowerPoint presentation (Appendix E). During this meeting, I reported my key findings and discussed the results with the group of knowledge users as a form of validation of my research. Validity of the results will enhance the rigor of this scoping review. Appendix D contains a summary of major points discussed.

My account of the housing and food relationship necessarily reflects the strengths and limitations of the existing literature. In analyzing this work, I sought to provide an account of the current relationship conceptualizations and associations, while exploring structural determinants influencing wellbeing. Attentiveness to political ideology reveals important implications for further research, professional, and advocacy work. While this astuteness is promising, there is an apparent lack of economic discourse. Many proponents of advancing the SDH agenda understand the long-term benefits of all-encompassing and holistic policies, but the corporate and political leaders may require further persuasion. The description of these complex, multi-actor processes

was superficial and sometimes entirely absent. Richer sources of information such as interviews or ethnographic studies may facilitate a more comprehensive understanding from the perspective of multiple sectors. An economic argument may be a powerful resource to add this to this discussion.

## **7.8 Contribution to Knowledge Base**

It is clear that much of what I have identified in this research is not new. Poverty, housing, and food and income insecurity are included in much of the public health and SDH discourse. Bryant (2003), Raphael, Curry-Stevens, and Bryant (2008), Heron (2008), Raphael (2016) and Coburn (2000, 2004) document well the effects of neoliberalism and individualism. In this study, however, I attempted to collect and summarize food and housing literature as an exemplar of how to understand and address structural determinations of health and avenues to consider multiple SDH targeting.

### **7.8.1 How this applies to nursing.**

For me, nursing is about promoting health and wellbeing of individuals, communities, and society. Although researchers primarily outside the discipline of nursing developed the literature on housing and food, exploration of these concepts within nursing may assist nurses to consider situations and experiences that are challenging, elusive, and perhaps daunting to address in patients' lives. This research can contribute to nurses' knowledge of food insecurity, housing, and structural determinants imposed on communities. As represented by included literature, housing and food security are a relatively understudied area in nursing. Nurses work in acute care, community, and public health, and undoubtedly have firsthand accounts of the health outcomes of poor housing and food insecurity.

The rationale for nursing engagement in policy advocacy is our moral obligation to serve as social change agents. Nurses have a moral obligation to support advocacy across the continuum from emergency food and shelter response to policy changes and political engagement (Falk-Rafael, 2005). As Falk-Rafael (2005, p. 222) has pointed out, "Nurses practice at the intersection of public policy and personal lives; they are, therefore, ideally situated and morally obligated to include sociopolitical advocacy in their practice." This obligation challenges nurses to confront oppression on a continuum from the individual to the system. Striving to overcome oppression is important in nursing.

Seldom is political discourse discussed in this collection of housing and food literature. Careful consideration of how we structure society and policies are necessary to work toward socially justice and rights-based housing and food security. Until we have a more equitable society, nursing, among other professions, will be required to take a politically partisan position and take a public stand on important policy issues that affect the population. Nurses' political action can expand into notions of caring in nursing to include political responsibilities to respond to social injustices, like housing and food insecurity, that impact population health (Bekemeier, 2008). Embodying moral considerations contributes to and falls within public health ethics (Childress et al., 2002). Recognizing and supporting health-promoting and moral imperatives, like the provision of healthy housing and food, may be supportive in creating healthy public policies (Childress et al., 2002).

Nurse philosophers have recognized nurses' work, ideas, and knowledge development efforts are not limited to problems and solutions emerging from the dominant discourse or tradition but reflect the complexity of contemporary issues facing human rights (Kagan, Smith, Cowling, & Chinn, 2009). This recognition brings attention to the moral obligation and responsibility of nurses to address human rights in and outside of the healthcare arena. There is an ethical obligation for the Nursing discipline to work towards establishing forms of knowledge capable of capturing both the root causes and complexity of contemporary issues, such as housing and food insecurity (Kagan et al., 2009). This thesis is a small representation of nursing knowledge development that targets structural determinants of health.

### **7.9 Reflections on the Research Process**

In this final section, I reflect on my motivation for this study, my role in the research, and my learning during the research process. My motivation for this study is grounded in my passion for social justice. The defining feature of social justice is equity (Boutain, 2012). Equity is concerned with fairness and distribution of resources for all people (Dahlgren & Whitehead, 2007). Social justice discussions are common in nursing literature, most of which discuss social justice regarding protection of the vulnerable and working with marginalized groups (Boutain, 2012). While I encourage the continued focus on vulnerable and marginalized groups in nursing, I have a passion for social justice spanning individual groups to populations. I have a strong belief in affecting change at the structural level, which I believe has greater effect on improving

outcomes than working with individuals. The complexity of health issues and their expansive nature go beyond the domain of health. The health issues seen in various populations can be viewed as the symptoms of larger, more complex issues faced globally with effects also seen in political, social, and economic manifestations. Intervening in population health challenges necessitates a social justice orientation to transform systems that promote oppression and privilege (Boutain, 2012). I believe nurses have a social obligation to address forms of oppression and inequity that go beyond the dimension of health.

This research was an engaging opportunity to explore greater systems thinking, which went beyond my traditional undergraduate nursing education. While my undergraduate education provided me with valuable knowledge, the research process was a learning curve. There were several challenges and opportunities to expand my knowledge about housing and food security, which I have only minimally considered before conducting this research. The literature review process helped rally my knowledge about the existing gap between housing and food security research and reaffirmed my motivation to fill this gap. While the gap between housing and food security research remains expansive, there is much promising work in the future.

While I felt that there is legitimacy in my findings, I wanted to produce something tangible. In this sense, I felt challenged about how to produce work that provides utility beyond knowledge creation and how to translate results that were useful outside of academia. In working with community groups and producing simple, yet attractive figures conceptualizing housing security and the SDH interplay with housing and food, I hope that my research will benefit community members. While I felt limited in my capacity to affect change at this stage in my academic career, the knowledge I developed during this thesis expanded my thinking, motivating me to pursue this topic at a doctorate level. I believe doctoral studies and research will further expand my interests and benefit my future work as a clinician, academic, and researcher.

## **7.10 Conclusion**

Overall, there is a pressing need for the expansion of evidence-based housing and food policies, research, and interventions that reduce insecurity. Thus, an impetus exists in addressing political discourse in public health and wellbeing. One of the ways society can meet the basic life support needs of their citizens is to produce public policies aimed at decreasing poverty and increasing basic life-supportive measures. However, moving toward health equity requires

framing the problem around structural and political influence. If housing and food policies are guided by documented successes in practice and evidence in research, we can work locally and nationally to mitigate harm from poor policies. Eventually, we can work together to move toward an equitable society whereby we dissolve the paradox of those in need amid plenty.

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## APPENDICES

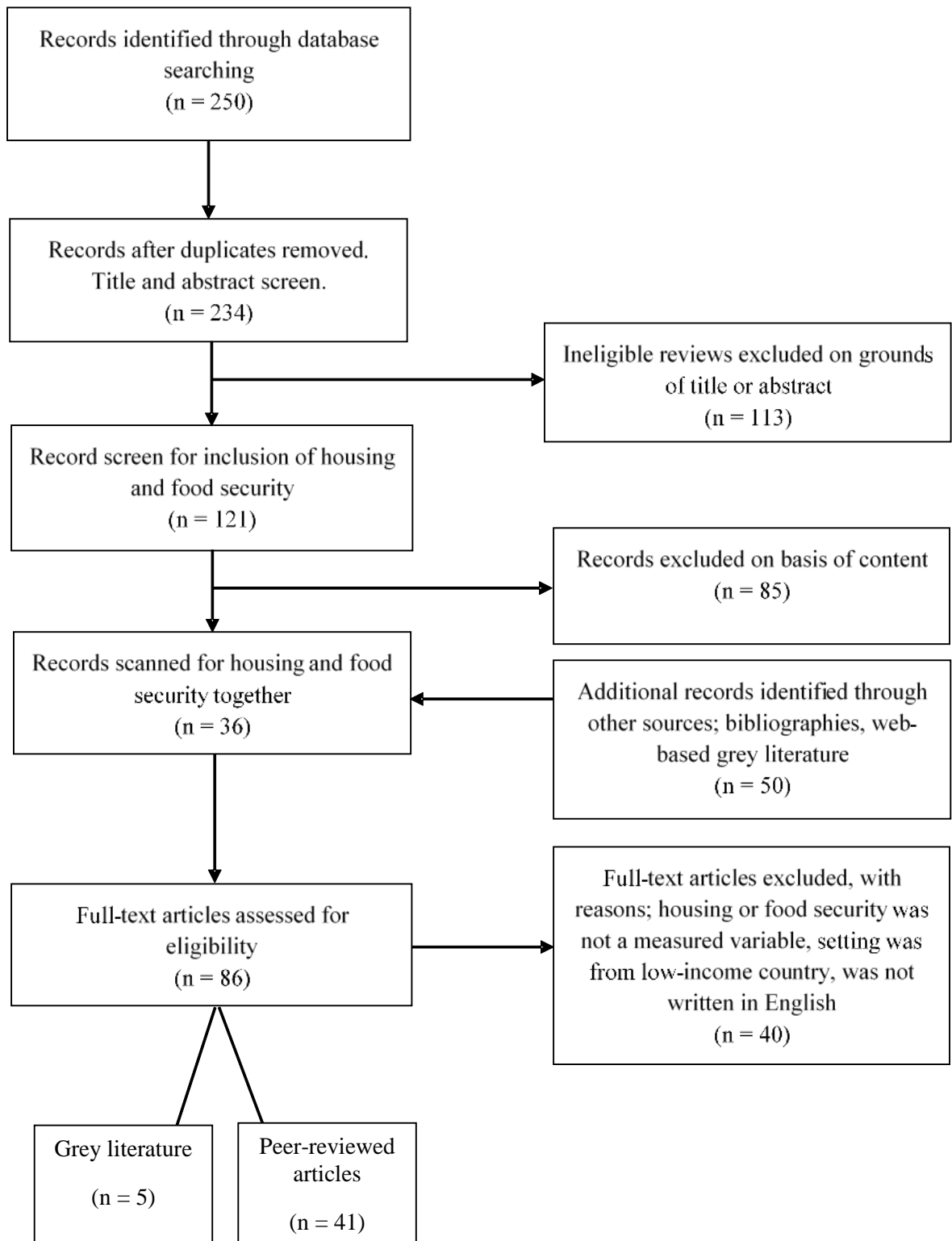
## Appendix A: Terms Searched

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Housing	Substandard housing	Housing conditions
Housing instability	Housing stability	Housing security
Housing insecurity	Food security	Food insecurity
Health	Food supply	Food
Income	Poverty	Water
Sanitation	Water and sanitation	Intersectionality
Multisector approach	Health equity	Social determinants of health

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## Appendix B: Search Strategy



## Appendix C: Ethics Exemption

**From:** Radcliffe, Beryl  
**Sent:** Friday, March 17, 2017 3:55 PM  
**To:** Martin, Wanda <wanda.martin@usask.ca>  
**Subject:** RE: Ethics Exemption?

Hi Wanda, so the health professionals [HP] are commenting on her report? If so that wouldn't change the exemption. She would have to collect information about the HP to answer a research question for that to change.

Here's another TCPS Article 2.1 for you to consider:

**Exemption Article 2.1** states "research may involve interaction with individuals who are not themselves the focus of the research in order to obtain information. For example, one may collect information from authorized personnel to release information or data in the ordinary course of their employment about organizations, policies, procedures, professional practices or statistical reports. Such individuals are **not considered participants** for the purposes of this Policy. This is distinct from situations where individuals are considered participants because they are themselves the focus of the research.

Research Services and Ethics Office  
Phone: 306-966-2084



NEW Address 218 Thorvaldson  
110 Science Place  
Saskatoon, Saskatchewan S7N 5C9

## **Appendix D: Summary of Consultation**

Present at meeting: Public health nurses, dietitians, epidemiologists, and my supervisor

Housing:

- Juggling food budget for housing costs
- Safety and quality of shelter are important
- Even when accessing subsidised programs meeting housing and food needs are difficult
- Questioned focusing on food security rather than housing security

Food affordability:

- Healthy eating is expensive, so it is difficult to eat healthy

Built environment:

- Questioned standards of walking distance in proximity to food resources
- Poor public transit, is a barrier for families accessing food
- High median income neighborhoods ellipse families struggling in housing status and food security; single family dwelling homes and low-income properties
- Schools in high-income neighbourhoods do not provide meal programs for students

Food environment:

- Community kitchens were identified as useful resource, especially when child care and transportation is provided. Noted additional benefits related to trust, social cohesion, and support networks

Income:

- Noted as a major struggle for community members.
- PHN feel helpless in regard to not being able to meet their clients needs, because additional income support is out of their control
- Discussed how a living wage is necessary to have needs met and current minimum income is significantly less

Practice:

- Inquired about a framework to guide social housing with a conscious focus on food security
- Noted practitioners going beyond their role: buying food for families, assisting in arranging alternative accommodations, and informal networks (experts in transferring leases)
- A limited scope SDH screening pilot project related to ethnicity is currently being conducted in acute care
- PHN were conscious about equity; those who need more should be receiving more



## Appendix E: Consultation Presentation Slides


 UNIVERSITY OF SASKATCHEWAN

# A place to cook: A scoping review

SHR Health Promotion Team


June 20

Lindsey Vold, RN, BSN, Master of Science in  
Nursing Student  
College of Nursing  
University of Saskatchewan

 UNIVERSITY OF SASKATCHEWAN

## Agenda

- Meeting Purpose
- Study Overview
- Methodology
- Review Findings
- Feedback

 UNIVERSITY OF SASKATCHEWAN

## Meeting Purpose

- Final stage of a scoping review methodology
- Form of knowledge translation with professionals
- Objective: Assess results relevance with knowledge users
- Goal: Form of study validation

\*\*Ethics exempt

## Methods

### Research Question

- “What are the surrounding factors in studies that focus on housing instability and food security that affect equity in health and wellbeing?”

## Study Overview

- Study purpose and aim: Discover and describe the housing and food insecurity relationship

### Objectives:

1. To identify literature gaps informing where we need more research.
2. To examine interventions considering housing, food, and income together.
3. To identify recommendations on how to address multiple SDH from an intersectoral approach.

## Methodology

- Arksey and O’Malley (2005) scoping review methodology

### Six stage process:

Stage 1: identifying the research question

Stage 2: identifying relevant studies

Stage 3: study selection

Stage 4: charting the data

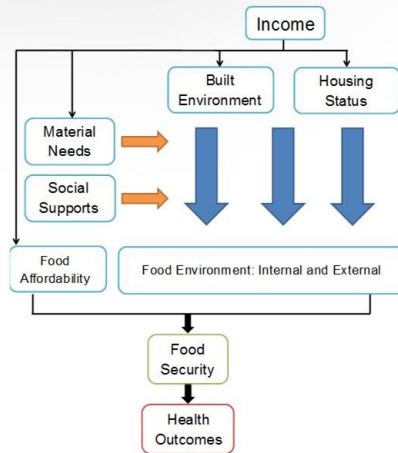
Stage 5: collating, summarizing and reporting the results

Stage 6: Consultation

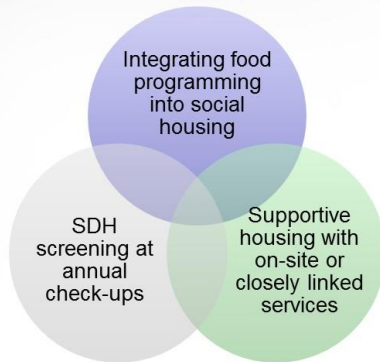
We are here!

**Social Determinants of Health Shaping Housing, Food Security, Health and Wellbeing**

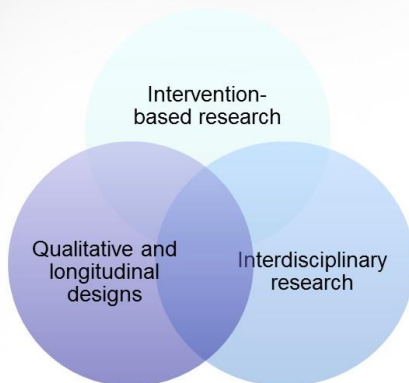
These conditions influence the pathway to food security and resulting health and wellbeing.



**Recommendations – for practice**



**Recommendations – for research**



## Feedback

- Do the results...
  - Make sense or not?
  - Are realistic or feasible?
  - Resonate with you? Why or why not?
  - Have the potential to be useful in the future – for research, practice, policy?
  - Is there something I missed?

## Thank you for your time

Lindsey Vold

[Lindsey.vold@usask.ca](mailto:Lindsey.vold@usask.ca)

**Appendix F: Data Collection Table**

Author(s) & Country & Source Type	Question or Objective	Tools & Design	Subjects of Study	Variables Measured	Outcomes	Major Findings	Personal Reflections: Themes, unique contributions, comments	Housing (In)Security Definition	Food (In)Security Definition	Intervention & Level of Intervention: Individual, Micro, Meso, Macro
<b>(Baer, Scherer, Fleegler, &amp; Hassan, 2015), United States, Journal Article; Quantitative, Scholarly</b>	(1) Determine the prevalence of food insecurity; (2) examine the association between presence and level of food insecurity with other health-related social problems; and (3) assess the predictive values of a two-item	Cross-sectional secondary data analysis using a web-based questionnaire	Urban youth aged (15-25 years)	Food insecurity, health care access, education, housing, income insecurity, substance use, and intimate partner violence	Occurrence of social problems and severity of food insecurity	The two-item screen effectively detected food insecurity. Youth have significantly greater odds of additional social problems with health care access, education, housing, income insecurity, and substance use. As severity of food insecurity increased, youth had a significantly higher associated risk of additional social problems	Food insecurity screening may lead to identification of other health related social problems. Food insecure youth experience higher cumulative burden of social problems. Overlapping and compounding of health issues.		"Food insecurity is the uncertainty of having, or inability to acquire, enough food to meet the requirements of all members of a household because of financial or resource constraint" p. 601	The Online Advocate: self-administered, Web-based system that screens for and identifies social problems in multiple domains and a two-item food insecurity screen.  - Micro

	food insecurity screen in an urban youth population.									
<b>(Bailey et al., 2015), United States, Journal Article; Quantitative, Scholarly</b>	Examine the relationship between housing insecurity and availability of housing that is affordable to low-income households .	Cross-sectional questionnaire	Low-income urban households with children (< 3 years)	Subsidized housing availability occupied and unoccupied	Occurrence of hardships and level of housing security	Results estimate that if subsidized units are made available to an additional 5% of the eligible population, the odds of overcrowding decrease by 26% and the odds of families making multiple moves decrease by 31%. Households that are behind on rent payments are at an increased risk of multiple hardships (housing, energy, and food insecurity). 51% of participants were receiving SNAP, and 83% receiving Special Supplemental Nutrition Program for Women, Infants, and Children.	Increase in subsidized housing could impact housing insecurity. Freeing up of finances from housing to go elsewhere. Increasing subsidized housing stock reduce housing insecurity and improve the health and well-being of young children, including their families' food security status. Relatively small improvements in meeting housing needs can have a notable impact on reducing housing insecurity.	"housing insecurity defined as overcrowding (two or more people per bedroom and/or temporarily doubling up with another household because of financial difficulties ), and/or moving more than once in the past year" p. 172	"Food insecurity is the lack of access to enough nutritious food for active and healthy lives" p. 173	State and federal investments in expanding the the availability of affordable housing. Local creation of trust fund for housing programs by a percentage of home sale revenue for families in poverty.  - Macro

<b>(Barnard, Wexler, DeWalt, &amp; Berkowitz, 2015), United States, Journal Article, Non-participant Systematic Review, Scholarly</b>	To summarize evidence regarding the effectiveness of interventions that help patients meet material needs in order to improve diabetes outcomes	Systematic Review	Adults (> 18 years) with diabetes mellitus (DM)	Categorized interventions as food, housing, medication, or income-based	Unmet material needs and diabetic outcomes	Unmet material needs, such as food insecurity and housing instability, are associated with increased risk of diabetes and worse outcomes among diabetes patients. Interventions to support food, housing, and income may prevent diabetes and lower diabetes-related mortality. Found no studies that demonstrated improved diabetes control by addressing unmet material needs.	Present evidence that interventions to support food, housing, and income that may prevent diabetes and lower diabetes related mortality. Comment on how housing and food are thought to be domains of other disciplines, but the SDH should be important clinic targets		"we define a material need insecurity as limited or uncertain access to the needed material(s) due to cost" p.1	Advocate for increasing patient linkage to existing community resources and creating diabetes-specific material need support programs in the healthcare sector and social services sector. Economic evaluation to create greater support for investment in material need support interventions  - Micro - Meso - Macro
<b>(Berkowitz et al., 2015), United States, Journal</b>	To determine the association of food insecurity,	Cross-sectional questionnaire	Adults (> 21 years) with DM	Food insecurity, cost-related medication underuse,	Diabetes control, emergency department visits, and acute care	Material need insecurities were common among patients with diabetes mellitus and had varying but generally	Food insecurity, cost-related, medication underuse, housing instability, and	"housing instability, which could include homelessness	"food insecurity, defined as limited or uncertain availability	Screening patients for material needs prior to annual medical

<b>Article; Quantitative, Scholarly</b>	cost-related medication underuse, housing instability, and energy insecurity with control of diabetes mellitus and the use of health care resources.			housing instability, and energy insecurity	hospitalizations	adverse associations with diabetes control and the use of health care resources. Material need insecurities may be important targets for improving care of diabetes mellitus. Patients with food insecurity, cost related medication underuse, and housing instability were significantly more likely to have poor diabetes control compared with their secure counterparts.	energy insecurities were common among the respondents despite high levels of coverage. Although all material need insecurities had some moderate association with poor clinical diabetes control or the increased use of healthcare resources, no single insecurity was associated with all outcomes. Overlapping of multiple conditions	ess as an extreme form, evictions, frequent moves, or moving in with friends or relatives to share living expenses in the past 12 months" p. 258	of food owing to cost" p. 258	appointment with primary care provider. Provision of resources that can only be used for food (such as Supplemental Nutrition Assistance Program-like assistance or nutritional prescriptions), direct provision of food, or education- and skill-building programs to use available food resources effectively.  - Meso
<b>(Bocquier, Vieux, Lioret, Dubuisson, Caillavet</b>	To assess the prevalence of household food	Cross-sectional secondary analysis	Nationally representative	Living conditions (housing tenure, having a garden, car	Prevalence of food insecurity, socioeconomic and behaviour	Individuals experiencing food insecurity represented 12.2 % of the population. They were younger, more	Associate food insecurity with income and poor housing.		"Food insecurity exists whenever the availability	Prioritize financial and geographical accessibility to healthy foods and



<p>, &amp; Darmon, 2015), France, Journal Article; Quantitative, Scholarly</p>	<p>insecurity in France and to describe its associations with socio-economic factors, health behaviours, diet quality and cost (estimated using mean food prices).</p>	<p>s of self-administered questionnaires, interviews, and a 7d food record</p>	<p>sample</p>	<p>ownership, self-cooking facilities), health behaviour (activity, work/days off, and smoking status), and diet (food consumption, diet cost and quality)</p>	<p>characteristics and living conditions, food group and, diet quality, and diet cost</p>	<p>frequently women and single parents with children. They reported poorer material and housing conditions. Food insecurity is currently not routinely monitored in France and France is not spared from FI.</p>	<p>Provides a European perspective.</p>		<p>of nutritionally adequate and safe foods or the ability to acquire acceptable food in socially acceptable ways is limited or uncertain. Food security implies that all people, at all times, have access to enough food for an active, healthy life 'without resorting, e.g. to emergency food supplies, scavenging, stealing and other coping strategies" p. 2952</p>	<p>their attractiveness in nutrition policy and routine monitoring of food insecurity.</p> <ul style="list-style-type: none"> <li>- Micro</li> <li>- Macro</li> </ul>
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<p><b>(Breysse et al., 2016), United States, Journal Article; Non-participant systematic review, Grey</b></p>	<p>Health impact assessment (HIA) is a tool for bringing housing and health together to maximize the impact of specific policies, plans, and programs for a wider set of societal goods. A review of 40 housing HIAs conducted in the U.S.</p>	<p>Systematic Review</p>	<p>Housing providers and public health</p>	<p>Impact of housing decisions on access to transportation, jobs, parks and open space, and healthy foods; housing quality. The impact of housing policies on neighborhood segregation by race and socioeconomic status</p>	<p>Maximize health and housing</p>	<p>Of the 40 HIAs, 11 focused directly on housing policies, codes, structural design, or energy delivery systems. The remaining pertained to the broader built environment (e.g., community redevelopment, transportation, planning) with at least one component of the decision-making process focused on housing. A variety of agencies have led HIAs, including non-profit organizations, public health departments, and academic institutions.</p>	<p>Provides guidance for conducting future housing HIAs; is practical and actionable; PAR. They provide a tutorial on the major housing programs as a means of helping public health professionals understand the links between housing programs and public health. Recognizes the built and internal and external food environment in housing developments. Practical examples.</p>			<p>Recommendations for the six steps in HIA. Involvement of the affected community in consultation and decision making, equity should be considered at every step with proper metrics.</p> <ul style="list-style-type: none"> <li>- Individual</li> <li>- Micro</li> <li>- Meso</li> </ul>
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<b>(Bryant, 2003), Canada, Journal Article; Non-participant, Scholarly</b>	The purpose of this article is to consider how housing insecurity in Canada can be conceptualized as a social determinant of health.	Discussion Paper	Canadian general population	SDH and policies and politics		Housing issues have not been high on the agenda of most health researchers in Canada and the federal government and many provincial governments have withdrawn from the provision of social housing over the last decade. To end the current housing crisis and insecurity, governments must increase their spending on housing by 1% of overall spending and adopt a national housing strategy that recognizes that housing affects the population's health and other social determinants of health.	Conceptualizes how structural conditions shape the SDH, including housing and food security, and resulting health status.			Annual funding for housing \$2 billion from federal government and \$2 billion from provincial and territories. Restoration and renewal of programs resolving housing crisis. Extension of the federal homeless strategy with expanding new services and shelters.  - Macro
<b>(Bryant, Raphael, Schrecker, Labonte, 2010), Canada, Journal Article; Non-participant,</b>	To analyze the reasons for missed focus on the social determinants of health (SDH) and as a means of advancing the SDH agenda.	Discussion Paper	Canadian population and politics	SDH and policies, politics and trends	Reasons and opportunities to advance the SDH	Suggest the past three decades have seen a weakening of Canada's capacity to address health inequalities by way of reducing the inequitable distribution of the social determinants of health. Identify two explanations of how policy directions came about: (a) inadequate or	Discuss how public policy can promote redistribution and influence the quality of SDH			Decisive political and professional leadership for strengthening the SDH and reducing health inequalities. Building of social and political

Scholarly						ineffective knowledge generation, dissemination, and translation, and (b) changes in Canada's political and economic economy, partly related to increased integration into the world economy, and associated with shifting political allegiances and values.				movements that will force the modification of the economic and political structures that shape public policy.  - Macro
<b>(Carley, 2013), Canada, Governmental Report; Non-participant, Grey</b>	The purpose of this action framework and resource guide is to provide a broad range of ideas that housing providers can take to strengthen the food security of their tenants.	Governmental Report; Framework and Guide	Social housing residents	Social housing, food security. Assessment and Monitoring, research, built environment, social enterprise, partnership, Food programs and resources	Food security integration into social housing	Explored the direct and indirect links between food security, housing and population health and began to make the case for a strategic approach that integrates food security into social housing. It is meant to stimulate ideas and action, providing some of the promising practices and key information resources for housing providers to help in their efforts to improve the food security levels in their tenant populations.	Provides actionable items in assessment and monitoring, research, built environment, social enterprise, partnerships, and food programs and resources.		"Food security exists when "all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Food insecurity exists	New housing developments consider food security (in and out of house), retail food environment, urban agriculture, edible landscaping, networks and partnerships with community organizations, food buying clubs, community gardens/kitchens/food markets.

									whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain” p. 5	Community-based participatory research that involves housing providers and residents to benefit the community.  - Micro - Meso
<b>(Carter, Dubois, &amp; Tremblay, 2013), Canada, Journal Article; Non-participant, Critical Review, Scholarly</b>	The purpose the paper is to conduct a comprehensive and critical review of the published literature in order to shore up the knowledge base on place and food insecurity.	Literature review	Non-institutionalized individuals in the general population	Local place characteristics in relation to self-reported food insecurity	local environmental characteristics in relation to individual/household-level food insecurity, social capital, food environment, social environment, socioeconomic environment	Rural living was inversely associated with food insecurity. Mixed results were seen for other place measures such as social capital and distance to food stores. Heterogeneity in measures of place/food environment, SES understudied in housing and food, and gender not controlled for. Future research: longitudinal designs, population-based samples that do not focus exclusively on low-income, finer grained definitions, and	Mixed or contradictory to other research in advocating for removal of food deserts. Research recommendations reflect other findings in this review results. Interesting opportunities for future research		"Food insecurity exists when there is limited or uncertain access to nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable way" P. 94	Population-based surveys that do not focus on low-income or largely urban, experimental designs, randomization of community interventions  - Meso

						a specific focus on place; especially living location. Including housing/residential density, land-use mix, farming, social capital, explore how transportation methods can influence food insecurity.				
<b>(Choi et al., 2015), Canada, Journal Article; Quantitative, Scholarly</b>	To better understand people living with HIV who are homeless or unstably housed and poor health outcomes, we conducted a longitudinal study to examine the impact of food insufficiency and housing instability on overall physical and mental health-related quality of	Longitudinal questionnaires. PLHIV administered the questionnaires	People living with HIV who are homeless or unstably housed.	Food insufficiency and housing instability	Overall physical and mental health-related quality of life (HRQoL)	Significant, negative association between food insufficiency and physical and mental HRQoL outcome. Measured housing conditions and stability through a 26-item questionnaire that included questions on: homelessness (history of homelessness; lack of a fixed, regular, adequate night-time residence, e.g., a shelter, welfare hotel), difficulties affording housing (difficulty paying housing expenses; experience of housing-related discrimination), living with dependents (children; spouse), sense of belonging to one's neighbourhood, whether one's current residence is in a good location, history of	Findings about the associations among food insecurity, unstable housing and poorer health outcomes reinforce the critical importance of addressing the social determinants of health as an integral part of HIV care. Their findings raise concern about the effectiveness of current policies and programmes aimed at addressing food insufficiency among people living with HIV, citing no		Assessed food insufficiency by asking the following question: "In the last 12 months, have you ever experienced difficulty buying enough food?". Furthermore, we assessed the use of food bank services in the past 12 months.	Individual assessments in a community-based AIDS service that incorporate housing and food security.  - Individual - Micro

	life (HRQoL) among people living with HIV in Ontario.					incarceration and living in the Greater Toronto Area	national food strategy and subsidized housing not freeing up enough income for food. One of the few studies looking at housing and food together AND outcomes related to health, and was longitudinal in design.			
<b>(Cutts et al., 2011), United States, Journal Article; Quantitative, Scholarly</b>	Investigated the association between housing insecurity and the health of very young children.	Cross-sectional interviews	Low-income parents with children (<3 years)	Secure housing, crowding, multiple moves, and health	Food insecurity, child health status, developmental risk, weight, and housing insecurity	Housing insecurity is associated with poor health, lower weight, and developmental risk among young children. Housing insecurity is an important marker for food insecurity. Multiple moves had a stronger relation with food insecurity and fair/poor child health than crowding, suggesting that multiple moves are a more severe form of housing insecurity. The association between housing insecurity and measures of children's health and development provide evidence of the vulnerability of	The association between housing insecurity and measures of children's health and development provide evidence of the vulnerability of children who have insecure housing but who are <i>not</i> homeless. One of the few studies to target the association between housing and food security. Evidence for housing	"Housing insecurity were crowding (>2 people/bed room or >1 family/residence) and multiple moves (two or more moves within the previous year)" p.1508	"households were food insecure if they scored at a level indicating they could not afford enough nutritious food for active, healthy lives, and if this condition resulted from constrained resources" p.1509	Advocate for governmental action and community investment in expanding the supply of affordable housing, increasing funding for housing assistance, and stabilizing families in uncrowded housing they can afford can alleviate housing insecurity.  - Meso

						children who have insecure housing but who are not homeless.	insecurity as a marker for food insecurity.			- Macro
<b>(Friendly, 2008), Canada, Governmental Report; Qualitative, Grey</b>	The purpose of this report is to help develop food security policy, with a specific focus on social housing providers in Canadian cities.	Literature review and case study	Social housing residents	Food security and housing	How to integrate food security in social housing	This study focuses on developing a policy framework around the notion of community food security (CFS), an alternative approach for dealing with food insecurity that applies participatory community development strategies. Reviews the overall Canadian policy context to assess Canada's past and present performance on food security. 14 suggestions informed by interview responses from key informants, a literature review and successful case studies that offer insight to support the change to a coherent food security policy for the social housing sector.	An attempt to bridge housing and food programs or bridge them with other multipronged programs (youth programs), yet advocate for other programs (income security and upstream policies and at the federal level). Connect social housing and food security to health of residents and the community. Participatory recommendations.		"Food security exists when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" p.9	Community gardens into social housing, food as a catalyst for community mobilization, food delivery services to harder to reach groups and increase accessibility to healthy food and connecting with local growers, good food markets set up food stands in priority neighbourhoods. Policy recommendations for organizations that are participatory.
										- Individual



										- Micro - Meso
<b>(Gundersen, Weinreb, Wehler, &amp; Hosmer, 2003), United States, Journal Article; Quantitative, Scholarly</b>	To analyze the food security and homeless relationship using a unique data set with food insecurity information on both housed and homeless families.	Cross-sectional secondary analysis	Homeless and household female-headed families	Food security, housing, and child hunger	Higher propensity towards homelessness and higher levels of food insecurity	Found that families more prone to homelessness have higher levels of food insecurity. In policy choices, the costs of policies must be weighed against the numerous benefits of ensuring families in danger of becoming homeless do not become homeless. One of these benefits may be the alleviation of food insecurity. Food related social workers connecting a client at risk of homeless to housing authorities. food stamp caseworker has a client in danger of becoming homeless and decreases food insecurity level.	Demonstrates the importance of examining the costs and benefits of a housing assistance program beyond just the benefits of improved housing conditions and the advantages to the coordination between assistance programs designed for single mothers with children.			Coordination and reciprocating referrals between assistance between programs designed for single mothers with children. Future research investigating the relationship between food insecurity and the propensity towards homelessness among other low-income populations.  - Micro - Meso

<b>(Hassan et al., 2013), United States, Journal Article, Qualitative, Scholarly</b>	The objectives of this study were to (1) measure the prevalence of health-related social problems; (2) estimate previous screening and referral experiences; and (3) examine participant attitudes toward screening and referral.	Cross-sectional computerized questionnaire	Adolescent and young adults primary care patients (15-25 years)	Exercise/nutrition, education, safety, equipment use, healthcare access, housing, food security, income security, substance use, and intimate partner violence	Prevalence of health-related social problems and attitudes towards screening and referral	Prevalence of problems was high with 76% (304/401) of the sample screening positive to having at least one problem; 47% (190/401) with at least two; and 27% (110/401) with three or more. Participants who were not in school and unemployed or unable to work also were more likely to have at least one major health social problem. The most prevalent problems were within the access to healthcare domain followed by problems within the housing and food security domains.	Health care access, housing, and food security are prevalent problems in youth. Income related to employment and education. Primary care providers are well positioned to screen their patients for these social needs and facilitate intervention. A step in evidence-based recommendations on how to address SDH	“Housing was measured by homeless, utilities shut off, or structural problems” p. 267	“Food security was measured by food insecure or hungry” p. 267	Self-guided system to screen the youth directly to identify the simultaneous burden of social problems across a wide range of social domains. Online screening prior to visit, they are comfortable with technology based tool. Primary care screening.  - Individual - Micro
<b>(Heflin &amp; Butler, 2012), United States, Journal Article, Qualitative,</b>	This article examines transitions into and exits from four different forms of material hardship (food	Cross-sectional secondary analysis of longitudinal structured	Single low-income mothers (18 – 54 years)	Food insufficiency status, utility disconnection, unmet medical needs, and housing problems	Estimates the odds of exiting and entering material hardship	There is heterogeneity across forms of material hardship. Determinants of entrances into material hardship differ from those that predict exits, suggesting that interventions to help families exit from material hardship may	Provide a conceptual map of prediction and exits of material hardships. Understanding the triggers associated with entrance and exit from			Screening for material hardships for maternal health. Revisiting income measures before termination

<b>Scholarly</b>	insufficiency, utility disconnection, unmet medical needs, and housing problems) using a unique longitudinal data set, the Women's Employment Survey.	interviews				need to address different issues than those that triggered the entrance into material hardship in the first place. Those with low permanent incomes face higher risk of food insufficiency, utilities disconnections, and housing problems. One explanation is that they exhaust their savings and social support networks making it difficult to cover their basic needs. We find little evidence that short-term increases in income help pull households out of hardship except in the case of having an unmet medical need.	material hardship is an issue of great significance. Households with more children have a higher probability of reporting food insufficiency, utility disconnections, and housing problems and a lower probability of reporting having an unmet medical need. Adequate income for pulling families out of hardship.			of social services  - Individual - Micro - Macro
<b>(Kim, Kim, Shin, &amp; Lee, 2011), Republic of Korea, Journal Article; Quantitative,</b>	To examine the prevalence of food insecurity and to identify factors that contribute to it in the	A cross-sectional survey	Nationally representative sample	Food security, differences in proportions or means of household characteristics, householders	Prevalence of food insecurity, risk factors associated with a higher risk of food insecurity	The prevalence of food insecurity was higher among low-income households. Risk factors that were associated with a higher risk of food insecurity included living alone, unemployment, no job, low household income	Income was an underlying determinant Higher risk groups; elder population, low-income, non-homeownership. International example that highlights food insecurity,		"Food insecurity can be defined as the lack of availability of nutritionally adequate and safe foods or the lack of	Advocate for coordinated food assistance programmes with strategies to address the problems of unemployment and

Scholarly	Republic of Korea			characteristics, economic status and social benefits		and living in a leased or rented home. For low-income households, living in a leased or rented home increased the risk of food insecurity. Specifically, the proportion of households with elders was higher in food-insecure households than in food-secure households. Participation in food assistance programmes was not significantly related to food insecurity.	income, and housing are related Findings will be helpful in identifying segments of the Korean population to be targeted for interventions		ability to acquire acceptable foods in socially acceptable ways" p. 1080	unstable housing - Macro
<b>(Kirkpatrick &amp; Tarasuk, 2003), Canada, Journal Article; Quantitative Scholarly</b>	To compare food expenditure patterns between low-income households and higher-income households in the Canadian population, and to examine the relationship between food	Cross-sectional secondary analysis	Nationally representative sample	Food expenditure patterns between low-income and higher-income households . Food expenditure patterns in the presence or absence of housing payments among low-	Spending on food and types of food purchased between high-income and low-income groups	Total food expenditures were lower among low-income households. Low-income households purchased significantly fewer servings milk products and fruits and vegetables than did higher-income households. Low-income households with rent payments, the purchase of milk products and meat and alternatives was significantly lower and on food in total and less on food at stores. Households with housing payments were	Access to milk products and fruits and vegetables may be constrained in the context of low incomes. Highlights the need for greater attention to food affordability Housing payments are a priority before food expenditures			

	expenditure patterns and the presence or absence of housing payments among low-income households.			income households		more likely than households without payments to report no expenditures in fruits, vegetables, milk, meat and meat alternatives.				
<b>(Kirkpatrick &amp; Tarasuk, 2007), Canada, Journal Article; Quantitative, Scholarly</b>	The objectives the study was to characterize the relationship between the proportion of income absorbed by housing and the adequacy of household food expenditures across the Canadian population and within income quintiles; and to elucidate	Cross-sectional	Nationally representative sample	Estimates of the cost of an economical and nutritious diet, and mortgage or rent plus utilities		As the proportion of income allocated to housing increased, food spending adequacy declined significantly among low-income households. Receipt of a housing subsidy was associated with an improvement in adequacy of food spending among low-income tenant households, but still mean food spending fell below the cost of a basic nutritious diet even among subsidised households. A negative relationship was observed between the proportion of income allocated to housing and the adequacy of food spending among households at the lower	Indicates that housing costs compromise the food access of some low-income households. Among low-income households, the gradual decline in the food spending adequacy as the share of income allocated to housing increases, may be indicative of efforts to maintain adequacy of food spending. Highlights food insecurity as a result of high housing costs and inadequate		"Food insecurity is the deprivation in the basic need for food due to financial resource constraints " p. 1464	Advocates for greater analysis of food insecurity as a function of economics and re-examine policies related to housing affordability and income adequacy.  - Macro

	the impact of receipt of a housing subsidy on adequacy of food expenditures among low-income tenant households					end of the income spectrum. Even among subsidised households, food spending fell below the cost of a basic nutritious diet on average, indicating that housing subsidies may not be sufficient to ensure adequate resources for food.	income, even among subsidy households.			
<b>(Kirkpatrick &amp; Tarasuk, 2009), Canada, Journal Article; Quantitative, Scholarly</b>	To examine food security circumstances and participation in food programs, and strategies employed in response to food shortages among low-income families in high-poverty Toronto	Cross-sectional survey and neighbourhood mapping	Low-income families with children who lived in high poverty neighbourhood	Household type (two-parent, lone mother, lone father), main source of income, immigrant status, level of education	Food insecurity	Two thirds of families were food insecure and one in five used food banks over the last 12 months. One in 20 families used a community and less in community gardens. It was common for families to delay paying bills or rent or terminate services. Financial coping strategies to mitigate food shortages included delay in bill payments or rent (most common), sell or pawn possession, or terminate services. Severe food insecurity associated with income, reliance on social assistance, living in a lone-mother household.	Assessed use of community level programs (children food programs, food banks, community kitchens and gardens). Challenge the presumption that current community-based food initiatives are reaching those in need. Highlights the clustering of problems in high poverty groups.			Advocate for a critical examination of community food programs and assess their relevance to food insecure households, and for income policy reform.  - Micro - Meso

<p><b>(Kirkpatrick &amp; Tarasuk, 2010), Canada, Journal Article; Quantitative, Scholarly</b></p>	<p>Examined the association between household food security and neighbourhood features including geographic food access and perceived neighbourhood social capital.</p>	<p>Cross-sectional survey and neighbourhood mapping</p>	<p>Low-income families with children and who lived in rental accommodations.</p>	<p>Food security, distance to food sources, perceived adequacy of food retail, whether families shopped within their neighbourhood, and transportation costs for a round trip to the supermarket, and perceived neighbourhood social capital</p>	<p>Their associations to levels of food insecurity</p>	<p>Food insecurity was pervasive, affecting two-thirds of families with rental accommodations. Food insecurity was associated with household factors including income and income source. Food security <i>did not</i> appear to be mitigated by proximity to food retail or community food programmes, and high rates of food insecurity were observed in neighbourhoods with good geographic food access. While low perceived neighbourhood social capital was associated with higher odds of food insecurity, this effect did not persist once we accounted for household sociodemographic factors. There was no significant association between social capital and household food security status when we predicted severe food insecurity</p>	<p>Raise questions about the extent to which neighbourhood-level interventions to improve food access or social cohesion can mitigate problems of food insecurity that are rooted in resource constraints, which is a contradiction to other studies in this review. The results reinforce the importance of household-level characteristics and highlight the need for interventions to address the financial inadequacy. Food insecurity is a pervasive problem in rental accommodations.</p>		<p>"Food insecurity is related to inadequate financial resources to obtain adequate food" p. 1144</p>	<p>Assessed use of community level programs (children food programs, food banks, community kitchens and gardens). Advocate for policy change to address the factors that constrain food purchasing among low-income families (adequate income)</p> <ul style="list-style-type: none"> <li>- Micro</li> <li>- Meso</li> </ul>
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<p><b>(Kirkpatrick &amp; Tarasuk, 2011), Canada, Journal Article; Mixed-methods Scholarly</b></p>	<p>Studies low-income families residing in high-poverty urban neighborhoods, employing survey methods, neighborhood mapping, and qualitative interviewing, to gain an understanding of factors associated with vulnerability to food insecurity.</p>	<p>Cross-sectional survey and qualitative structured interviews</p>	<p>Low-income families who lived in rental and subsidized accommodations</p>	<p>Household food security, food expenditures, income, and housing circumstances (quality, affordability, and utilities)</p>	<p>Their associations to levels of food insecurity</p>	<p>Food insecurity prevalence did not differ between families in market and subsidized housing, but families in subsidized housing had lower odds of food insecurity than those on a waiting list for such housing. Market families with housing costs that consumed more than 30% of their income had increased odds of food insecurity. Rent arrears were also positively associated with food insecurity. Observed a positive association between living in a dwelling in need of major repair and crowding, reflecting the impact of financial constraints on multiple basic needs as well as conscious efforts to contain housing costs to free up resources for food and other needs. The proportion of income allocated to housing was also inversely associated with food expenditures.</p>	<p>Relevance of shelter costs and housing quality to the food security of low-income urban families. Living in subsidized housing does not appear to insulate families from housing quality issues. Provides empirical evidence of the need for a reconsideration of current definitions of affordable housing and a review of interventions ensure families can maintain adequate housing and meet their other basic needs.</p>		<p>"Food insecurity is the inability to obtain adequate food due to financial constraints " p. 284</p>	<p>Advocate for examination of current housing affordability norms and the need for a review of housing interventions to ensure that families can maintain adequate housing and obtain their other basic needs.</p> <p>- Macro</p>
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<p><b>(Knowles, Rabinowich, Ettinger de Cuba, Cutts, &amp; Chilton, 2015), United States, Journal Article; Qualitative, Scholarly</b></p>	<p>Investigated how parents that report marginal, low and very low food security characterize how trade-offs associated with food insecurity affect parents' mental health and child well-being.</p>	<p>Semi-structured interviews and thematic coding</p>	<p>Families with children (&lt;4 years)</p>	<p>Marginal, low and very low food security, and trade-offs associated with food insecurity</p>	<p>Parents' mental health and child well-being</p>	<p>Descriptions of hardships include anxiety and depression related to overdue bills and shut-off notices, strains with housing costs, and safety. The chronic, extreme stress of economic hardship, including food insecurity and basic needs trade-offs, is reflected in parent descriptions of experiences with depression, anxiety and fear. Parents described a direct connection between the trade-offs they are forced to make, their own emotional state, and that of their children. They described how adversity associated with lack of access to food, lack of affordable housing, and exposure to violence are reflected in the behavior and well-being of their children.</p>	<p>Parental recognition of trade-offs between food and other basic necessities are associated with their personal stress and poor mental health that, in turn, affects their children's health and development. Mental health recognition in food insecurity and juggling of resources. Essentially advocate for the creation of partnerships and intersectoral collaboration.</p>		<p>"Household food insecurity includes low food security (LFS), indicating reductions in quality, variety, and desirability of food without reductions in quantity, and very low food security (VLFS), which includes disrupted eating patterns and reductions in food intake in addition to low food security" p. 26</p>	<p>Advocate for partnerships between healthcare providers, policymakers, and parents.  - Macro</p>
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<b>(Kushel, Gupta, Gee, &amp; Haas, 2006), United States, Journal Article; Quantitative, Scholarly</b>	To determine the association between housing instability and food insecurity and access to ambulatory health care and rates of acute health care utilization.	Cross-sectional secondary data analysis of national survey	Nationally representative sample of low-income adults	Source of care, postponing needed medical care or postponing medication, and past-year utilization (not having an ambulatory care visit, having emergency department (ED) visits, or inpatient hospitalization)	Association and prevalence between housing instability, food insecurity and access to ambulatory health care and rates of acute health care utilization	Found a high prevalence of housing instability and food insecurity: 23.6% reported housing instability and 42.7% reported food insecurity. Among persons with housing instability and food insecurity, they found high rates of poor access to care and high rates of acute health care use. Housing and food insecurity thought of as risk factors for poor health care access	Housing instability and food insecurity are associated with poor access to ambulatory care and high rates of acute care. These competing life demands may lead to delays in seeking care and predispose to acute care.	"Housing instability is variably defined as having difficulty paying rent, spending more than 50% of household income on housing, having frequent moves, living in overcrowded conditions, or doubling up with friends and relatives" p. 71	"Food insecurity is defined as having limited or uncertain availability of nutritionally adequate and safe foods or ability to acquire foods in socially acceptable ways" p. 71	Advocate for policies that improve housing stability (such as rent support programs, housing vouchers, and expansion of low-income housing availability) and food security (such as the expansion of the food stamp program) to improve access to health care and outcomes.  - Macro
<b>(Liu, Rashid, Greenlund, Chapman, &amp; Croft, 2014), United States, Journal</b>	Examine the relationships between housing insecurity, food insecurity, frequent mental distress,	Cross-sectional secondary data analysis of a national survey	Nationally representative sample	Food security, housing security, mental distress, insufficient sleep	Prevalence and association between variables	Both housing and food insecurity were associated with insufficient sleep. The positive relationship was modestly attenuated by mental distress. Although mechanisms are not clear, one explanation that stress	Sleep health and mental health are embedded in the social context. Research is needed to assess whether interventions that reduce housing	"High housing costs relative to household income, living in environments of poor quality and unstable	"Food insecurity is the uncertainty about ones' ability to access safe and nutritious foods	Advocate for improving housing and access to food, environmentally healthful and safe housing for low-income,

<b>Article; Quantitative, Scholarly</b>	and insufficient sleep					caused by housing insecurity or food insecurity could lead to prolonged psychological distress.	insecurity and food insecurity will also improve sleep health and mental health.	neighborhoods, living in overcrowded housing, or being homeless" p. 1	because of restricted financial resources" p.1	increase employability to low-income individuals, food subsidies.  - Individual - Micro - Meso
<b>(Loopstra &amp; Tarasuk, 2013), Canada, Journal Article; Quantitative, Scholarly</b>	To examine the dynamics of severity of food insecurity from one year to the next among a sample of low-income families in Toronto and determine how changes in available household financial resources related to changes in severity.	Cross-sectional secondary data analysis of a local survey	Low-income families in an urban center	Income, employment, and welfare receipt, and food security	Variable changes in relation to food security	Differences between subsidized- and market-rent families were reflected by the higher prevalence of welfare receipt, single motherhood, and lack of full-time employment over both periods among subsidized households. Subsidized-rent families experienced a higher prevalence of persistent severe food insecurity than market-rent households and remained at significantly lower income levels.	Improvements in income and employment are translate to improvements in food insecurity. Emphasis evidence of affordable housing and income in the provision of food security.			Advocate for income and employment based policy interventions to affect the severity of household food insecurity for low-income families.  - Macro

<p><b>(Ma, Gee, &amp; Kushel, 2008), United States, Journal Article; Quantitative, Scholarly</b></p>	<p>Determine the association between housing instability and food insecurity with children's health care access and acute health care utilization</p>	<p>Cross-sectional analysis of a national survey</p>	<p>Nationally representative sample of low-income households</p>	<p>Housing instability, health care access (no care, postponed care, postponed medications), health care utilization (not receiving the recommended well child visits, increased ED visits, hospitalization), food security</p>	<p>Housing instability, health care access, health care utilization, food security associations</p>	<p>Families that experience housing instability and food insecurity have compromised ability to receive adequate health care for their children. Concepts of competing demands. Food insecurity and housing instability are indicators of financial strain. Evidence of social disorganization related to difficulty attending regular appointments, frequent moving, energy output</p>	<p>Housing instability and food insecurity are predisposing factors for postponed medical care, medications, and increased emergency visits related to the concept of competing demands. Social environment and support mechanisms in mediate insecurities</p>	<p>"Housing instability is the inability to pay their mortgage, rent, or utility bills" p. 51</p>	<p>"Food insecurity is the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire adequate food in socially acceptable ways" p. 50</p>	<p>Advocate for clinician screening for housing and food instability. Policy makers should consider improving programs that decrease housing and food instability and investing in programs to decrease housing and food insecurity</p> <ul style="list-style-type: none"> <li>- Micro</li> <li>- Meso</li> <li>- Macro</li> </ul>
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<b>(Mammen, Bauer, &amp; Richards, 2009), United States, Journal Article; Quantitative, Scholarly</b>	Survey data from a multi-state longitudinal project revealed a paradox where rural low-income families from states considered prosperous were persistently more food insecure than similar families from less prosperous states.	Cross-sectional secondary data analysis of qualitative and quantitative data	Rural low-income women headed households	Median family income, material hardships, housing costs, mothers' perceived life satisfaction, and coping strategies	Food security in relation to variables and between food secure and food insecure states	Families in the food insecure states were more likely to experience greater material hardship and incur greater housing costs than families in the food secure states. Coped with external sources of community support such as food pantries and other food sources, consumption reduction behaviors (dieting, appetite curbing, and triage behaviors), using government programs. Rural low-income families preferred to depend on themselves and their abilities, rather than the government. Rural low-income families in prosperous states appear to experience greater persistent food insecurity than those in less prosperous states	Persistent food insecurity among rural low-income families is a consequence of place and personal circumstances. Even though families resided in prosperous states, more families were food insecure, therefore highlighting the myth doing well economically determines equitable distribution of basic life supportive needs.		"Food security is families' consistent and dependable access to sufficient food to maintain an active and healthy life" p. 151	Advocate for policymakers to examine federal assistance programs regarding accessibility, adequacy, and if families need additional assistance  - Macro
<b>(McIntyre, Wu, Fleisch, Herbert, &amp; Emery, 2015), Canada, Journal Article;</b>	Examined housing tenure characteristics and food insecurity by looking at the correlates	Cross-sectional data analysis of national survey	Nationally representative sample	Food security and household tenure	Differences in prevalence of household food insecurity	Food insecurity was much lower among homeowner households than non-homeowner households. Non-homeowners had characteristics associated with higher food insecurity risk, such as having lower	Homeownership is protective against food insecurity Highlights adequate income. Empirical evidence of affordable		"Food insecurity is the lack of access to adequate food because of financial constraints " p. 349	Advocate for policies to increase income levels through employment supports, minimum wage

<b>Quantitative, Scholarly</b>	of food insecurity among households by homeownership status.					educational levels, being younger, and less likely to be married. Suggest that non-homeowners have socio-demographic and socio-economic characteristics largely aligned with other food insecure populations.	housing as an indicator of food security			increases, and transfers, and policies to increase homeownership  - Macro
<b>(Miewald &amp; Ostry, 2014), Canada, Journal Article; Qualitative Scholarly</b>	The purpose of this paper is to highlight the relationships between housing, food security, and health.	Literature review and case study	Social housing residents	Housing infrastructure, building context, in-house food programs	Health benefits of food security integration into social housing	Food-related programs, such as community kitchens, could play a role in providing the skills needed to shop and prepare meals. Highlights the gaps in our knowledge about how to address food security within a low-income housing context. Without ability to access and prepare food themselves, low-income residents have a greater reliance on charitable meals and may exacerbate structural inequalities.	The food programming and infrastructure should be population-specific, with an attention to the needs and abilities of residents. Housing and food can be better integrated within a holistic framework that supports the broader health of residents. Issues of food security and housing are closely interlinked.		"Food insecurity is having limited access to, or availability of, nutritious food or a limited ability to acquire food in socially acceptable ways" p. 710	Assessed in-house food programming, cooking facilities, community food programs, affordable or free food in close proximity.  - Individual - Micro - Meso

<p><b>(Moffat, 2008), Canada, Governmental Report; Qualitative, Grey</b></p>	<p>Preliminary discussion to explore the current practices and research surrounding the issues of food security and housing to inform subsidized housing and community food security partnerships.</p>	<p>Literature review and qualitative interviews</p>	<p>Subsidized housing residents</p>	<p>Food security and subsidized housing</p>	<p>Health benefits of food security integration into subsidized housing</p>	<p>A housing strategy requires a comprehensive approach that includes more than shelter and integrates multiple determinants of health. Food security policies that integrate social aspects into programming are more successful. Strategies for integrating housing and food security can be organized into three categories, (1) Short-Term Relief; (2) Community Development; and (3) Food System Change.</p>	<p>Advocate for policy and programming. Comment on how more research is needed to see how housing mediates food security and tenant wellbeing. Recommend intersectoral partner partnerships between housing providers and community developers, community nutritionists, environmental health inspectors, social and environmental organizations, and academic institutions to design, implement and evaluate programs and policies</p>		<p>“Food security is present when all community residents obtain a safe, personally acceptable, nutritious diet through a sustainable food system that maximizes healthy choices, community self-reliance and equal access for everyone” p.9</p>	<p>Review housing and food security interventions include (meal provision, food banks, gleaning, food exchange; community gardens, kitchens, farmer markets, buying clubs, pocket markets, social enterprises; partnerships and networks, modifications for the housing food environment . Advocate for policy change.</p> <ul style="list-style-type: none"> <li>- Micro</li> <li>- Meso</li> <li>- Macro</li> </ul>
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<p><b>(Ostry, 2012), Canada, Governmental Report; Non-participant, Scholarly</b></p>	<p>The purpose of this paper is to bring up to date the research on food security and housing in Canada and in BC; describe and characterize type of clients in social housing in BC and the kinds of research needed to improve food security; to review the research on both food security and housing conducted in BC; and to make recommendations to improve food</p>	<p>Literature review</p>	<p>Social housing residents</p>	<p>Food security and social housing</p>	<p>Health benefits of food security integration into social housing</p>	<p>Review indicates there is strong research evidence that homeless people have high rates of food insecurity and that people who rent and have low incomes have higher rates of food insecurity than home owners and people with high income. However, virtually no research on the food security status of residents of social housing in Canada. Most of the research investigations undertaken in BC on food security and social housing have been aimed at the homeless housed living in Single Room Occupancy Hotels in the Downtown Eastside of Vancouver.</p>	<p>Provides five recommendations for poverty reduction programs and future research in social housing and food, improving community capacity, and poverty reduction programs. Improve food security situation of residents by freeing up more disposable income to purchase food.</p>		<p>"Food security is a situation that 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" p. 5</p>	<p>Recommend poverty reduction plan, expanding existing community programs, SROs with inhouse provision of subsidized meals, expand access to community gardens</p> <ul style="list-style-type: none"> <li>- Micro</li> <li>- Meso</li> <li>- Macro</li> </ul>
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	security among tenants of social housing									
<b>(Palar et al., 2015), United States, Journal Article; Quantitative, Scholarly</b>	We assessed the magnitude of association between food insecurity and subsequent depressive symptoms in a cohort of urban homeless and marginally housed individuals living with HIV in the US	Longitudinal study	Homeless and marginally housed people living with HIV (PLHIV)	Food security and depression symptoms	Magnitude of association between food insecurity and subsequent depressive symptoms	Severe food insecurity was associated with increased depressive symptom severity and greater odds of probable depression. Suggests that reducing food insecurity, a modifiable risk factor for depression among PLHIV in the US, may help improve HIV-related morbidity among vulnerable populations. In combination with other studies that have linked food insecurity with ART non-adherence, disease progression and acute health care among PLHIV, efforts to increase access to and participation in federal and local food-	Estimate food insecurity as a risk factor for depressive symptoms among PLHIV in a resource-rich setting. Connection to mental health; compounding factors of housing and food insecurity to produce depressive symptoms		"Food insecurity is defined as the limited or uncertain availability of nutritionally adequate foods or the inability to acquire them in socially acceptable ways" p. 1527	Include harmonized food security and nutrition indicators into HIV monitoring and evaluation and food security screening in primary care  - Micro - Macro

						security safety net programs for PLHIV could improve their mental and physical health.				
<b>(Raphael, Curry-Stevens, &amp; Bryant, 2008), Canada, Journal Article; Non-participant, Scholarly</b>	Considering what is known about these social determinants of health and their importance for promoting the health of Canadians, why does there seem to be so little action being undertaken to improve them? What are the means by which such public policy action in support of health can be brought about?	Literature review and discussion	General Canadian population	SDH and ideologies	Poor population health	There is a continuing presence of income, housing, and food insecurity in Canada. Reasons for continuation include the epistemological dominance of positivist approaches to the health sciences, the ideology of individualism prevalent in North America, and the increasing influence on public policy of the marketplace.	Various models of public policy provide pathways by which these barriers can be surmounted are through education, motivation, and activation. Brings emphasis to how politics shape the SDH and how certain ideologies impact health			Health practitioners offer an alternative narrative to biomedical discourse, ethnographic and qualitative approaches to individual and community health, community mobilization and research to inform public policy  - Meso - Macro

<p><b>(Richard s &amp; Smith, 2006), United States, Journal Article; Qualitati ve Scholarl y</b></p>	<p>To determine how and where homeless families access food, and to determine factors that influence food choice.</p>	<p>Focus groups and thematic analysis</p>	<p>Temporarily housed or homeless low-income parents of children (3-12 years) with at least a high school education</p>	<p>Food choice and food access</p>	<p>How and where homeless families access food, and factors that influence food choice</p>	<p>Limited cooking and storage space, and poor meal timing and food options at the shelters resulted in participants developing strategies to alleviate hunger. Strategies included using food stamps, stealing food, eating food in grocery stores, pawning personal items, using savvy shopping habits, scavenging in dumpsters (obtaining items such as food from dumpsters), and sacrificing food for children. Food stamp usage is a common strategy, but it often is insufficient to meet monthly needs, indicating the need for re-evaluation of program components.</p>	<p>Homeless families find strategies to prevent food insecurity. Discuss the built and food environment in context of choice and autonomy. largely individual coping mechanisms.</p>			<p>Reevaluate the insufficient aspects of SNAPs, housing should accommodate the food environment , include nutrition professionals in looking at the building context</p> <p>- Individual</p>
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<p><b>(Rideout, Riches, Ostry, Buckingham, &amp; MacRae, 2007), Canada, Journal Article; Non-participant, Scholarly</b></p>	<p>Offer a critique of Canada's approach to domestic food security with respect to international agreements, justiciability and case law, the breakdown of the public safety net, the institutionalisation of charitable approaches to food insecurity, and the need for 'joined-up' food and nutrition policies.</p>	<p>Literature review and discussion</p>	<p>Canadian food policy</p>	<p>Canada's commitments to the right to food, Canadian policies, and case law and social trends</p>	<p>Canada's performance in the human right to food</p>	<p>Found that while Canada has been a leader in signing international human rights agreements, including those relating to the right to food, domestic action has lagged and food to the right to food, as well as Canadian policies, case law and social trends, in order to assess Canada's performance with respect to the human right to food. Canada and other developed nations have inadequacies in the social safety net (e.g. low rates and a lack of affordable housing), social assistance rates are not sufficient to provide recipients with access to adequate food. Lack of political commitment and engagement</p>	<p>Provide recommendations for policy changes that could deal with complex issues of state accountability, social safety nets and vulnerable populations, and joined-up policy frameworks that could help realise the right to adequate food Considers the political economy in provision of basic needs</p>		<p>"Food security is the availability of food, equitable access to food, and adequacy of the food supply in terms of culture, nutrition and sustainability." p. 566</p>	<p>National action plan for a joined-up food and nutrition policy that involves all sectors, civil servants, and all levels of government. Include policies for education and training of civil servants to accommodate the policies and commitments related to the right to food; food studies and basic human rights education in primary and secondary school curricula and in relevant higher education curricula</p> <p>- Macro</p>
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<p><b>(Seed, Lang, Caraher, &amp; Ostry, 2014), Canada, Journal Article; Qualitative, Scholarly</b></p>	<p>This research analyzes the roles and limitations of Public Health in British Columbia in advancing food security through the integration of food security initiatives into its policies and programs. It asks the question, can Public Health advance food security? If so, how, and what are its limitations?</p>	<p>Key informant interviews and policy analyses</p>	<p>Public health</p>		<p>Public Health roles in food security</p>	<p>Public Health was able to advance food security in some ways, such as the adoption of food security as a core public health program. Public Health's leadership role in food security is constrained by a restricted mandate, limited ability to collaborate across a wide range of sectors and levels, as well as internal conflict within Public Health between Food Security and Food Protection programs. Public Health has a role in advancing food security, but it also faces limitations. As the limitations are primarily systemic and institutional, recommendations to overcome them are not simple but, rather, require movement toward embracing the determinants of health and regulatory pluralism. The results also suggest that the historic role of Public Health in food security remains salient today.</p>	<p>Public health faces pressure from administration, food insecurity is a low priority in public health agenda, action much based on individualism commitment, challenges collaborating across sectors and levels</p>			<p>Regulatory pluralism as a positive way to advance food security. Understanding of stakeholder limitations, as well as create mutual agendas. Increasing capacity building for civil society</p> <p>- Macro</p>
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<p><b>(Shaefer &amp; Gutierrez, 2013), United States, Journal Article; Quantitative, Scholarly</b></p>	<p>Estimates the effects of participation in the Supplemental Nutrition Assistance Program (SNAP) on the risk of food as well as non-food material hardships experienced by low-income households with children</p>	<p>Cross-sectional data analysis</p>	<p>Low-income households with resident children (&lt;18 years)</p>	<p>Food security, household reported material hardships (falling behind on rent or mortgage, falling behind on utility bills, missed medical appointments because of cost)</p>	<p>Relationship between SNAP and material hardships by modeling the likelihood of household participation in SNAP and the risk of experiencing material hardships</p>	<p>Found SNAP benefits spillover from food to nonfood expenses is especially important given the dramatic decline in cash assistance caseloads since the mid-1990s. SNAP is playing a vital role in reducing the food and nonfood material hardship of recipient households. Thus, we expect that any change in the availability of or amount of SNAP benefits. would trigger changes in the material well-being of recipient households. Increasing SNAP, either in terms of its availability or amount of benefits, should lead to reduced material hardship, both food and nonfood, among recipient households beyond what would have otherwise been experienced. Conversely, reductions in SNAP should lead to increased material hardship.</p>	<p>SNAP has a large and negative effect on both the food and non-food material hardship of recipient households. SNAP reduces the risk that households will fall behind on their non-food essential expenses, including housing and utilities, and that it reduces the risk of medical hardship because of flexible income related spill over benefits</p>	<p>"Food security is access by all people at all times to enough food for an active, healthy life." "Food insecurity is defined as the absence of food security" p. 754</p>	<p>Advocate for an increase and expanding of existing food programs for spill over effects. Policy makers should take economic estimates into account when considering changes to the income transfer program.</p> <p>- Macro</p>
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<p><b>(Sriram &amp; Tarasuk, 2016), Canada, Journal Article; Quantitative, Scholarly</b></p>	<p>This study was undertaken to determine the relationship between metropolitan area economic characteristics and food insecurity, independent of known household sociodemographic risk factors</p>	<p>Cross-sectional data analysis of national survey</p>	<p>Canadians in urban centers</p>	<p>Household income, highest level of education, homeownership, household type, income source, aboriginal status and immigrant status, average number of Employment Insurance (EI) beneficiaries per month, rental vacancy rate, average monthly shelter cost (tenants and owners), housing affordability, and residential stability</p>	<p>The influence of local area economic characteristics on household food insecurity</p>	<p>Substantial variability in food insecurity rates was observed, with part of this variation being attributed to differences in costs of living. Higher area-level shelter costs were associated with elevated household food insecurity risk, independent of household sociodemographic characteristics. Household sociodemographic characteristics, the average monthly shelter costs contribute to the observed prevalence of food insecurity locally.</p>	<p>Acknowledge how food banks are not improving food insecurity. Housing payments come before food purchases. Juggling of finite resources in low resources settings</p>		<p>"Food insecurity is inadequate access to a sufficient quantity and quality of food due to financial constraints" p. 1</p>	<p>Intervening at the level of affordable housing may be an effective strategy to reduce food insecurity in urban areas.  - Macro</p>
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<p><b>(Tarasuk, 2001a), Canada, Journal Article; Quantitative, Scholarly</b></p>	<p>This study investigated food intake patterns and contextual factors related to household food insecurity with hunger among women in families seeking charitable food assistance in Toronto</p>	<p>Cross-sectional data analysis of interviewer-administered questionnaire</p>	<p>Women in families seeking charitable food assistance</p>	<p>Food intakes in relation to contemporaneous household food insecurity with hunger; 12-mo and 30-d household food insecurity with hunger and self-reported health, social isolation and social support; and the circumstances precipitating acute food shortages and actions in response to impending food shortages</p>	<p>Food intake patterns and contextual factors related to household food insecurity</p>	<p>Women in households characterized by food insecurity reported lower intakes of vegetables and fruit, and meat and alternatives than those in households with no hunger evident. Women were more likely to report household food insecurity if they also reported longstanding health problems or activity limitations, or if they were socially isolated. Circumstances precipitating acute food shortages included chronically inadequate incomes; the need to meet additional, unusual expenditures; and the need to pay for other services or accumulated debts. Women who reported delaying payments of bills, giving up services, selling or pawning possessions, or sending children elsewhere for a meal when threatened with acute food shortages were more likely to report household food insecurity with hunger</p>	<p>Household food insecurity appears inextricably linked to financial insecurity. Acknowledge community programs frame as framing food insecurity as a food problem, also highlights juggling of resources and the social context (isolation)</p>			<p>Advocate for programs to improve household income, but also interventions to lessen or offset the costs of other essential goods and services (e.g., subsidized housing), and initiatives to assist low income households in weathering sudden, precipitous changes in income or expenditures</p> <p>- Macro</p>
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<p><b>(Tarasuk, 2001b), Canada, Journal Article; Non-participant, Scholarly</b></p>	<p>A review of the recent emergence of hunger as a concern in Canada and the evolution of responses to this problem. The current application of community development strategies in response to food insecurity is then critically examined</p>	<p>Literature review and discussion</p>	<p>Canadian general public</p>	<p>Food security and programming</p>		<p>Some programs are designed to foster personal empowerment through self-help and mutual support; others promote community-level strategies to strengthen local control over food production. It may well be that the most effective responses to household food insecurity are not those that focus on food and food-related behaviors but rather those that lessen economic constraints on poor households.</p>	<p>Acknowledges poverty as the underlying problem and community programs fail to address poverty and are limited in their capacity. This relates to the continued focus on food-based responses, the ad hoc and community-based nature of the initiatives, and their origins in publicly funded health and social service sector</p>		<p>"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" p. 487</p>	<p>Advocate for strategies to improve conditions for low-wage workers and provide supports for those unable to garner sufficient income, programs to create more affordable housing, and child care for low-income families</p> <p>- Macro</p>
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<p><b>(Tarasuk, Mitchell, Dachner, 2016), Canada, Research Report; Quantitative, Scholarly</b></p>	<p>Report designed to provide a tool, utilizing Statistics Canada data, to monitor trends and identify priorities for interventions to address this major public health issue</p>	<p>Cross-sectional data analysis</p>	<p>Nationally representative sample</p>	<p>Food security, demographics, housing tenure, rural/urban</p>	<p>Level and trends of food security in Canada</p>	<p>Food insecurity was most prevalent in Canada's North (especially Nunavut) and the Maritimes. Sixty-one percent of households whose major source of income was social assistance were food insecure and those reliant on Employment Insurance or Workers' Compensation. Most food insecure households were reliant on wages or salaries from employment. Other household characteristics associated with a higher likelihood of food insecurity included having an income below the Low-Income Measure, being Aboriginal, being Black, and renting rather than owning one's home.</p>	<p>Nationally representative statistics of Canadian food security Highlights income, even with a salary/wages, is insufficient in achieving food security. Renters have higher rates of food insecurity.</p>		<p>"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" "Food insecurity inadequate or insecure access to food because of financial constraints" " p. 6</p>	
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<p><b>(Towers, 2009), United States, Dissertation/Thesis; Quantitative, Scholarly</b></p>	<p>The objectives were to explore what household characteristics may increase the likelihood of experiencing food insecurity and identify what resources may protect against it.</p>	<p>Cross-sectional survey data analysis</p>	<p>Food pantry recipients</p>	<p>Household food security status, health status, income, home ownership, employment, Supplemental Nutrition Assistance Program (SNAP) participation, housing assistance participation</p>	<p>What household characteristics increase the likelihood of experiencing food insecurity and resources that protect against it</p>	<p>Health status, was found to be significantly related to food. Poor health was found to increase the risk of food insecurity. It is difficult to determine if households are food insecure because they experience health problems or if they experience health problems as a consequence of food insecurity. Income, if great enough, can significantly reduce the likelihood of being food insecure. Results showed that households in the younger age group who participated in the housing assistance program had a reduced risk of being food insecure.</p>	<p>Focus on low-income by nature of the sample subject, income based arguments, in acknowledging adequate income for food insecurity. Housing subsidies improved food security. Discusses how improving health those who experience food insecurity offers societal benefits</p>		<p>"Food security is having access at all times to enough food to support a healthy, active life; this includes the availability of nutritionally adequate food as well as the ability to obtain personally desirable food in a socially acceptable manner" "Food insecurity is the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain</p>	<p>Participation in assistance programs is related to increased food security. Advocate for food and housing assistance programs in protecting essential resources.</p> <ul style="list-style-type: none"> <li>- Meso</li> <li>- Macro</li> </ul>
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									ability to acquire acceptable foods in socially accepted ways" p. 8	
<b>(Vijayaraghavan, Jacobs, Seligman, Fernandez, 2011), United States, Journal Article; Quantitative, Scholarly</b>	We sought to determine if housing instability was associated with lower diabetes self-efficacy, and whether this relationship was mediated by food insecurity.	Cross-sectional survey data analysis	Low-income adults with DM	Housing instability, diabetes self-efficacy, food security	The housing instability association with lower diabetes self-efficacy, and whether this relationship was mediated by food insecurity	Observed a linear decrease in diabetes self-efficacy as housing instability increased. Food insecurity mediated the association between housing instability and diabetes self-efficacy. Compared with adults who owned their own home, adults who lacked a usual place to live had a one unit lower self-efficacy score. Found that mean diabetes self-efficacy scores decreased as housing instability increased, with adults who lacked a usual place to live having the lowest mean diabetes self-efficacy score.	Findings suggest that inadequate access to food lowers self-efficacy among adults with diabetes, and supports provision of food to unstably housed adults as part of diabetes care. Housing security supports diabetes self-efficacy and food security can mediate the effects of housing insecurity and	"Housing instability is a precursor to homelessness, is a consequence of severe socioeconomic deprivation and has multiple definitions: living doubled up with family or friends, living in overcrowded	"Food insecurity is an indicator of limited access to nutritiously adequate food due to an inability to afford food and, in severe forms, can lead to malnutrition and hunger" p. 1280	Structural interventions aimed at expanding access to housing and food for people living in poverty to increase confidence in conducting diabetes self management  - Macro

						Food insecurity explained approximately a third of the association between housing instability and diabetes self-efficacy. Food insecurity is one mediator of the association between housing instability and diabetes self-efficacy.	DM self-management, leading to better glycemic control and ultimately, better health	conditions, moving frequently, or living in low-rent single-room-occupancy hotels." p. 1280		
<b>(Walsh, 2016), Canada, Dissertation/Thesis; Qualitative, Scholarly</b>	The purpose of this research is to examine the barriers to food security for single adults with mental illness and/or problematic substance use living in supported housing on Vancouver Island.	Case study	Supportive housing residents	Food security and mental health status	Reducing the barriers to food security for tenants in supported housing	Recommends integrating food security services and programs into supported housing projects. Barriers include lack of money and lack of transportation, hunger and charitable food use is a daily experience and contributes to decreasing self-esteem, leading to feelings of depression, lack of belonging and defeatism	Negative impacts on mental health associated with charitable food. Acknowledges the food and built environment in contributing to food security		"Food security at the individual, household, national, regional and global levels exist when all people at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and	Recommend an integrative approach to population health equity for tenants in supported housing, produce an integrated, long-term strategy that links all the determinants of health, social justice perspective allows for the concern that the social structural nature of health influences tenants living in

									healthy life” p. 3	supported housing. Notes bringing in food security policies and practices into supportive housing  - Meso - Macro
<b>(Waters on, Grueger, &amp; Samson, 2015), Canada, Position Statement; Non-participant, Grey</b>	The present statement reviews the literature regarding the health impacts of housing, and how housing problems influence a family’s ability to access and engage with the health care system	Literature review and discussion	Health care providers	Housing needs	Improve housing and health	Types of housing need are defined, including unsuitable or crowded housing, unaffordable housing, or housing in need of major repairs. The health effects of each type of housing need, as well as of unsafe neighbourhoods, infestations and other environmental exposures are outlined. Recommendations and sample tools to assess and address housing need at the patient, family, community and policy levels. Recommendations also include advocating for enhanced action at all levels of government and for housing-supportive policies,	Provides housing security definitions Acknowledges the role of healthcare providers and national policies in addressing basic need provisions			Provide screening tools for practitioners to identify whether a more in-depth assessment of housing need is warranted. Advocate for national housing strategy, the federal government can lead and facilitate the development of policies and programs to create and maintain affordable

						including a national housing strategy				housing and collaborative approaches involving pro-bono lawyers with a multidisciplinary health team  - Micro - Macro
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