Women's realities shape their experiences of health during pregnancy and postpartum

by

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ABSTRACT

Low socioeconomic status can negatively affect many aspects of a healthy pregnancy, including women's ability to access and consume healthy foods. Food insecurity, defined as "inadequate or insecure access to food because of financial constraints," has well-known effects on women's health and stress levels, with increased nutrient and caloric demands during pregnancy placing women of low socioeconomic status at a higher risk of food insecurity. The overall purpose of these PhD studies was to explore the perceptions and experiences of health during pregnancy and postpartum among women facing difficult life circumstances (e.g., low income, recent immigration to Canada, social and geographical isolation) while receiving support from community-based perinatal programs offered through the Multicultural Health Brokers Cooperative (MCHB) in Edmonton, and Healthy Moms Healthy Babies (HMHB) in Southern Alberta. The prevalence and experiences of household food insecurity among immigrant and refugee women connected to the MCHB perinatal programs were also examined.

Using a community-based research approach, focused ethnography was conducted with pregnant and postpartum North African women connected to MCHB perinatal programs, and women living in rural Alberta connected to HMHB. The method of focused ethnography involved focus groups with women (80 North African women; 28 women in Southern Alberta), interviews with health care and service providers (8), and observations of community-based perinatal program activities. All generated data were analyzed using qualitative content analysis to inductively derive codes and categories. The prevalence and experiences of household food insecurity were investigated using an exploratory sequential mixed method research design, which involved both quantitative (213 women connected to MCHB) and qualitative (17 Somali women) methods of data collection and analysis. Data were collected sequentially, analyzed separately, and then integrated in the discussion of findings.

Northeast African women discussed that in their home countries regardless of their socioeconomic status they felt supported in pregnancy and postpartum as their kinship provided them with "everything they needed" to be healthy, including nutritious foods, physical activity opportunities, and adequate time for rest. In Canada, these women faced many difficult life circumstances, such as low income, that increased stress and created a sense of isolation. Rural women connected to HMHB perceived being healthy during pregnancy and postpartum as eating healthy foods, taking prenatal vitamins, being physically active and emotionally well; however, they commonly described facing many barriers to being healthy for themselves and their babies. These barriers included food insecurity, pregnancy complications, spousal issues, among others. Women connected to both MCHB and HMHB identified many aspects of community-based perinatal programs that addressed barriers they faced, and enabled better health during pregnancy and postpartum. The total prevalence of household food insecurity among women connected to MCHB was 94% (n=199). In the year prior to the survey, 39% (n= 79) of women's households cut meal sizes or skipped meals because there wasn't enough money for food. In semi-structured interviews, Somali women commonly described not having enough money to buy vegetables, fruit and meat, and perceiving low sense of control over food availability at home.

Community-based perinatal programs, such as those offered through MCHB and HMHB, provided supports that facilitated women's health in the face of difficult life circumstances during pregnancy and postpartum. When community-based programs show such potential to alleviate some of the burdens experienced by women, they should be well supported through policies, and connected to health care and social systems.

PREFACE

This thesis is original work by Maira Quintanilha. The research projects, of which this thesis is a part, received research ethics approval from the University of Alberta Health Research Ethics Board, "ENRICH: Selected Strategies for Community Based Organizations MCHB" Pro00044512, February 14, 2014, and "ENRICH: Promoting Appropriate Maternal Body Weight in Pregnancy and Postpartum Through Healthy Eating HMHB" Pro00043387, March 10, 2014.

Chapter 4 of this thesis has been published as Quintanilha, Mayan, Thompson, Bell, and the ENRICH Study Team (2015), "Different Approaches to Cross-Lingual Focus Groups: Lessons from a Cross-Cultural Community-Based Participatory Research Project in the ENRICH Study," in the *International Journal of Qualitative Methods*. I was responsible for designing the research study with Mayan and Thompson, collecting data with Thompson, and conceptualizing and preparing the manuscript. Mayan, Thompson, and Bell reviewed the manuscript, and Mayan had primary responsibility for its final content.

Chapter 5 of this thesis has been published as Quintanilha, Mayan, Thompson, & Bell (2016), "Contrasting 'Back Home' and 'Here': How Northeast African Migrant Women Perceive and Experience Health During Pregnancy and Postpartum in Canada" in the *International Journal for Equity in Health*. I was responsible for recruiting participants, developing focus groups' guiding questions, and generating, as well as verifying and analyzing data. Thompson supported me throughout recruitment, data generation and analysis. Mayan critically reviewed, and led discussions about codes and categories. I composed the manuscript, while Mayan, Thompson, and Bell were involved in revising it for content appropriateness and flow. Mayan had primary responsibility for its final content.

Chapter 6 of this thesis has been published as Quintanilha, Mayan, Raine, and Bell (2018), "Nurturing Maternal Health in the Midst of Difficult Life Circumstances: A Qualitative Study of Women and Providers Connected to a Community-Based Perinatal Program" in *BMC Pregnancy and Childbirth*. I was responsible for designing the study, recruiting participants, developing focus group and interview guides, generating, as well as verifying and analyzing data. Mayan and Bell were involved in the study design. Mayan and Raine critically discussed the data and helped me to interpret codes and categories. I was responsible for drafting the manuscript, and Raine supported me in this process. Mayan and Bell were involved in revising the manuscript for content appropriateness and flow. Mayan had primary responsibility for its final content.

Chapter 7 of this thesis has been published as Quintanilha, Mayan, Jarman, and Bell (2019), "Prevalence and Experiences of Food Insecurity among Immigrant Women Connected to Perinatal Programs at a Community-Based Organization in Edmonton, Canada" in the *International Journal of Migration, Health and Social Care*. I worked with Mayan and Bell to design the study and was responsible for introducing the study to communities' health brokers, developing interview guide (qualitative phase), and coordinating both quantitative and qualitative phases. Jarman provided me with support for quantitative data analysis, and Mayan reviewed the results from qualitative data. I was responsible for integrating quantitative and qualitative data, and drafting the manuscript. Mayan, Jarman, and Bell reviewed the manuscript for content appropriateness and flow. Mayan had primary responsibility for its final content.

DEDICATION

To Noah and Elizabeth

You are the best chapters of my PhD journey.

Thank you for being sweet, daily reminders of what *really* matters in life.

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First and foremost, I would like to express gratitude to my Heavenly Father. I stand here today because of You, a constant source of rest, comfort and hope. I hope to honour You in every opportunity this PhD degree brings into my life.

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ABBREVIATIONS

APrON: Alberta Pregnancy Outcomes and Nutrition

BMI: Body Mass Index

CBO: Community-Based Organization

CBPR: Community-Based Participatory Research

CCHS: Canada Community Health Survey

CFG: Canada's Food Guide

CI: Confidence Interval

CIHR: Canadian Institutes of Health Research

COM-B: Capability-Opportunities-Motivation Behaviour

CP: Centering®Pregnancy

CPNP: Canada Prenatal Nutrition Program

C-section: Caesarean section

DOHaD: Developmental Origins of Health and Disease

EI: Employment Insurance

FGM: Female Genital Modification

FGs: Focus Groups

GDM: Gestational Diabetes Mellitus

GWG: Gestational Weight Gain

HEI: Healthy Eating Index

HFI: Household Food Insecurity

HFSSM: Household Food Security Survey Module

HIE: Healthy Immigrant Effect

HMHB: Healthy Moms Healthy Babies

IFHP: Interim Federal Health Program

iKT: Integrated Knowledge Translation

IOM: Institute of Medicine

KT: Knowledge Translation

LBW: Low Birth Weight

LGA: Large for Gestational Age

MCHB: Multicultural Health Brokers Cooperative

MMR: Mixed Methods Research

OR: Odds Ratio

PHAC: Public Health Agency of Canada

PPD: Postpartum Depression

SDH: Social Determinants of Health

SES: Socioeconomic Status

SGA: Small for Gestational Age

SOGC: Society of Obstetricians and Gynaecologists of Canada

UK: United Kingdom

UN: United Nations

US: United States

WHO: World Health Organization

WHR: Waist-to-Hip Ratio

WIC: Women, Infants and Children

CHAPTER 1: Introduction

1.1 Rationale

Gestational Weight Gain (GWG) and dietary intake are important predictors of pregnancy outcomes. Inadequate (i.e., sub-optimal) or excessive GWG increases the risk of pregnancy complications, and long-term risk of chronic disease for both mother and baby (Barker, 1997, 2004; Committee to Reexamine IOM Pregnancy Weight Guidelines, 2009; Olson, 2008). The Developmental Origins of Health and Disease (DOHaD), also known as Barker's Hypothesis, demonstrates that insults during critical periods of development, such as intrauterine growth, may "program" organ structure and function, and alter an individual's predisposition to disease in adulthood (Barker, 2004; Wood-Bradley, Henry, Vrselja, Newman, & Armitage, 2013).

Dietary intake during pregnancy is described as one of "the most influential, but modifiable, factors" (p. 412) in promoting optimal offspring development in utero (Wood-Bradley et al., 2013). Malnutrition and inadequate gestational weight gain have historically represented great health concerns; and in many developing countries, malnutrition remains an issue (Barker, 2004; Bhutta et al., 2013). However, with the rise of overweight and obesity rates in North America and worldwide, the proportion of women entering pregnancy with a higher body mass index has significantly increased, which has translated into an increased risk for excessive GWG, pregnancy complications, and pregnancy-related obesity (Abrams, Altman, & Pickett, 2000; Committee to Reexamine IOM Pregnancy Weight Guidelines, 2009; Herring et al., 2012; Hickey, 2000). The rise of overweight and obesity among women of childbearing age represents a public health issue in both developing and developed countries, an issue linked to unbalanced nutrients that commonly result from unhealthy diets (Jarman, Bell, Nerenberg, Robson, & teams, 2017; Wood-Bradley et al., 2013).

Data from a large Canadian cohort of 1541 pregnant women from the Alberta Pregnancy Outcomes and Nutrition (APrON) study showed that ~49% of women exceeded recommendations for weight gain in pregnancy (Jarman et al., 2016). High rates of excessive GWG are also observed among women of low socioeconomic status (SES), who are at an even greater risk for excessive GWG and parity-associated obesity (Davis, Zyzanski, Olson, Stange, & Horwitz, 2009; Herring et al., 2012; Olson & Strawderman, 2003; Paul, Graham, & Olson, 2013; Wells, Schwalberg, Noonan, & Gabor, 2006). Socioeconomic factors have been used as surrogate markers of diet, with many studies assuming that women of lower SES have poorer diets (Wood-Bradley et al., 2013).

Indeed, evidence consistently shows that lower SES is negatively associated with aspects of a healthy pregnancy, including women's ability to physically access and consume healthy foods, and meet GWG guidelines (Laraia, Siega-Riz, & Gundersen, 2010; Olson, 2010).

In addition to low SES, many other factors influence maternal health and pregnancy outcomes, such as women's ethnicity (Mendez, Hogan, & Culhane, 2014; Small et al., 2008), recent migration to a new country (Gagnon et al., 2009; Merry, Gagnon, Kalim, & Bouris, 2011) residence in rural areas (Hoang, Le, & Ogden, 2014; Sutherns, 2005; Sutherns & Bourgeault, 2008), and participation in perinatal programs (Muhajarine, Ng, Bowen, Cushon, & Johnson, 2012; Thornton et al., 2006; Torres, Spitzer, Labonte, Amaratunga, & Andrew, 2013). In Alberta, Canada, pregnant and postpartum women who are experiencing difficult life circumstances related to the abovementioned factors and/or others, such as family violence, social isolation, mental health issues and substance use, may access community-based perinatal programs (Public Health Agency of Canada, 2015; Torres et al., 2013). These programs provide additional services and supports to diverse women across various communities in Alberta. Yet, much remains to be understood about women's perceptions, experiences, needs, and expectations during pregnancy and postpartum while experiencing difficult life circumstances and accessing community-based perinatal programs. Such knowledge has the potential to improve prenatal care, enhance community-based perinatal programming, and inform the development of unique strategies to promote maternal health of women in Alberta.

1.2 Purpose

My PhD research was part of a larger research program called ENRICH. The ENRICH Research Program began in 2013 with the overall purpose of promoting maternal health in pregnancy and postpartum among diverse groups of women in Alberta. The ENRICH Research Program brought together a group of researchers and community stakeholders to find meaningful and feasible strategies to improve the health of pregnant and postpartum women. These strategies had to meet the needs of diverse women and care providers across Alberta, and "consider the physical and social environments that shape women's choices during pregnancy and postpartum" (https://enrich.ales.ualberta.ca/).

Within the context of ENRICH, the purpose of my PhD research was to explore women's perceptions and experiences of health during pregnancy and postpartum while facing difficult life

circumstances (e.g., low income, food insecurity, recent immigration to Canada, social and geographical isolation), and accessing community-based perinatal programs in Alberta.

1.3 Research Questions and Objectives

To meet the purpose of my PhD research, I aimed to address the following research questions and objectives:

Research Question 1. What are the perceptions and experiences of health of migrant[1] women who access community-based perinatal programs in Edmonton, Alberta, during pregnancy and postpartum?

Objective 1. To explore migrant women's perceptions and experiences of health during pregnancy and postpartum while accessing community-based perinatal programs at the Multicultural Health Brokers Cooperative (MCHB) in Edmonton, Alberta (Chapters 4 and 5);

Research Question 2. What are the perceptions and experiences of health of rural women who access community-based perinatal programs in Southern Alberta during pregnancy and postpartum?

Objective 2. To explore rural women's perceptions and experiences of health during pregnancy and postpartum while accessing a community-based perinatal program, Healthy Moms Healthy Babies (HMHB), in Southern Alberta (Chapter 6);

[1]I would like to explain here why different terminologies were used in chapters 4, 5 and 7 to describe migrant women. For Chapter 4, I called migrant women African-immigrant women because the focus was on different approaches to collect qualitative data using focus groups with participants from four African communities who did not speak English fluently. I did not explore differences between immigrant categories (i.e., economic immigrants, refugees and refugee claimants). For Chapter 5, I presented results from the work with the same group of women presented in Chapter 4; however, they were specifically called Northeast African migrant women in response to the reviewers' comments from the International Journal for Equity in Health. They believed describing women as "African" was too broad and somewhat inappropriate. In addition, the maternal health literature was calling on researchers to be specific about participants' immigration category. Therefore, because we did not collect such data, calling them migrant women instead of immigrant women seemed to better respond to what needed to be added to the body of literature. In Chapter 7, migrant women are called "immigrants" again because many documents referenced from Statistics Canada used "immigrants" as a general term for individuals across all immigration categories. Where appropriate in Chapter 7, I differentiated participants and particularly reported on refugees. It is important noting that the MCHB commonly describe their immigrant and refugee clients as "newcomers"; however, I steered away from this terminology because some Indigenous researchers have started using the word "newcomer" to describe early European settlers to Canada and North America.

Research Question 3. What is the prevalence of household food insecurity among migrant women accessing community-based perinatal programs at MCHB in Edmonton, Alberta? What are the experiences of migrant women coping with household food insecurity?

Objective 3. To examine the prevalence of household food insecurity among migrant women accessing MCHB perinatal programs in Edmonton, Alberta (Chapter 7);

And to explore the experiences of migrant women coping with household food insecurity and accessing MCHB perinatal programs in Edmonton, Alberta (Chapter 7).

CHAPTER 2: Literature Review

2.1 The Developmental Origins of Health and Disease (DOHaD)

The last three decades have been marked by increased interest in the DOHaD hypothesis with animal and epidemiological studies investigating the idea that early life environments (from conception through early childhood) might impact long-term health and chronic disease risk (D. Barker, Barker, Fleming, & Lampl, 2013; D. J. Barker, 1997). Dr. Barker conceived the DOHaD hypothesis by using birth records data – carefully recorded by a group of midwives led by Ethel Margaret Burnside – with information on birth weights, weights at one year of age, and living conditions of infants born in Hertfordshire, England, in the early 1900s (D. Barker, 2003). He observed a strong relationship between weights at birth and early infancy, and the incidence of ischemic heart attack in adulthood among males from Ms. Burnside's Hertfordshire cohort (D. Barker, 2003; Wood-Bradley, Henry, Vrselja, Newman, & Armitage, 2013). Since then many other epidemiological studies have substantiated Dr. Barker's seminal work.

The Dutch Hunger during World War II (November 1944 - May 1945) provided researchers with the opportunity to examine the effects of malnutrition during different stages of pregnancy on chronic disease risk in adult life, with early gestation being the most vulnerable period to programming of chronic disease later in life (Roseboom, 2019; Roseboom et al., 2001). Through a series of Dutch Hunger studies, we learned that the effects of maternal health on offspring health could be mediated by changes in various organs and/or body systems (Wood-Bradley et al., 2013). This occurs because pregnancy is a period of developmental plasticity in which the fetus' adaptive responses to the maternal uterine environment can lead to alterations in the structure, metabolism, hormone production, tissue sensitivity to hormones, and organ(s) development within the fetus (Gluckman, Hanson, Cooper, & Thornburg, 2008; Roseboom, 2019). Another underlying mechanism that could explain how maternal health may influence offspring health is through epigenetic[2] modifications, which refer to alterations in gene function (primarily though DNA methylation or histone modification) in the absence of changes in DNA sequence (Godfrey et al., 2017). Together, these alterations might have long-term consequences, predisposing individuals to chronic diseases later in life, such as Type 2 diabetes and

[2] The definition of epigenetics provided here is extremely simplistic in light of the extensive body of research in the area. Details about epigenetic modifications that might occur during fetal development are outside of the scope of my thesis.

cardiovascular disease, and increasing the risk of premature all-cause mortality (D. J. Barker, 2004; Godfrey et al., 2017).

Findings similar to those observed in the study of the Dutch Hunger were found in investigations of famine in other environments, including Nigeria, China, Austria, Ukraine, Greece and Bangladesh (Roseboom, 2019). The Chinese Great Famine was followed, a few decades later, by nutritional transition, and significant rises in obesity and Type 2 diabetes rates in China. The compounded effect of malnutrition in utero and abdominal obesity in adulthood, defined by high Body Mass Index (BMI) and high Waist-to-Hip Ratio (WHR), was observed among a cohort of women who were four times more likely to develop Type 2 diabetes than non-obese women (Meng et al., 2018).

Though the initial focus of DOHaD was on examining the effects of maternal undernutrition on fetal development, with the rise of obesity rates worldwide there has been growing evidence that excess energy supply to the fetus through maternal obesity or maternal hyperglycemia could also predispose the offspring to an array of metabolic disorders that might even start in childhood (Gluckman et al., 2008). We have learned through animal experimental studies that diet-induced maternal obesity causes obesity, diabetes, high blood pressure, fatty liver and behaviour changes (e.g., lower cognition, attention disorders) in the offspring (Godfrey et al., 2017). In addition, birth cohort studies in the United Kingdom (UK) and Sweden have found that maternal pre-pregnancy obesity and excessive Gestational Weight Gain (GWG) are associated with higher risk of childhood obesity, with excessive GWG being associated with increased childhood fat mass, as well as increased childhood and adolescent BMI (Godfrey et al., 2017). Maternal obesity has also been linked to the rising occurrence of asthma, eczema and food allergies (Godfrey et al., 2017). Additionally, diets high in vegetable oils and margarine, nuts and fast foods during pregnancy and lactation have been associated with the development of atopic disorders in the offspring (Netting, Middleton, & Makrides, 2014).

Therefore, not only maternal thinness, but also fatness and poor overall diet quality during pregnancy have the potential to influence short- and long-term offspring health. Given the importance of DOHaD for the health of future generations, it is key to discuss the current evidence on pivotal areas of maternal health, and possible implications for pregnancy and postpartum outcomes (Aizer & Currie, 2014). Some of these pivotal areas will be further explored in the next sections of this chapter.

2.2 Gestational Weight Gain

Gestational weight gain and maternal nutrition are important predictors of pregnancy outcomes (e.g., birth weight, mode of delivery and risk of complications for both mother and infant). GWG reflects both fetal growth and important physiological changes in a woman's body to sustain and support fetal development (i.e., increase in blood volume, uterine, breast and maternal adipose tissue) (Pitkin, 1976). The most recent GWG guidelines were released by the Institute of Medicine (IOM) in 2009 and adopted by Health Canada in 2010 (Committee to Reexamine IOM Pregnancy Weight Guidelines, 2009; Health Canada, 2010). These GWG guidelines recommend a range for total and weekly GWG according to women's pre-pregnancy BMI (Table 2.1).

Table 2.1 Health Canada's guidelines for weight gain in pregnancy (Health Canada, 2010)

Pre-pregnancy BMI Category (kg/m^2)	**Total Weight Gain (kg)**	**Weekly Weight Gain During 2nd and 3rd Trimester (kg/week)**
Underweight (<18.5)	12.5 – 18	0.5
Normal weight (18.5 – 24.9)	11.5 – 16	0.4
Overweight (25 – 29.9)	7 – 11.5	0.3
Obese (≥30)	5 – 9	0.2

Gaining above or below GWG guidelines increases the risk of adverse outcomes for both mother and baby during pregnancy, labour, delivery and postpartum (Abrams, Altman, & Pickett, 2000; Goldstein et al., 2017; Vinturache, Moledina, McDonald, Slater, & Tough, 2014). In addition, women who enter pregnancy with overweight or obesity are at a greater risk for developing pregnancy complications, such as pregnancy-induced hypertension, preeclampsia and Gestational Diabetes Mellitus (GDM) (Vinturache et al., 2014). A systematic review and meta-analysis of 23 studies (n=1309136) showed that gaining below GWG guidelines was associated with a higher risk of having a preterm baby (<37 weeks of gestation) (odds ratio, OR, 1.70 [95% Confidence Interval, CI, 1.32 to 2.20]), as well as a Small for Gestational Age (SGA) baby (birth

weight less than the 10th percentile for gestational age) (OR, 1.53 [95% CI, 1.44 to 1.64]), with associations between GWG and Low Birth Weight (LBW) at birth (<2500g) not reported by authors (Goldstein et al., 2017). In turn, excessive GWG was associated with higher risk of Large for Gestational Age (LGA) (birth weight greater than the 90th percentile for gestational age) (OR, 1.85 [95% CI, 1.76 to 1.95]), macrosomia (OR, 1.95 [95% CI, 1.79 to 2.11]) and delivery via caesarean section (OR, 1.30 [95% CI, 1.25 to 1.35]) (Goldstein et al., 2017).

Birth weight is a proxy for health at birth, and it is also a predictor of childhood health and development (Aizer & Currie, 2014; Hillman, Day, Hoffman, & Stockbauer, 2019). LBW infants are more likely to have impairments in speech, language, vision, and motor skills, as well as lower school performance (Hillman et al., 2019). Young adults who were born with a LBW were found to have lower educational attainment (especially among males), lower academic achievement, and lower mean IQ scores than adults who were born with normal birth weights (Hack et al., 2002). In contrast, LGA has been associated with greater adiposity, BMI and increased risk for cardiovascular disease in childhood (Fraser et al., 2010).

Although GWG below the guidelines has historically represented a health concern, current high rates of overweight and obesity rates in North America and worldwide have meant that the proportion of women entering pregnancy with a higher BMI has significantly increased, translating into an increased risk for excessive GWG, and pregnancy-related obesity (Abrams et al., 2000; Committee to Reexamine IOM Pregnancy Weight Guidelines, 2009; Herring et al., 2012; Hickey, 2000; Pereira et al., 2019). Data from the Alberta Pregnancy Outcomes and Nutrition (APrON) study – a prospective cohort of pregnant women >16 years of age in Alberta, Canada – showed that ~49% of women (761 out of 1541) gained above Health Canada's GWG guidelines, with ~70% of participants who were overweight or obese pre-pregnancy exceeding GWG recommendations (Jarman et al., 2016). These findings from the APrON study are consistent with many other investigations of GWG in women worldwide (Goldstein et al., 2017).

Health Canada guidelines recommend that women who enter pregnancy with a BMI in the obese category gain less weight than women with lower pre-pregnancy BMIs; and because of this, the IOM guidelines emphasize the need to provide additional support to this group to help them optimize GWG (Kominiarek, Gay, & Peacock, 2015). Nevertheless, the APrON study showed that 52% of obese women exceeded GWG guidelines by 18 weeks of pregnancy (Jarman et al., 2016). This finding, in addition to the fact that absolute GWG is positively associated with offspring's

adiposity, and risk for cardiovascular disease (Godfrey et al., 2017), highlights the importance of discussing GWG and healthy lifestyles with women as early as possible in pregnancy.

2.3 Maternal Health in Pregnancy and Postpartum

2.3.1 GWG, nutrition and healthy eating in pregnancy

Supporting guideline-concordant GWG is one of several important goals of nutrition counselling in pregnancy. The main goal is to ensure the mother obtains enough nutrients to support her body and its physiological functions during pregnancy, while also supporting optimal offspring development (Lee, Newton, Radcliffe, & Belski, 2018; Pitkin, 1976; Wyness, 2014). As a result, nutrition during pregnancy is typically focused on key health messages related to: achieving guideline-concordant GWG, optimal micronutrient intake and status (often through prenatal micronutrient supplements, specifically for folic acid and iron), abstention from alcohol, avoiding foods that that can be a health risk due to food-borne illnesses (e.g., raw/uncooked eggs, meat, and sprouts) or nutrient toxicity (e.g., high-mercury fish, liver [high source of vitamin A]), and achieving extra energy requirements. Many resources also include recommendations for how to achieve these recommendations through diet (L. Forbes, Baarda, Mayan, & Bell, 2017; L. E. Forbes, Graham, Berglund, & Bell, 2018; Lee et al., 2018; Vanstone, Kandasamy, Giacomini, DeJean, & McDonald, 2016).

In Canada, women are commonly referred to Canada's Food Guide (CFG) for healthy eating recommendations during pregnancy and breastfeeding (Health Canada, 2010; Jarman, Bell, Nerenberg, Robson, & teams, 2017). At the time of writing, CFG had been updated (January 2019), and the 2019 CFG was presented to the public with two key messages that included a few specific recommendations under each message (Health Canada, 2019). These two key messages are centered around what to eat – "Make it a habit to eat a variety of healthy foods each day" – and the eating environment – "Healthy eating is more than the foods you eat. It is also about where, when, why, and how you eat" (Health Canada, 2019). However, prenatal nutrition guidelines have yet to be released, and continue to reflect the messaging from the 2007 CFG. The key messages in the 2007 CFG geared towards pregnant women are listed in Table 2.2 (Health Canada, 2010).

Key messages in the 2007 CFG have the overall goal of meeting pregnant women's nutrient and caloric needs which would reflect on healthy GWG; however, they do not provide specific guidance on the intake of less healthy foods that are usually high in calories, fat, sugar and salt

(Jarman et al., 2018). Moreover, the 2007 CFG's recommendations do not take into account the fact that women might be entering pregnancy with different BMIs and, consequently, have varying caloric demands (Jarman et al., 2017).

Table 2.2 Key messages on 2007 Canada's Food Guide for pregnant women

- Eat according to Canada's Food Guide. - Take a daily multivitamin that has 0.4 mg of folic acid and 16 to 20 mg of iron. - Include an extra 2 to 3 Food Guide Servings each day, for example a fruit and yogurt for a snack. - Be active every day as part of a healthy pregnancy. Talk to your health care provider before increasing your activity level.

Source: Prenatal nutrition guidelines for health professionals (Health Canada, 2010)

Jarman, Bell, Nerenberg, Robson, & the APrON and ENRICH Study Teams (2017) assessed adherence to CFG by calculating a score (0-9) that reflected meeting none (score of zero) to all (score of 9) CFG recommendations for pregnancy, and found that of the women who participated in the APrON study those who started their pregnancies in the obese BMI category had the lowest scores (2.9 compared with 3.3 for normal weight women pre-pregnancy) (Jarman et al., 2017). In a systematic review of qualitative research, Vanstone, Kandsamy, Giacomini, DeJean, and McDonald (2016) found that most pregnant women lacked the knowledge about the risks associated with excessive GWG, and placed more emphasis on gaining enough weight (Vanstone et al., 2016). Interestingly, content analysis of commonly used printed prenatal resources in Alberta tended to place more emphasis on eating more to gain enough weight – thus, avoiding gaining below GWG – rather than setting goals, and monitoring weight gain to prevent excessive GWG (L. Forbes et al., 2017).

Pregnant women in many studies perceived a lack of control over GWG, especially when they experienced pregnancy symptoms such as nausea and cravings. They preferred to focus on positive changes in their lifestyle (e.g., eating healthy foods, being physically active) to optimize babies' health rather than focusing on weight measurements (Kominiarek et al., 2015; Vanstone et al., 2016). In studies conducted in Canada, Australia and the United States (US), women commonly made changes to their dietary intake to support babies' health, and to decrease pregnancy discomforts and symptoms (i.e., nausea and heartburn) (L. E. Forbes et al., 2018;

Malek, Umberger, Makrides, & Zhou, 2016; Reyes, Klotz, & Herring, 2013). Among APrON participants (n=379), for example, 34% of women reported trying to increase their intake of vegetables and fruit, and 41% of milk and alternatives during pregnancy (L. E. Forbes et al., 2018). In an Australian national cohort of 857 pregnant women, none adhered to the recommended servings for *all* five food groups outlined by the Australian Dietary Guidelines for pregnancy (Malek et al., 2016).

In many qualitative studies where interviews or focus groups were used to collect data, women reported facing barriers to healthy eating during pregnancy. These barriers included cost of foods, limited physical/geographical access to healthy foods, pregnancy-related symptoms (i.e., changes in the taste of foods, nausea, cravings, fatigue), misunderstandings about what foods are healthy, lack of social support, competing priorities (i.e., custody issues, childcare, negative partner relationships) among many others (Graham, Mayan, McCargar, Bell, & Sweet Moms, 2013; Paul, Graham, & Olson, 2013; Reyes et al., 2013). A study with Tamil and Latin American refugee mothers in Toronto, Canada, showed that although women highly valued the 2007 CFG messaging, and tried to employ the notion of "balance" and "variety" in their families' diets, they perceived it to lack guidance on how to include culturally appropriate and acceptable foods (Anderson, Mah, & Sellen, 2015). These refugee mothers also perceived foods in Canada as being more processed, less fresh and less tasty than those available in their home countries, which caused them to believe that Canadian foods had lower nutritional value, and were less desirable for their families (Anderson et al., 2015).

Pregnant women also describe additional barriers to both healthy eating and gaining an appropriate amount of weight that include lack of lifestyle and GWG counselling, that was inconsistent (among health care providers), ever changing, overwhelming, and not personalized to women's individuals' circumstances and structural constraints (Ferrari, Siega-Riz, Evenson, Moos, & Carrier, 2013; Kominiarek et al., 2015; Vanstone et al., 2016; Whitaker, Wilcox, Liu, Blair, & Pate, 2016a). Even though nutrition counselling may have the potential to improve overall maternal diet (Blondin & LoGiudice, 2018; Walsh & McAuliffe, 2015), and most women respond positively to receiving counselling about prenatal nutrition (Whitaker et al., 2016a), the vast majority of health care providers do not seem to routinely discuss GWG, healthy eating and physical activity with pregnant women (Da Costa et al., 2015; Kominiarek et al., 2015; Morris et al., 2017).

2.3.2 Physical activity in pregnancy

Regular physical activity during pregnancy has the potential to slow the rate of weight gain, provide psychological benefits, and improve obstetrical outcomes (Mottola et al., 2018). In addition, being physically active during pregnancy is associated with better dietary intakes (Berube, Messito, Woolf, Deierlein, & Gross, 2019). Overall, physical activity represents an important pillar of maternal health, and a topic to be covered in prenatal care. Qualitative studies show that for low income pregnant women who enter pregnancy with overweight or obesity walking, swimming, yoga, biking and daily living activities represent safe and appropriate forms of physical activity during pregnancy, yet they may encounter various barriers to participation (Goodrich, Cregger, Wilcox, & Liu, 2013; Paul et al., 2013). Commonly described barriers to physical activity in pregnancy include fatigue, lack of motivation, lack of childcare, and being in workplaces that are not conducive to being active (Goodrich et al., 2013; Paul et al., 2013).

After giving birth, women can gradually resume physical activity once their health care providers indicate it is medically and physically safe for them to do so, and are then encouraged to engage in at least of 150 minutes/week of moderate to vigorous physical activity (Evenson, Aytur, & Borodulin, 2009; van der Pligt et al., 2016). Being physically active in the postpartum period is highly beneficial as regular physical activity can improve emotional health, and lower anxiety (Evenson et al., 2009). In a prospective cohort of 643 ethnic-diverse women, those who met the recommended 150 minutes of moderate to vigorous physical activity at three months postpartum presented a significantly lower risk for Postpartum Depression (PPD) symptoms compared to women who did not engage in any physical activity (Shakeel, Richardsen, et al., 2018). Moreover, physical activity in the 12 months postpartum represents an important predictor of postpartum weight retention, with regular physical activity increasing women's chance to return to pre-pregnancy weight (van der Pligt et al., 2016).

Counselling on physical activity during pregnancy has been associated with women's intentions to follow physical activity guidelines; however, many women across various studies describe physical activity counselling as vague and inconsistent (Ferrari et al., 2013; Vanstone et al., 2016; Whitaker, Wilcox, Liu, Blair, & Pate, 2016c). Whitaker, Wilcox, Liu, Blair, & Pate

(2016c) through an internet-based survey of 188 women between 20 and 30 weeks of gestation in the US and Canada found that 63% of women remembered their providers encouraging them to be active during pregnancy, but fewer recalled advice on exercise type (32%), intensity (22%), and frequency and duration (21%) (Whitaker et al., 2016c). Moreover, women who were described as non-white, multiparious, with lower levels of education and income were less likely to report receiving advice on physical activity (Whitaker et al., 2016c). In a study conducted with postpartum first-time mothers in Australia, approximately 50% reported not having received any clinician advice to be physically active after birth (van der Pligt et al., 2016).

Despite the fact that physical activity can promote appropriate (or guideline-concordant) GWG and decrease postpartum weight retention, health care providers commonly do not cover physical activity guidelines for pregnancy and postpartum, (Morris et al., 2017; Mottola et al., 2018; van der Pligt et al., 2016; Whitaker, Wilcox, Liu, Blair, & Pate, 2016b; Whitaker et al., 2016c). Health care providers are well positioned to support women with appropriate physical activity recommendations, yet many are missing a pivotal opportunity to promote an important health behaviour during childbearing years (Whitaker et al., 2016c).

2.3.3 Weight gain counselling in pregnancy

In a sample of 508 health care providers from primary care settings across Canada (including general practitioners, obstetricians, midwives and nurse practitioners), who participated in an online survey about GWG counselling practices, only 21% typically counselled women on their weight gain target based on pre-pregnancy BMI (Morris et al., 2017). This represented a fascinating finding since 77% of these same providers acknowledged that discussions with women about GWG were within their scope of practice, yet not a priority unless GWG became a concern for them or their clients (Morris et al., 2017). In a needs assessment survey conducted with 74 pregnant and postpartum women in Canada, Da Costa et al. (2015) found that ~68% of women had not discussed GWG guidelines with their health care providers, and less than half of their participants received any nutrition counselling during pregnancy. Even though most pregnant and postpartum women wanted information to be made available online, for more than 60% of them the health care provider still represented an important and preferred source of information (Da Costa et al., 2015).

Kominiarek, Gay, and Peacock (2015) conducted focus groups with health care providers about obesity management in pregnancy, and found that most providers would rather not address weight issues with obese women, as they perceived it to be challenging to find the "right" words to describe obesity and obesity-related issues (Kominiarek et al., 2015). Qualitative results from focus groups with obese women underscored the sensitivity of weight discussions in pregnancy, as women described feeling hurt when health care providers initiated discussions about GWG, even though they knew their providers were trying to help (Kominiarek et al., 2015).

Health care providers may face barriers in their practice that prevent them from exploring nutrition and GWG counselling in routine prenatal care (Morris et al., 2017). These barriers include lack of training and knowledge in nutrition, lack of time, competing priorities and their own weight issues (Kominiarek et al., 2015; Morris et al., 2017). On the other end of nutrition and GWG counselling, however, we find many women who face personal, socioeconomic, and health care barriers to maternal health education and behaviours that effectively suit their needs and realities (Blondin & LoGiudice, 2018; Kominiarek et al., 2015). Therefore, finding ways to support all pregnant women through counselling that is evidence-based, patient-centered, respectful and compassionate is essential.

2.3.4 Maternal mental health

Approximately 23% and 15% of women experience anxiety and depression, respectively, during pregnancy (Grigoriadis et al., 2018). Antenatal anxiety increases the risk for preterm birth, lower birth weights, and PPD (Grigoriadis et al., 2018; Prady et al., 2013). In addition, animal and human studies have identified multiple stress-transfer mechanisms (e.g., increased release and placental transfer of maternal cortisol) present during mental health disorders that may cause permanent changes in infants' nervous system, and lead to behaviour and cognitive modifications later in life (Rakers et al., 2017). As an example, maternal anxiety in early pregnancy has been associated with behavioural problems in 8- and 9-year-olds (Van den Bergh et al., 2017).

Depression during pregnancy may disrupt fetal developmental processes and increase health risk for both mother and offspring. It is marked by changes in appetite, fatigue, feelings of guilt, and associated with alcohol and substance abuse (Letourneau et al., 2007; Shakeel et al., 2015). Depression in pregnancy may also be carried into postpartum, and adversely affect mother-infant attachment, as well as a mother's relationship with her partner and older children (Ogbo et

al., 2018; Shakeel et al., 2015). Women who are classified as obese pre-pregnancy report having higher anxiety levels than normal-weight women before 20 weeks of gestation, and these higher anxiety levels continue throughout the second and third trimester in women with obesity (Nagl, Linde, Stepan, & Kersting, 2015). Furthermore, risk factors for depression during pregnancy include maternal history of anxiety and depression, adverse life events (such as serious illnesses and death in the family, divorce or forced separation, unemployment, financial difficulties, and major concerns with older children), lack of support from partners and others, and perceived everyday discrimination (Bennett et al., 2010; Ogbo et al., 2018; Shakeel et al., 2015).

The prevalence of these risk factors is higher among migrant pregnant women who, as a result, tend to be at an increased risk for poorer mental health outcomes (Dennis et al., 2018; Ogbo et al., 2018; Shakeel et al., 2015). Indeed, increasing evidence indicates that migrant women may have higher rates of depression during pregnancy and postpartum. This is especially true for women moving from cultures that have more collective values to cultures that are more individualistic (Shakeel et al., 2015). In a community sample in Canada, 42% of pregnant and 38% of postpartum immigrant women had elevated levels of depressive symptoms compared to 3.4% of non-immigrants from same community area (Fung & Dennis, 2010). Additionally, findings from the Born in Bradford cohort in the UK indicated that low SES (described in the study as financial concerns) was highly prevalent in a multi-ethnic community of women from eight ethnic minorities, and independently associated with poorer mental health (Prady et al., 2013). A population-based prospective cohort of 749 pregnant women in Oslo, Sweden, found that ethnic minority women from the Middle East and South Asia were almost three times more likely to have depression at 28 weeks of gestation (Shakeel et al., 2015). Also, history of depression, adverse life events, and poor perceived health three months prior to pregnancy were risk factors for depression in pregnancy (Shakeel et al., 2015).

History of depression markedly increases women's risk for PPD (Silverman et al., 2017). PPD is a serious threat to infants' well-being and optimal development, as well as the second most-frequent cause of maternal mortality in high-income countries (Stein et al., 2018). A population-based study of 707,701 Swedish women found that women with a history of depression were more than 20 times more likely to develop PPD at some point in the 12 months post delivery (Silverman et al., 2017). In addition, women who were over 35 years of age, had delivered a baby with shorter gestational age, or had developed GDM had a higher risk for PPD regardless of depression history.

For migrant women, not only are depression and anxiety during pregnancy important predictors for PPD, but also is the quality of their relationship with their spouse (Fung & Dennis, 2010). In fact, interpersonal violence increases the risk of physical and psychological problems during pregnancy and postpartum among all women (not only migrants), predisposing them to PPD and parenting challenges (Malta, McDonald, Hegadoren, Weller, & Tough, 2012).

Although over one million women experience PPD yearly in North America, only 50% of them seek treatment or support (Letourneau et al., 2007). In a qualitative study of postpartum women experiencing PPD, both instrumental (e.g., help with childcare and house chores) and informational (e.g., information about PPD symptoms, high prevalence and perspective for improvement) forms of social support were identified as essential to women coping with PPD symptoms (Letourneau et al., 2007). Furthermore, health care providers who demonstrate compassion and understanding of women's feelings play a key role in the success of PPD treatment (Letourneau et al., 2007).

2.4 Determinants of Maternal Health[3]

2.4.1 Low socioeconomic status (SES)

Women of low SES are at risk for poor pregnancy outcomes, and possible explanations for this relationship require an examination of Social Determinants of Health (SDH) – defined by the World Health Organization (WHO) as "the conditions in which people are born, grow, and age, and the set of forces and systems shaping the conditions of daily life" – and their role in maternal health and DOHaD (Aizer & Currie, 2014; Cockerham, Hamby, & Oates, 2017).

Indeed, low SES can negatively affect many aspects of a healthy pregnancy including women's ability to gain weight in concordance with GWG guidelines, to attend prenatal care, and to have physical and financial access to healthy foods for their diets (Gonthier et al., 2017; Hromi-Fiedler, Bermudez-Millan, Segura-Perez, & Perez-Escamilla, 2011; B. A. Laraia, Siega-Riz, & Gundersen, 2010; Olson, 2010). Many studies have reported that low income women are at a higher risk for gaining below or above GWG. In a qualitative investigation of low income, pregnant women living in Rochester, New York, Paul, Graham, and Olson (2013) conducted focus

[3] Gender is a well-recognized social determinant of health that permeates and weaves through all determinants of maternal health discussed in this section (World Health Organization, 2009). However, this literature review and PhD thesis do not include an in-depth discussion on how women's and men's socially constructed roles and gender identities shape and impact both individual and public health.

groups with both low and high income women, and noted that low income women reported habits that were conducive to positive energy balance. These habits included eating energy dense foods (e.g., soda, fried and fast foods), overeating, and eating fewer fruits and vegetables (Paul et al., 2013). Whereas high income women were able to curb pregnancy cravings with healthy foods, such as fruit, low income women described emotional eating foods high in fat and sugar as a coping mechanism when they felt depressed and/or stressed (Paul et al., 2013). Low income women cited custody issues, lack of or uncertainty around childcare, negative partner relationships, lack of social support and unintended pregnancies as causes of stress during pregnancy (Paul et al., 2013). Fielding-Singh (2017), in exploring the meaning of food across low-, middle- and high-income families, found that families, especially mothers, who have high SES place more emphasis in the nutritional value of foods offered to the family (Fielding-Singh, 2017).

Overall, low income women experience numerous psychosocial, environmental and lifestyle factors that can negatively influence their dietary intake and put them at risk for excessive GWG (Berube et al., 2019; Paul et al., 2013). A study with low income, Hispanic pregnant women in the US found that most did not meet the recommendations for whole grains, vegetables, dairy and fatty acids, and overconsumed refined grains, foods high in sodium, saturated fats and added sugars despite the fact that 87% of them received Women, Infants and Children (WIC) support aiming at improving their nutrition and health outcomes (Berube et al., 2019). In Canada, low income, pregnant and postpartum women with high exposure (i.e., earlier in pregnancy, higher number of contacts and for a longer period) to the Canada Prenatal Nutrition Program (CPNP) – a program that provides supports through community groups to pregnant women and new mothers who face challenges that put their health at risk – were more likely to exceed the recommendations for GWG (Muhajarine, Ng, Bowen, Cushon, & Johnson, 2012; Public Health Agency of Canada, 2015). These findings from both WIC and CPNP participants highlight the complexity of the network of factors affecting dietary intake and GWG of low income women.

Inadequate prenatal care utilization – characterized by late initiation and/or suboptimal number of visits and examinations (e.g., ultrasounds) – has been observed among low income women, increasing their risk for perinatal morbidity and mortality (Benova, Campbell, Sholkamy, & Ploubidis, 2014; Gonthier et al., 2017). Gonthier et al. (2017) investigated the association between prenatal care utilization and social deprivation in a sample of 9770 women with singleton pregnancies in Paris, France, and found that women with higher social deprivation index scores

were less likely to consistently attend prenatal care. The social deprivation index score had four dimensions (social isolation, poor or insecure housing conditions, no household income generated through employment, and absence of standard health insurance), and each dimension was significantly associated with poor prenatal care utilization even after adjusting for immigration characteristics and maternal education (Gonthier et al., 2017).

Research with low income women also shows that those who experience unplanned pregnancies and without paternal acknowledgment have, respectively, higher risk for inadequate prenatal care and preterm birth (DeSisto, Hirai, Collins, & Rankin, 2018; Gonthier et al., 2017). Indeed, these women could be exposed to greater stress, and have less social support to counteract their adversities (Gonthier et al., 2017). Overall, several socioecological factors (e.g., poor access to healthy foods, low social support, etc.) may increase low income women's stress throughout the prenatal period and decrease their overall self-efficacy for healthy behaviours and adequate prenatal care (DeSisto et al., 2018; Gonthier et al., 2017; Paul et al., 2013). It is of utmost importance to recognize that social disadvantage may co-exist with maternal stressors that account for many pre- and post-natal adverse outcomes, and to adequately support low income women in making health decisions during pregnancy and postpartum within their sociocultural contexts and life circumstances (D. Barker et al., 2013; Thomas et al., 2017).

2.4.2 Ethnicity and international migration

Evidence from studies with diverse groups of pregnant women born either in or outside the country in which they currently reside show that low income and ethnicity may play a significant role in maternal nutrition, health and birth outcomes (Berube et al., 2019; DeSisto et al., 2018; DeSisto & McDonald, 2018; Gonthier et al., 2017). For instance, diet quality as represented by the Healthy Eating Index (HEI) of pregnant Hispanic women born in Mexico or in other Latin American countries was higher than that of Hispanic women born in the US (Berube et al., 2019). In a national cohort of Australian women, Malek, Umberger, Makrides, and Zhou (2016) found that Australian-born, pregnant women were more likely to adhere to dietary recommendations for "fruit" and "milk, cheese, yoghurt and alternatives" food groups than immigrant women (Malek et al., 2016); whereas in the UK, young women from ethnic minorities were the least likely to take folic acid supplements prior to becoming pregnant (Wyness, 2014).

In the US, women who were born in Latin American countries and immigrated to the US have better birth outcomes than their US-born counterparts and African American women despite low SES; this phenomenon has been described as the "Latina Paradox", and is possibly related to extended support networks Latin-born women may have in place in the US (McGlade, Saha, & Dahlstrom, 2004). Interestingly, disparities in birth outcomes also exist between US-born and non-US-born black women, where US-born black women have been found to have the highest rate of preterm births (DeSisto et al., 2018). The earlier mentioned cohort of almost 10,000 pregnant women in Paris, France, found that women born in North and Sub-Saharan Africa had a higher prevalence of poor prenatal care, yet the association between social deprivation and poor prenatal care was stronger for France-born women (Gonthier et al., 2017).

International migration is another important determinant of maternal health and may compound the effects of ethnicity and country of birth (L. Merry, Semenic, et al., 2016). International migration – defined as "a change of residence involving the spatial movement of persons across country borders" (p.469) (Urquia & Gagnon, 2011) – has significantly increased in the last two decades (United Nations, 2015). United Nations (UN) data indicate that in 2015 there were approximately 244 million migrants worldwide, with slightly less than half being women who may experience pregnancy and childbirth in receiving countries (Gagnon et al., 2009; L. Merry, Low, Carnevale, & Gagnon, 2016; United Nations, 2015). Canada is the industrialized country with the highest immigrant population as a proportion of the total population among the former Group of Eight (G8) nations, and in the US, 13% of the population is foreign born (K. B. Newbold, 2005; Pimentel & Eckardt, 2014; Statistics Canada, 2013). Social, cultural, and environmental conditions, as well as access to and availability of health and social services pre- and post-migration can affect migrant women's health (L. Merry, Semenic, et al., 2016). Pre-migration, women might experience war, conflict, natural disasters, and female genital modification (FGM); factors that can significantly impact prenatal care, and both mother and offspring health (Belihu, Small, & Davey, 2017; L. Merry, Semenic, et al., 2016; L. A. Merry, Gagnon, Kalim, & Bouris, 2011).

Pimentel and Eckardt (2014) in a review of key aspects of specialized prenatal care for immigrant patients described a scenario in which a woman of African origin received care at a clinic in Boston (US) during her second pregnancy. This woman's pregnancy was the result of a rape that occurred while her husband was being kidnapped from the refugee camp where they had

lived for three years (Pimentel & Eckardt, 2014). By providing a strong example of their patients' realities, the authors powerfully delivered the message that prenatal care for migrant women, especially refugees and asylum seekers, is often complex, and needs to take into consideration their realities pre-migration (Pimentel & Eckardt, 2014). FGM is also a pre-migration factor that has numerous detrimental health effects for women as it is associated with infertility, perineal tears, wound infections, sepsis and higher rates of Caesarean section (C-section) (Pimentel & Eckardt, 2014; Small et al., 2008). It is estimated that over 90 million women and girls from Africa have undergone FGM, and trauma pre-pregnancy can make prenatal care extremely challenging and painful for women (Pimentel & Eckardt, 2014). Moreover, approximately 20% of women across various hospital settings in Africa reported suffering abuse and disrespect from health care providers during childbirth (Vedam et al., 2017).

In many countries that receive a high influx of international migrants, low SES is common among immigrant families (Gagnon et al., 2009; K. B. Newbold, 2005; Pimentel & Eckardt, 2014; Statistics Canada, 2013). As a result, in addition to the barriers to prenatal care and maternal health associated with low SES, migrant women also face barriers related to limited host-language fluency, lack of familiarity with the receiving-country health care system, and cultural shock with health care providers and the health care system (Gagnon et al., 2009; Pimentel & Eckardt, 2014; Winn, Hetherington, & Tough, 2017). A study of migrant women (including refugees, asylum seekers, undocumented and economic immigrants) living in two Canadian cities that received the highest number of migrants showed that migrant women were more likely than Canadian-born women to have problems unaddressed by the health care system (Gagnon et al., 2009). Immigrants and refugees may not use the health care system as often as Canadian-born because of their feelings of uneasiness at hospital settings, and their perceptions of discrimination based on race (K. B. Newbold, 2005).

Moreover, migration classification in the receiving country represents a determinant of maternal health as it impacts SES, employment opportunities, social inclusion and stress (L. Merry, Semenic, et al., 2016). Refugees, refugee claimants, also known as asylum seekers, and undocumented immigrants (i.e., individuals lacking proper visa documentation to reside in a host country) are entitled to fewer benefits and services, might have lower levels of education, and may fear not being allowed to stay in the host country (Gagnon et al., 2009; Grewal, Bhagat, & Balneaves, 2008; L. Merry, Semenic, et al., 2016; Pimentel & Eckardt, 2014). Between 2012 and

2016, the Government of Canada made significant cuts to the Interim Federal Health Program (IFHP), which left some groups of refugee claimants without any health coverage, and negatively impacted the provision of prenatal care (Winn, Hetherington, & Tough, 2018). Women who were refugee claimants in Canada were found to avoid seeking health services due to fear of jeopardizing their process to become permanent residents (Gagnon et al., 2009; L. A. Merry et al., 2011). In addition, even though refugee claimants commonly experience PPD, they tend not to be referred to programs that offer additional support to high-risk women (L. A. Merry et al., 2011).

Among migrant pregnant women, especially refugees and refugee claimants, language barriers pose challenges to informed, shared decision making that should always happen in prenatal care (L. A. Merry et al., 2011; Pimentel & Eckardt, 2014; Vedam et al., 2017). However, solving this issue requires more than translation from language A into language B (Gonthier et al., 2017). Appropriately trained translators need to help migrant women understand how the health systems in their new countries work, and what prenatal care entails (i.e., frequency and content of prenatal visits); at the same time, they can give health care providers the cultural context for women's beliefs and preferences during pregnancy (Pimentel & Eckardt, 2014). In Canada, there are very few clinics specialized in refugee care, but where they exist health care providers receive additional training and use a team-based approach and many creative solutions to offer women high quality prenatal care (Winn et al., 2018).

Despite the fact that many studies worldwide show worse birth outcomes for migrant women (Bollini, Pampallona, Wanner, & Kupelnick, 2009), the "Healthy Immigrant Effect" (HIE) is still observed for some outcomes (B. Newbold, 2009; Urquia, O'Campo, & Heaman, 2012; Winn et al., 2017). The "Healthy Immigrant Effect" describes a phenomenon in which individuals who immigrate arrive at the receiving country in better health than those who were born in the receiving country (B. Newbold, 2009; Pimentel & Eckardt, 2014). In some studies, pregnant women who had recently immigrated to Canada were found to be less likely to smoke, consume alcohol, and to have lower GWG than Canadian-born women (Khanlou, Haque, Skinner, Mantini, & Kurtz Landy, 2017). However, it is important to note that the HIE is not the case for *all* migrant groups, and among pregnant women worse obstetrical outcomes, such as infection, congenital anomalies, and higher rates of C-section, infant and maternal morbidity, are commonly observed (Gagnon et al., 2009; Khanlou et al., 2017; Pimentel & Eckardt, 2014). Migration patterns are changing with a growing number of refugees and asylum seekers; consequently, migrant women might have

suffered material deprivation, and several stressful life events pre-migration that put them at risk for infections, inflammation during pregnancy, preterm delivery and fetal-infant mortality (Khanlou et al., 2017; Pimentel & Eckardt, 2014; Small et al., 2008).

Further, women's cultural background plays a role in reproductive health, and this represents one of the reasons why Mendez, Hogan, and Culhane (2014) stressed the importance of considering the intricate interplay among genetic, physiological, behavioural, environmental, and social factors when investigating disparities in perinatal outcomes (Mendez, Hogan, & Culhane, 2014). Sociocultural factors have been suggested as possible explanations as to why rates of GDM, anaemia, C-section and fetal distress are high among Somali women (Johnson, Reed, Hitti, & Batra, 2005; Small et al., 2008). The WHO 'Recommendations on Health Promotion Interventions for Maternal and Newborn Health' emphasize that cultural factors can affect women's use of care during pregnancy and urge meaningful inclusion of their cultural preferences in quality maternity services (World Health Organization, 2015). In a review of maternal health among migrant women in Canada, Khanlou, Haque, Skinner, Mantini, and Kurtz Landy (2017) stressed that migrant women represent a heterogeneous group; and each woman a health care provider encounters in prenatal, intrapartum and postpartum care has unique ethnic, cultural, and social circumstances that may impact her overall health and birth outcomes (Khanlou et al., 2017).

2.4.3 Living in rural areas – "rurality"

"Geography should never be an excuse for discrimination or inequity in health" (p.11) (The Ontario Rural Council, 2009), yet rural residents may encounter fewer available health resources, and more barriers to accessing health services than those living in urban areas (Campbell et al., 2019). In March 2015, the Government of Alberta, Canada, released the "Rural Health Services Review Final Report" outlining concerns and challenges of Albertans living in rural communities in relation to many aspects of their health care. Equity in access to quality maternity care was one of the areas of concern (Rural Health Services Review Committee, 2015). Additionally, the 2012 Society of Obstetricians and Gynecologists of Canada (SOGC) joint position paper on "Rural Maternity Care" stated that women who reside in rural communities should receive high-quality maternity care as close to their home as possible, and their rural residence should not translate into additional barriers to accessing prenatal care (Miller et al., 2012).

Nevertheless, women in rural areas commonly have limited opportunities to engage in health promotion activities (Liepert, Regan, & Plunkett, 2015). As such, living in a rural area, also termed "rurality" (p. 117), is another determinant of maternal health (Sutherns, 2005). The definition of the term "rural" is broad and lacks consensus; it may be based on a town's population (more or less than 10,000 people) or being outside a metropolitan area of ≥ 50,000 people, or it may be cultural and based on individuals' perceptions (Campbell et al., 2019; Statistics Canada, 2001). Rural public health nurses, for instance, perceived their setting as rural based on limited accessibility to health services (Campbell et al., 2019). Studies in North America and Australia have noted that women who live in rural areas face additional challenges in accessing health services during pregnancy and postpartum, and focus on women's geographic location and transportation issues (Goodwin, 1999; Hoang, Le, & Ogden, 2014; Miller et al., 2012; Sutherns & Bourgeault, 2008).

However, there is more to "rurality" than issues related to geographical distance, and access to maternity services. "Rurality" can be considered a paradoxical determinant of health that can act as a barrier or facilitator to health where women's agency and ability to engage in healthy behaviours can be "constrained" or "enabled" by rurality as a structural factor (Sutherns, 2005; Veenstra & Burnett, 2016). Rurality may compound marginalization and create additional barriers for mothers and their children who may need to travel long distances to access health facilities; on the other hand, it may facilitate women's access to social support through tightly knit communities (Campbell et al., 2019; Sutherns & Bourgeault, 2008). Hennegan, Kruske, and Redshaw (2014) in their work with Australian women living in rural communities suggested that "rurality" worsened other disadvantages, such as minority status and low SES, or operated as a unique risk factor for maternal health among Indigenous women (Hennegan, Kruske, & Redshaw, 2014). Moreover, rural women commonly described challenges in accessing information and economic resources, as well as in finding local maternity services that were of high quality, confidential and culturally sensitive (Sutherns & Bourgeault, 2008).

Public health nurses who participated in a qualitative study conducted in rural British Columbia, Canada, described concerns with women's privacy during prenatal and postpartum care in rural communities because they often knew their clients on a personal level (Campbell et al., 2019). Moreover, these rural health care providers described struggling with the provision of appropriate prenatal care, as they struggled to manage their time between general practice (e.g.,

flu clinics and school visits) and prenatal appointments while also feeling isolated in their work (Campbell et al., 2019). These factors, along with the long drives and extreme weather conditions health care providers experienced, required them to be flexible with their time, and prioritize according to women's needs (Campbell et al., 2019). In some instances, being flexible meant not complying with policies outlined by health authorities or union agreements (Campbell et al., 2019; Liepert et al., 2015).

Liepert, Regan, and Plunkett (2015) noted in their work with public health nurses in Ontario, Canada, the lack of policies that address women's health in rural areas, and described most policies as "urban-centric"(p.86) and not fitting into rural practices and needs (Liepert et al., 2015). Overall, women across various Canadian provinces who experience pregnancy and postpartum in rural areas have diverse needs while being in settings with limited services; this lack of equitable access to socially acceptable and high-quality maternity services limits women's choices, and hinders their ability to feel in control of perinatal care decisions (Campbell et al., 2019; Liepert et al., 2015; Rural Health Services Review Committee, 2015; Sutherns & Bourgeault, 2008).

2.4.4 Food security and insecurity

The 1996 World Food Summit defined food security with the following definition: *"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life"* (p.1) (FAO, 2008). Based on this definition, food security encompasses four dimensions: physical availability of food, economic and physical access to food, food utilization, and stability of the other three dimensions over time (FAO, 2008). The physical availability of food refers to the supply of food, and aspects related to international and national food production, distribution, stock levels and trade; whereas economic and physical access are more closely related to food security on the household level, which is impacted by income, disposable income, market and prices (FAO, 2008). Food utilization is a very important dimension of food security for maternal health during pregnancy and postpartum. Even though in its official definition food utilization is primarily understood as the way the body optimally uses the nutrients in foods consumed, with direct implications on individuals' nutritional status (FAO, 2008), it is worth noting that maternal health might be impacted by intrahousehold food utilization, with women commonly protecting

their children and other members of the family by reducing food intake and carefully distributing scarce resources ((Page-Reeves, 2014).

With the broad definition of food security in mind, the definition of food insecurity ought to be presented. Food insecurity is commonly defined as "inadequate or insecure access to food because of financial constraints" (Tarasuk, Mitchell, & Dachner, 2016). Individuals affected by household food insecurity (HFI) are at increased risk for mental health issues, including suicidal ideation, chronic disease and respiratory problems, and higher mortality rates (Gundersen, Tarasuk, Cheng, de Oliveira, & Kurdyak, 2018; Kirkpatrick, McIntyre, & Potestio, 2010; McIntyre, Williams, Lavorato, & Patten, 2013). In Canada, HFI is a significant public health issue, with approximately 12% of households that participated in the Canada Community Health Survey (CCHS) experiencing some degree of food insecurity (Tarasuk, Li, Mitchell, & Dachner, 2018; Tarasuk, Mitchell, & Dachner, 2014). As such, it is estimated that food insecurity affects four million individuals, and one in six children (Tarasuk et al., 2014).

Overall, food insecurity has well-known effects on women's health, stress, and pregnancy outcomes, with increased nutrient and caloric demands during pregnancy placing women of low SES at a higher risk of food insecurity (Kazemi, Moafi, Samiei Siboni, & Alimoradi, 2018; B. A. Laraia et al., 2010; B. A. Laraia, Siega-Riz, Gundersen, & Dole, 2006). Pregnant women living in food insecure households are more likely to enter their pregnancies with a higher BMI, to gain more weight during pregnancy, and to develop GDM (B. A. Laraia et al., 2010). Pregnant women from marginally food secure households are twice more likely to develop GDM in the second trimester than women from food secure households (B. A. Laraia et al., 2010). Food insecurity is associated with nutrient deficiencies, depressive symptoms and higher sense of stress for mothers, and poor birth outcomes for infants (Hromi-Fiedler et al., 2011; B. Laraia, Epel, & Siega-Riz, 2013; B. A. Laraia et al., 2006). Pregnant women's high sense of stress has not only been associated with depression, but also with dietary factors that can contribute to poor pregnancy outcomes, such as high consumption of foods that are high in sugar and fat (B. A. Laraia et al., 2010; Paul et al., 2013; Woods, Melville, Guo, Fan, & Gavin, 2010).

As a strategy to eat in low-cost ways, pregnant women who experience HFI might consume more foods that are high in energy, fat, and refined carbohydrates (e.g., sugar) than women with high incomes from food secure households (B. Laraia et al., 2013; Paul et al., 2013). As such, food insecurity during pregnancy has been associated with poor dietary intake with decreased

consumption of vegetables and fruit, and, consequently, lower intakes of vitamins and minerals (B. Laraia et al., 2013; B. A. Laraia et al., 2010). Contrary to these associations, Gamba, Leung, Guendelman, Lahiff, and Laraia (2016), in a study of a nationally representative sample of 1,158 pregnant women in the US, found no association between diet quality and HFI, and suggested that there might be other mechanisms meditating the association between poor health outcomes and HFI in pregnancy (Gamba, Leung, Guendelman, Lahiff, & Laraia, 2016). Despite the importance of these findings for US public health policies aimed at pregnant women, they might not be the case for women of childbearing age in Canada. Kirkpatrick et al. (2015) compared data from nationally representative surveys in the US and Canada to examine the relationship between nutrient intake adequacy and HFI among youth and adults, and found that there were greater disparities in nutrient inadequacy between food-secure and food-insecure households in Canada than in the US (Kirkpatrick et al., 2015). The authors concluded that food insecurity represents a "more potent marker of nutrition vulnerability" in Canada than in the US (Kirkpatrick et al., 2015).

Moreover, in Canada, the prevalence of HFI is greater (~19%) among families of recent immigrants (< 5 years) when compared to the national average (~12%) revealing that households of recent migrants are more likely to experience food insecurity. Among households of migrant mothers of Sub-Saharan African and Caribbean origin living in Ottawa, Canada, the prevalence of HFI was 45% (Tarraf et al., 2018). In this sample, low education, lone motherhood, being in Canada for five years or less, having refugee or asylum-seeking status, and being on social assistance were risk factors for HFI (Tarraf et al., 2018). Tarraf et al. (2018) also noted that households where the mother could not carry a conversation in English, was not working, and had no access to a vehicle in the past seven days were more likely to be food insecure (Tarraf et al., 2018). In the postpartum period, food insecurity might negatively affect women's breastfeeding duration, and significantly reduce the length of exclusive breastfeeding (S. K. Orr, Dachner, Frank, & Tarasuk, 2018). In Canada, among 10450 women who completed the Breastfeeding Module of the 2005–2014 CCHS, 50% of those who were from food insecure households tended to cease exclusive breastfeeding at two months, whereas just over 50% of women from food secure households exclusively breastfed their infants until four months (S. K. Orr et al., 2018).

Interestingly, existing evidence shows that individuals who have positive attitudes towards healthy eating and place a high priority on nutrition tend to have better diet quality despite their low SES (Aggarwal, Monsivais, Cook, & Drewnowski, 2014; Aggarwal, Rehm, Monsivais, &

Drewnowski, 2016). A seminal qualitative study conducted with women in Nova Scotia, Canada, described that participants who coped with food insecurity applied an array of strategies such as meal planning based on sales, cutting transportation costs to large grocery stores, and avoiding bringing children along when grocery shopping (Travers, 1996). Even though individuals may use various strategies to have better diets when experiencing low SES, HFI is significantly associated with compromises to health and well-being (Tarasuk et al., 2016)

2.5 Key Enablers of Maternal Health

2.5.1 Social support

Social support, defined as "resources and aid derived from one's social relationships" (p.842), is an aspect of women's social environment that can protect their overall health (S. T. Orr, 2004). In contrast, low social support has been linked to drinking, smoking and drug use during pregnancy (Thornton et al., 2006), as well as increased risk of depression during pregnancy and postpartum with adverse health outcomes for both mothers and infants (Hetherington, McDonald, Williamson, & Tough, 2019; S. T. Orr, 2004; Shakeel et al., 2015; Shakeel, Sletner, et al., 2018).

Researchers commonly conceptualize and measure social support by examining women's ties to spouse, family, friends, church and other social groups that can support them (S. T. Orr, 2004). Studies with pregnant women have found associations between having social support and higher birth weights, decreased rates of smoking, and increased satisfaction with prenatal care, with the most significant results observed in intervention studies that specifically targeted women with low social support (S. T. Orr, 2004). Yet, social support may not have a direct positive effect on health but rather be a protective factor in the midst of difficult life circumstances that increase stress in women's lives during pregnancy and postpartum (S. T. Orr, 2004).

It is worth noting that there are different categories of social support, including instrumental, emotional and informational. For pregnant and postpartum women, examples of instrumental support include help with childcare, housework, transportation to appointments, lending money or food, among other things that help with daily living, enable health behaviours, and fulfill cultural rituals (Fung & Dennis, 2010; Olander, Darwin, Atkinson, Smith, & Gardner, 2016; S. T. Orr, 2004). Emotional support is more directly connected to listening, and appropriately responding to women's feelings and needs; while informational support refers to advice and guidance (Letourneau et al., 2007; S. T. Orr, 2004; Thornton et al., 2006). For some,

informational support is categorized under emotional support; as such, it is important to acknowledge the difference between giving information, and actively listening to women's needs (S. T. Orr, 2004).

The Capability-Opportunities-Motivation Behaviour (COM-B) framework for understanding determinants of health behaviours explores the significance of social support in creating opportunities for pregnant women to engage in health behaviours, such as being physically active (Olander et al., 2016). In this case, opportunities may be created by partners who encourage women to join classes or take the role of primary care giver of older children while women leave the house for walks (Olander et al., 2016). A qualitative study conducted with pregnant and postpartum Latino women described that most informational and emotional support came from their spouses (Thornton et al., 2006). Nevertheless, female friends and family members had the highest influence on women's diets (Thornton et al., 2006). Across many communities of Latin women in the US, social relationships with female friends, neighbours and family members represent a key factor in their experiences of food insecurity, as women use their social capital, and mobilize social and cultural assets to protect their families from food scarcity and hunger (Page-Reeves, 2014).

Migrant, pregnant and postpartum women also navigate challenges in their new countries through social supports that also include support groups and community organizations, yet they commonly have low levels of social support upon migration (Hetherington et al., 2019; Winn et al., 2017). This fact may represent one of the reasons why better social integration of migrants is associated with improved mental health in pregnancy and postpartum (Shakeel et al., 2015; Shakeel, Sletner, et al., 2018). Social integration, as described by Shakeel et al. (2018), encompasses language skills, length of residence in host country, how often a woman reads a local newspaper or watches local television, and how often she is visited by and interacts with a host-country-born individual (Shakeel, Sletner, et al., 2018). All together, these components created a measure of social integration, with low levels of integration found to be independently associated with PPD among women of ethnic minorities living in Oslo, Sweden (Shakeel, Sletner, et al., 2018). In addition to social integration, migrant resilience, "the ability to adapt to, adjust to or overcome chronic or acute adversity" (p.2), is also associated with social support, and may act as a protective factor against mental health disorders (Siriwardhana, Abas, Siribaddana, Sumathipala, & Stewart, 2015).

Throughout pregnancy and the postpartum period, social support seems to be linked to maternal health in many ways, including women's motivation and beliefs about the need to stay healthy, and their mental health status (Letourneau et al., 2007; Shakeel, Sletner, et al., 2018; Thornton et al., 2006; Winn et al., 2017). Therefore, screening women's available social support systems is of the utmost importance, and something health care providers need to carefully consider when assessing patients' health during prenatal care (S. T. Orr, 2004). For migrant women, health care providers need to bear in mind that assumptions about cultural groups can be detrimental to the quality of prenatal care, as no two women are the same because they share the same ethnicity, and their available social support may profoundly differ (Winn et al., 2017, 2018).

2.5.2 Group prenatal care and innovations in approaches to prenatal care delivery

Developed in the US in the 1990s, Centering®Pregnancy (CP) is likely the most well-known and implemented approach to group care in North America (Hetherington, Tough, McNeil, Bayrampour, & Metcalfe, 2018; Ickovics et al., 2007). It is an integrated model of prenatal care that takes place in a group setting of eight to ten pregnant women with similar due dates over the course of 10 sessions, and a total of approximately 20 hours led by a trained health care provider (i.e., physician, midwife, nurse practitioner) (Hetherington et al., 2018; Ickovics et al., 2007). CP focus on three aspects of women's prenatal care: assessment, knowledge and education (Hetherington et al., 2018). Following the CP approach, pregnant women work in partnership with the health care provider and are responsible for measurements and recording of weight and blood pressure throughout prenatal care (Ickovics et al., 2007). Overall, group care fosters many opportunities for pregnant women to interact and build relationships with one another, as well as with their health care provider (Ickovics et al., 2007; McNeil et al., 2013).

In a multisite randomized control trial of 1,047 women in Connecticut and Georgia, most between 14-19 years of age and African American, those who received group prenatal care (i.e., CP) were significantly less likely to have preterm births (with a 33% risk reduction) than those who received individual care (Ickovics et al., 2007). Also, gestational age at delivery was higher in those women who attended more group care sessions (Ickovics et al., 2007). Another positive outcome of group prenatal care, observed in both quantitative and qualitative studies, was women's satisfaction with prenatal care (Ickovics et al., 2007; McNeil et al., 2012). McNeil et al. (2012) captured women's experiences with group care in a maternity clinic in Calgary, Canada, and

described their core experience as "getting more than they [women] realized they needed" (p.6) (McNeil et al., 2012). Low income, immigrant women in Canada have also reported positive experiences with group care and were more likely than women receiving individual care to report having received enough information on physical activity, labour, breastfeeding and baby care (Hetherington et al., 2018). In addition, immigrant women in group care felt their health care providers were interested in how pregnancy was affecting them (Hetherington et al., 2018). It is worth noting that, in another context in the US, pregnant women who started CP with high stress levels benefited the most from group care, and presented a significant reduction in stress, as well as a significant increase in self-esteem (Ickovics et al., 2011).

The group-based approach has also been used in novel intervention studies aimed at promoting healthy eating, and healthy weight gain during pregnancy. Mindful Moms Training, for example, is a psychosocial intervention for low and middle income, overweight/obese pregnant women delivered in weekly 2-hour sessions over the course of eight weeks in the second trimester (Vieten et al., 2018). It offers pregnant women experiential training on mindful eating, mindful breathing and mindful movement, and encourages them to acknowledge feelings and thoughts without reacting to them while maintaining an emotional connection with their developing babies (Vieten et al., 2018). Before and after intervention assessments with women showed significant increase in frequency of mindful eating, and improvements in perceived stress and depression (Vieten et al., 2018). Interestingly, researchers reported that social support "organically emerged" in sessions and provided stress relief to participating women (Vieten et al., 2018).

2.5.3 Community-based programs and supports

In Canada, group-based programs during pregnancy and postpartum are offered as health, nutrition, and social supports to women facing challenging circumstances (i.e., poverty, poor nutrition, teen pregnancy, social or geographical isolation, recent arrival in Canada, alcohol or substance use and/or family violence) through the Canada Prenatal Nutrition Program (CPNP) (Public Health Agency of Canada, 2007). This nationwide program is offered in partnership with Community-Based Organizations (CBOs), and serves approximately 51,000 women through 276 programs across Canada –25 of which are in Alberta, including Healthy Moms Healthy Babies (HMHB) which is described in Chapter 6 (Public Health Agency of Canada, 2011, 2015). Each CPNP program delivery is unique but follows six guiding principles: mothers and babies first,

equity and accessibility, community-based, strengthening and supporting families, partnerships with agencies and services, and flexibility to appropriately respond to women's different needs in each community (Public Health Agency of Canada, 2007).

Women enrolled in CPNP programs may receive prenatal vitamins and food supplements, education on nutrition and relevant health care topics, and other types of supports (e.g., housing, transportation, parenting education) (Muhajarine et al., 2012; Public Health Agency of Canada, 2015). It is estimated that between 1998 and 2003, 60% of low income, pregnant women in Canada accessed CPNP (Public Health Agency of Canada, 2007). Women living on low incomes who received support from CPNP and had high program exposure (conceptualized as a combination of three dimensions: earlier in pregnancy, higher number of contacts and for a longer period of time) tended to have better health behaviours during pregnancy, and better birth outcomes (Muhajarine et al., 2012). This is comparable to low income, Hispanic pregnant women in the US, as those enrolled in the supplemental nutrition program for Women, Infants and Children (WIC) showed better diet scores than non-WIC participants (Berube et al., 2019).

Many CPNP community-based programs offered to women include community cooking, generally known as collective kitchens (Engler-Stringer & Berenbaum, 2005; Public Health Agency of Canada, 2007). Collective kitchens create a space for participants to combine resources to prepare a certain number of meals for their families (Engler-Stringer & Berenbaum, 2005). More importantly, they have demonstrated potential for fostering friendships, mutual aid, self-compassion, and improved self-esteem and personal care, as well as facilitating referral to other services and supports (Engler-Stringer & Berenbaum, 2005; Public Health Agency of Canada, 2007). Even though collective kitchens do not directly address crucial determinants of health, such as income and food insecurity, they may offer a safe environment for the discussion of women's agency (i.e., decision making power) within their families, communities and societies (Engler-Stringer & Berenbaum, 2005; Page-Reeves, 2014).

In some settings, community-based supports for pregnant and postpartum women may also be provided by community health workers (Torres, Spitzer, Labonte, Amaratunga, & Andrew, 2013). Community health workers act as a link between families and health systems, and remove barriers to accessing health and social services, especially among families facing adversities (e.g., inadequate income) (Fausto et al., 2011; Torres et al., 2013). Their work may be integrated into formal health systems or be independent through CBOs. Community health workers who are

formally integrated into health systems tend to gear their practice towards health promotion activities focused on assessment and health education, and over time become less engaged in community development initiatives and social advocacy (Fausto et al., 2011; Torres et al., 2013). On the other hand, community health workers who work independently are better positioned to use perinatal health education through classes and home visits to build relationships with women and move into supporting them in addressing SDH (e.g., poor housing, inadequate income, family violence) (Torres et al., 2013). In Edmonton, Canada, immigrant and refugee women can access the supports offered by an independently run group of community health workers (i.e., health brokers), the Multicultural Health Brokers (MCHB) Cooperative, among others. Health brokers' approach to health is holistic, as they engage with women to broker social and health supports that address clients' most urgent needs so that women can make space in their lives for actions concerning perinatal health, such as attending prenatal care and observing important health behaviours (Torres et al., 2013).

Overall, community-based supports have the potential to increase women's capacity to engage in advocacy roles in their communities by enabling them to recognize the social inequities affecting their families' lives and health (Page-Reeves, 2014; Travers, 1996). In addition, supports to pregnant and postpartum women that are rooted in communities may contribute to feminist urban citizenship in which women and their families become "involved in shaping the sociopolitical realities for their health and well-being" (p. 315) (Torres et al., 2013). This is crucial for migrant women who may not have formal citizenship status in their host country, yet still become part of the fabric involving their communities (Torres et al., 2013).

2.6 Summary

To conclude, the evidence presented here highlights the importance of being physically and emotionally healthy during pregnancy and postpartum, and the implications that maternal health carries for present and future generations. Given the extensive network of factors acting as barriers and/or enablers to maternal health, it is of the utmost importance to tailor health messages, interventions, programs, and supports to women's needs and contexts, supporting them in making positive changes amid complex life circumstances.

CHAPTER 3: Methods

3.1 Research Positionality & Paradigm

Research Positionality

I began my PhD in January 2014. When I reflect back on the young woman who entered her first class on a cold winter morning at the Edmonton Clinic Health Academy at the University of Alberta, she seems like a faded memory of who I am now. Yet, some characteristics remain the same. I identify as a non-Indigenous Latino woman. I am cisgender, heterosexual, married, university-educated, and a dual citizen of Brazil and Canada. I believe that these characteristics impacted the way I conducted and viewed my research. As an immigrant to Canada I related to international migrant women who participated in my research in some ways; however, my privileges – as a university-educated, dietetic professional who is married to a university-educated, male professional – created stark contrasts in our experiences settling into Edmonton, Canada. I never lived in a country where I felt oppressed or persecuted; my husband and I left Brazil by choice, and choice was something I understood very early in my PhD studies that many migrant women did not have when they moved to Canada.

I had also worked as a public health dietitian for Alberta Health Services prior to starting graduate school in 2014. When I started my PhD, I truly believed my project within ENRICH would be closely linked to gestational weight gain strategies, tools and/or resources that would be implemented by Nutrition Services, Alberta Health Services. Yet, very quickly my PhD research distanced from gestational weight gain because women facing difficult life circumstances did not prioritize gaining weight in accordance to gestational weight gain guidelines. As such, I explored the women's perceptions and experiences of health during pregnancy and postpartum. For a period of approximately one year I truly struggled with my role as a dietitian and what I was learning as a PhD student. I was not sure I could advocate for nutrition when housing, income, education, language training, adequate access to prenatal care and maternity services were much bigger issues for my participants. It was only when I realized that those supports did not exclude nutrition; on the other hand, they could be offered through nutrition programs, that I made peace with dietetics. I do believe food can be a gateway for social change, for engaging women and fostering agency and citizenship.

The biggest change in my life, that certainly re-shaped my body image as much as it re-shaped my worldview, was becoming a mother. I had two children during my PhD; my son was

born in December 2015 and my daughter in March 2018. I did not conduct focus groups with women when I was pregnant (which could have impacted what and how they shared their perceptions and experiences of pregnancy and postpartum with me). As such, I did not fully relate to my participants experiences when I collected data; yet, I finalized data analysis after my first maternity leave. I do believe that having a baby made me more compassionate. I felt much more attentive to what women described in terms of pregnancy and birth complications and the implications for their lives because I had experienced birth complications with my son. Despite my socioeconomic privileges and incredible social support, I suffered so much. It was hard and somewhat painful for me to imagine my participants having birth complications when they were already facing so many other difficult circumstances.

My daughter also changed me as an individual and qualitative researcher. The process in which this change happened was painful, and coming out of it has been simply beyond words can describe. She was diagnosed with cancer at five months of age, and caring for her and becoming a patient's family member at the Stollery Children's Hospital in Edmonton, Alberta, was the most humbling experience of my life. I started engaging in reflection and practicing gratitude daily by journaling her treatment journey and carefully recording, with pictures and objects, a few milestones. My experience as a mother taught me an unparalleled lesson on human resilience, especially women's resilience. I met women/mothers who learned about their oldest child's diagnosis soon before giving birth to their second child, and they were there for their sick child in the peak of their postpartum emotions while also nursing their infants. I met families who were processing the fact that their children were not going to make it, and they stood strong until the very end. My daughter gave me the incredible opportunity to live and learn through extremely difficult life circumstances.

I do believe that I am more prepared now to be the type of researcher and individual I strive to be. I also believe that being the researcher I strive to be is, and will always be, a relational process. This means that my personal definition of success as a researcher is based on my ability to build trusting, respectful relationships with communities, participants, colleagues and peers. I hope to always learn from them as I explore different areas and issues through research. ENRICH is not only the name of the Research Program that my PhD studies are part of, but also a verb that well describes what meaningful relationships have had the power to do in my life over the past six years. I finish my thesis feeling enriched in so many ways. It is a great feeling.

Research Paradigm

My thesis research follows a transformative paradigm, also labelled as emancipatory or participatory (Creswell & Poth, 2018; Mertens, 2015). A paradigm is "a way at looking at the world" (p.8) (Mertens, 2015), and for my thesis research a transformative paradigm situates me and my work in the concept of social justice. Within this concept, the relations between individuals and society are explored. As such, I confront policies and structures that may be affecting societies' less powerful individuals – i.e., migrant women and women living in poverty – and perhaps causing or perpetuating the social and health inequities they face during pregnancy and postpartum.

In following a transformative paradigm, I put the lives and experiences of participants who have been historically marginalized at the centre of the research process. Therefore, their cultural and experiential lenses filter the data captured in my research (Mertens, 2015). Participants' practical knowing is placed at the centre of the research, and shapes the new knowledge presented here (Lincoln, Lynham, & Guba, 2011). This brings validity to my thesis work, as from a transformative perspective validity depends on the quality of the relationships formed between researchers and participants in the research setting, as much as it depends on the information being gathered (Mertens, 2015). I strive to build meaningful relationships and gather relevant data. Therefore, my research is conducted in a practical and collaborative manner "with" participants rather than "on" or "to" participants (Lincoln et al., 2011; Mertens, 2015).

One key characteristic that distinguishes the transformative paradigm is that the research seeks to be relevant to <u>all</u> involved in the research process, and to inform social and political action (Mertens, 2015). As a result, participants are invited to be more involved and engaged in the research process, and their various ways of knowing can lead "to action to transform the world in the service of human flourishing" (Lincoln et al., 2011 2011 in Guba and Lincoln, p. 101). Participation in research following a transformative paradigm has the potential to change the lives of participants, as well as change, permanently, researchers and institutions (Creswell & Poth, 2018). Participatory researchers commonly follow a transformative paradigm (Lincoln et al., 2011); this is the case of my research, which is guided by the principles of Community-Based Participatory Research (CBPR).

3.2 Community-Based Participatory Research

In 2011, the Rio Political Declaration on Social Determinants of Health recognized civic society participation as one of the five key areas of global health action (South & Phillips, 2014). In a similar manner, the Regional Office for Europe of the World Health Organization (WHO) recently released a study report entitled "Governance for Health in the 21st Century" which strongly emphasizes the importance of joint action of health and non-health sectors in strengthening health systems, and governance. The report highlights that individuals play a key role in addressing "wicked" determinants of health, and calls "collaboration" the "new imperative" (Kickbusch & Gleicher, 2012). There is growing recognition that health is co-constructed by citizens (as patients, users, consumers, community members), and how essential it is to involve them in health care planning and implementation.

This brings us to CBPR, a research approach that is viable for working with minority groups and addressing health disparities that affect people living in marginalized communities (Israel et al., 2010). CBPR represents an effective approach to foster awareness of, and familiarity with, sociocultural factors that may shape participants' "minds and surrounding cosmos" (p. 102) (Lincoln et al., 2011). It is characterized by a set of core principles that include: 1) being participatory, 2) fostering cooperation from community members and researchers, 3) promoting co-learning, 4) promoting capacity building, 5) enabling participants' control over their realities, and 6) achieving both research and action through the research process (Minkler & Wallerstein, 2008). The principles of CBPR guided my thesis research, with participants deciding on the most appropriate ways to create an exchange among themselves and researchers, as well as actively participating in the planning and implementation of data collection strategies. As a CBPR researcher, I sought consistency with ethical principles of all participants involved throughout the research process in my studies, to ensure respectful data generation that truly reflects their realities (Edwards, Lund, & Gibson, 2008).

Edwards, Lund, and Gibson (2008) suggest that consistent leadership in communities, and the identification of a "well-known and trusted" individual to maintain a research project on communities' "radar" facilitate a healthy CBPR climate. As these factors fluctuate as community leadership and priorities change, communities' level of participation in CBPR may vary over the course of a research project. Nevertheless, when participation is coherent with the ethics of participants, researchers are more likely to be able to engage communities in an empowering process that will lead to action (Edwards et al., 2008). As a CBPR researcher, I have kept

Arnstein's (1969) provocative typology of participation using a ladder with eight rungs in my mind throughout my PhD work. In his typology, each rung represented a level of citizen participation, ranging from manipulation in the lowest rung to citizen control in the highest rung. Minority groups and marginalized communities were described as "have-not" people who commonly faced various barriers to citizen power (Arnstein, 1969). These barriers included: 1) inadequacy of impoverished communities' infrastructure, both political and socioeconomic; 2) lack of knowledge; 3) distrust; and 4) difficulty in choosing a competent leader/representative (Arnstein, 1969). By following the principles of CBPR, I tried to overcome these barriers and, as much as possible, avoid token forms of participation that only reinforce power differentials. The best example I can give from my thesis work was not imposing research questions or methods of data collection that were not relevant or appropriate to communities.

Some of these non-participatory or token forms of participation are also described by Agar (2006) in his book "Dope Double Agent". In Agar's experience, those who have drug addictions mostly participate in programming and research through approaches that reinforce societal stigma of who they are (Agar, 1996). It is evident in his description that most drug policy strategies make little to no effort in addressing distributive or procedural justice (Agar, 2006; Cacari-Stone, Wallerstein, Garcia, & Minkler, 2014). In contrast, the highest rungs of citizen participation – described by Arnstein (1969) as degrees of citizen power – more visibly align with key principles of CBPR (Milkner & Wallerstein, 2008).

3.3 Focused Ethnography

Focused ethnography was the qualitative research method I used in two of my PhD studies. This method is sensitive to how culture shapes, and helps to explain, our everyday lives and health behaviours (Higginbottom, Pillay, & Boadu, 2013; Knoblauch, 2005). In addition, focused ethnography represents an appropriate way to investigate strategies to improve health delivery systems provided that it links everyday health care issues, and interactions in health care settings, with wider cultural norms "with emphasis on context" (Higginbottom et al., 2013). Parallel to traditional ethnographic research, in focused ethnography the attention to culture remains; however, it is more contained to a particular setting or focused on certain issues, and within a shorter time frame. Because focused ethnography centres on topics/questions in a more contained context and within a shorter time frame, it requires prior familiarity and knowledge of the field of

interest, in addition to carefully planning methods of data collection and analysis (Andreassen, Christensen, & Moller, 2019; Knoblauch, 2005). Agar (1996) describes that "devotion to the initial learning role is one of the major ingredients that makes ethnography the unique concoction it is" (p.120), and this "devotion" is also pertinent to focused ethnography as background knowledge about the context, and topic/question of interest guides research activities.

Culture is a core concept in both ethnography and focused ethnography, and in my research with women, culture was defined beyond ethnicity, as it referred to women's shared health perceptions and experiences in pregnancy and postpartum while receiving services and supports from community-based perinatal programs (Graham, Mayan, McCargar, Bell, & Sweet Moms, 2013). Additionally, I align with Agar's (2006) description of culture as translational and dimensional, as I translate pregnant and postpartum women's perceptions and experiences of health while facing difficult life circumstances to those unfamiliar but interested in learning more about this area (Agar, 2006).

3.3.1 Settings

Chapters 4 and 5

I conducted my first focused ethnographic study with migrant women who were enrolled in perinatal programs offered through the Multicultural Health Brokers (MCHB) Cooperative. The program involved weekly meetings in which a variety of topics – such as brain and fetal development, healthy eating during pregnancy, labour and delivery – were addressed by health brokers and invited health care professionals. In addition, participating women had the opportunity to socialize as they shared a meal prepared by the health brokers. This social time after classes also enabled health brokers to distribute resources (prenatal vitamins, donated infant items), and to assist women with matters related to housing, education, immigration, food insecurity, income and any other needs they had.

Chapter 6

The second focused ethnographic study presented in my thesis was conducted with pregnant and postpartum women connected through the Canada Prenatal Nutrition Program (CPNP) Healthy Moms Healthy Babies (HMHB) program (with in-kind support from Alberta Health Services) across five rural communities in Southern Alberta. The CPNP funding allocated to the HMHB program was used for three part-time positions and for program activities. The

HMHB program setting was purposefully selected because it allowed work with women who were pregnant and up to six months postpartum, and facing at least two difficult life circumstances (low income, teen pregnancy, social and geographic isolation, substance use, family violence, recent immigration), which are CPNP/HMHB intake criteria (Public Health Agency of Canada, 2015).

3.3.2 Participants

Chapters 4 & 5

MCHB women and health brokers: The Knowledge Translation (KT) Coordinator for the ENRICH Research Program introduced the overall goal and topic of my PhD work to the group of health brokers connected to immigrant and refugee communities through MCHB. Those who were interested in better understanding the sociocultural context where their clients experience pregnancy and postpartum agreed to participate and engage their communities in the research. Over an eight-month period, a meaningful partnership was established with health brokers from four Northeast African communities (Eritrean, Ethiopian, Oromo and Somali) and the women with whom they worked (Minkler & Wallerstein, 2008). They decided focus groups were the preferred data generation strategy and advised on which questions to ask women (Israel, Schulz, Parker, & Becker, 1998 & Becker, 1998; Minkler & Wallerstein, 2008).

All pregnant and postpartum women from the four participating Northeast African communities who were enrolled in the MCHB perinatal program and attended perinatal activities at the time data were being generated for this project (May-September 2014) were invited to participate. Thus, convenience sampling was used provided that all Northeast African women who were enrolled in the MCHB perinatal program and attended perinatal activities were able to discuss their health perceptions and experiences during pregnancy and postpartum (Patton, 2002). Health brokers were responsible for explaining the purpose of the research and potential risks and benefits of study participation in the women's mother tongue. The health brokers also highlighted that women's participation was voluntary, and not associated with their enrolment in MCHB programs and services.

Chapter 6

HMHB women and providers: Pregnant and postpartum women who were enrolled in HMHB programming in Canmore, Claresholm, High River, Okotoks and Vulcan were invited to participate in my study. In these communities in Southern Alberta, HMHB providers organized

*"*cooking circles*"* where women had the opportunity to socialize while cooking a meal at a minimal cost of one dollar per serving. In a cooking circle a month prior to researchers' scheduled visit, HMHB providers explained the overall purpose of the study, and gauged women's interest in participating. Convenience sampling was used provided that all women who were HMHB clients could discuss their health perceptions and experiences during pregnancy and postpartum while facing difficult life circumstances (Patton, 2002). Given the CBPR approach taken in the project, I included any HMHB client who was pregnant and postpartum and wanted to participate.

In order to recruit HMHB providers, we attended two of their monthly meetings to discuss the aims of the research. Those who expressed interest in participating were asked to contact me or the KT coordinator for the ENRICH Research Program via e-mail or phone. I used purposeful sampling to identify providers who delivered HMHB services, had a good understanding of the program and clientele, and consistently met with women during pregnancy and postpartum. Once a couple of "key" providers became engaged in research activities – either by facilitating access to women and/or agreeing to being interviewed – I used snowball sampling to identify other HMHB providers who could also contribute to my understanding of women's perceptions and experiences of health while facing difficult life circumstances, as well as of the support they received through HMHB (Patton, 2002).

3.3.3 Data generation

Focus Groups are a data generation strategy in qualitative research in which researchers foster discussion among participants while paying close attention to group interaction (Barbour, 2013; Mayan, 2009). Hennink (2007) describes that the essential purpose of focus groups is "to identify a range of different views around the research topic, and to gain an understanding of the issues from the perspective of the participants themselves," allowing researchers to capitalize on the richness and complexity of group dynamics (Hennink, 2007).

This strategy of data generation method has been increasingly used in public health research and practice to develop knowledge, attitude, and practice surveys; assess community health; enhance health promotion and education strategies; and investigate the social context of various health behaviours (Yelland & Gifford, 1995). Focus groups are useful in health services research with minority groups "whose voices have been otherwise muted" (p.21) (Barbour, 2013). When discussions occur in a nonthreatening, nonjudgmental setting, participants who historically

have had limited power may feel more comfortable, and assured, about sharing their social constructions of health with peers and researchers (Barbour, 2013; Hennink, 2007; Morgan & Krueger, 1993; Umana-Taylor & Bamaca, 2004).

Chapters 4 & 5

Focus groups with MCHB women: I, alongside another researcher (the KT Coordinator for the ENRICH Research Program), conducted focus groups with women from Northeast African communities who spoke diverse languages and dialects. Therefore, the composition of focus groups, and approach to each cross-lingual focus group varied, with health brokers actively participating either as real-time interpreters (Eritrean, Ethiopian, Oromo) or a bilingual moderator (Somali) (Appendix A). Data generation took place at the MCHB Cooperative office or in another community setting (i.e., school kitchen) during weekly meetings. The different approaches to focus groups with MCHB women are described in detail in Chapter 4 of this thesis.

Chapter 6

Focus groups with HMHB women: We conducted focus groups with women across five Southern Alberta communities (Canmore, Claresholm, High River, Okotoks and Vulcan). I led focus group discussions using a focus group guide with open-ended questions and probes about women's perceptions and experiences in relation to health, challenges, and supports during pregnancy and postpartum (Appendix B). Another researcher assisted me and took note of facial expressions and occasional side conversations. HMHB providers discussed the research with women a week prior to focus groups. Provided that all women who regularly attended cooking circles were interested in participating, HMHB providers indicated to researchers that it would be best for focus groups to take place before scheduled cooking circles. However, HMHB providers were not present during discussions so that women could feel more comfortable in sharing their experiences with the HMHB program.

Interviews: I also conducted semi-structured, one-on-one interviews with HMHB providers (e.g., public health nurses, dietitians, food coordinators, outreach workers) who worked in Southern Alberta communities. For interviews, I used a topic guide with exploratory questions about how HMHB providers supported women (i.e., HMHB clients), and their organizational contexts (Appendix C). The main reasons I chose interviews as a data generation strategy with

HMHB providers were feasibility and anonymity. HMHB providers were spread across a large geographical area in Southern Alberta, and it would have been costly and difficult to arrange focus group discussions. Moreover, I wanted these providers to feel comfortable when discussing their somewhat contentious organizational contexts, along with the barriers and facilitators to their work within the HMHB program. Therefore, the necessity for anonymity also required one-on-one interviews

Chapters 4, 5 & 6

Observations: I actively engaged with participants through observations of MCHB and HMHB programming. I purposefully observed prenatal programming activities and prenatal classes, and took this opportunity for data generation adopting the "observer-as-participant" role (Higginbottom et al., 2013). This means that I observed participants while actively participating in perinatal classes, cooking circles or social times after classes. Another researcher was also present during the observations, and the time we accumulated in this activity enabled us to build trust with our communities, validate some of our findings with migrant women (Chapters 4 &5), and learn more about the interactions between women and health brokers, as well as HMHB providers. Over time, we became part of the research settings and started to feel that women no longer perceived us as outsiders who were there to do research. Participant observations were captured through researchers' audio-recorded debriefings after each activity we observed. These debriefings included descriptive information in addition to our initial reflections on the data being generated through observations. We also kept written notes to provide additional context, and record analytic comments on women's participation, interactions, and facial expressions.

3.3.4 Data analysis

Focused ethnographic data were managed using NVivo (Version 10.0.4, QSR International), and analyzed using qualitative content analysis to inductively derive categories (Elo & Kyngas, 2007; Mayan, 2009). In my PhD work, qualitative content analysis refers to "a research method for the subjective interpretation of the content of the text data through the systematic classification process of coding and identifying themes or patterns" (p.1278) (Hsiu-Fang & Shannon, 2005).

Data generation and initial stages of data analysis occurred concurrently, and required an inductive, iterative, self-reflective analytic process (Higginbottom et al., 2013). Audio recordings

of focus groups, interviews and debriefings were transcribed verbatim; and I reviewed all transcripts for accuracy. In addition, I organized the data so that field notes were added to transcribed documents in the form of highlighted comments in a word document (Appendix D). I read transcripts from all data sources multiple times and began identifying codes. These codes were reduced and grouped into key categories and sub-categories that were critically interpreted by the research team to provide a rich description of findings. The research team involvement in data analysis is instrumental in focused ethnography, given the intensity and amount of data collected within a shorter time frame than traditional ethnographic research (Andreassen, Christensen, & Moller, 2019). While analyzing focus group data, I was sensitive to interactions among participants, and in the case of focus groups with MCHB women, between participants and health brokers (Barbour, 2013). As a next step, I discussed emergent categories with MCHB health brokers, as well as HMHB providers seeking a more in-depth interpretation of findings. For both MCHB health brokers and HMHB providers, emergent categories resonated with what they had observed and/or knew about women's realities. It is worth noting that their interpretive lenses filtered the data, and interpretations could have been very different from women's; yet, we had engaged with MCHB health brokers and HMHB providers during many months and trusted them as research stakeholders who had showed us, again and again, how much they cared for women's wellbeing. Overall, by making meaningful, additional comments about the data, MCHB health brokers and HMHB providers helped me to think and refine the themes that were weaving through the categories and starting to tell a story about women's health in pregnancy and postpartum in the midst of difficult life circumstances (Mayan, 2009).

3.4 Mixed Methods Research: Chapter 7

I used an exploratory sequential Mixed Method Research (MMR) design for my third PhD study (Creswell & Plano Clark, 2011). MMR is defined as "research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study" (p.4) (Tashakkori & Creswell, 2007). MMR seeks elaboration, enhancement, illustration, and clarification of the results from one method (i.e., quantitative) with results from the other (i.e., qualitative) (Creswell & Plano Clark, 2011). My study included quantitative and qualitative phases that were independent and of equal priority. The exploratory sequential MMR design meant that quantitative surveys were administered and

analyzed and followed up by qualitative interviews that were aimed at elaborating and illustrating quantitative data (Creswell & Plano Clark, 2011). Quantitative and qualitative results were interpreted together in the discussion of findings.

3.4.1 Setting and Participants

Both quantitative and qualitative phases were conducted with immigrant and refugee women connected to the MCHB perinatal programs in the fall of 2016. For the quantitative phase, I introduced the Household Food Security Survey Module (HFSSM) questionnaire during the health brokers' monthly meeting (Appendix E) and explained the purpose of investigating food insecurity among women connected to MCHB. I emphasized the sensitivity of some of the questions that would be asked about individuals' households and worked with health brokers to define terms that could be confusing to their clients (e.g., balanced meals were defined as healthy meals that included a variety of foods). Health brokers who felt they had the time to administer the questionnaire with women connected to perinatal programs in their respective cultural communities over the following four weeks were provided with printed questionnaires. Health brokers discussed the study with their clients in a setting that the brokers perceived as appropriate (e.g., during home visits or before/after prenatal classes), obtained informed consent, and invited women to complete the questionnaire. The HFSSM was conducted in women's mother tongue. Women's personal information and demographics were not collected. Many of the women were involved with child protective services, and the health brokers were not comfortable recording information that would enable women and families' identification. However, we did record women's country/region of origin based on the ethnic background of the health broker that administered their questionnaire.

The results from the quantitative phase guided purposeful sampling during the qualitative phase of the study. Quantitative data revealed women from Africa and the Middle East were more likely to experience food insecurity than those from other regions in the world. Therefore, I approached health brokers from Northeast African communities who had previously worked with our research team and invited them to collaborate in conducting semi-structured interviews with women in their cultural communities. I explained to health brokers that our main purpose was to explore pregnant and postpartum women's experiences with food insecurity. The health broker representing the Somali community expressed interest in participating after discussing the study

with women in her program. We conducted interviews with a purposeful sample of Somali women identified by the health broker as experiencing food insecurity. These interviews were conducted four months after the HFSSM questionnaires were administered, and although some women may have participated in the quantitative phase, we did not establish any inclusion/exclusion criteria in relation to their previous involvement.

3.4.2 Data generation

Quantitative phase: I used the HFSSM from the Canadian Community Health Survey (CCHS) to assess food insecurity in a convenience sample of women connected to the MCHB. The HFSSM consists of 18 questions that monitor households' experiences of food insecurity over the previous 12 months (Tarasuk, Mitchell, & Dachner, 2016). The questions in the HFSSM focus on "self-reports of uncertain, insufficient or inadequate food access, availability and utilization due to limited financial resources, and the compromised eating patterns and food consumption that may result" (Government of Canada, 2012), while distinguishing the experiences of food insecurity of adults from those of children in the household (Tarasuk et al., 2016).

Qualitative phase: I conducted semi-structured, one-on-one interviews with a purposeful sample of Somali women after weekend family classes (when childcare was provided) hosted at the MCHB Cooperative. I opted to conduct interviews rather than focus groups due to the sensitivity of the topic of food insecurity. I used an interview guide that included questions examining women's sociodemographic and household characteristics, as well as their perceptions of the foods available in their homes in terms of quantity, quality, and representation of their cultural heritage. Additionally, I explored women's sense of control over what was available to and consumed by their families. As an English-speaking researcher, I moderated interviews while the Somali health broker carried out real-time interpretation. Most Somali women (13 out of 17) requested not to have their interviews audio recorded; and, as a result, I took notes as the health broker interpreted participants' answers. I also debriefed with the Somali health broker after interviews to clarify women's answers.

3.4.3 Data analysis

Quantitative phase: Responses to the HFSSM were recorded on paper questionnaires, transferred to Research Electronic Data Capture (REDCap), and analyzed using STATA (Version

14, StataCorp LP). Based on the number of positive responses to the 18 questions in the HFSSM, households were classified as being food secure or marginally, moderately, or severely food insecure. Whereas food secure households have no indication of any income-related problems of access to food, severe food insecure households have extensive compromises in adults and/or children's eating patterns (Tarasuk et al., 2016).

The proportion of families who reported being food secure, having marginal food insecurity, moderate food insecurity, or severe food insecurity was determined and categorized by whether the families did or did not have children. Because we did not collect any demographic information, we relied on the HFSSM's answers to determine the number of households that had children under the age of 18. Finally, differences in food security status by women and their families country/region of origin (as classified by Citizenship and Immigration Canada – e.g., Africa and Middle East vs. Asia and Pacific) (Citizenship and Immigration Canada, 2014) were assessed using Fishers exact test, as some categories contained fewer than five observations. A p value <0.05 was considered statistically significant.

Qualitative phase: Interview notes were typed into word documents, whereas recorded interviews were transcribed verbatim. All interview data were organized in NVivo (Version 11, QSR International), and analyzed using qualitative content analysis to inductively derive codes and categories (Elo & Kyngas, 2007; Hsiu-Fang & Shannon, 2005). I was responsible for coding transcripts, and bringing emerging categories to all involved researchers for review, discussion, and verification.

3.5 Rigour

"Without rigor," writes Morse and colleagues, "research is worthless, becomes fiction, and loses its utility" (Morse, Barret, Mayan, Olson, & Spiers, 2002). I like to use the concepts of internal validity, external validity (generalizability) and reliability to describe how rigour has been sought in my thesis work. The definition of these terms has been properly modified so that they are in accordance with qualitative research paradigms.

Internal validity refers to researchers' concern with drawing conclusions that genuinely come from collected data rather than their own views and/or experiences. I sought internal validity by generating and analyzing data concurrently, conducting inductive qualitative content analysis, and having frequent discussions with my supervisory committee about the categories that emerged

from data. These verification strategies fostered my responsiveness to the data, and this responsiveness, *per se*, was a key strategy to achieve rigour (Morse et al., 2002). My responsiveness became even more crucial to internal validity because I was using a CBPR approach where community participation had to be consistent with ethical principles of all stakeholders, regardless of the power they held (Edwards et al., 2008). In addition, because of the CBPR approach, I spent a significant amount of time in my research settings, interacting with participants, and seeking their feedback on codes and categories that were emerging from the data. Therefore, prolonged engagement and participant checks were also relevant strategies I used to contribute the internal validity of my research (Mayan, 2009).

The focus of external validity (generalizability) in qualitative research lies in the process or phenomenon as "knowledge is generalized"(Mayan, 2009). Qualitative data needs to capture experiences that deeply describe a phenomenon and assist readers in making sense of the same phenomenon in other settings or among other groups. Through this work, I have built a rich description of women's health perceptions and experiences during pregnancy and postpartum while facing diverse difficult life circumstances. This will be valuable to readers invested in or curious about my area of work. For the quantitative phase of my MMR study, it is worth noting that I was aware of the limitations related to the administration of the HFSSM among migrant women that could threaten external validity, especially by asking health brokers to administer the HFSSM in women's mother tongues. However, this is one of several examples in my PhD work where I followed the principles of CBPR, and consciously worked with my supervisors to decide on courses of action that were most ethical and faithful to communities' realities and preferences.

Although in qualitative research one cannot guarantee replication of findings by the same or different investigators, reliability can be built by meaningfully engaging with participants, adopting an observer-as-participant role during observations, and listening/reading generated data over and over. I employed these strategies to increase reliability of my studies. Perhaps the most significant strategy I have learned and employed to produce rigorous research is reflexivity.
Reflexivity encourages researchers to examine their "personal-researcher role" (Mayan, 2009), and this practice has shaped my PhD journey. My participants, my data, my supervisors (who were also mentors), and my colleagues challenged me to look at this work from different angles and confront any superficial interpretation of my data. I learned from Agar (2013) that if all my data confirmed my beliefs, I should become suspicious of where my bias was taking my research (Agar,

2013). In a significant way, I am presenting a meaningful and rigorous PhD thesis because all chapters bring me closer to participants' worldviews and experiences, and reinforce my responsibility to follow a transformative paradigm and seek social justice through my research.

3.6 Ethical Considerations

The *Research Ethics Board* at the University of Alberta approved all studies I conducted during my PhD. Data generation began upon participants' consent (either oral or written), and audio recording only occurred if participants consented to being recorded. All researchers involved in data generation for my studies paid close attention to women's non-verbal cues, such as facial expressions, and addressed any possible concerns (e.g., discomfort with audio recording, questions about incentives). Given the nature of focus groups, and interactions between participants, we were not able to guarantee confidentiality. We addressed this risk before starting our discussions and tried to mitigate it by reinforcing with participants that anything shared in "the room" should not be shared anywhere else or with anyone else.

Women who participated in my studies received a twenty-five-dollar gift card to a local grocery store. Although this incentive was appropriate in recognizing women's valuable time, it did attract participants to my research. I discussed with MCHB health brokers and HMHB providers that the incentive was not to be used as a recruitment strategy. However, considering that most women who participated in my studies lived on low incomes, and experienced household food insecurity, I could not prevent them from participating because they needed the additional money. Over the course of the first study with Northeast African women, the number of participants consistently increased, and the amount provided had to be decreased to 10 dollars per participant per focus group due to the study's budgetary restrictions.

To conclude, all unexpected ethical issues – no matter their magnitude – that occurred throughout my PhD work were addressed while following CBPR principles. Communities' ethical principles and expectations were, whenever viable, prioritized and met. All individuals involved in my studies know that ethics involve people, relationships and trust.

CHAPTER 4: Different Approaches to Cross-Lingual Focus Groups: Lessons from a Cross-Cultural Community-Based Participatory Research Project in the ENRICH Study

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4.1 Introduction to Cross-Lingual Focus Groups

Focus groups are a data generation strategy in qualitative research in which researchers foster discussion among participants while paying close attention to the group interaction (Barbour, 2013; Mayan, 2009). Hennink (2007) describes that the essential purpose of focus groups is "to identify a range of different views around the research topic, and to gain an understanding of the issues from the perspective of the participants themselves" (p. 4), allowing researchers to capitalize on the richness and complexity of group dynamics (Hennink, 2007).

This strategy of data generation has been increasingly used in public health research and practice as a way to develop knowledge, attitude, and practice surveys; assess community health; enhance health promotion and education strategies; and investigate the social context of various health behaviours (Yelland & Gifford, 1995). In particular, focus groups are useful in health services research with minority groups, such as immigrants, "whose voices have been otherwise muted" (p.21) (Barbour, 2013). When discussions occur in a nonthreatening, nonjudgmental setting, participants who historically have had limited power may feel more comfortable, and assured, about sharing their social constructions of health with peers and researchers (Barbour, 2013; Hennink, 2007; D. L. Morgan & Krueger, 1993; Umana-Taylor & Bamaca, 2004).

Using focus groups to explore how social context shapes immigrants' health experiences is of particular relevance in Canada - the industrialized country with the highest immigrant population among the former Group of Eight (G8) nations (Newbold, 2005; Statistics Canada, 2013). In 2011, 20.6% of Canadians reported a mother tongue – defined by Statistics Canada (2013) as the first language learned by a person at home in childhood – other than English or French, and 80% of the population who preferred speaking an immigrant language at home lived in one of Canada's six largest census metropolitan areas (Statistics Canada, 2012, 2013). This linguistic diversity poses challenges to health researchers that go beyond effective communication

as they also need to understand how different cultures use language to express their perceptions, and experiences of health and disease (Wallin & Ahlstrom, 2006). Therefore, understanding how cross-lingual, and cross-cultural communication influences interpersonal exchange, and participation, in focus groups is crucial to the usefulness and rigor of qualitative findings (Esposito, 2001; Graffigna, Bosio, & Olson, 2008).

When cross-lingual focus groups are conducted in languages in which the researcher is not fluent, two main approaches are commonly used for data generation (Barbour, 2013). Before outlining these approaches, it is important to define some of the words that are frequently used in this subject area. An *interpreter* translates back and forth between one or more individuals, whereas a *translator* works with recorded material, translating from one language to another (Wallin & Ahlstrom, 2006). For research purposes, translation is described as the transfer of meaning from participants' mother tongue language to the study language, frequently English (Choi, Kushner, Mill, & Lai, 2012; Esposito, 2001). As such, translating from one language to another is a complex process as words carry sociocultural and political values that may not be captured through literal meaning (Hsin-Chun Tsai et al., 2004; Kapborga & Bertero, 2002). Consequently, both interpreters and translators not only enable cross-lingual research but also facilitate researchers in understanding the nuances of participants' cultural beliefs and practices.

One technique for conducting cross-lingual focus groups involves a real-time interpreter who translates participants' responses to the moderator (i.e., researcher) as the discussion occurs (Barbour, 2013), as shown in Figure 4.1. This allows the researcher to take an active role in data generation, and in influencing the direction of focus group questions. Yet, the researcher relies on the real-time interpreter's understanding of focus group questions, and their ability to translate the meaning of participants' answers and comments as discussion happens.

Another technique involves employing a bilingual moderator who conducts the focus group discussion in participants' mother tongue (Barbour, 2013). Following the discussion, the bilingual moderator uses the audio recording to translate conversations into the research language (Choi et al., 2012), as illustrated in Figure 4.2. In this case, researchers rely solely on a bilingual moderator to generate meaningful data (Umana-Taylor & Bamaca, 2004).

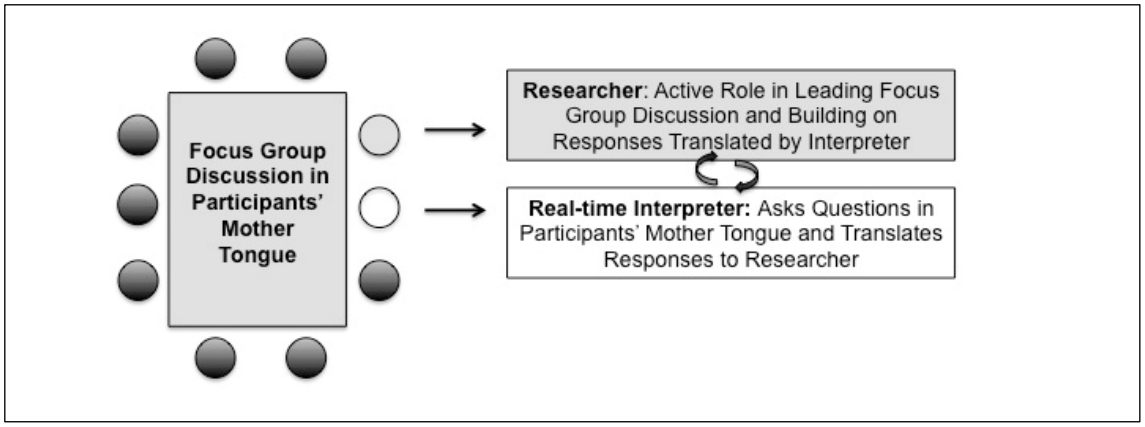

Figure 4.1 Interpreter-assisted focus group moderated by researcher

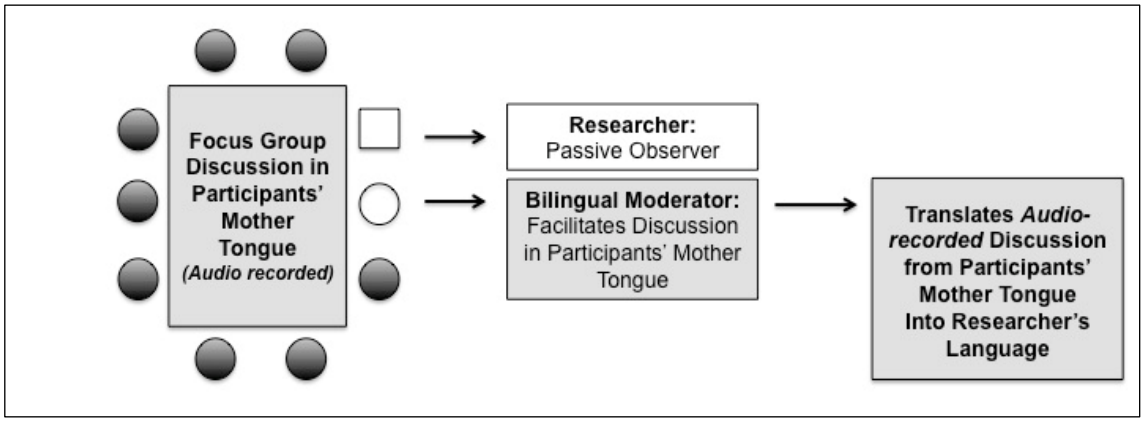

Figure 4.2 Focus group moderated by bilingual moderator followed by translation

Regardless of how cross-lingual focus groups are conducted in participants' mother tongue (i.e. bilingual moderator or real-time interpreter/moderator), researchers need to take into account, and address, any communication issues that may affect data quality, including 1) translation across languages; and 2) the importance of working with a real-time interpreter or bilingual moderator who understands participants' social context, cultural background and language. If not properly addressed, these issues may threaten the validity of focus groups' data and, consequently, overall rigor of the qualitative research project (Choi et al., 2012; Esposito, 2001; Yelland & Gifford, 1995).

This paper outlines our experience conducting cross-lingual focus groups with immigrant women in Alberta, Canada using three different approaches: 1) a real-time interpreter with audio-recording, 2) a real-time interpreter without audio-recording, and 3) a bilingual moderator

followed by translation. Focus groups were the data generation strategy that worked best with our participating communities. However, we expect that the information presented here will assist researchers engaged in cross-lingual, cross-cultural research in not only selecting the most suitable approach to focus groups but also planning for other methods of data generation, such as interviews and group interviews.

4.2 Current Study: Investigating New African-Immigrant Women's Experiences During Pregnancy and Postpartum in Alberta, Canada

Low socioeconomic status, language difficulties, and sociocultural barriers can negatively affect many aspects of a healthy pregnancy, including dietary practices, physical activity and women's receptivity to prenatal and postpartum care (Berggren, Bergstrom, & Edberg, 2006; Gagnon et al., 2009; Paul, Graham, & Olson, 2013; Small et al., 2008; Urquia et al., 2010). In a recent qualitative investigation of low-income, pregnant women living in Rochester (NY), multiple socio-ecological factors (e.g., stress, poor access to healthy foods, low social support, etc.) were found to put them at increased risk of excessive gestational weight gain and poorer pregnancy outcomes (Paul et al., 2013).

In Canada, refugee and non-refugee women (hereinafter called immigrant women) often have unmet social, economic and health needs during pregnancy and postpartum, and poorer birth outcomes (Gagnon et al., 2009). Given all the adaptation that migration requires, and the importance of pregnancy for both mother and infant health, we sought to understand immigrant women's perceptions of a healthy pregnancy, and their experiences during pregnancy and postpartum while receiving support from a community-based organization, the Multicultural Health Brokers (MCHB) Co-operative, in Edmonton, Alberta.

The MCHB is an independently run health worker (i.e., health broker) cooperative that provides perinatal services and supports to at-risk immigrant women. The MCHB offers women holistic, strategic services that expand beyond a single health concern, (e.g., low birth weight or premature birth) and include actions related to housing, income, food security and women's education; in other words, overarching social determinants of health (Torres, Spitzer, Labonte, Amaratunga, & Andrew, 2013). The overall goal of health brokers is to contribute to immigrant women's successful settlement, adaptation, and integration into Canadian society, and, as a result, improve their pregnancy and birth outcomes.

A CBPR approach was used to engage African-immigrant women who participated in a perinatal group offered through the MCHB. CBPR represents a viable approach for working with minority groups in addressing health disparities that affect people living in marginalized communities (Israel et al., 2010; Minkler & Wallerstein, 2008). Focused ethnography was the qualitative research method used in this study. This method is sensitive to how culture shapes, and possibly explains, women's everyday lives and health behaviours in the perinatal period (Graham, Mayan, McCargar, Bell, & Sweet Moms, 2013; Higginbottom, Pillay, & Boadu, 2013; Knoblauch, 2005). Parallel to traditional ethnographic research, in focused ethnography the attention to culture remains; however, it is more contained to a particular setting or focused on certain issues, and within a shorter time frame (Graham et al., 2013; Knoblauch, 2005).

We introduced the project to the group of health brokers connected to immigrant communities through MCHB, and those who were interested in better understanding the sociocultural context where their clients experience pregnancy and postpartum agreed to participate, and engage their communities in the research. Thus, over an eight-month period, we established a meaningful partnership with health brokers from four African communities in Edmonton (Eritrean, Ethiopian, Oromo and Somali) and their clients, i.e., African-immigrant women (Minkler & Wallerstein, 2008). The health brokers from these four communities became partners in this study (Minkler & Wallerstein, 2008). They determined, alongside the researchers, focus groups as the preferred data generation strategy, and advised on which questions to pose (Israel et al., 2010; Minkler & Wallerstein, 2008).

We opened the first focus group with women with a general question asking what it meant for them to be healthy during pregnancy and postpartum. Women then began to express their perceptions and experiences of health during pregnancy and postpartum by contrasting their countries of origin and Canada, which were respectively described as "back home" and "here". After each focus group, researchers and health brokers discussed what questions had been explored with women, and what questions or topic areas had yet to be examined in following focus groups with each participating community. We engaged health brokers' in these discussions as a key principle of CBPR, and in an effort to better understand women's cultural backgrounds, social contexts, and preferred ways of sharing their stories.

Ten focus groups (n = ~8 women per group) were conducted with women from the abovementioned African communities who had been living in Canada between 1 and 36 months.

Women and health brokers from these communities spoke diverse languages and dialects. Therefore, the composition of focus groups, and approach to each cross-lingual focus group varied, with health brokers actively participating either as real-time interpreters (Eritrean, Ethiopian, Oromo) or a bilingual moderator (Somali). Although real-time interpreters facilitated focus groups with Ethiopian, Eritrean and Oromo women, the approach to focus groups among these communities differed in relation to data recording. Focus groups with Ethiopian and Eritrean women were audio recorded, whereas those with Oromo women were not audio recorded. Overall, focus groups were conducted in women's mother tongue in the MCHB's office or in another community setting. Focus group data were supplemented with audio-recorded debriefings (between the two researchers who were consistently present during data generation) and direct observations. These gave researchers a crucial opportunity to: reflect on their experiences as focus groups moderators or observers; record their key observations about research settings and participants; discuss data generated through focus groups and observations; and prioritize questions or topic areas for future focus groups. We analyzed all data through qualitative content analysis while being sensitive to interactions among participants, between participants/health brokers and participants/researchers, and recognizing how different approaches influenced different interactions.

4.3 Ethics: Approval and Considerations

This study was approved by the Research Ethics Board at the University of Alberta. Due to language barriers, we anticipated that obtaining participants' consent in cross-lingual research might be challenging. Therefore, we asked interpreters to explain the purpose of the research at the beginning of each focus group and reiterate that participation was voluntary. Data generation started upon women's verbal consent, and audio recording only occurred if participants also consented to being recorded. We paid close attention to women's non-verbal cues, such as facial expressions and nodding, and addressed any noted discomforts or possible concerns women had by explaining the purpose of focus groups and audio recording, and by reiterating that both participation and recording were optional.

Women in this study received a twenty-five-dollar gift card to a local grocery store as an honorarium for focus group participation. Over the course of the study, however, the number of participants consistently increased and the amount provided had to be decreased to 10 dollars per

participant per focus group due to budgetary restrictions. This unanticipated change was likely related to the fact that we were working with immigrant women living with poverty who not only valued the monetary honorarium, but also the opportunity to socialize with other members of their communities.

The next sections of this paper will provide insights into the process of conducting cross-lingual focus groups within a cross-cultural CBPR study. We will describe in detail three different approaches to cross-lingual focus groups used in this CBPR study, along with corresponding advantages and challenges. We will also comment on general aspects of the data collected.

4.4 Interpreter-Assisted Focus Group Moderated by Researcher With Audio Recording

We conducted three focus groups with Eritrean and Ethiopian women (average of 10 participants per group) in their mother tongue. Focus groups were audio recorded and moderated by an English-speaking researcher with Eritrean and Ethiopian health brokers acting as real-time interpreters. Following the focus groups the audio recordings were transcribed verbatim and analyzed. Health brokers took turns in the role of real-time interpreters, translating the researcher's questions to participants and translating participants' answers to the researchers. The health brokers matched participants' ethnicity and sex (female) and were similar in age. This was highly desired as other studies have also described how matching interpreters and participants can help to build meaningful research relationships with participants (Kapborga & Bertero, 2002; Wallin & Ahlstrom, 2006; Yelland & Gifford, 1995). In addition to knowing women's language through grammar and vocabulary, health brokers had background knowledge of their clients' cultures and social contexts, which better enabled us to explore perceptions and experiences of health during pregnancy and postpartum using focused ethnography (Agar, 2006).

Interpreter-assisted, cross-lingual focus groups allow the researcher to take an active role in moderating the discussion, and in influencing the direction of probing questions (Barbour, 2013). The interpreters/health brokers acted as active "conduits" between the moderator (i.e., researchers) and participants (Kapborga & Bertero, 2002), as shown in the transcript excerpt below:

> "*Moderator:* You know how last time you mentioned that back home you are treated like a queen [during pregnancy], you get all the attention and if you're craving anything you

always have someone to fill these cravings. We were wondering how the lack of rest here affects their pregnancy or how that affects their health?

Interpreter: Okay, I remember we touched upon this and so that is part of what they were saying last time, the stress is because of that, they intend to grab anything and everything which is why then we are in the problem we are in. I'll translate that.

[Conversation in women's mother tongue]

Interpreter: 'We get stressed and we can't sleep. If you don't sleep well and if you don't get enough rest, you get frustrated and you get very tired. So that's one of the results.'

Moderator: When you said that you get frustrated, who can help you, what type of supports would you need when you feel like that?

[Conversation in women's mother tongue]

Interpreter: So what she's saying is there is nothing to compare, really. She said, 'in fact I've had three of my children back in Africa and so the treatment there and here, there's nothing to compare. (…)"

The synergy between moderator/researcher and interpreter was vital to focus group flow. This synergy was fostered through discussion of focus group questions and processes between the researchers and interpreter prior to data generation, which happened through in-person meetings, communications via e-mail and brief conversations before women's arrival for focus groups. Kapborga and Bertero, (2002) suggest that spending time with interpreters before initiating data collection is an important strategy to increase validity (Kapborga & Bertero, 2002). Moreover, the health brokers involved in focus groups as real-time interpreters had previous experience in qualitative research methods. This, in addition to their familiarity with the women and their sociocultural contexts, facilitated the interpretation and translation of focus groups questions into participants' mother tongue in culturally appropriate ways. A study conducted with immigrant women workers in Toronto (Canada) described interpreters with insights into participating communities as "guides" who could "shed light on the testimony of women interviewed" (Gannage, 1999).

In our study, interpreter-assisted, cross-lingual focus group generated rich data, and allowed us to investigate Eritrean and Ethiopian women's perceptions of a healthy pregnancy, and their experiences in a new country. However, because during focus groups interpreters provided constructions of women's comments and responses, rather than word for word translation, we had

to trust we were given the "right" – or accurate – construction of women's perceptions and experiences. Overcoming this issue can be difficult when conducting focus groups in any language other than the one(s) the researcher has fluency in as interpreters may inevitably add their own views to answers or respond to questions themselves (Kapborga & Bertero, 2002; Wallin & Ahlstrom, 2006). In the context of our focused ethnography with women from diverse cultural backgrounds using a CBPR approach, including their own experiences of pregnancy and postpartum in Canada, health brokers were going beyond the translation of women's words as they actively tried to make cultural practices and beliefs more comprehensible to researchers. Nevertheless, we note here the importance of emphasizing with interpreters the fact that reaching consensus among participants, as a strategy to facilitate English-speaking moderator's understanding, is not necessary or desirable. We tried to do this by promptly responding to women's facial expressions and group reactions, for example "what did she say that made everyone laugh?" or "she seemed confused when you [health broker] were speaking."

Having transcribed focus group data was valuable for validity. Nevertheless, in our experience with this study, it is important to consider the higher costs of transcription of cross-lingual focus groups, and the time it may take to clean the transcripts, especially if participants have strong accents. The number of participants in each focus group varied greatly, due to the CBPR approach taken in this study. Still, when possible we would recommend limiting the number of participants in cross-lingual focus groups with an interpreter to a maximum of six as an effort to facilitate group interactions, manage time, and improve quality of verbal data for transcription. In groups with more than six participants, women who had more fluency in English often started answering questions directly to the moderator while the interpreter translated questions to the group as a whole. In these occasions, our attention was divided between participants answering questions with and without the aid of the translator, and as a result, transcribed data had gaps with inaudible parallel conversations that later on had to be filled by the researcher during verification of transcripts.

In addition to focus groups and time spent with interpreters, as previously described we also engaged with the participating women outside of the formal focus groups by attending weekly perinatal classes that addressed a variety of topics (e.g., brain and fetal development, healthy eating). These opportunities to engage with the focus group participants allowed us to better understand women's cultural background and social context, preferred ways of learning, and to

observe their interactions with health brokers. On various occasions, we were able to sit beside women who were learning or knew some English, and were eager to tell us more about their home countries, families and pregnancy experiences in Canada. Despite language barriers, in one-on-one informal conversations with participants we were able to verify the most relevant findings from focus groups and add more details to our findings through observations.

4.5 Interpreter-Assisted Focus Group Moderated by Researcher Without Audio Recording

We also conducted three focus groups with Oromo women (average of six participants per group) in their native language. The process for these focus groups was very similar to the above; an English-speaker researcher moderated the focus groups and the health broker carried out real-time interpretation.

However, Oromo women did not consent to having their discussions audio recorded. Oromo people represent a large ethnic group in Ethiopia with different religious practices and long-standing history of political conflicts in the area. Graffigna, Bosio, and Olson (2008) suggest that communities in developing countries, with low incomes and levels of education, and ruled by nondemocratic governments, are usually more concerned with privacy of collected data (Graffigna et al., 2008). It is likely many of our Oromo participants have experienced political persecution and were uncomfortable being audio recorded for this study. Additionally, their religious practices did not allow for any form of image recording, such as videos and pictures, and this also seemed to influence their preference for no audio recording. As a result, the researcher had to take notes as the health broker interpreted participants' answers.

Like the process outlined above, the researcher conducting the interpreter-assisted focus groups without audio recording spent time with the health broker before focus groups in order to prioritize questions and gain an initial understanding of women's cultural beliefs and norms in relation to focus groups' topics. As well, after concurrently moderating focus groups with Ethiopian/Eritrean and Oromo communities, we debriefed for approximately 30 minutes after each focus group. This proved critical for the one researcher who could not rely on an audio recording as she had the opportunity to go through her notes and recount participant's comments or answers to questions as interpreted by health broker. Debriefings after all focus groups and observation activities were audio recorded, transcribed verbatim, and analyzed using qualitative content analysis. The passage below was extracted from a transcript of the researchers' debriefing:

"*Researcher:* So, the first question was, what are your everyday foods? So, I asked her if she could ask them to kind of compare what they used to eat back home and then what they eat here? And then how anything has changed.

It's funny cause one lady she started laughing as soon as she heard the question and she was like, well I eat everything the same that I eat back home.

Well what is it that you eat back home, tell me specifics; and she said she eats rice, pasta, macaroni, *injera*, corn, lentils, beans, sweet potatoes, and potatoes. They eat fruit every single day. And she said they have a garden in their backyard. And I said so what does that mean though? You garden?

And she said, well it's not like just in our backyard; we have fields and fields, like we are farmers. We are all farmers back home. So, it is just that our backyard is all of this farmland.

So we will go back to our yard quote/unquote and we will pick like – what did she say, bananas and oranges and avocados, mangos, sugar cane. They'll get seeds to harvest fruits and vegetables and things like that. And she said it is really easy to get."

As discussed in a systematic review of the interpreter's role in cross-lingual interviews, in the absence of audio recordings, data is often narrated by the researcher using indirect speech (Wallin & Ahlstrom, 2006). While this may be seen as a threat to data validity, one of the key principles of CBPR is enabling collaborative partnership, and sharing power, with the community throughout all research phases (Cargo & Mercer, 2008; Wallerstein & Duran, 2006), and by attending to this principle, researchers maintained trust and participation. As a result, it was possible to obtain meaningful data, and investigate Oromo women's perceptions of a healthy pregnancy, and contrasts between their home country and Canada.

Similarly to the interpreter-assisted, audio-recorded focus groups, the health broker involved in the non-recorded focus groups had very close ties to the women in her community; thus, it is possible she might have added her own views to participants' answers or responded to questions herself (Kapborga & Bertero, 2002; Wallin & Ahlstrom, 2006). Nonetheless, because the Oromo health broker is a mother and immigrant who had experienced pregnancy and postpartum in Canada and she fit participants' inclusion criteria, we considered her own accounts as additional information about African-immigrant women's experiences during pregnancy and postpartum in Canada.

The non-recorded, interpreter-assisted focus groups pressed us to learn about other intricacies of this data generation method in cross-cultural research. For instance, we learned that sitting beside the Oromo health broker, and maintaining eye contact with participants, helped to build rapport between researcher and women, and maintain engagement. Wallin and Ahlstrom, (2006) in their review of interpreter's role in cross-cultural research did not find any reports on most appropriate seating arrangements during cross-lingual data collection; thus, it is challenging to discuss this, especially since what is most appropriate is likely dependent on the cultural backgrounds of participants (Wallin & Ahlstrom, 2006).

Furthermore, many times during focus groups, Oromo women posed questions to the English-speaker researcher about delivery and nutrition postpartum, and expressed frustration when she told them she was not the most appropriate person to answer their questions. In focus groups exploring Cambodian and Vietnamese mothers' beliefs about sudden infant death syndrome, Yelland and Gifford, (1995) encountered a similar issue as participants expected moderators (i.e., midwives) to assume the role of experts and information providers during focus groups (Yelland & Gifford, 1995). Although situations like this might cause discomfort to researchers, it could represent a positive sign that women began to perceive researchers as members of their social networks with whom they could build or improve knowledge about pregnancy and postpartum in Canada (Moll, Amanti, Neff, & Gonzalez, 1992). Moll and colleagues (1992) in their ethnographic work with Latino families in the United States described that culturally and historically constructed "funds of knowledge" developed through interactions with social networks helped working-class households to increase their ability to survive and thrive in the midst of economic and social difficulties (Moll et al., 1992).

Overall, despite the challenges in data generation with Oromo focus groups, the interpreter and participating women provided us with valuable insights into how their culture shapes women's pregnancy and postpartum experiences in Canada. This, in addition to observation of perinatal classes, enabled gathering rich data that increased our understanding or African-immigrant women's perceptions and experiences during pregnancy and postpartum "back home" and "here" (i.e., Canada).

4.6 Focus Group With Bilingual Moderator Followed by Translation

The Somali health broker advised that the best way to foster participation from women in her community would be to conduct focus groups in participants' mother tongue, in a community setting prior to their monthly group cooking program. In addition, focus groups were to be moderated by the health broker herself, and audio recorded. As illustrated in Figure 1, the bilingual moderator (i.e., Somali health broker) would listen to the audio recording, and then translate and transcribe into English.

Four focus groups with Somali women (average of seven participants per group) were conducted. English-speaking researchers attended all focus groups to observe interactions among participating women and answer any questions about discussion topics or overall research process. Focus group questions were provided to the bilingual moderator ahead of time, and briefly discussed with the researchers before the beginning of each focus group. As previously noted, this is an important strategy to increase data validity. It is worth highlighting that the Somali moderator had previous research experience and demonstrated great ability in fostering discussion and eliciting women's opinions. However, as discussed by Esposito (2001), in this approach to cross-lingual focus groups, researchers do not have the opportunity to guide or redirect focus group questions and were completely reliant on the health broker's skills as a bilingual moderator to generate relevant data (Esposito, 2001; Kapborga & Bertero, 2002; Umana-Taylor & Bamaca, 2004). In addition, similar to interpreter-assisted focus groups, it was difficult to say whether or not the moderator provided women with her own perspectives while explaining the meaning of translated questions.

Focus group discussions were audio recorded, and following completion, the bilingual moderator completed translation and transcription into English. Translating focus group data requires more than fluency in another language as various contextual and social factors influence this highly complex interpretive process (Baker, 2006; Esposito, 2001). For instance, there may not exist words in the participants' mother tongue that are equivalent to English; therefore, meaning-based rather than word-for-word translation is warranted (Esposito, 2001). The Somali health broker was responsible for translating and simultaneously transcribing this meaning-based data. Due to the health broker's competing priorities, and the amount of time required for meaning-based translation, there was a significant delay in completing the translation and transcription of

recordings. The transcript was not verbatim, but a summary of the conversation, as shown in the following excerpt:

> "*Somali Health Broker:* What a healthy eating mean to you during pregnancy and after pregnancy here in Canada and in Somalia? What do you think are the main differences?
> *Somali Health Broker's translated summary of women's answers:* In Somalia - we do not control what we eat. Everything we eat is organic. Most of the people have no options to choose what they eat. Food variety is limited. There is no culture or dialogue of discussing healthy food. Women eat whatever is available to them. For most of the people fridge or food storage is not available. We buy the food we eat on daily basis and you can get fresh food from the market. […]
> *Somali Health Broker*: How about in Canada?
> *Somali Health Broker's translated summary of women's answers:* In Canada - we go to the food market once a week and usually we take bus or drive. Most of the food is frozen, except fruits and few other items. We store food in the fridge. Sometimes we cook two meals together. It's easy to manage cooking here in Canada. We are aware about the healthy eating, but they are expensive. We try to balance the food we eat and avoid as much as possible fat or high carbohydrate food. Healthy food is expensive. The majority of our community is low income and cannot afford to buy."

In cross-lingual focus groups moderated by a bilingual translator, researchers had minimal control over the discussion. Yet, being present, and observing participants' interactions was important to better understand women's sociocultural background and context. For instance, we noted in one of the focus groups that a young Somali mother who fit the study inclusion criteria but was fluent in English chose to engage in food preparation (focus groups with Somali women took place in a community kitchen) and not participate in the discussion. After the focus group, one of the researchers asked how she was feeling and whether something had upset her. This young mother explained she did not participate because she had been raised outside Somalia, and not only had difficulties in expressing herself in Somali, but also did not share the same cultural beliefs and perceptions of pregnancy and postpartum as the women participating in focus groups. This generational nuance was thoroughly captured in researchers' audio-recorded debriefing and integrated into Somali focus group data. Similar to our study, Umana-Taylor and Bamaca, (2004) found in their research with Latino families that Mexican mothers raised in their home countries

had very different perspectives from those who were raised in the United States (Umana-Taylor & Bamaca, 2004).

Furthermore, because focus groups were conducted with a bilingual moderator followed by translation and transcription, data analysis could only begin once researchers received the transcript. Not being able to analyze data as generation occurred could have represented a serious threat to study rigor had we not been able to analyze the data from the other three African communities and researchers' debriefings and use this to inform and adapt interview questions and the research process with the Somali women.

4.7 Cross-Lingual Focus Groups in Cross-Cultural CBPR: Is There a Best Approach?

In this CBPR study with African-immigrant women, three community-driven approaches to cross-lingual focus groups were taken, summarized in Table 4.1. Cross-lingual focus groups embrace participants' multiple realities, and socially constructed knowledge. However, conducting both interpreter- and translator-mediated cross-lingual focus groups require adequate planning, implementation, and culturally sensitive analysis and interpretation of data (Esposito, 2001).

The principles of CBPR guided this study, including the planning and implementation of focus groups. As such, health brokers who were real-time interpreters and translators decided on the most appropriate ways to create an exchange among themselves, the researchers and participants. Not only did this contribute to the quality of ethnographic data generated throughout all focus groups but also allowed researchers to better adhere to ethical principles of CBPR. Consistency with ethical principles of all partners around the table throughout the research process is what ensures respectful generation of data that matches communities' realities – also described as "ethical validity" (Edwards, Lund, & Gibson, 2008). Furthermore, health brokers assisted researchers in understanding the extent to which African-immigrant women's sociocultural contexts define their pregnancy and postpartum experiences in Canada, especially in contrast with their home countries. Acknowledging that women may have hybrid experiences from "back home" and "here", and our limitations in understating their multifaceted realities makes the role of health brokers even more relevant. They were not simple interpreters and translators of language but of women's experiences, which were embedded in cultures health brokers could easily grasp and make comprehensible to researchers (Agar, 2006).

Table 4.1 Summary of Three Approaches to Cross-Lingual Focus Groups

	Communities		
	Eritrean & Ethiopian	**Oromo**	**Somali**
Number of focus groups	3	3	4
Average number of women per group	10	6	7
Real-time interpreter	Yes (Health broker)	Yes (Health broker)	No
Bilingual moderator	No	No	Yes (Health broker)
Researchers' role	Moderator	Moderator	Observer
Audio recorded	Yes	No	Yes
Focus group questions	Shared and discussed questions with interpreter prior to focus group		Shared and discussed questions with bilingual moderator prior to focus group
Advantages	- Researcher as moderator of focus group, and actively participating in data generation - Opportunity to observe of interactions between health brokers and participants by attending weekly perinatal classes - Opportunity to interact with women during perinatal classes - Relationship built with community health brokers and women - Concurrent data generation and analysis		- Natural flow of focus group discussion without interruptions for real-time interpretation - Women's visible engagement and comfort with moderator - Opportunity to observe focus group interaction - Relationship built with community health brokers
Challenges	- Fostering discussion among all women in a large group - Ensuring validity of interpretation of women's perceptions and experiences - Checking accuracy of focus groups' transcripts due to participants' accents	- Balancing moderating and note-taking during focus groups - Ensuring validity of interpretation of women's perceptions and experiences - Women's expectations of English-moderator expertise	- Lack of influence over focus group questions and direction - Complexity of meaning-based translations - Delay in translation process - Data analysis initiated after data generation was completed
Data	- Transcripts of focus groups - Transcripts of researchers' debriefings	- Researcher's written notes - Transcripts of researchers' debriefings	- Transcripts of meaning-based translations - Transcripts of researchers' debriefings

Graffigna, Bosio, and Olson (2008) have demonstrated the importance of the research setting and "medium" (e.g., face-to-face and online) in focus group data collection (Graffigna et al., 2008). In any project using a CBPR approach, researchers should have the opportunity to correctly select the appropriate setting and medium given that the participating community is part of both designing and conducting the research. As such, different approaches to focus groups across cultures are likely to result in different format, content, and depth of data. Our research shows that in CBPR one size does not fit all, even if working with communities from similar cultural backgrounds. These differences are indeed what garner excellent focus group data quality.

We argue that what is equally important for good quality data is that researchers are present in the setting over a period of time for participation in and observation of community activities whenever possible, and that community participation in the research process is continuously fostered. Agar (1996) describes that "devotion to the initial learning role is one of the major ingredients that makes ethnography the unique concoction it is" (p. 120), and this "devotion" was very pertinent to our focused ethnography, especially through health brokers. They allowed us access to background knowledge about participating African communities and guided how research activities were to be performed throughout the study (Agar, 1996). Engaging with communities requires time, and researchers' commitment to mutual trust, respect and co-learning (Cargo & Mercer, 2008; Castleden, Sloan Morgan, & Lamb, 2012). In addition, engagement in cross-cultural CBPR is critical to understanding participants' sociocultural and political contexts (Wallerstein & Duran, 2006), and properly seeking their input during data generation, analysis and presentation of findings. As such, participation is not only a means to an end, but also a strategy to ensure validity of qualitative data, and, most importantly, to empower communities (L. M. Morgan, 2001; Wallerstein & Duran, 2006).

Hsin-Chun Tsai et al. (2004) emphasize that "threats to the accuracy, trustworthiness, and/or validity of cross-cultural, cross-language qualitative research continue to exist if the data analysis process does not include those who understand the culture and the language of the participants" (p.24) (Hsin-Chun Tsai et al., 2004). In this CBPR study, community stakeholders (i.e., health brokers) not only contributed to researchers' understanding of focus group data but also added details to women's comments and responses that greatly enriched overall findings. Health brokers' participation was crucial and enabled researchers to gather qualitative data that truly honoured African-immigrant women's health perceptions and experiences during pregnancy

and postpartum. Most importantly, we recognized their ethnic and linguistic pluralism. We hope this will help to build evidence on the extent to which African-immigrant women's cultures and realities shape their perinatal experiences in Canada, and inform what Hornberger (2002) call nation-building policies – policies that open possibilities for immigrants who have not assimilated the Canadian official languages and sociocultural contexts (Hornberger, 2002).

To conclude, we answer the question, is there a best approach? In this study, there was not a best approach to cross-lingual focus groups. Engagement with health brokers and communities during and beyond focus groups allowed us to mitigate challenges with each approach, and gather meaningful, rich, and valid data. In cross-cultural CBPR the best approach to cross-lingual focus groups is the one identified by the community, the one that respects their preferred ways of sharing knowledge, and allows researchers to co-learn with participants. For those using cross-lingual focus groups, we stress the importance of following the principles of CBPR, especially community engagement, and of considering the advantages and challenges of each approach presented here. What might be feasible yet rigourous will vary in given settings and cultures.

CHAPTER 5: Contrasting "Back Home" and "Here": How Northeast African Migrant Women Perceive and Experience Health During Pregnancy and Postpartum in Canada

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5.1 Background

International migration – defined as "a change of residence involving the spatial movement of persons across country borders" (Urquia & Gagnon, 2011) – has significantly increased in the last two decades (United Nations, 2015). United Nations data indicates that in 2015 there were approximately 244 million migrants worldwide, with slightly less than half being women (United Nations, 2015). As a result, the number of migrant women who experience pregnancy and childbirth in receiving countries has also increased, sparking dialogue about the impact of migration on maternal and child health (Gagnon, Carnevale, Mehta, Rousseau, & Stewart, 2013; Small et al., 2008; Urquia et al., 2010).

In Canada, the industrialized country with the highest immigrant population as a proportion of the total population among the former Group of Eight (G8) nations (Newbold, 2005; Statistics Canada, 2013), low socioeconomic status is more common among migrant families. Immigrant women often have unmet social, economic and health needs during pregnancy, and poorer birth outcomes (Gagnon et al., 2009). A study of migrant women (including refugees, asylum seekers, undocumented and economic immigrants) living in two Canadian cities that receive the highest number of migrants has shown that migrant women are more than twice as likely as Canadian-born women to have problems unaddressed by the health care system (Gagnon et al., 2013). This could be due to refugees, asylum seekers and undocumented immigrants (i.e., individuals lacking proper visa documentation to reside in Canada) are entitled to fewer benefits and services, and might fear jeopardizing settlement in Canada by accessing health and social services (Gagnon et al., 2013; Grewal, Bhagat, & Balneaves, 2008).

In addition, women's cultural background plays a role in reproductive health, and this represents one of the reasons why Mendez, Hogan, and Culhane (2014) stress the importance of considering the intricate interplay of genetic, physiological, behavioural, environmental, and social

factors when investigating disparities in perinatal outcomes (Mendez, Hogan, & Culhane, 2014). A qualitative study conducted with resettled Somali women has shown that even though they appreciate prenatal care in the receiving country, women struggle with language barriers, accessing interpreters, and trusting caregivers who do not have experience in dealing with childbirth among females who have undergone genital mutilation (Small et al., 2008). These sociocultural factors have been suggested as possible explanations as to why rates of gestational diabetes, caesarean delivery and fetal distress are commonly higher among Somali women (Johnson, Reed, Hitti, & Batra, 2005). The World Health Organization 'Recommendations on Health Promotion Interventions for Maternal and Newborn Health' emphasize that cultural factors can affect women's use of care during pregnancy, and urge meaningful inclusion of their cultural preferences in quality maternity services (World Health Organization, 2015).

In the Canadian city of Edmonton, Alberta, migrant women may receive additional perinatal support from a community-based organization, the Multicultural Health Brokers (MCHB) Cooperative. The MCHB Cooperative is an independently run health broker cooperative that provides perinatal programs and services to at-risk migrant women, including refugees and asylum-seekers. Health brokers offer women holistic, strategic services that extend beyond a single health concern, such as low birth weight or premature birth. Services include actions related to overarching social determinants of health, such as housing, income, food security and women's education (Torres, Spitzer, Labonte, Amaratunga, & Andrew, 2013). The overall goal of health brokers is to promote migrant women's health during pregnancy and improve birth outcomes by contributing to their successful settlement, adaptation, and integration into Canadian society.

Given all the adaptation that migration requires, in particular during the perinatal period, we sought to explore migrant women's perceptions and experiences of health during pregnancy and postpartum in Canada while participating in a perinatal program offered through the MCHB Cooperative, and receiving support from a health broker. By exploring women's perceptions and experiences, we also examined sociocultural factors that can shape their health upon migration.

5.2 Methods

A Community-Based Participatory Research (CBPR) approach was used to engage health brokers and migrant women who participated in perinatal programs offered through the MCHB Cooperative in this qualitative study. The project was introduced to all health brokers and four

health brokers representing Northeast African communities – Eritrean, Ethiopian, Oromo and Somali – expressed interest in participating in the project to better understand the sociocultural context their clients experience during pregnancy and postpartum in Canada. CBPR was identified as a viable approach for working with these minority groups, and addressing perinatal health disparities that affect migrant women (Israel et al., 2010; Minkler & Wallerstein, 2008).

Focused ethnography was the qualitative research method used in this study. This method is sensitive to how culture shapes and possibly explains women's everyday lives and perinatal health behaviours (Graham, Mayan, McCargar, Bell, & Sweet Moms, 2013; Higginbottom, Pillay, & Boadu, 2013; Knoblauch, 2005). Parallel to traditional ethnographic research, in focused ethnography the attention to culture remains; however, it is more contained to a particular setting or focused on certain issues, and within a shorter time frame (Graham et al., 2013; Knoblauch, 2005). Given that our focused ethnography was centered on pregnancy and postpartum experiences, in a contained context (i.e., four Northeast African communities connected to MCHB) and within a shorter time frame, it required prior familiarity with women's communities (Knoblauch, 2005). Agar (1996) has described that "devotion to the initial learning role is one of the major ingredients that makes ethnography the unique concoction it is" (p. 120), and this "devotion" was pertinent to our focused ethnography (Agar, 1996). The CBPR approach enabled us to develop relationships with health brokers, gain background knowledge about Northeast African migrant women's community contexts in Edmonton where they experience pregnancy, and work with both health brokers and women throughout all stages of the study (Israel, Schulz, Parker, & Becker, 1998). Health brokers directed us on the most appropriate data generation strategies, questions to pose to participating women within their communities, and assisted with data interpretation (Israel et al., 1998; Minkler & Wallerstein, 2008; Quintanilha, Mayan, Thompson, Bell, & The ENRICH Study Team, 2015).

5.2.1 Participants and setting

All pregnant and postpartum women from the four participating Northeast African communities who were enrolled in the MCHB perinatal program and attended perinatal activities at the time data were being generated for this project (May-September 2014) were invited to participate. The program involved weekly meetings in which a variety of topics – such as brain and fetal development, healthy eating during pregnancy, labour and delivery – were addressed by

health brokers and/or invited health professionals. In addition, participating women had the opportunity to socialize as they shared a meal prepared by the health brokers. This social time also enabled health brokers to distribute resources (prenatal vitamins, donated infant items), and to assist immigrant and refugee women with matters related to housing, education, immigration, food insecurity, income and any other needs they had.

Data generation took place at the MCHB Cooperative office or in another community setting (i.e., school kitchen) during weekly meetings. Health brokers were responsible for explaining the purpose of the research and potential risks and benefits of study participation in women's mother tongue. They also highlighted that women's participation was voluntary, and not associated with their enrolment in MCHB programs and services.

Women received a twenty-five-dollar gift card to a local grocery store as an honorarium for focus group participation. Over the course of the study, however, the number of participants increased and the amount provided had to be decreased to 10 dollars per participant per focus group due to budgetary restrictions. This unanticipated protocol change was likely related to the fact that we were working with migrant women who were low income and valued the monetary honorarium, as well as the opportunity to socialize with other members of their communities.

5.2.2 Ethics

This study received approval from the University of Alberta Research Ethics Board. Due to the language barriers between researchers and participants, interpreters were asked to explain the purpose of the research at the beginning of each data generation point, and reiterate with women that participation was voluntary. Participants gave consent at each data generation point.

5.2.3 Data generation

Focus groups were conducted in women's mother tongue to explore their perceptions and experiences of health during pregnancy and postpartum. Focus groups have been described as a particularly useful data generation strategy in health services research with minority groups "whose voices have been otherwise muted" (p.21) (Barbour, 2013), which was highly desirable in our study. Women and health brokers spoke diverse languages and dialects; therefore, the composition of and approach to each cross-lingual focus group varied, with health brokers actively participating either as real-time interpreter (Eritrean, Ethiopian, Oromo) or bilingual moderator

(Somali). The different approaches used in these focus group discussions, and format of data generated have been detailed elsewhere (Quintanilha et al., 2015).

In total, 10 focus groups (approximately 8 participants per group) were conducted with Northeast African migrants who had been living in Canada between 1 and 36 months: 3 with Ethiopian and Eritrean women, 3 with Oromo women, and 4 with Somali women. After each focus group discussion, we (i.e., the research team) reviewed what questions had been explored with women, and what questions or topic areas had yet to be examined with each participating community. We engaged health brokers in these discussions as a key principle of CBPR, and in an effort to better understand women's cultural background, social context, and preferred ways of sharing their stories. We have described the important role of health brokers in an earlier publication (Quintanilha et al., 2015).

In addition to focus group discussions and time spent with health brokers, we also interacted with women by observing weekly perinatal classes that addressed a variety of topics (e.g., brain and fetal development, delivery, healthy eating, etc.). Data from direct observations were documented in audio-recorded debriefings that occurred between the two researchers responsible for all data generation (MQ and JT). As such, focus group data were richly supplemented with data from direct observations in which researchers had the opportunity to observe how cultural elements shaped women's knowledge, perceptions and assumptions in relation to pregnancy and postpartum.

5.2.4 Data analysis

Data generation and initial stages of data analysis occurred concurrently, and required an inductive, iterative, self-reflective analytic process because of the substantial amount of data generated in a short period of time (Higginbottom et al., 2013). Audio recordings of focus groups and debriefings were transcribed verbatim, and organized in NVivo (Version 10.0.4, QSR International). Transcripts of focus groups and debriefings were reviewed for accuracy, and organized so that field notes were added to transcribed documents in the form of highlighted comments in a word document. All data were analyzed using qualitative content analysis to inductively derive codes and categories (Elo & Kyngas, 2007; Mayan, 2009). In this focused ethnography, qualitative content analysis was referred to as "a research method for the subjective interpretation of the content of the text data through the systematic classification process of coding

and identifying themes or patterns" (Hsiu-Fang & Shannon, 2005). While analyzing focus group data, we were also sensitive to interactions among participants, and between participants and health brokers (Quintanilha et al., 2015). Transcripts from all data sources were read multiple times, and initial codes began to be identified. These codes were reduced, and grouped into key categories and sub-categories that were critically interpreted by the research team to provide a thick description of findings. Therefore, findings presented here were derived from focus groups and observational data.

5.3 Results

We opened the first focus group discussion with women from Ethiopian, Eritrean, Oromo and Somali communities with a general question of what it meant for them to be healthy during pregnancy and postpartum. Women then began to express their perceptions and experiences of health during pregnancy and postpartum by contrasting their countries of origin with Canada, which were described as "back home" and "here", respectively. As a result, in the following focus group discussions, we explored how differences between "back home" and "here" might have shaped their health before and after having a baby. Women commonly identified eating healthy, being physically active and emotionally well as pivotal aspects of a healthy pregnancy. We will describe here how participants perceived social support and the physical environment (both natural and built) "back home" and "here" as key factors in shaping their perception of health during pregnancy and postpartum in their new country, Canada.

5.3.1 Social support

Participants described that in their home countries pregnancy and childbirth were highly valued by society regardless of women's socioeconomic status. As such, pregnant and postpartum women were treated as "queens" who had their cravings filled and needs tended to by female relatives, friends or hired help. "Back home" pregnancy was a time when women received the most attention from their families, including their spouses, which was something they truly appreciated and still expected after moving to Canada. In addition, Northeast African migrant women emphasized that, despite political and civil conflicts in their home countries, they were part of a "we culture" within their communities (e.g., neighbourhoods, villages, families) where individuals cared for one another's needs and well-being. This was heightened when a woman got

pregnant, and the support and attention she received during pregnancy and postpartum were perceived as critical to her overall health as well as emotional well-being:

> *"After birth, women get all the emotional support from all extended family members. There are always people surrounding you. You get a break from the baby and are encouraged to work or do different things." (Summary of Somali women's focus groups)*

Social support "back home" was commonly linked to women's ability to eat healthy and be physically active, two health behaviours participants identified as key during the perinatal period. As examples, women highlighted that people in their communities would prepare foods they were craving or were special in their cultures (e.g., lamb, dishes associated with healing), and cook for them when they did not feel well or were recovering from childbirth. In relation to physical activity, women believed social support from their relatives and friends "back home" was a facilitator to being physically active, as described in the quote below:

> *"So you see in our country even if you are poor there is always someone who can help you, it could be a relative, it could be someone you even pay. And when they do that you are out relaxing, going for a walk, you know doing things that you would like (…)"* (*Ethiopian woman, mother of two)*

In contrast to participants' perception of social support "back home" during pregnancy and postpartum, "here", in Canada, women commonly experienced a more individualistic culture, described as an "I culture", where every woman is held responsible for her own health and well-being. They noted that family units were usually smaller "here", and felt that Canadian men (i.e., women's partners or spouses) tended to have a more active role in looking after children and helping with house chores. Although women perceived the difference in male roles between "back home and here" to be positive, it was not what they personally experienced within their households in Canada since their spouses did not naturally begin to share housework with them upon moving "here".

Living in an "I culture" without extended family members and friends' support made women feel they lacked the emotional and instrumental (e.g., financial support, hired help) resources to eat healthy and be physically active while pregnant and postpartum. For instance, women shared that they were aware of healthy eating "here" but the cost of healthy foods commonly prevented them from eating what they believed they should. If they were in a similar

situation “back home”, it was likely someone in their communities with more resources would share what they had to help them to eat healthy. This was captured in audio-recorded direct observations of programming where researchers observed a participant pointing to another woman around the table while saying that if that woman was rich, and they were living back home, then a quarter of what she had would be shared with the community, “Here”, on the other hand, they felt they had to live and deal with scarce resources on their own:

> “*Here, in Canada, even doctors and nurses don’t really consider poverty, they just kind of treat everybody the same, you go in, they give you a list of things that you need to do but they don’t really consider what it’s like living inside and outside our daily lives.” (Oromo woman, mother of one)*

Overall, women commonly described lack of social support as a factor that negatively shaped their pregnancy and postpartum experiences “here”. They believed that their lives in Canada, in the absence of kin, hindered their opportunities to eat healthy and be physically active, increased their stress, and decreased their emotional well-being. In fact, some women underlined that the experiences they faced “here” clashed with their expectations that Canada would be a “flexible, easy place to live”, and made them question whether their lives “here” were really better than in the midst of political conflicts “back home”.

5.3.2 Physical environment

Participants also perceived that differences in the environment, both natural and built, between “back home” and “here” played a role in their eating habits and physical activity during pregnancy and postpartum. Interestingly, eating healthy “back home” was commonly described as consuming “organic” foods that were available to women throughout the year. In this case, “organic” encompassed fresh, unprocessed foods that were either farmed locally or procured on a daily basis at the local market. Although food variety was not extensive, the tropical weather provided a favourable climate for growing vegetables, fruit, and grains in home gardens for families’ subsistence. “Here”, on the other hand, the summer season only gave women a short time frame to grow and eat locally grown vegetables and fruit, and not all of them had a place to cultivate a garden.

Furthermore, participants’ natural environment “back home” was also perceived to be more conducive to being physically active as the weather was warm throughout the year – *“we come*

from 13 months of sunshine" – and enabled farming and walking to the market daily. In contrast, women discussed how the natural environment in Canada placed some barriers for them to be physically active. The weather "here" was a limiting factor for how much physical activity they were able to do during the winter. During winter women usually took the bus or drove everywhere, and they lacked the time and financial resources to enroll in indoor fitness classes and gyms that suited their needs.

Although "weather" was a very common theme in the discussion of environmental differences between "back home" and "here", women also considered the built environment "here" to be one that offered an abundance of unhealthy, convenience foods that could be bought or ordered for takeout when they did not feel like making homemade meals. High availability of low-cost unhealthy foods while coping with poverty, extensive hours of work during pregnancy, low social support, lack of sleep and postpartum depression were given as reasons why women resorted to unhealthy convenience foods even though they understood it was not the best choice for their health:

> *"Here if you are busy, if you have to run around, if you have to work, and you have to do house chores you might not get enough sleep. And you might have to cook but you don't want to cook because you are tired so women ask their husbands to buy food from the restaurant while he is coming to home." (Eritrean woman, mother of two)*

Overall, participants perceived the physical environment and social support "back home" as enabling factors for healthy pregnancies; whereas "here" they missed those factors in their daily lives, and felt unprepared to deal with their new realities, *"these are new terms to our life, and we have no cultural background to address [them]"*.

It is worth noting that participants perceived services and supports offered through MCHB Cooperative (e.g., childcare, cooking classes, family activities) as facilitators to their health and emotional well-being during pregnancy and postpartum in Canada. Women commonly described health brokers with whom they were connected through the MCHB Cooperative as individuals they relied on for guidance and support throughout pregnancy and after delivery. Additionally, the MCHB perinatal program fostered social interactions among women from African communities, thus mimicking some of the sense of community women experienced "back home". This seemed to help creating a sense of belonging "here."

5.4 Discussion

Northeast African migrant women recognized the importance of healthy eating, and being physically active and emotionally well for a healthy pregnancy and postpartum. However, this was mostly done as women contrasted the social support and physical environment "back home" and "here", and explained how these differences have shaped their experiences while pregnant and postpartum in Canada.

The definition of social support includes "resources and aid derived from one's social relationships" (Orr, 2004). The types of support widely cited in the literature investigating the relationship between social support and pregnancy outcomes are emotional and instrumental (which may include informational support) (Orr, 2004; Thornton et al., 2006). Emotional support refers to relationships that make one feel loved, cared for and appreciated, whereas instrumental support includes tangible assistance that answers specific needs, such as lending money, childcare, offering housing or something as simple as a ride to the hospital (Orr, 2004). It is evident that "back home" women were able to easily access emotional and instrumental support in pregnancy and postpartum through their families and communities, in particular female relatives and friends. This enabled them to conduct healthy behaviours during and after pregnancy, and also made them feel cherished, like "*queens*." Northeast African migrant women missed the collective support in pregnancy and early postpartum in Canada, which seemed to negatively affect their experiences "here."

Qureshi and Pacquiao (2013) described similar findings among migrant women of Pakistani origin living in New Jersey (US) who described missing the comfort, care, emotional support, and teachings about marriage and birthing they would receive while pregnant or postpartum in Pakistan (Qureshi & Pacquiao, 2013). Interestingly, 8 of their 26 participants postponed pregnancy for between 1 and 5 years post migration. Those who did so were able to develop a network of friends in the US, learn about health and social supports that were available to them, and develop a new husband-wife relationship in which household activities were more evenly distributed (Qureshi & Pacquiao, 2013). Northeast African migrant women who participated in our study had yet to develop a strong social network or experience the transition in the husband-wife relationship, and this could be related to the fact that participating women were new to Canada, having lived "here" for 1 to 36 months. Moreover, the number of immigrants of

African origin coming to Canada only began to increase in the last two decades (Citizenship and Immigration Canada, 2014); therefore, women may not be easily welcomed into established communities but would likely need to develop their own community circles.

Pregnant and postpartum Latino women in the US have also linked social support to their motivation and beliefs about the need to stay healthy in pregnancy, and described the absence of their mothers and female relatives as a barrier to eating healthy and exercising (Thornton et al., 2006). Therefore, interventions to promote maternal health among migrant women may better meet their needs and expectations by following approaches that are community-based and family-oriented while fostering migrants' social inclusion (Choudhry et al., 2002; Gagnon et al., 2013; Thornton et al., 2006).

In addition to social support, it is important to note the implications of the physical environment "here" on participants' pregnancy and postpartum health experiences. The high cost of healthy foods and the abundance of low-cost unhealthy foods represented barriers Northeast African migrant women faced to eating healthy before, during pregnancy and after delivery in Canada. Low income and food insecurity have been widely reported among migrant families and ethnic minorities (Gagnon et al., 2009; Laraia, Siega-Riz, & Gundersen, 2010; Legault & Marquis, 2014; Merry, Gagnon, Kalim, & Bouris, 2011; Travers, 1996), with a high proportion of asylum-seeking women reporting skipping meals during pregnancy due to the lack of resources (Merry et al., 2011). Household food insecurity may also increase pregnant women's consumption of foods that are high in fat, sugar and salt as stress-relief mechanism or as strategy to eat in low-cost ways (Laraia et al., 2010; Legault & Marquis, 2014; Paul, Graham, & Olson, 2013). Participants in our study commonly reported consuming unhealthy foods (e.g., fast foods) as an affordable way to ease and cope with their busy, stressful lives in Canada. This practice did not occur "back home" because fresh foods, produced and accessible locally, were the only options consistently available to them, and if financial resources were scarce they could count on their social networks for help.

Overall, Northeast African migrant women described feeling unprepared to deal with their new lives in Canada that included poverty and isolation. Based on results presented here, participants' resilience (i.e., a complex process in which psychological, social, environmental factors interact, and make an individual more capable of coping with adversities might be perceived or interpreted as low) (Gagnon et al., 2013). However, we draw from Gagnon and colleagues (2013), and emphasize the fact that resilience among migrant women is a phenomenon

resulting from the individual-environment interaction (Gagnon et al., 2013). Our findings show that new Northeast African migrant women do not readily establish their social networks and supports upon migration, and recognize that Canada, as a receiving nation, might not provide them with the sociocultural and environmental factors they need to successfully adapt and thrive at least in the short term. This highlights the importance of perinatal community-based programs, such as those offered through MCHB Cooperative, which can provide new migrant women with much needed social support.

As such, these programs have the potential to help create some of the sociocultural context that women experienced with pregnancy and postpartum "back home", and promote social inclusion by giving them opportunities to socialize; develop new social networks; and discuss their realities in Canada. Moreover, the health-brokering model embedded in the MCHB Cooperative program has been able to successfully integrate social and health services with the aim of promoting communities' health (Middleton, Henderson, & Evans, 2014; Torres et al., 2013). The integration of social and health services is of the utmost relevance for international migrants who may have limited access to health care services while awaiting for official settlement in the receiving country (Merry et al., 2011).

This focused ethnographic study provided a rich description of Northeast African migrant women's perceptions and experiences of health during pregnancy and postpartum in Canada. The CBPR approach allowed researchers and health brokers to foster women's participation, and better grasp their sociocultural environments "back home" and "here."

Since this study was a qualitative investigation of women's perceptions and experiences of health during pregnancy and postpartum, no socio-demographic data were formally collected. Participants were asked at the end of focus groups to share, if comfortable, how long they had been living in Canada. Although health brokers from Eritrean, Ethiopian, Oromo and Somali communities disclosed that many participating women had refugee status, based on the data generated we were not able to infer that our findings reflected the views of Northeast African migrant women in any specific immigration class (e.g., economic migrant vs. refugee). This could be seen as a limitation of our study since refugee and asylum-seeking women might be more vulnerable to challenges post-migration (e.g., loss of their social networks), especially while pregnant and postpartum, given that they have to deal with more regulatory restrictions in Canada and may have limited fluency in official languages (Gagnon et al., 2009; Merry et al., 2011). Yet,

our findings shared great similarities with those of other studies conducted with migrant women from different ethnic backgrounds in other parts of Canada and the world (Berggren, Bergstrom, & Edberg, 2006; Choudhry et al., 2002; Qureshi & Pacquiao, 2013; Small et al., 2008). This strongly suggests that the knowledge gained through this qualitative study provides insights that are relevant to other groups and settings investigating pregnancy and postpartum experiences of migrant women.

5.5 Conclusion

Given the complex network of factors that influence migrant women's health during pregnancy and postpartum in a receiving country, it is of the utmost importance to support them with strong integration policies (Bollini, Pampallona, Wanner, & Kupelnick, 2009). Interventions targeting pregnant and postpartum migrant women need to address key social determinants of health, such as income, social support network and education (Gagnon et al., 2013).

Community-based organizations, such as the MCHB Cooperative, that work with Northeast African migrant pregnant and postpartum women have the potential to improve women's health by providing culturally appropriate prenatal/postnatal programs and services that foster women's social integration into their new countries, and help them build strong social networks in a timely way. Together this will assist them to be healthier themselves and support the health of their families.

CHAPTER 6: Nurturing Maternal Health in the Midst of Difficult Life Circumstances: A Qualitative Study of Women and Providers Connected to a Community-Based Perinatal Program

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6.1 Background

Women's diets, physical activity, access and receptivity to perinatal care can significantly impact maternal health and pregnancy outcomes (Barker, Barker, Fleming, & Lampl, 2013; Nash, Gilliland, Evers, Wilk, & Campbell, 2013). However, many socioecological factors affect health behaviours during pregnancy and postpartum (Paul, Graham, & Olson, 2013; Sutherns & Bourgeault, 2008; Urquia et al., 2010). Research with low-income, pregnant women suggests that they perceive multiple life "hardships" (e.g., custody issues, childcare, lack of social support, etc.) as factors that increase their stress and decrease their overall self-efficacy for healthy behaviours in relation to diet and physical activity throughout the prenatal period (Paul et al., 2013). In this study, we refer to life hardships that negatively affect women's experiences as "difficult life circumstances."

Food insecurity – defined as "inadequate or insecure access to food because of financial constraints" (Tarasuk, Mitchell, & Dachner, 2016) – commonly occurs in difficult life circumstances and is associated with nutrient deficiencies, depressive symptoms, and an experience of stress for mothers, as well as poor birth outcomes for infants (Hromi-Fiedler, Bermudez-Millan, Segura-Perez, & Perez-Escamilla, 2011; B. Laraia, Epel, & Siega-Riz, 2013; B. A. Laraia, Siega-Riz, Gundersen, & Dole, 2006). As a stress-relief mechanism or as a strategy to eat in low-cost ways, pregnant women who experience household food insecurity might consume more foods that are high in energy, fat, and refined carbohydrates (e.g., sugar) (B. Laraia et al., 2013; Paul et al., 2013). Food insecurity during pregnancy has been associated with poor dietary intake, with decreased consumption of vegetables and fruit, and lower micronutrient intake (B. Laraia et al., 2013; B. A. Laraia, Siega-Riz, & Gundersen, 2010).

In Canada, women who are coping with difficult life circumstances (low income, teen pregnancy, social and geographic isolation, substance use, family violence, and recent

immigration) and become pregnant can access programs offered through the Canada Prenatal Nutrition Program (CPNP) during pregnancy and up to six months postpartum (Public Health Agency of Canada, 2015). CPNP programs are supported by the Public Health Agency of Canada (PHAC) in conjunction with provincial/territorial governments and community-based organizations as appropriate, and focus on maternal/child nutrition and health of pregnant and postpartum women facing difficult life circumstances. Each CPNP program delivery is unique but follows six guiding principles: mothers and babies first, equity and accessibility, community-based, strengthening and supporting families, partnerships, and flexibility to appropriately respond to women's different needs in each community (Public Health Agency of Canada, 2007). Currently, there are approximately 276 CPNP programs providing support to ~51,000 women across Canada, with 21 programs in rural and urban areas of Alberta (Public Health Agency of Canada, 2015).

This study is part of a larger research program called ENRICH. The ENRICH Research Program began in 2013 with the overall purpose of promoting maternal health in pregnancy and postpartum, among diverse groups of women in Alberta, through healthy eating (Quintanilha, Mayan, Thompson, & Bell, 2016). In the study presented here, we sought to explore how difficult life circumstances shaped pregnant and postpartum women's perceptions and experiences of health. We were particularly interested in understanding how difficult life circumstances were intertwined, and were perhaps intensified because of pregnancy, postpartum, and "rurality" (p.117) (women's residence in rural Alberta) (Sutherns, 2005).

6.2 Methods

We followed the principles of community-based participatory research (CBPR) to engage pregnant and postpartum women, as well as health care and service providers who were connected with them through a CPNP program. The CBPR approach enabled researchers to develop relationships with community-based health care and service providers and involve them in identifying questions for women and appropriate methods for data generation, and in the interpretation of data (Minkler & Wallerstein, 2008).

Following CBPR principles, we used a focused ethnography methodology as it is sensitive to how culture shapes, and possibly explains, our everyday lives and health behaviours (Higginbottom, Pillay, & Boadu, 2013; Knoblauch, 2005). It is also appropriate for investigating

strategies to improve health delivery systems provided it links everyday health care issues, and interactions with health care providers, with wider cultural norms "with emphasis on context" (Higginbottom et al., 2013). In contrast to traditional ethnography, focused ethnography is more contained to a certain setting, concentrated on an issue or on a shared experience, and completed within a shorter time frame. "Culture" was defined as the shared experience of pregnancy and postpartum among women living with difficult life circumstances, and accessing a community-based program in rural Alberta.

6.2.1 Setting

We conducted the study with pregnant and postpartum women connected through the CPNP *Healthy Moms Healthy Babies* (HMHB) program (with in-kind support from Alberta Health Services) across five rural communities in Southern Alberta. Although some participants lived in bigger rural communities that were geographically close to large metropolitan areas, women described how living rurally might have shaped their experiences in pregnancy and postpartum; thus, "rurality" in our research was socially constructed by women (Sutherns, 2005).

The CPNP funding allocated to the HMHB program was used for three part-time positions and for program activities. The HMHB program setting was purposefully selected because it allowed us to work with women during pregnancy and up to six months postpartum, and facing at least two difficult life circumstances (low income, teen pregnancy, social and geographic isolation, substance use, family violence, recent immigration), which were CPNP/HMHB intake criteria (Public Health Agency of Canada, 2015).

6.2.2 Recruitment and sampling

In order to recruit HMHB providers, we attended two of their monthly meetings to discuss the aims of the research. Those who expressed interest in participating were asked to contact one of the researchers via e-mail or phone. We used purposeful sampling to identify providers who delivered HMHB services, had a good understanding of the program and clientele, and consistently met with women during pregnancy and postpartum.

One of the main HMHB program activities was *cooking circles* where providers organized a time when women cooked a meal together at a minimal cost of one dollar per serving, while having the opportunity to socialize. In a cooking circle a month prior to researchers' scheduled

visit, HMHB providers explained the overall purpose of the study, and gauged women's interest in participating. Convenience sampling was used in that all rural women who were HMHB clients were be able to discuss their health perceptions and experiences during pregnancy and postpartum while facing difficult life circumstances (Patton, 2002). Given the CBPR approach taken in the project, all HMHB clients who wanted to participate were included. Women and providers provided signed informed consent. The Research Ethics Board at the University of Alberta approved all aspects of the research.

6.2.3 Data generation

We conducted five focus groups (FGs) with women (approximately six per group, total of 28 women) across five diverse Southern Alberta rural communities. Of these women; 25 were postpartum and three were pregnant, four were immigrants (three from Southeast Asia and one from South America), and they had an average of two children. FG were conducted by one moderator (MQ), with the assistance of another researcher who took note of facial expressions and occasional side conversations. HMHB providers discussed the research with women a week prior to FGs, and because all women who regularly attended cooking circles were interested in participating, HMHB providers indicated to researchers that it would be best for FGs to take place before scheduled cooking circles. However, HMHB providers were not present during FGs so that women could feel more comfortable in discussing their experiences with the program.

FGs were an appropriate method of data generation as women who shared similar life circumstances were provided with a nonthreatening, nonjudgmental setting to discuss a range of health topics (Hennink, 2007). The FG moderator used a focus group guide to ask open-ended questions and probe women about their health perceptions, experiences in relation to health, challenges, and supports during pregnancy and postpartum. We conducted FG in all rural communities where HMHB providers held cooking circles for women. In addition, we conducted eight semi-structured one-on-one interviews with HMHB providers (e.g., public health nurses, dietitians, food coordinators, outreach workers) who worked in each of the five communities. For interviews, we used a topic guide with exploratory questions about how HMHB providers supported women (i.e., HMHB clients), and their organizational contexts. We conducted interviews until data saturation was reached (Mayan, 2009). Both FGs with women and interviews with providers were audio-recorded.

We also actively engaged with women and HMHB service providers during cooking circles, and took this opportunity for data generation through participant observation, adopting the "observer-as-participant" role (Higginbottom et al., 2013). We accumulated approximately twelve hours of participant observation in cooking circles across the communities. These observations enabled us to learn more about the interactions between women and HMHB providers, how providers responded to women's needs and/or concerns, and cultural norms that seemed to permeate women's conversations about their pregnancy and postpartum experiences. Participant observations were captured through researchers' audio-recorded debriefings after each cooking circle. These debriefings included descriptive information of cooking circle settings and activities in addition to researchers' initial reflections on data generated at each rural community visit. Researchers also kept notes on focus groups to provide additional context, and record analytic comments on participation, women's interactions, and facial expressions.

6.2.4 Data analysis

Audio recordings of focus groups, interviews and debriefings were transcribed verbatim. Data were managed using NVivo (Version 11, QSR International), and analyzed using qualitative content analysis to inductively derive categories (Hsiu-Fang & Shannon, 2005; Mayan, 2009). One researcher (MQ) was responsible for coding transcripts, and bringing emerging categories to all involved researchers for review, discussion, and verification. In this focused ethnography, the intense data generation in a short period of time lead to a large amount of data that required the all members of the research team to engage in an inductive, cyclic, iterative, self-reflective analytic process (Andreassen, Christensen, & Moller, 2019; Higginbottom et al., 2013). Later on, MQ brought emergent categories to HMHB providers for further discussion and more in-depth interpretation. HMHB clients' data were used to build the primary story. Data collected through providers' interviews and observations were key in enriching women's description and helping us understand the role of a CPNP/community-based program in their pregnancy and postpartum experiences.

6.3 Results

Our results provide a rich description of what "being healthy" during pregnancy and postpartum meant for women accessing a CPNP program, and how difficult life circumstances and

participation in the program shaped women's health experiences. Categories and sub-categories that emerged from our data are presented in Figure 6.1, and described in more detail here. Additionally, we present them in a way that shows how they can interconnect, forming a web of factors (Figure 6.2).

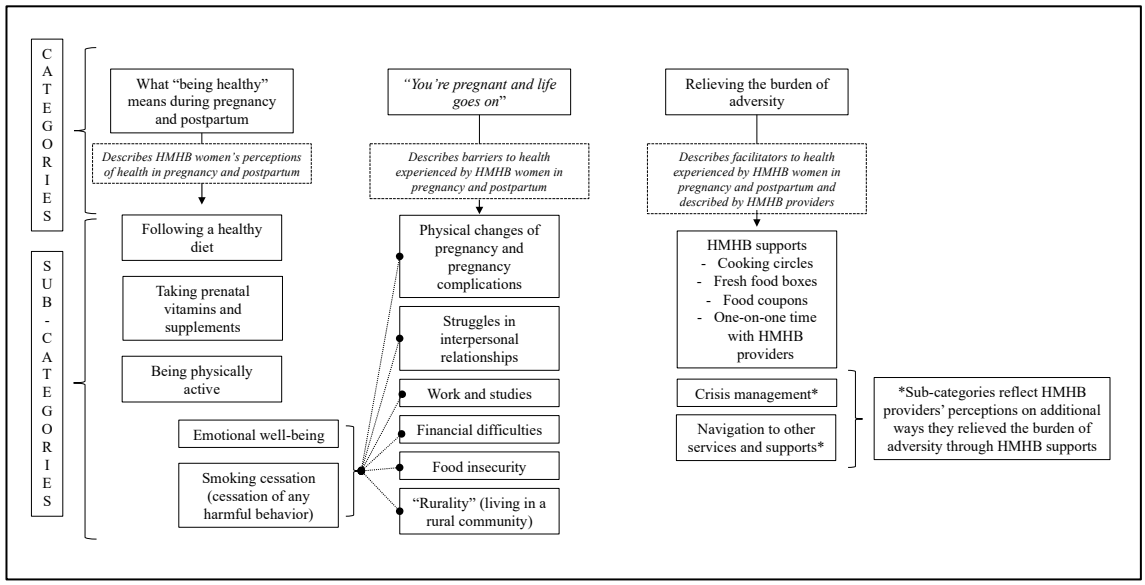

Figure 6.1 Categories and sub-categories that emerged from the data

6.3.1 What "being healthy" meant to HMHB clients during pregnancy and postpartum

Women from diverse rural communities perceived their babies' health as an extension of their own health during pregnancy, as well as postpartum. When we asked women what it meant for them to be healthy during pregnancy and postpartum, they highlighted the importance of following a healthy diet, taking prenatal vitamins and/or any supplements prescribed by their doctors, being physically active, looking after their emotional well-being, and stopping any behaviour they perceived as harmful to their babies (i.e., smoking):

> *"It's to eat so that the baby gets all the nutrients it needs to grow, like, lots of fruit, vegetables. That's what healthy meant to me. I always thought, whatever I eat, she eats so what would I feed a small child? So that's basically what I ate. I kept healthy. I was really bad before I was pregnant, like, I never cooked or anything so, yeah, I changed." (FG2, postpartum woman, mother of two)*

"It's number one to try and be as stable as possible for my son because he picks up everything and with my daughter being so young, she's a tiny little sponge. Like, she doesn't understand what we're saying or anything but she can grasp the moods in the room. If mommy's tense, she starts crying so it's very - I have to be very calm for both of them, which, for me, is very hard because I'm not that type of person to begin with." (FG1, postpartum woman, mother of two)

Description of a healthy diet varied among women and between groups. We did not probe women in each FG to provide us with a detailed definition of what a healthy diet meant for them, yet some commonly described the following: eating more fruit and vegetables; increasing intake of iron-rich foods, such as meat and dark leafy greens; increasing intake of milk and alternatives; and managing sweet cravings and sugar consumption. Despite individual struggles related to diet, women provided various examples in which they attempted to have a healthy meal or diet by balancing nutritious foods (e.g., broccoli, carrots, fish) with less nutritious foods that had a high sugar and fat content (e.g., burger, ice cream, milkshake, potato chips):

"Well if you had a craving for like a cheeseburger, you eat the cheeseburger, but then later you eat like a handful of carrots or broccoli or something just to balance it out because, I don't know, I thought, you're not getting a whole lot of vitamins out of that cheeseburger." (FG1, postpartum woman, mother of two)

Prenatal vitamins and supplements were another common nutrition-related topic women brought up when discussing their perception of health during pregnancy. They talked about brands, where to buy them, the size of the pills, and symptoms they might have experienced as a result of their daily intake. Even though some women described having difficulty in swallowing prenatal vitamins or simply disliking taking them, they still took them when they were pregnant because it was something they commonly felt they had to do out of respect for their health care providers' advice: *"I never take medication, like ever, and then when I'm pregnant, I have to suck it up and do it" (FG3, postpartum woman, mother of three).*

Being physically active was also described as a key element of being healthy during pregnancy. Women discussed how "exercising" had to be adequate for pregnancy – *"not to go overboard"* but not to *"sit on the couch all day"* – and fit into their already busy routines. Women across communities seemed unsure about adequate physical activity during pregnancy and only did what made them feel comfortable. This commonly translated into walking and maintaining

their usual household and non-sedentary work activities, including cleaning, standing for long stretches of time during their work day, and looking after older children. Women's perceptions of being physically active shifted after having a baby, as they commonly described exercise as a strategy to cope with postpartum stress and to reduce isolation.

6.3.2 *"You're pregnant and life goes on"*

This section describes barriers to women's health during pregnancy and postpartum, and how these commonly affected women's emotional well-being and increased the stress in their lives. We also show how barriers turned into entry points for HMHB providers to promote their clients' maternal health amid many social and health adversities.

Physical changes of pregnancy and the onset of pregnancy or birth complications were described as barriers to being healthy during pregnancy and postpartum. The tiredness, nausea, vomiting, and mood changes commonly experienced during pregnancy hindered women's ability to eat healthily and be physically active. It also added more stress to women's lives and further complexity to whatever situation they were already experiencing. Although becoming a mother was very important to the women, there were personal and professional factors in their lives' *"equation"* that made the physical and emotional changes of pregnancy and postpartum harder to handle.

This was particularly discussed among those who were struggling in their relationships with their boyfriend, partner, or spouse. Some women were in situations where partner/spousal abuse existed, and working through difficulties in their relationships while pregnant meant leaving the father of the baby, finding housing, fighting for custody, and ensuring their children's safety. In the following quote, a mother of two, who left an abusive partner and fought for custody during her second pregnancy, described how her experience added stress to a time in her life when she was already feeling emotional:

> *"Your hormones take over quite a bit because you get so emotional. So, I thought that was the hardest part just because of what my family life was going through and dealing with all of that at the same time was stressful. So, if things were settled and calm, I'm sure it would have been easier to deal with, but for me it was pretty hard." (FG1, postpartum woman, mother of two)*

In addition to what was happening in their personal lives, women commonly described working or studying right up until their babies were born. For women who worked in certain industries or jobs, this was a concern for their health, as their positions required strenuous work or had no benefits, but they kept their jobs because of financial needs. In fact, women who participated in the study commonly experienced not having enough money for monthly expenses, including food, which represented a significant barrier to being healthy during pregnancy and postpartum.

> *"We run a business that's not doing very well and we live on a farm. I don't have any extra help. I've got two little kids that I'm trying to raise and, you know, keep food on the table and a clean home for the family (…) I feel overwhelmed every day."* (FG4, pregnant woman, mother of two)

The stress of working and living with financial difficulties while pregnant was even greater among those who already had children compared to those having their first child, in part because they could not access affordable childcare in rural areas. Women's residence in rural communities was also described as placing an additional structural barrier to their health. Prenatal care was not offered in all rural communities, and for some women this meant having to take the day off work to drive for a few hours and to spend money on gas for frequent medical appointments (especially in their third trimester). For women in our study the apparent simple act of attending prenatal appointments could be immensely complicated by their difficult life circumstances. Moreover, the structural barrier of living in a rural area without adequate access to maternity care was exacerbated when the women experienced pregnancy or birth complications (e.g., preeclampsia, placenta previa, and birth by caesarean section) that forced them to leave their rural communities, and drive to larger centres for prenatal care and birth.

6.3.3 Relieving the burden of adversity

Notwithstanding the barriers to being healthy during pregnancy and postpartum, women across all rural communities described HMHB supports as facilitators to being healthy. HMHB supports included cooking circles, fresh food boxes (approximately 20 pounds of fruit and vegetables that were subsidized by HMHB), food coupons, and one-on-one time with HMHB providers during home visits or programming. These supports increased women's opportunities to access, and eat healthy foods during pregnancy and postpartum. The opportunity to eat healthily created through one of these supports is described below:

"The fresh food boxes are really helpful because food is just so expensive now; you don't get the opportunity to buy as much healthy food as you would prefer to buy because you just can't afford it. So, that's really helpful, I find." (FG4, pregnant woman, mother of two)

Women's appreciation for the healthy foods offered through HMHB supports was evident in focus groups. Although these food supports did not address the social inequities underlying their lack of sufficient income, they operated as a gateway for social support from HMHB providers. Food supports opened a door into women's lives, enabling HMHB providers to build meaningful relationships with the women and support them in ways they needed. In the following, a postpartum woman described how a HMHB provider helped her when she felt she was not able to complete what seemed to be a simple task of applying online for employment insurance (EI):

"[Provider name] came to my house to set up my EI for me because my baby was already two weeks old and I wasn't doing anything. So she came to my house and got me going on that, I didn't have to go anywhere." (FG3, postpartum woman, mother of one)

We also observed the importance of social support during cooking circles as we embraced the role of observer-as-participant in all of them, and heard from a postpartum woman that HMHB providers had become her "family" since her enrollment in the program. In a FG, another participant added how HMHB providers were always available and willing to help her:

"If there were questions I had on about absolutely anything, I could ask them [HMHB providers]. They were more than willing to help me find the answer and provide me with resources to find it myself which was very helpful in certain cases." (FG3, postpartum woman, mother of three)

HMHB providers seemed proud of what was offered to the women in rural communities through cooking circles and fresh food boxes in terms of nutrition and skill building. Nonetheless, our interviews with them elucidated two additional pivotal ways in which HMHB as a community-based program supported rural women in the pre- and post-natal periods: crisis management and navigation to other services and supports.

HMHB providers described how women commonly used the safe space of cooking circles to share their struggles with spousal relationships, parenting, and financial resources. In such instances, the social and emotional support provided through cooking circles became central and

could turn into what providers described as crisis management. In crisis circumstances, food cooked together or ordered through fresh food boxes became the entryway for HMHB providers to approach women, schedule home visits, schedule appointments for women with additional social and health services, and explore many issues they were facing in a non-threatening way:

> *"I think honestly listening is just one of the biggest things because a lot of them - and I think to try not to judge, really, because everybody has their own story and everybody has their own reasons for where they are and how they came to that. And I just try to let them feel comfortable that that doesn't matter, that I'm here for them for right now. Their past is of course important and it's been a part of their life but it's not what we're dealing with right now I guess." (HMHB outreach worker)*

By focusing on women's needs, providers could support women, and when needed, foster desired changes in their lives. This was mostly accomplished by connecting women to housing services for low income families, local food banks and programs providing women with support beyond 6 months postpartum (when they could no longer access HMHB activities and services), and governmental benefit programs. HMHB providers noted another main role they had was to help women navigate, and access other types of services and supports available for rural communities. All providers identified "referring" clients to other programs or health care providers as part of their work. This was in part possible because HMHB providers had many years of experience and great familiarity with local community stakeholders and social enterprises, as described by the outreach worker: *"I'm kind of the person that has all that knowledge in my head and passes it along."*

Despite the significance of the navigation to other services and supports, HMHB providers commonly described they did not have enough time to provide health education for each client, which they perceived as a failure in terms of health promotion. Contrary to providers' perceptions, it was clear through the women's descriptions of the program and our own observations that providers' grassroots approach to practice provided much needed supports to women, with the potential of promoting their health in meaningful ways.

HMHB providers offered supports to pregnant and postpartum rural women in a way that was respectful and kept women's well-being at the centre of the conversation. Overall, thinking of a web of factors shaping rural women's experiences during pregnancy and postpartum, we can

imagine an intricate spider web where women are placed in the centre. While the inner threads represent the many factors shaping women's lives and experiences, the very outer thread represents women's perceptions of health (emotional well-being, being physically active, smoking cessation, eating healthily, and taking prenatal vitamins). In order to get to the outer thread, women have to navigate the other inner threads. This is illustrated in Figure 6.2 where we captured factors that shaped rural women's experiences during pregnancy and postpartum.

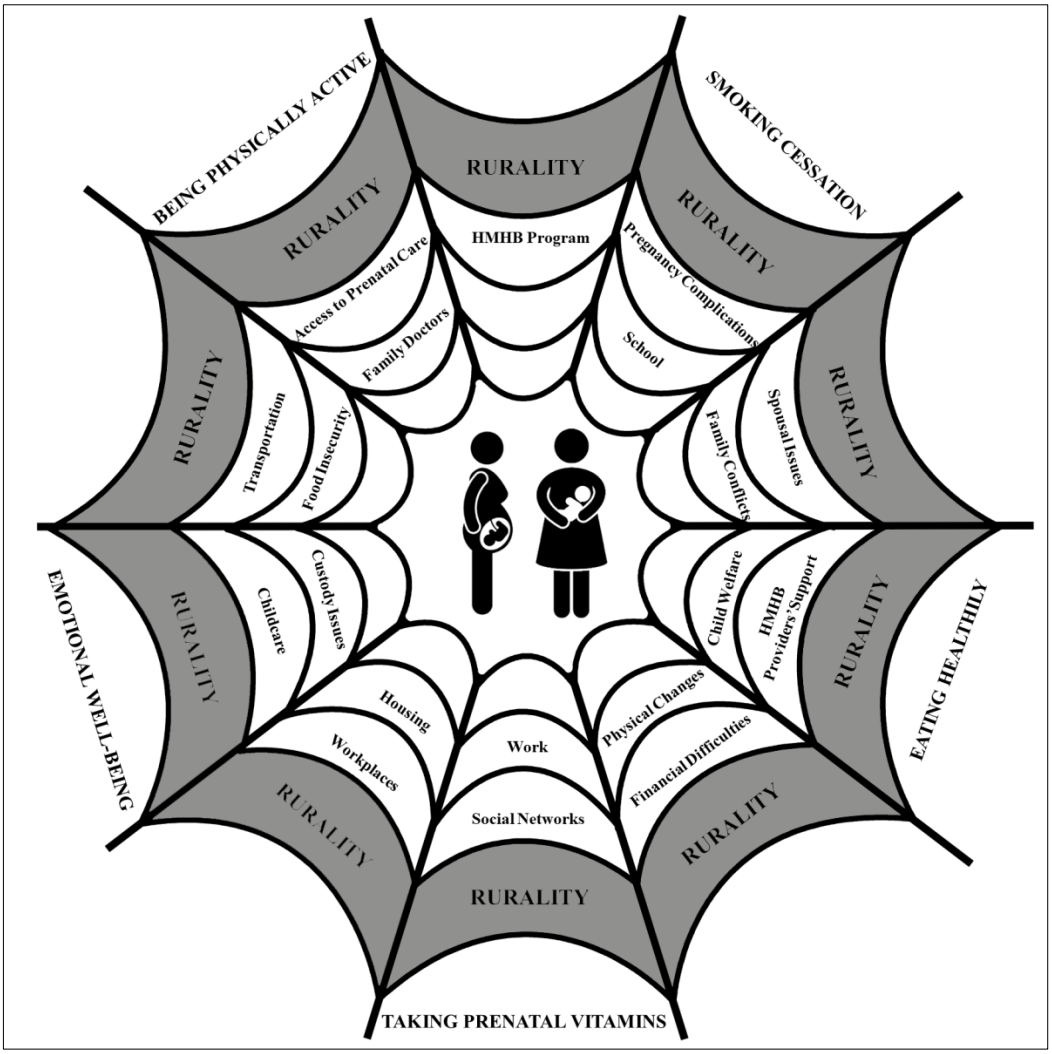

Figure 6.2 The web of factors shaping women's experiences in pregnancy and postpartum

6.4 Discussion

The perceptions of health among pregnant and postpartum women across rural communities encompassed an overall understanding of health behaviours that contribute to being

healthy in pregnancy. In our study, women's perceptions of a healthy diet reflected key nutrition messages pregnant and postpartum women in Alberta might receive through printed resources or public health programs based on a set of books entitled "Healthy Parents Healthy Children" (Alberta Health Services, 2013).

Pregnancy has been widely regarded as a "teachable moment" in which women are more likely to engage in healthy behaviours due to increased perceptions of personal risk and outcome expectancies for themselves and their babies, strong affective and emotional responses, and redefined self-concept and social roles (Atkinson, Shaw, & French, 2016; Olander, Darwin, Atkinson, Smith, & Gardner, 2016; Phelan, 2010). However, framing pregnancy as a "teachable moment" places more emphasis on women's motivation to change lifestyle choices and health behaviours rather than on their experiences in the midst of many difficult life circumstances. As Olander and colleagues (2016) propose, we need to look at pregnancy "beyond a teachable moment" and try to better understand how women's capabilities (e.g., being able to manage nausea and tiredness) and opportunities (e.g., being able to access and afford healthy foods) shape their health behaviours throughout pregnancy and postpartum (Olander et al., 2016). For women in our study, pregnancy was perceived as a "cue to action" with many factors acting as barriers to action (Geller, 2004; Lawson & Flocke, 2009). These women's health experiences were a result of what Veenstra and Burnett (2016) describe as "codependent dynamic between agency and structure" (p. 210) where women tried to be agents of their own health but coped with structures posed by difficult life circumstances happening parallel to their pregnancy and postpartum (Veenstra & Burnett, 2016).

Living in a rural area represented a structural barrier for some women. Studies in North America and Australia have noted that women who live in rural areas face additional challenges in accessing health services during pregnancy and postpartum with great focus on women's geographic location and transportation issues (Gjesfjeld & Jung, 2011; Goodwin, 1999; Hoang, Le, & Ogden, 2014; Miller et al., 2012; Sutherns, 2005; Sutherns & Bourgeault, 2008). In our study, the central issue of "rurality" was that it was overlaid by other difficult life circumstances during pregnancy and postpartum, and commonly aggravated women's limited financial resources because of the need to take time off work and to spend money on transportation to attend prenatal appointments.

The Society of Obstetricians and Gynecologists of Canada (SOGC) noted in a joint position paper on "Rural Maternity Care" that in instances in which women need to leave their community for birth, they "should be supported both financially and emotionally" (Miller et al., 2012). This was not the case among women who participated in our study as there were no additional financial supports to offset the cost and emotional burden of traveling for maternity care (Miller et al., 2012). The delivery of HMHB as a CPNP program in rural Alberta, however, enabled providers to facilitate the women's health in pregnancy and postpartum. Yet, HMHB health care and service providers perceived their lack of time to provide health education for each client as a failure to do preventive health promotion. This perception might be a result of what Raphael (2016) describes as society's limited understanding of the real, practical implications of the social determinants health in someone's lived experience as we tend to think of people in adverse living conditions as being at a greater risk for engaging in unhealthy lifestyle behaviours (Raphael, 2016). Moreover, HMHB health care and service providers regularly received lifestyle messaging by the provincial health authority and media, which could influence providers' perception of duty to cover health education in their programming, and in one-on-one time with clients.

Some of the successes of HMHB we found in this study were also described in the 10-year evaluation of CPNP, which emphasized the role of food "in drawing the community together and in creating a safe space" (Public Health Agency of Canada, 2007). We observed the drawing together in a safe space during cooking circles, and health care and service providers noted that social and emotional supports were key aspects of the program. With this approach, HMHB had a greater potential in positively affecting women's lives by nurturing the changes women desired for themselves and their babies. Other programs delivered through community health settings using a group model for prenatal care have also shown various benefits and improved health outcomes for women, including better mental health, satisfaction with care, and parental knowledge (Kania-Richmond et al., 2017).

This study followed rigorous principles of qualitative inquiry and provided a thorough description of rural women's health experiences in light of their difficult life circumstances. However, some limitations must be noted. We had a relatively small, sample of 28 women and 8 providers connected to a community-based program in rural Alberta. This might pose a limitation to generalizability of findings; however, our findings can still provide valuable insights to programs and providers working with groups of women facing similar life circumstances in

comparable contexts. In addition, we did not collect any demographic information that would allow us to analyze data in relation to women's income or life circumstances. The limited data on the women's characteristics were collected through researchers' observations, which could represent a challenge to the validity of these data.

6.5 Conclusions

Women's perceptions of health, and examples of how they tried to be healthier, showed they wanted to do best for their and baby's health but faced numerous difficult life circumstances during pregnancy and postpartum. Despite existing challenges, programs, such as HMHB, can have a critical role in helping women to mediate some of these difficult circumstances. Women who participated in the program received much needed additional health and social support from providers who understood their life contexts in a non-judgemental way. When community-based programs show such potential to alleviate some of the women's burdens in coping with difficult life circumstances, they should be well supported through policies and expanded to other locations to increase reach. Indeed, policies that support community-based programs in rural communities, and ensure adequate funding, can enable more equitable services to rural women, and truly promote maternal health during pregnancy and postpartum.

CHAPTER 7: Prevalence and Experiences of Food Insecurity Among Immigrant Women Connected to Perinatal Programs at a Community-Based Organization in Edmonton, Canada

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7.1 Introduction

Evidence consistently shows that lower socioeconomic status is negatively associated with aspects of a healthy pregnancy, including women's ability to access and consume healthy foods, and meet gestational weight gain guidelines (Hromi-Fiedler, Bermudez-Millan, Segura-Perez, & Perez-Escamilla, 2011; Laraia, Siega-Riz, & Gundersen, 2010; Olson, 2010). Moreover, the increased nutrient and caloric demands of pregnancy put pregnant women of low socioeconomic status at a higher risk of food insecurity (Laraia, Siega-Riz, Gundersen, & Dole, 2006), defined as "inadequate or insecure access to food because of financial constraints" (Tarasuk, Mitchell, & Dachner, 2016).

Household food insecurity is a significant public health issue in Canada (Tarasuk, Li, Mitchell, & Dachner, 2018), with 12.6% of households experiencing some degree of food insecurity. As such, it is estimated that food insecurity affects four million individuals, and one in six children (Tarasuk, Mitchell, & Dachner, 2014). The prevalence of household food insecurity is greater (19.6%) among families that recently immigrated (< 5 years) to Canada compared to the national average (12.6%), revealing that households of recent immigrants are more likely to experience food insecurity (Tarasuk et al., 2014). However, when PROOF (the Food Insecurity Policy Research team based at the University of Toronto, Canada), examined the association between recent immigration and food insecurity, they found that recent immigration status did not remain independently associated with food insecurity once the analysis was adjusted for covariates such as income, education, household composition and home ownership (PROOF, 2017). This indicates that similarly to households of Canadian-born individuals, immigrants with low income who rent their dwellings and are lone parents of young children are at greater risk of food insecurity (PROOF, 2017). Yet, studies on household food insecurity conducted with immigrant and refugee families in their language of preference, rather than English or French, show significantly higher

rates of household food insecurity. A study conducted with children (3-13 years) of recent (<5 years) immigrant and refugee families in Saskatchewan, Canada, indicated that 50% of families' households experienced food insecurity, and 41% of children were food insecure (Lane, Nisbet, & Vatanparast, 2019).

Between 2011 and 2016, Canada received 1,212,080 immigrants, including economic immigrants, immigrants sponsored by family, and refugees (hereafter called immigrants unless specific facts and categories are being discussed) (Statistics Canada, 2017b). Of those, nearly half were women of childbearing age who might experience pregnancy and childbirth in Canada while being at an increased risk for food insecurity. During the same period, the province of Alberta received approximately 208 thousand immigrants (Statistics Canada, 2017b), and almost 40% of them settled in the Edmonton Metropolitan Area (Statistics Canada, 2017c). Many immigrant women (including those with refugee status) might have received additional support to help them settle and integrate into life in Canada from Community-Based Organizations (CBOs).

A previous study we conducted within a CBO in Edmonton that provides additional support to immigrant women during pregnancy and postpartum suggested that Northeast African women struggled with the high cost of healthy foods in Canada (Quintanilha, Mayan, Thompson, & Bell, 2016). Yet, to our knowledge, no community data is available on the prevalence and experiences of food insecurity among pregnant and postpartum, immigrant women linked to CBOs in Edmonton. The objectives of this study were: 1) to investigate the prevalence of household food insecurity among women connected to perinatal programs within one CBO and their families, and 2) to explore the experiences of women coping with food insecurity using a mixed methods research design.

7.2 Methods

7.2.1 Research approach

We used a Community-Based Participatory Research (CBPR) approach to engage health workers who were connected to immigrant women and families through the Multicultural Health Brokers (MCHB) Cooperative in Edmonton. The MCHB is an independently run health worker *(i.e., health broker)* cooperative that provides perinatal services and supports to at-risk immigrant women and families, including economic immigrants, refugees and refugee claimants in difficult life circumstances. The MCHB offers clients strategic services related to housing, food security,

and education (e.g., language training for women) (Torres, Spitzer, Labonte, Amaratunga, & Andrew, 2013).

The principles of CBPR guided this study, with health brokers deciding on the most appropriate ways to create an exchange among themselves, the researchers, and participants, as well as actively participating in the planning and implementation of quantitative and qualitative data collection strategies. As researchers, we sought consistency with ethical principles of all health brokers and women involved throughout the research process, as to ensure respectful data generation that truly reflected participants' realities (Edwards, Lund, & Gibson, 2008).

7.2.2 Research design

We used an exploratory sequential Mixed Method Research (MMR) design (Creswell & Plano Clark, 2011). MMR is defined as "research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study" (p. 4) (Tashakkori & Creswell, 2007). The exploratory sequential MMR design meant that quantitative surveys were administered and analyzed, and followed up by qualitative interviews that were aimed at explaining, elaborating and illustrating quantitative data (Creswell & Plano Clark, 2011). Quantitative and qualitative results were mixed and interpreted together in the discussion of findings.

7.2.3 Quantitative phase

We used the Household Food Security Survey Module (HFSSM) from the Canadian Community Health Survey (CCHS) to assess food insecurity in a convenience sample of women connected to the MCHB perinatal programs in the fall of 2016. The HFSSM consists of 18 questions that monitor households' experiences of food insecurity over the previous 12 months (Tarasuk et al., 2016). The questions in the HFSSM focus on "self-reports of uncertain, insufficient or inadequate food access, availability and utilization due to limited financial resources, and the compromised eating patterns and food consumption that may result" (Government of Canada, 2012), while distinguishing the experiences of food insecurity of adults from those of children in the household (Tarasuk et al., 2016). In the HFSSM survey, possible responses in relation to the experiences of adults or children are often true, sometimes true, never true, and do not know/refuse to answer. Some of these questions are followed by sub-questions that specifically examine the

frequency of shortages and disruptions in food consumption. In the United States, food insecurity is monitored using the same questionnaire but the classification of households' food insecurity status and terminology differs from what is used in Canada (Tarasuk et al., 2016).

We introduced the HFSSM questionnaire during a health brokers' monthly meeting, and explained the purpose of investigating food insecurity among women. We emphasized the sensitivity of some of the questions that would be asked about individuals' households, and worked with health brokers to define terms that could be confusing to their clients (e.g., balanced meals were defined as healthy meals that included a variety of foods). Health brokers who felt they had the time to administer the questionnaire with women connected to perinatal programs in their respective communities over the following four weeks were provided with printed questionnaires. Health brokers discussed the study with their clients in a setting that the brokers perceived as appropriate (e.g., during home visits or before/after prenatal classes), obtained informed consent, and invited women to complete the questionnaire.

The HFSSM was conducted in women's mother tongue. Women's personal information and demographics were not collected. Many of the women were involved with child protective services, and the health brokers were not comfortable recording information that would enable their clients' identification. However, we were able to record women's country/region of origin based on the ethnic background of the health broker that administered their questionnaire.

Responses to the HFSSM were recorded on paper questionnaires, transferred to Research Electronic Data Capture (REDCap), and analyzed using STATA (Version14, StataCorp LP). Based on the number of positive responses (i.e., yes or often true/sometimes true) to the 18 questions in the HFSSM, households were classified as being food secure or marginally, moderately or severely food insecure (Table 7.1). Whereas food secure households have no indication of any income-related problems of access to food, severe food insecure households have extensive compromises in adults and/or children's eating patterns (Tarasuk et al., 2016).

The proportion of families who reported being food secure, having marginal food insecurity, moderate food insecurity or severe food insecurity was determined in the whole group, and also categorized by whether the families did or did not have children. Because we did not collect any demographic information, we relied on the HFSSM's answers to determine the number of households that had children under the age of 18. The proportion of families responding affirmatively to each of the items on the HFSSM were also explored. Finally, differences in food

security status by women and their families' country/region of origin (as classified by Citizenship and Immigration Canada – e.g., Africa and Middle East vs. Asia and Pacific) (Citizenship and Immigration Canada, 2014) were assessed using Fishers exact test, as some categories contained fewer than five observations. A p value <0.05 was considered statistically significant.

Table 7.1 Food security status based on the HFSSM questionnaire*

Food security status	**Interpretation**	**10 item adult food security scale**	**8 item child food security scale**
Food secure	No report of income-related problems of food access	No items affirmed	No items affirmed
Marginal food insecurity	Some indication of worry or an income-related barrier to adequate, secure food access	Affirmed no more than 1 item on either scale (or one item in either scale affirmed)	
Moderate food insecurity	Compromise in quality and/or quantity of food consumed by adults and/or children due to a lack of money for food	2 to 5 positive responses	2 to 4 positive responses
Severe food insecurity	Disrupted eating patterns and food intake among adults and/or children	6 or more positive responses	5 or more positive responses

* Adapted from Appendix B of the Household Food Security in Canada, 2014 (Tarasuk et al., 2016)

7.2.4 Qualitative phase

The results from quantitative phase guided purposeful sampling during the qualitative phase of the study. We had learned that women from Africa and the Middle East were more likely to experience food insecurity than those from other regions in the world; therefore, we approached health brokers from African communities who had previously worked with us (Quintanilha, Mayan, Thompson, Bell, & The ENRICH Study Team, 2015), and invited them to collaborate in conducting semi-structured interviews with women in their communities. We explained to health brokers that our main purpose was to explore pregnant and postpartum women's experiences with food insecurity. The health broker representing the Somali community expressed interest in participating after discussing the study with women in her program. We conducted interviews with a sample of Somali women who the health broker identified as experiencing food insecurity. These

interviews were conducted four months after the HFSSM questionnaires were administered, and although some women could have participated in the quantitative phase we did not establish any inclusion/exclusion criteria in relation to their previous involvement.

The interviews were conducted after family classes (when childcare was provided) hosted at the MCHB Cooperative on the weekends. An English-speaker researcher (MQ) moderated the interview, and the health broker carried out real-time interpretation. Most Somali women (13 out of 17) requested not to have their interviews audio recorded; and, as a result, the researcher took notes as the health broker interpreted participants' answers. The researcher debriefed with the Somali health broker after interviews to clarify women's answers. The first few interview questions investigated women's sociodemographic and household characteristics, including country of birth, refugee status, number of years living in Canada, number of children and adults in the household, and source of income. The remaining questions were aimed at exploring women's perceptions of the foods available in their homes in terms of quantity, quality, and representation of their cultural heritage. Additionally, we explored women's sense of control over what was available to and consumed by their families, and ended the interviews with a question about what women believed could be in place to help them have access to the foods they need/want.

Interview notes were typed into word documents, whereas recorded interviews (n=4) were transcribed verbatim. All interview data were organized in NVivo (Version 11, QSR International), and analyzed using qualitative content analysis to inductively derive codes and categories (Elo & Kyngas, 2007; Hsiu-Fang & Shannon, 2005). One researcher (MQ) was responsible for coding transcripts, and bringing emerging categories to all involved researchers for review, discussion, and verification.

7.2.5 Ethics

This study received the University of Alberta Research Ethics Board approval. Consent to participate in the quantitative phase of this study was given by participants to health brokers orally, and confirmed with their overt participation by responding to the questionnaire. For the qualitative phase, due to the language barriers between researchers and participants, interpreters were asked to explain the purpose of the research at the beginning of each interview, and reiterate with women that participation was voluntary. Participants provided oral consent prior to engaging with the researcher in qualitative semi-structured interviews.

7.3 Results

7.3.1 Quantitative phase

A sample of 217 women completed the HFSSM; four incomplete questionnaires were excluded and 213 were analyzed to determine food security status. Ninety-four percent of households included children (n=201). In addition, 94% of women reported some level of food insecurity and 53% were severely food insecure (Table 7.2).

Table 7.2 Household food security status for all households (n=213), households with children under 18 years of age (n=201) and households with no children (n=12)

Food security status	**All households (N=213)**	**Households with children under 18 years (N=201)**	**Households with no children (N=12)**
	n (%)	**n (%)**	**n (%)**
Food secure	14 (6)	10 (5)	4 (33)
Marginal food insecurity	6 (3)	4 (2)	2 (17)
Moderate food insecurity	81 (38)	76 (38)	5 (42)
Severe food insecurity	112 (53)	111 (55)	1 (8)

Table 7.3 shows the proportion of women who answered affirmatively for each item on the HFSSM questionnaire. In the past year 85% of women reported households' members did not have enough money to eat balanced meals, 43% (n=91) of adults cut meal sizes or skipped meals because there was not enough money for food, and 31% (n=62) of children did not eat for a whole day because there wasn't enough money for food (Table 7.3).

Household food security status according to families' country/region of origin is presented in Table 7.4. A significantly greater proportion of households from Africa and the Middle East reporting being severely food insecurity compared with households from other continents and regions of the world ($p<0.001$). In contrast, a greater proportion of those from Asia and Pacific reported being food secure compared with households from other continents and regions of the world. This significance remained following the exclusion of households of South and Central America origin.

Table 7.3 Number and proportion (%) of households that reported experiencing income-related problems of access to food in the past 12 months

In the past 12 months, of all 213 households:	
Adult food security scale items	**n (%)**
Worried food would run out before the end of the month	182 (85)
Ran out of food and had no money to buy more	173 (81)
Could not afford balanced meals	182 (85)
Adults cut the size or skipped meals (Yes/No)	91 (43)
Adults cut the size or skipped meals almost every month or some months (Frequency)	75 (82)
Ate less than felt should because there was not enough money to buy food	104 (49)
Was hungry but could not afford food to eat	87 (41)
Lost weight because no money to buy food	73 (34)
Adults did not eat for a whole day because there was not enough money to buy food (Yes/No)	68 (32)
Adults did not eat for a whole day almost every month or some months (Frequency)	48 (53)
In the past 12 months, of 201 households with children under 18 years:	
Child food security scale items	**n (%)**
Relied on a few low cost foods to feed children	165 (82)
Could not afford to feed children a balanced meal	166 (83)
Children were not eating enough because could not afford enough food	137 (68)
Adults cut the size of any of the children's meals because they could not afford to buy more food	79 (39)
Children ever skipped meals because there was not enough money for food (Yes/No)	74 (37)
Children skipped meals almost every month or some months (Frequency)	68 (34)
Children were hungry but could not afford more food	79 (39)
Children did not eat for a whole day because there was not enough money for food	62 (31)

Table 7.4 Household food security status by world region of origin for women and their families

Region of Family origin	Food security status			
	Food Secure	Marginal food insecurity	Moderate food insecurity	Severe food insecurity
	n (%)			
Africa and Middle East (n=118)	0	1 (1)	46 (39)	71 (60)*
Asia and Pacific (n=60)	11 (18)	5 (9)	20 (33)	24 (40)
Europe and UK (n=25)	3 (12)	0	13 (52)	9 (36)
South and Central America (n=2)	0	0	0	2 (100)

*p<0.001

7.3.2 Qualitative phase

We interviewed 17 Somali women about their experiences of food insecurity. All women had refugee status upon moving to Canada, had been living in Canada for an average of six years (between 6 months and 12 years) and were either permanent residents of Canada (n=12, 71%) or Canadian citizens (n=5, 29%) at the time of interviews. Information about women's households is presented in Table 7.5.

Using qualitative content analysis, we identified three main categories in women's description of their experiences in coping with food insecurity in their households: 1) maybe food in acceptable quantity but not quality; 2) sense of control; 3) vision for a food secure future.

Maybe food in acceptable quantity but not quality

Somali women commonly described not having enough money to buy sufficient amounts of food throughout the month. They described various strategies to "stretch" the food available as much as possible in a month, including decreasing size and frequency of meals. Although some participants did not describe issues with quantity of foods available in their homes, all of them

described not being able to afford the diet quality they wanted. The quote below exemplifies some of the factors women considered when thinking about food for themselves and their families:

"You have to think about what you are eating and what you are buying because you only have a certain amount [of money]. You're always thinking what you are going to do and how you are going to do it." (Somali woman, mother of 7)

Compromises in quality commonly meant not having enough money to buy meat, vegetables and fruit. Somali women described rice, bread and pasta as the main foods they could afford, *"Food might be available every day but may not be the best quality" (Somali woman, mother of 3).*

Table 7.5 Household characteristics of interviewed Somali women (n=17)

Household characteristics	**n (%)**
Number of adults in the household	
Lone-parent households (mother only)	6 (35)
Two or more adults in the household	11 (65)
Number of children in the household	
0-3 children	9 (53)
4-6 children	5 (29)
7 or more children	3 (18)
Income source	
Employment (at least one adult in the household)	7 (41)
Social assistance	10 (59)

The issues with quantity and quality of foods available in women's households were stressful for participants who commonly reminisced about the fact that "back home" (i.e., Somalia) they had less money than "here" (i.e., in Canada) yet struggled less to make ends meet:

"I'm happy with what I have here [in Canada] because I have no alternative. This country is safe and that's why I came here. But at the same time when you compare with Somalia the problems are so different. There I could have lots of things but it wasn't safe, here it's safe but everything I need costs a lot of money." (Somali woman, mother of 7)

Comments about stress and contrasts between "back home" and "here" allowed us to explore women's sense of control over their food and lives.

Sense of control

We found that food insecurity had profound effects on women's sense of control as individuals and as mothers. Participants expressed a lack of control over foods they ate and offered to their families, and linked this to their stress, *"I don't feel I have much control due to my income. It's not easy. I feel I have been stressed for the past six months*" (Somali woman, mother of 2). As individuals, participants struggled with the fact they did not have enough money to buy the foods that represented their cultural identity, and were commonly prepared "back home." As examples, they mentioned their inability to buy Halal meat, and African ingredients that were sold locally at specialty shops. In addition, Somali women expressed frustration and sadness for not being able to help family members who were struggling "back home". This was especially difficult given that their families "back home" believed they had the finances to help because they were living in Canada. This made participants feel powerless, and with a sense of unfulfilled obligation towards their extended family.

As mothers, low sense of control overlapped with women's negative perceptions of the quality of their families' diets. Women commonly described not feeling in control over their children's diets because they could not afford the foods they perceived as best for them, *"Sometimes as a mother I worry about what food I am feeding my children and if it will have an impact on their health" (Somali woman, mother of 4)*. The fact that 16 of our 17 participants already had at least one child in their household made their insights into food insecurity commonly reflect dreams and hopes for their whole family (adults and children). They shared with us things they believed that could improve their income, and likely make them food secure.

Vision for a food secure future

When we asked Somali women what had helped or could help them to eat better and to have the foods they wanted/needed at home, they commonly shared their vision for a future where money would not prevent them from affording the foods they wanted for their families. Women's vision for a food secure future included education for them and their children, employment opportunities for them and their spouses and, for those already employed, higher earnings, *"I would like to have a job that pays well enough for me to afford the life that my kids and I would like to have" (Somali woman, mother of 4).*

It is worth noting that even though we probed for community programs that provided food aid to families in need (e.g., food banks, community kitchens), women did not elaborate on how these could help them. Many women acknowledged they had been able to access them in the past, and were grateful for that, but perceived better income as the main answer to a food secure future. As such, their visions for a food secure future really reflected dreams for their lives in Canada, including getting an education, following certain career paths (e.g., social work and nursing) or opening their own business (e.g., Somali sweet shop), as exemplified in the following quote:

> *"I would like to have a good life, to finish my education and to get a job. I want to be educated and my children to get good education too so that they can be independent in the future." (Somali woman, mother of 3)*

7.4 Discussion

This study investigated the prevalence and experiences of household food insecurity among immigrant women and families connected to a CBO that supports them in Edmonton, Canada. Through the HFSSM administered in the quantitative phase we found staggering rates of severe food insecurity (53%) in our sample of 213 households. Yet, it was the data collected in the qualitative phase that added subtleties of what coping with food insecurity meant for Somali women and their families.

We found an overall prevalence of 94% of any food insecurity, a rate that was considerably higher than the 19.6% rate for recent immigrants (<5 years) found in the CCHS data (Tarasuk et al., 2014). Possible reasons for the discrepancies between our study and the CCHS reports include the fact that the CCHS data is representative of the Canadian population, whereas our data was collected with a relatively small convenience sample of 213 households connected to a CBO in Edmonton. In addition, the CBO, the MCHB, supports at-risk immigrant women who might be living with low income, feeling socially isolated or coping with stressors such as mental health issues, family violence or addictions among family members. These factors put women's households at a greater risk for food insecurity (Laraia et al., 2006; Power, Uphoff, Kelly, & Pickett, 2017).

Moreover, the HFSSM was administered through CCHS in Canada's official languages (English and French) which potentially excluded vulnerable immigrant groups from the national data (Vahabi, Damba, Rocha, & Montoya, 2011). Refugees, in particular, commonly struggle with

education and literacy as many of them spend a considerable amount of time in refugee camps where educational opportunities are rare (Henderson, Epp-Koop, & Slater, 2017). An examination of food insecurity among recent Latin American immigrants residing in Toronto found that 56% of their sample were food insecure despite participants' high educational level (Vahabi et al., 2011). Interestingly, in the same sample, Vahabi and colleagues (2011) found that the "ability to converse in English" was a significant predictor of household food insecurity with those who reported good/excellent English being more likely to be food secure (Vahabi et al., 2011). Because we did not collect any personal information and demographic data in the quantitative phase of our study, we could not investigate any associations between food insecurity levels in our sample and variables such as length of stay in Canada, English fluency, immigration category (economic immigrants vs. refugees), household composition, income source, etc.

For the qualitative phase, we tried to recruit women that were from Africa or the Middle East, as a greater proportion reported severe household food insecurity in the quantitative phase. We cannot infer any possible explanations for this finding but it is possible that African and Middle Eastern women who responded to the HFSSM were more likely to be recent refugees given that Africa and the Middle East were the top regions of birth of refugees who arrived in Canada between 2011-2016 (Statistics Canada, 2017a). In addition, refugees, especially women, might arrive in Canada in poorer health, without educational and language training, and having experienced significant trauma; therefore, they could be at a higher risk for an array of social and health issues (Gagnon et al., 2009; Hadley, Patil, & Nahayo, 2010; Merry, Gagnon, Kalim, & Bouris, 2011; Newbold, 2009; Small et al., 2008). All Somali women interviewed in this study had refugee status upon moving to Canada. Refugees' low education, literacy, and poor English skills represented factors linked to household food insecurity in other studies conducted with refugees who have resettled in the United States or Canada (Hadley et al., 2010; Henderson et al., 2017).

Further, a large proportion of Somali women who were interviewed in the qualitative phase were lone parents (35%) and had more than 3 children younger than 18 years of age (47%), which are factors that also make them more vulnerable to household food insecurity (Alberta Health Services, 2017). Somali women and their children are susceptible to various poorer health outcomes associated with household food insecurity (Alberta Health Services, 2017; Tarasuk et al., 2016). In particular, among pregnant women, food insecurity is associated with nutrient

deficiencies and depressive symptoms among mothers, and poor birth outcomes for infants (Hromi-Fiedler et al., 2011; Laraia et al., 2006).

Although we did not ask women about depressive symptoms, we found that they perceived their low sense of control as stressful. In both quantitative and qualitative phases of our study, women reported compromises in the quality of their families' diets because they could not afford "balanced meals" in the past 12 months. Somali women reported that often they could not buy vegetables, fruit and meat; a finding that was consistent with studies with other immigrant groups, and during pregnancy (Hromi-Fiedler, Bermudez-Millan, Segura-Perez, & Perez-Escamilla, 2012; Rush, Ng, Irwin, Stitt, & He, 2007). The fact that women interviewed in our study could not afford the foods they wanted meant even more than stressful compromises in diet quality. They also felt a loss of cultural identity because foods that had cultural and religious meaning to them were too expensive in Canada. It is important to recognize that for immigrant women whose family role is primarily constructed around food and the kitchen table, food insecurity might also mean loss of power, agency and identity (Page-Reeves, 2014).

Our study had many limitations related to the administration of the HFSSM among a vulnerable group of immigrant women. Yet, it is one of few that have investigated food insecurity among immigrants, and especially refugees, in Canada. The lack of demographic data is a significant limitation of our study, and something we tried to compensate for by conducting qualitative interviews that included a few questions about women's demographics and household characteristics.

Moreover, in following the principles of CBPR, we asked health brokers to administer the HFSSM in women's mother tongues rather than in Canada's official languages, and to include any of their clients who were interested in participating. Although this decision was made in an effort to balance ethical validity and data validity (Edwards et al., 2008), it posed threats to the external validity of data collected through the HFSSM. To optimize data validity and reliability, we read and discussed every question in the HFSSM with health brokers prior to them going through the questionnaire with any women. If health brokers had any questions about terms or phrases, we tried to use definitions that had already been reported in other documents and validation studies (Hromi-Fiedler, Bermudez-Millan, Segura-Perez, Damio, & Perez-Escamilla, 2009; Tarasuk, 2001).

7.5 Conclusions

Strong evidence is available in Canada showing the link between low income and food insecurity (Dietitians of Canada, 2016; Tarasuk et al., 2018; Tarasuk et al., 2014, 2016). Therefore, economic policies are needed to offer income protection and additional social assistance for immigrant women who might be engaged in low-wage jobs and simultaneously caring for young children. Furthermore, we believe there needs to be governmental commitment to include immigrants, and a representative sample of refugees, in all cycles of CCHS (Dietitians of Canada, 2016). This represents an essential step in increasing policy advocacy, and effective programming aimed at improving the health outcomes of immigrants.

Given the complex network of factors that influence immigrant women's health in a receiving country, health services need to assess food insecurity among immigrants, especially among women in the perinatal period who might have symptoms of depression causing or being caused by food insecurity. Improving immigrant women's diets in pregnancy and postpartum will require addressing migration as a determinant of health. It is of utmost importance to support refugees with strong integration policies that not only promote diversity and multiculturalism but, also, make an active effort to advocate for and integrate immigrants into local contexts (Bollini, Pampallona, Wanner, & Kupelnick, 2009; Fehsenfeld & Levinsen, 2019).

The extensive number of CBOs across Canada, such as the MCHB, can play an important role in enabling integration policies by fostering opportunities for social and economic integration of immigrant women and families into local contexts. However, they require adequate funding to provide continuing services that can assist immigrant women in being healthier in childbearing years and beyond. We also suggest that all government levels need to acknowledge, and recognize through meaningful policies, their potential role in positively impacting the health of future generations by pro-actively looking after women and children's health and well-being (Barker, Barker, Fleming, & Lampl, 2013).

CHAPTER 8: Discussion and Conclusions

8.1 General Discussion

The first two objectives of my thesis research were to explore migrant and rural women's perceptions and experiences of health during pregnancy and postpartum while facing difficult life circumstances, and accessing community-based perinatal programs in Alberta, Canada. I met these objectives, and my research findings added to the body of evidence on: 1) women's health during pregnancy and postpartum, post international migration to Canada, when coping with various adverse life circumstances, such as low social support, low income, and food insecurity (Chapters 4 and 5); and 2) rural women's health during pregnancy and postpartum in the midst of family conflicts, financial difficulties, stressful work demands, compounded by structural barriers in accessing prenatal and maternity care in rural Alberta (Chapter 6). Overall, both migrant and rural women perceived being healthy during pregnancy and postpartum as eating healthy foods, being physically active, and emotionally well. However, their life circumstances posed significant barriers to their ability and opportunities to engage in healthy behaviours.

In spite of pregnant and postpartum women's general understanding of key health promoting behaviours, their descriptions of what these behaviours entailed showed that knowledge gaps, and lack of clarity in certain areas exist. This opens opportunities for conversations and programming throughout individual prenatal care and/or group-based perinatal programs where relevant health topics can be explored. For instance, rural women described that being physically active was important for a healthy pregnancy, yet seemed unsure about what type of physical activity was appropriate. This finding was consistent with other studies in which women described health care providers guidance about physical activity as vague and inconsistent (Ferrari, Siega-Riz, Evenson, Moos, & Carrier, 2013; Vanstone, Kandasamy, Giacomini, DeJean, & McDonald, 2016; Whitaker, Wilcox, Liu, Blair, & Pate, 2016c). Given the potential of physical activity to promote physical and emotional well-being in pregnancy and postpartum (Shakeel et al., 2018; van der Pligt et al., 2016), enhanced discussions about physical activity with women during prenatal care may bring clarity about what they can safely do, and improve their belief that they are capable of being physically active within the context of their lives, what Bandura (1994) describes as individuals' self-efficacy.

In addition, based on migrant and rural women's examples of healthy eating during pregnancy and postpartum, there may also be opportunities to increase their knowledge about

nutrition and healthy eating. In a qualitative study where semi-structured interviews were conducted with 21 low income, overweight/obese African American women, misunderstandings about healthy eating were found to be a barrier to eating healthily during pregnancy (Reyes, Klotz, & Herring, 2013), and we noted some misunderstandings about healthy foods among migrant and rural women (Chapters 5 and 6). Migrant women, for example, perceived "organic" to represent fresh, unprocessed foods rather than a certification system regulated by the Government of Canada. Similar findings were described by Anderson, Mah, and Sellen (2015) in their qualitative investigation of changes in migrant women's conceptions of food and health upon migration to Canada (Anderson, Mah, & Sellen, 2015).

Women, in particular those who are immigrants and/or from diverse cultural backgrounds, might have "historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being" (p.133), also known as "funds of knowledge" (Moll, Amanti, Neff, & Gonzalez, 1992). As such, providing both migrant and rural women with opportunities throughout prenatal care to share their funds of knowledge may facilitate learning about optimal nutrition and healthy eating in pregnancy and postpartum in their new country of residence, as women may examine information, and decide what they can add/integrate to their existing knowledge base. When women share their funds of knowledge, they also cultivate social relationships, as well as seek ways of supporting each other's needs, with the potential of increasing their self-efficacy (Moll et al., 1992). Moreover, the 2019 version of Canada's Food Guide (CFG), with its emphasis on the eating environment (*Healthy eating is more than the foods you eat. It is also about where, when, why, and how you eat*) (Health Canada, 2019), may become a useful tool in prenatal programming where women can be encouraged to share where, when, why and how they eat, and their socially constructed views of food and nutrition during pregnancy and postpartum.

Overall, conversations with rural and migrant women about health behaviours in pregnancy and postpartum need to occur in a way that acknowledges women's life circumstances, and supports them in solving problems important to them. The precise context and nature of this context would take place in individual- or group-based prenatal care and/or community-based programs. Such approaches to support behaviour change can happen if front line workers were trained, for example, in "Healthy Conversation Skills," a technique through which health care providers use their brief encounters with patients to ask open discovery questions ("what" and

"how" questions), listen, reflect, and support individuals in finding their own solutions to the issues they are facing (Barker et al., 2018; Black et al., 2014). Furthermore, health care providers have a valuable opportunity throughout prenatal care to enhance rural and migrant women's social support, especially by validating their experiences, and respectfully considering their cultural knowledge (Anderson et al., 2015; Moll et al., 1992; Winn, Hetherington, & Tough, 2017).

For both migrant and rural women, food insecurity was a reality, and created stress. Food insecurity was something that health brokers from the Multicultural Health Brokers (MCHB) Cooperative commonly described to the ENRICH research team during meetings to discuss data analysis. Lack of food security prevented migrant women from thriving and also negatively impacted health brokers' work, as brokers frequently used their personal time and resources to manage food crises when migrant women and their families lacked immediate access to food. Given the health brokers' grave descriptions of food insecurity among migrant women, I examined the prevalence of Household Food Insecurity (HFI) among migrant women accessing MCHB perinatal programs, and explored their experiences in coping with food insecurity (Chapter 7). The prevalence of *severe* HFI among immigrant and refugee women accessing MCHB perinatal programs was 53%, a level that alone was much higher than total prevalence of HFI (19.6%) among immigrants to Canada (Tarasuk, Mitchell, & Dachner, 2014). However, much closer to the level of food insecurity found in other studies conducted with community samples of immigrants and refugees in Canada (Lane, Nisbet, & Vatanparast, 2019).

In a study conducted in Ottawa, Canada, with immigrant mothers from Sub-Saharan Africa and the Caribbean, the prevalence of HFI was 45% (Tarraf et al., 2018), and in another Canadian examination of HFI among Latin American immigrants in Toronto, the prevalence of HFI was 54% (Vahabi, Damba, Rocha, & Montoya, 2011). All together, these studies with immigrants and refugees (including Chapter 7) highlighted that this group commonly faces material and social deprivation that put them at high risk for HFI. International migration commonly results in a significant decrease in income, even for those migrants who are highly educated, because they may experience difficulties in having their credentials, and previous work experience recognised in Canada (Tarraf et al., 2018). Language barriers of immigrants and refugees, and the fact that many cross-sectional surveys are only conducted in Canada's official languages might be reasons why studies conducted with small/specific migrant groups have found higher levels of HFI than

those found in nationally representative samples of the Canadian population (Tarraf et al., 2018; Vahabi et al., 2011).

Merry, Low, Carnevale, and Gagnon (2016) in a discussion article outlining ethical concerns in including migrant women of childbearing age in research emphasized the importance and ethical obligation of using methodologies that could be adapted to migrant women's circumstances (L. Merry, Low, Carnevale, & Gagnon, 2016). They also described various strategies to enhance pregnant migrant women's participation in research, many of which were used in my studies with migrant women connected to MCHB, including engaging cultural brokers and interpreters (i.e., health brokers) to recruit participants and collect data, and involving "migrant-friendly" (p.61) organizations (i.e., MCHB) to champion and support the research process (L. Merry et al., 2016). Not only did health brokers enable migrant women's participation in my studies, but they also represented a vital source of social support to women connected to the MCHB community-based perinatal programs.

Various MCHB supports and components of perinatal programming involved foods (e.g., cooking classes). These food-based strategies were not meant to solve food insecurity (an issue rooted in migrant women's low income), yet they demonstrated incredible potential in fostering opportunities for migrant women to connect to peers, and form new social networks in Canada. This was also true for rural women who accessed Healthy Moms Healthy Babies (HMHB), as cooking circles strengthened their connections to health care and service providers who enabled women's access to additional social and health supports that fostered their pregnancy and postpartum health. In both community-based perinatal programs, food-based strategies functioned as a way to enhance migrant and rural women's social capital, as the social relationships formed through those strategies became a source of support, and a facilitator to resources' access in times of need (Cockerham, Hamby, & Oates, 2017).

Living in rural areas posed additional challenges to pregnant and postpartum women already facing many adversities, including the cost and time (especially off work) required to access prenatal and maternity care. Similar to rural women living in other provinces in Canada, women living in Southern Alberta had limited opportunities to engage in health promoting activities (Liepert, Regan, & Plunkett, 2015; Sutherns & Bourgeault, 2008); therefore, the support of HMHB stood out in alleviating the burden of their adversities. HMHB health care and service providers were able to facilitate women's access to information and economic resources through

multiple strategies, which was positively noted by women who were linked to the program. However, HMHB, as a Canada Prenatal Nutrition Program (CPNP), could only offer support to women up to six months after delivery (Public Health Agency of Canada, 2007); as a result, health care and service providers might not have had an appropriate length of time postpartum to detect symptoms of depression, and adequately refer rural women to mental health services. The discontinuation of HMHB supports during a critical period for women's emotional well-being may increase the likelihood that women do not seek treatment and support for postpartum depression (PPD). Of note, untreated PPD has been estimated to occur in 50% of North American women (Letourneau et al., 2007).

In addition, migrant and rural women's adverse circumstances and emotional struggles were aggravated by conflicts with their spouses. Paternal acknowledgement and spousal support are vital to women's health during pregnancy and postpartum (DeSisto, Hirai, Collins, & Rankin, 2018; L. A. Merry, Gagnon, Kalim, & Bouris, 2011; Thornton et al., 2006; Winn et al., 2017). Provided that the the quality of a woman's relationship with their spouse is also an important predictor of PPD (Fung & Dennis, 2010), it is key to create opportunities for fathers or anyone filling the paternal role to become actively involved in individual- and/or group-based prenatal care where they can take ownership of their supportive role in promoting both mother and child's health. An ENRICH study conducted with Indigenous fathers in Alberta, Canada, revealed that fathers believed they had an important role in supporting their partners, and overcoming intergenerational challenges stemming from trauma, yet prenatal programming did not include them, and health care providers often dismissed their role (Oster et al., 2018).

Overall, women who participated in my studies wanted to be healthy during pregnancy and postpartum; however, they commonly struggled with life circumstances negatively shaping their lives. Acknowledging pregnant and postpartum women's complex realities, rather than assuming that pregnancy represents a "teachable" moment, is a pivotal step in meeting women's needs, and meaningfully promoting maternal health during pregnancy and postpartum (Lawson & Flocke, 2009; Phelan, 2010). Based on our findings that women consider the social support offered through community-based programs as an important health enabler, future research could explore the role of different forms of social support (i.e., instrumental, emotional or informational) in meeting women's needs (Orr, 2004). Such information could be helpful for community-program planning and funding allocation. Even though most studies that have looked at social support and pregnancy

outcomes (e.g., preterm delivery, birth weight) did not find positive direct associations between social support and pregnancy outcomes (Orr, 2004), these results need to be interpreted in the context of the intergenerational transmission of alterations in the body's response to stress, and their potential negative impact in women's health and pregnancy outcomes. Evidence from a number of animal studies and some human observational cohorts show that stressful life events (such as undernutrition, domestic violence, daily struggles) during pregnancy negatively affect the organism's stress response in the offspring (first generation) and subsequent generation (second generation), predisposing them to various chronic diseases throughout the life cycle (Matthews & Phillips, 2010). As a result, social support offered during pregnancy may not be directly associated with positive pregnancy outcomes for their offspring due to the epigenetic modifications and transgenerational programming of stress responses that could already be impacting their health, especially if these women's mothers and grandmothers were exposed to stressful events during their respective pregnancies.

Nevertheless, it possible that women living a highly stressful array of adverse circumstances might benefit the most from social support offered through community-based programs. This has been observed in a randomized control trial of women assigned to individual/standard versus Centering®Pregnancy (CP) care in the US where women in the top tertile of the 10-item perceived stress scale showed significant increases in self-esteem, and significant decreases in stress throughout pregnancy and postpartum measurements, as well as significant decrease in social conflict during the third trimester of pregnancy (Ickovics et al., 2011).

8.2 Integrated Knowledge Translation

The ENRICH Research Program began in 2013 with the overall purpose of promoting maternal health in pregnancy and postpartum through healthy eating among diverse groups of women in Alberta. My PhD studies, as part of the ENRICH Research Program, had the goal of using an integrated Knowledge Translation (iKT) approach throughout the research process. The Canadian Institutes of Health Research (CIHR) describe iKT as an approach to research where "researchers and research users work together to shape the research process by collaborating to determine the research questions, deciding on the methodology, being involved in data collection and tools development, interpreting the findings, and helping disseminate the research results"

(definition available on the CIHR webpage) (Bowen & Graham, 2013; Canadian Institutes of Health Research, 2016).

By doing iKT, I sought to involve both research users and researchers, as equal partners, in data collection, analysis and Knowledge Translation (KT). I held meetings with research users (i.e., health brokers, health care and service providers) from MCHB and HMHB where we discussed, respectively, migrant and rural women's involvement in the research process. I am confident that all aspects of the CIHR definition of iKT were successfully applied in my work with the MCHB Cooperative, especially because I followed a Community-Based Participatory Research (CBPR) approach and its principles of fostering cooperation from community members and researchers, promoting co-learning and capacity building, as well as achieving both research and action through the research process (Minkler & Wallerstein, 2008).

Using an iKT approach also had its challenges, as health care and service providers connected to HMHB seemed hesitant about their potential role in defining research questions and methodology. They supported us, ENRICH researchers, throughout the research process by scheduling focus groups, planning cooking circles, and making themselves available for one-on-one interviews, yet only one provider engaged in decision making related to the research design. This was possibly the case because health care and service providers were mostly employed by a large health organization, and commonly dealt with competing priorities (e.g., flu clinics, work outside HMHB), resulting in limited time to engage in research and pressure for productivity (Green & Mercer, 2001). In addition, health care and service providers did not seem to be familiar with the CBPR approach, and the geographical distance between them and researchers made engagement and capacity building in CBPR more challenging for everyone involved in the research. Even though research users' participation was not at a level that I expected in my study involving HMHB, I followed the principles of CBPR and adjusted engagement to meet health care and service providers' level of readiness and desired participation throughout the research process (Arnstein, 1969; Gibson & Gibson, 1999).

In an effort to enhance the dissemination of research findings with migrant women connected to MCHB, which could facilitate funding applications for MCHB and policy advocacy, I co-created (in partnership with MCHB) a whiteboard video (Figure 8.1) entitled Maternal Health of Migrant Women (Appendix F). The video was produced at the University of Alberta and has been available online at http://bit.ly/maternalhealthofmigrantwomen since August 2017.

Figure 8.1 Screenshot of the video "Maternal Health of Migrant Women"

Through the iKT approach used with MCHB, strategies to support maternal health of migrant women have been developed. In June 2016, the position of a Community Resource Coordinator was established to develop and implement novel strategies to address immediate (i.e., same-day) food needs among migrant women and families. One of these strategies – the Grocery Run Program – entailed collecting donated foods, and distributing them to women and their families within MCHB. This strategy has evolved and turned into a social enterprise called "Fresh Routes" that is meant to facilitate migrant communities' access to fresh, high quality, culturally-appropriate fruits and vegetables, as well as reduce social isolation and foster a sense of belonging in communities.

8.3 Limitations

My studies had limitations that are worth noting. First, I did not collect women's socio demographic information. In my studies involving migrant women, the biggest issue with not having their socio demographic information relates to not being able to report the proportion of women who were refugees or asylum-seekers, their country of origin and length of residence in Canada, as well as any association between these variables and HFI. Migrant women's socio demographic data was not formally collected because some were involved with child protective

services, and did not want their data being recorded, and linked to their names. Moreover, some women who had suffered persecution in their home countries were afraid their names, audio-recorded data and pictures could be identified; as a result, they rightly said "no" to any form of data collection that they perceived as a threat to their privacy and confidentiality.

As a research team, we tried to use strategies to compensate for this limitation. During focus groups (Chapter 4 and 5), we asked women how long they had been in Canada, and recorded their answers in our written notes. Additionally, we asked health brokers, who either moderated or acted as interpreters during focus groups, to give us an idea of how many participants were refugees, asylum-seekers, economic immigrants or undocumented immigrants, without identifying who fell into these different categories. When investigating HFI among migrant women and their families (Chapter 7), we recorded which health broker helped to administer surveys, and used the information to link to respondents' ethnicities. When conducting qualitative interviews with Somali women, we asked a few questions about women's demographics and household characteristics (Chapter 7, Table 7.5). Although these strategies enhanced collected data, the lack of socio demographic information limits the studies' external validity. This limitation was balanced by the fact that the data collected respected what felt right to study participants.

In the case of my study with rural women in Alberta (Chapter 6), the decision was made to follow the same approach used with migrant women. Therefore, because I did not collect any socio demographic information, I could not analyze the data in relation to women's income or life circumstances. The limited data on the women's characteristics (e.g., pregnant or postpartum, number of children, Canadian-born or immigrant) were collected through researchers' observations, which could pose limitations to the external validity of these data. The sample of rural women was also relatively small (n=28). Yet, knowledge gained through my study provided relevant insights to other groups and settings investigating pregnancy and postpartum experiences of women living in rural areas while coping with difficult life circumstances. Even though some rural women who were accessing HMHB shared their struggles with depression and anxiety during pregnancy and postpartum during focus groups, I did not use any probes to explore their experiences with mental health issues, and whether or not they had received adequate supports. Further probing about women's emotional health could have added more details about connections between difficult life circumstances, existing supports, HMHB supports and mental health issues.

As described in Chapters 3, 5 and 6, MCHB health brokers and HMHB providers participated in the final stages of data analysis but not women with whom data generation occurred in the first place. In both program settings, MCHB health brokers and HMHB providers could have filtered women's perceptions and experiences by interpreting the data from their own perspectives and experiences during pregnancy and postpartum (and, in the case of health brokers, as immigrants and refugees). However, our engagement with MCHB and HMHB enabled us to build trust with these stakeholders and, after observing many of their interactions with pregnant and postpartum women, we sincerely believe in their capacity and trustworthiness to support the research team with data interpretation on behalf of their clients.

8.4 Implications and Next Steps

My PhD studies have important implication for both practice and research. By describing the complex network of factors shaping migrant and rural women's experiences during pregnancy and postpartum, I expect to increase health care and service providers' awareness of the social inequities negatively shaping women and infants' health, and to foster action towards better prenatal and postpartum care. Although most social inequities (e.g., low income, costly childcare, unaffordable housing) affecting women's health will not change without policy and broader system changes, health care and service providers involved in their care have a pivotal role in supporting women in the context of their lives.

For migrant women, this means understanding that experiences pre-migration might influence women's mental health, risk for pregnancy and delivery complications, and well as their openness to providers' advice (Winn et al., 2017). Moreover, migration patterns are changing with a growing number of refugees and asylum seekers who might have suffered the negative consequences of changes in health coverage in Canada in the last 10 years (Winn, Hetherington, & Tough, 2018). In the midst of uncertainty in their host country, while possibly carrying pre-migration trauma, refugee women might find their main source of social support in health care providers who are attentive to their needs (Winn et al., 2017). Thus, it is important that health care providers appreciate their role in providing this support to women.

Furthermore, it is important for health care and service providers who practice in rural Alberta to recognize that the same policies that negatively impact their work, such as driving restrictions, limited hours for home visits and increasing work load, also negatively impact

pregnant and postpartum women, and perhaps to a greater extent than it is the case for urban-dwelling women. For women coping with adverse life circumstances, prenatal and maternity care not being available in rural areas means they need to mobilize resources (e.g., transportation, money for gas, childcare) to attend prenatal care and safely deliver their babies. With this comes rural health care and service providers' professional responsibility to connect women to additional social and health supports through community-based programs, addictions and mental health services, local charities, etc.

One of the limitations of my studies is also an implication for research. It is of the utmost importance to include migrant women in research during pregnancy and postpartum, and investigating their immigration and citizenship status is much needed. As Merry, Low, Carnevale, and Gagnon (2016) emphasized that various strategies for recruitment, as well as methodological adaptations might be necessary for the inclusion of migrant women of childbearing age in research. Researchers are under an ethical obligation to include these women in research studies, so as to elucidate some of the mechanisms that might explain the disparities in pregnancy and birth outcomes observed between migrant and non-migrant women in many countries (L. Merry et al., 2016). Additionally, research protocols might include different recruitment strategies for low income women in order to be more inclusive, and responsive to societies' needs.

In Alberta, the largest prospective cohorts in the last 10 years, Alberta Pregnancy Outcomes and Nutrition (APrON) and All Our Babies (AOB), recruited volunteers living in urban centres. The resulting participants are primarily women who had at least university education (69% for APrON, 89% for AOB), high yearly incomes (≥ 70,000; 76% for APrON, 69% for AOB), and were *not* of ethnic minorities (~80% for both APrON and AOB) (Jarman et al., 2016; McDonald et al., 2013). These studies highlight the need to refine recruitment strategies to include women living with low income, and likely coping with adversities, especially because large cohorts can examine associations between variables and pregnancy outcomes.

Various health behaviour topics and approaches can be explored in individual- and group-based perinatal care, as well as through community-based programs, yet any intervention, trial or change in practice needs to take into consideration that multiple socio-biological factors from multiple generations might influence measured pregnancy outcomes. In 2018, while writing a "creative piece" piece for the Dietitians of Canada Graduate Awards (Appendix G), I came to better appreciate the profound implications of the Developmental Origins of Health and Disease

(DOHaD) for dietetic practice and all health care and service providers involved in women's health. The awareness that what happens in utero and early infancy might impact individuals' long-term risk for chronic disease, and that a woman's health at the beginning of her very first pregnancy might have been programmed while she was a fetus or even when her mother was a fetus, should not be perceived in a fatalistic manner but rather as a key reason for investment in public health and health promotion strategies throughout all life stages.

Given the vital role community-based perinatal programs played in migrant and rural women's health during pregnancy and postpartum, they may represent prime settings for engagement and research involving diverse groups of women. Observational studies involving women facing difficult life circumstances who participate in community-based programs have the potential to elucidate the impact of social support during pregnancy and postpartum on women's risk for anxiety and depressive symptoms. Moreover, it is important to include psychosocial measures that allow for exploration of a strength-based approach to examining the impact of community-based programs. This could be done, for example, by measuring women's personal mastery, defined as "the extent to which one regards one's life-chances as being under one's control in contrast to being fatalistically ruled" (p.5) (Pearlin & Schooler, 1978), and attitudes towards healthy eating throughout women's engagement in community-based programs. Because of the complex realities diverse groups of women experience, and the intergenerational transmission of stress responses and chronic disease risk, birth outcomes (e.g., weight, gestational age) should not be used as the main measure for community-based programs' effectiveness and success. Methods of program evaluation that work within complex environments, and support innovation development with ongoing adaptation to contextual factors exist (e.g., Developmental Evaluation) (Patton, 2011), and can be much more suitable when evaluating community-based programs aimed at improving the health of pregnant and postpartum women coping with difficult life circumstances.

8.5 Conclusions

Women's perceptions of health showed they knew what was best for their and baby's health. Community-based programs, such as MCHB and HMHB, provided supports that facilitated migrant and rural women's health in the face of difficult life circumstances during pregnancy and postpartum. When community-based programs show such potential to alleviate some of the

burdens experienced by migrant and rural women, they should be well supported through policies, and connected to health care and social systems.

Policies supporting migrant women through community-based organizations, such as the MCHB, ought to embrace an "active" attitude towards immigrants, recognizing cultural differences while addressing specific needs. This active approach is vital in the process of building strong integration policies where immigrants over time may identify with both host and heritage cultures to varying degrees (Bollini, Pampallona, Wanner, & Kupelnick, 2009; Fung & Dennis, 2010). Strong integration policies in European countries have been shown to improve the pregnancy outcomes of immigrant women (Bollini et al., 2009), something Canada can strive for as a country with a growing immigrant population.

Women who participated in the HMHB program received much needed health and social support from providers who understood how women's difficult life circumstances were compounded by the fact they were living a rural area, and had inequitable access to prenatal and maternity services. As such, policies that support community-based programs in rural communities need to remove "urban-centric" (p.86) lenses in order to enable more equitable services to rural women (Liepert et al., 2015), and truly address structural barriers rural women face to being healthy during pregnancy and postpartum.

To conclude, migrant and rural women who participate in community-based perinatal programs may be better equipped to recognize their role as active agents in their communities, who can also influence socio-political realities that shape their lives (Torres, Spitzer, Labonte, Amaratunga, & Andrew, 2013). Undoubtedly, community-based programs enhanced a sense of belonging for migrant and rural women during critical periods of their lives.

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APPENDIX A: ENRICH Research Program: MCHB Guiding Questions for Health Brokers (Interpreters/Translators)

Thank you for all taking the time to talk to me today. Today I want to learn about your feelings and thoughts regarding your health during and after pregnancy, and how to better support you in these areas.

I would like to remind everyone that what is shared today is confidential and to please respect others in the group by keeping comments private. If anyone does not feel comfortable answering any questions within the group, you do not have to.

Pregnancy & Postpartum

1. What does a healthy pregnancy mean to you?
   - What does healthy eating mean to you when you are pregnant/new mother?

2. How did this change since you moved here? What did you do in your countries to have a healthy pregnancy?

3. How did the doctor or nurse explain the use of multivitamins to you? Did they explain why they were important?
   - How satisfied were you with their explanation?

4. What helps you to be healthy during pregnancy?

APPENDIX B: ENRICH Research Program: HMHB Women Focus Group Guide

Thank you for all taking the time to talk to me today. Today I want to learn about your feelings and thoughts regarding your health during and after pregnancy, and how to better support you in these areas.

I would like to remind everyone that what is shared today is confidential and to please respect others in the group by keeping comments private. If anyone does not feel comfortable answering any questions within the group, you do not have to.

Pregnancy & Postpartum

1. What does it mean to you to be healthy during pregnancy? [Probe for social norms, cultural beliefs, and community/family support]
    a. How about after the baby is born?

2. What drives/shapes your health decisions in pregnancy and postpartum? [Explore challenges and supports to health decisions, **including those related to nutrition**]

3. What types of foods do you eat during pregnancy? [Probes: cravings, food aversions, specific nutrients]

4. How were your visits to health care providers' office (e.g., doctors, nurses, midwives, etc.) during and after pregnancy? [Probes: needs, expectations]
    a. How often did you see this health care provider?
    b. What information about health and nutrition did your health care provider give you during the visits?

5. Community-based organization context: what was your experience with this program (HMHB) during pregnancy and postpartum?

6. If anything, what would you need to be/feel healthier during pregnancy and after you give birth?

7. What do you know now that you wish you knew before your first pregnancy?

APPENDIX C: ENRICH Research Program: HMHB Health Care Provider's Guiding Questions

Thank you everyone for taking the time to meet with us today. I am here to learn about the approach your team uses to discuss weight management and eating habits for women during and after pregnancy. More specifically, what resources and tools do you find useful, what your team needs to enhance the support you already provide and the barriers and challenges you face when providing weight management and healthy eating support to the women who participate in your programs.

I would like to remind you that what is shared today is confidential. If you do not feel comfortable answering any questions, you do not have to.

Before we start could you remind me of:

- What is your role in the program?

Pregnancy & Postpartum

1. How are health behaviours addressed during the program?

2. If any, what types of questions do women commonly ask during pregnancy?
   a. Do you feel you have the tools or resources to meet their needs?

3. How do you feel when talking about nutrition during and after pregnancy?

4. What types of resources, tools or approaches do you use to give pregnant and postpartum women information?
   a. What is the reason for choosing the resources, tools or approaches you use?

5. In your opinion, how prepared/able are your clients to make healthy choices?

6. Are there changes that could be made (within your organization or within the health care system) that might improve the ability of women to eat healthy and be healthy during and after pregnancy?
   a. How do they relate to challenges you face?
   b. How do they relate to challenges women face?
   c. Where do you think your work fits?
   d. In the scope of your work, what could help you to better support your clients?
   e. Any "unfeasible" changes?

APPENDIX D: Example of Transcribed Debrief Post Focus Group With Field Notes Added in Red

Beginning of recorded material at 00:00:00

Maira Quintanilha: This is Maira, today is June 12th, and it's 8.55 pm, and I am leaving the Somali group right now. Some of my impressions of today were, first of all, the group was larger than last time, and the fact-, so there were 16 women in total, in addition to the broker, so one broker. And there were a lot of other things going on, especially because there were six older children in the kitchen in addition to four young kids, and by young kids, I mean infants. One mother had two children, one girl around two years of age and a baby boy – she was a postpartum woman but also pregnant participant as she is expecting her third child. There was another woman who sat with the kids at all times. The kids who were gathered around one little table were speaking English among themselves and engrossed in their conversation. There was a lot of noise, and it was way less quiet than our last encounter with the Somali group.

When I entered the room I could smell peppers and fried food as women were already cooking, actually almost finalizing some of the dishes. It was really warm in the room and one of them had taken off her head cover. They were cooking; today they had another traditional food that was almost a mix of pizza and omelette but in their traditional dough. It was a very neat recipe to watch being made as they would prepare the dough in one frying pan and turn it into another pan where the egg + veggie mixture was half way cooked. They also had a dessert that was similar to the one we had last time, which was a deep-fried dough but this dough also had another ingredient, which is basically yellow potatoes.

The group was very welcoming and very sweet, once again, and at a certain point [M] invited them to come and sit around the table and have a conversation, so essentially our focus group. Out of the 16 women, 8 came and sat at the table at all times. Two of them were kind of watching the stove and coming back, and the other ones continued cooking. This eight had actually stayed with them all the time and did participate; however, I must say that it was different from last time because I noticed that [M] spoke a lot more and she took a long time in the beginning to explain the study to the women because not all of them were there last time. Unfortunately, I cannot really tell how many were new to the group or not because the numbers have increased and it is extremely

hard because of the head cover. They are sometimes colourful, sometimes black but they make it hard to remember some of the participants who may not have voiced their opinions or talked to us before.

And because of all the noise and everything that was going on it was really busy. There was one child on the table and sitting in the middle of where the recorders were, she tried to play with the recorders and to avoid that I gave her a sheet of paper and a green pen with which she played for a long time. Her mom was right beside me and in front of the girl and had a baby boy in her lap. Some other women, including the broker, seemed to have expressed their concern with the safety of child because she was sitting on top of the table. Later on, they brought the little girl a small plate of food and helped her to eat. l here was a baby crying and all the kids talking in the background. I felt that everyone was more distracted and it was harder for her to evoke participation from each and every one of them. And because of that, of course, she was able to cover more questions. [Continued until end of recording at 00:08:42]

APPENDIX E: Household Food Security Survey – Adapted from Canada Community Health Survey

These questions are about the food situation in your house in the past 12 months

Q1. Which of the statements below best describes the food eaten in your house in the past 12 months, that is since [e.g., OCTOBER] of last year?

1. You and other people who live in your house had enough of the kinds of foods you wanted to eat.
2. You and other people who live in your house had enough to eat, but not always the kinds of food you wanted.
3. Sometimes you and other people who live in your house did not have enough to eat.
4. Often you and other people who live in your house did not have enough to eat.

- Don't know / refuse to answer (end survey)

Stage 1

Now I am going to read you many statements that may be used to describe the food situation for everyone in your house. Please tell me if the statement was often true (#1), sometimes true (#2), never true (#3), - don't know/refuse to answer

Q.2 The first statement is: you and other people who live in your house worried that food would run out before you got money to buy more. Was that often, sometimes true, or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true

- Don't know / refuse to answer

Q.3 The food that you and other people who live in your house bought just didn't last, and there wasn't any money to get more. Was that often, sometimes true, or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true

- Don't know / refuse to answer

Q.4 You and other people who live in your house didn't have enough money to eat meals with as many healthy foods as you wished. In the past 12 months was that often true, sometimes true, or never true?

1. Often true

2. Sometimes true
3. Never true - Don't know / refuse to answer

If there are **children under 18 in the house**, ask Q5 and Q6. If no skip to "First level screen" line

Q.5 You or other adults who live in your house relied on only a few kinds of low-cost foods to feed the child(ren) because you were running out of money to buy food. Was that often true, sometimes true, or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true
   - Don't know / refuse to answer

Q.6 You or other adults who live in your house couldn't feed the child(ren) a meal with as many healthy foods as you wished, because you couldn't afford it. Was that often true, sometimes true, or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true
   - Don't know / refuse to answer

FIRST LEVEL SCREEN (before moving to Stage 2): If participant responded often true, sometimes true to any one of Q2-Q6 **OR** responses [3] or [4] to Q1, then continue to Stage 2; otherwise end survey.

Stage 2 - If there are **children under 18 in the house**, ask Q7. If no, skip to Q8.

Q.7 The children were not eating enough because you and other adult members in the house just couldn't afford enough food. Was that often true, sometimes true, or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true
   - Don't know / refuse to answer

Q.8 In the past 12 months, since last [current month but a year ago - OCTOBER] did you or other adults in your house ever cut the sizes of your meals or skip meals because there wasn't enough money for food?

1. Yes

2. No **(Go to Q9)**

- Don't know / refuse to answer

Q.8b How often did this happen?

1. Almost every month
2. Some months but not every month
3. Only 1 or 2 months

- Don't know / refuse to answer

Q.9 In the past 12 months, did you (personally) ever eat less than you felt you should because there wasn't enough money to buy food?

1. Yes
2. No

- Don't know / refuse to answer

Q.10 In the past 12 months, were you (personally) ever hungry but didn't eat because you couldn't afford enough food?

1. Yes
2. No

- Don't know / refuse to answer

Q.11 In the past 12 months, did you (personally) lose weight because you didn't have enough money for food?

1. Yes
2. No

- Don't know / refuse to answer

SECOND LEVEL SCREEN (before moving to Stage 3): If participant responded YES to any one of Q7-Q11, then continue to Stage 3; otherwise end survey.

Stage 3 Questions 12 – 16 – ask households passing the Second Level Screen

Q.12 In the past 12 months, did you or other adults in your house ever not eat for a whole day because there wasn't enough money for food?

1. Yes
2. No **(For houses with children, ask Q13; otherwise, end survey)**

- Don’t know / refuse to answer

Q.12b How often did this happen?

1. Almost every month
2. Some months but not every month
3. Only 1 or 2 months

- Don’t know / refuse to answer

Q.13 In the past 12 months, did you or other adults in your house ever cut the size of any of the children’s meals because there wasn’t enough money for food?

1. Yes
2. No

- Don’t know / refuse to answer

Q.14 In the past 12 months, did any of the children ever skip meals because there wasn’t enough money for food?

1. Yes
2. No

- Don’t know / refuse to answer

Q.14b How often did this happen?

1. Almost every month
2. Some months but not every month
3. Only 1 or 2 months

- Don’t know / refuse to answer

Q.15 In the past 12 months, were any of the children ever hungry but you just couldn’t afford more food?

1. Yes
2. No

- Don’t know / refuse to answer

Q.16 In the past 12 months, did any of the children ever not eat for a whole day because there wasn’t enough money for food?

1. Yes
2. No

- Don’t know / refuse to answer

###**END OF SURVEY**

APPENDIX F: Maternal Health of Migrant Women - Video Script

More than 200 million people migrate from one country to another every year. Nearly half are women who will experience pregnancy, birth and motherhood in new countries.

Sara lives with her husband and son in Northeast Africa. Pregnant with her second child, she is treated as a "queen" by her family and friends. Neighbours cook Sara's favourite foods, and help her with house chores. Sara feels healthy and loved. When her baby girl is born, her sister and niece take care of her son so Sara can recover well. (Pause for 5 seconds as first quote appears on the screen)

Civil conflicts are happening in her country but, in her neighbourhood, life goes on as usual. One day that changes, the conflicts unsettling her country break in the streets of her town. They flee to a refugee camp and after a few years finally resettle in Canada.

Here, Sara feels safe but alone without the support of her extended family and friends. Without them close, her third pregnancy is stressful. She finds it hard to walk anywhere, to get rest, and to eat healthy. The only foods her family can afford are the packaged ones she never ate back home. (Pause for 8 seconds as second quote appears on the screen). Sara feels sad and anxious, until one day a public health nurse refers her to a prenatal program at a local organization.

At Multicultural Health Brokers Co-operative in Edmonton, Sara finds a group of people more like what she had back home. She feels a sense of belonging, and is hopeful for her family's future. The Multicultural Health Brokers Co-operative is one of many community organizations that can foster maternal health of migrant women through culturally meaningful services. Learn more about organizations in your area.

APPENDIX G: Finding My Niche in the Most Unexpected Place

Creative piece submitted to the 2018 Dietitians of Canada Graduate Awards

I have this picture on my desk. I cut it out of *Edmonton Metro* on September 19th, 2016. My first-born was nine months, and it was only a couple of months since I had returned from maternity leave. As a new mother, this image brought tears to my eyes but it did more, way more…I had one of the so-called "aha" moments, perhaps one of the biggest of my career. I found my niche, my calling as an academic and dietetic professional. One might be thinking, "How does this image relate to dietetic practice and research?" It might not be a straight forward link yet a powerful one.

A man carries a girl as they arrive with other migrants on a dinghy after crossing from Turkey to the Greek island of Kos. The Associated Press

The girl in the picture is one of thousands of children who fled Syria in the last six years (during a period that the media commonly referred to as "Refugee Crisis"). In the future, she might become a new Canadian; in the future, she might also become a new mother in Canada. However, the Developmental Origins of Health and Disease (fathered by Dr. David Barker) tells us that her past matters. Her health, which includes her long-term risk for cardiovascular disease and Type 2 Diabetes, were programmed while in the womb of her mother. This is not meant to sound fatalistic but realistic. If a dietitian in Canada encounters this girl, at any life stage, the dietitian needs to consider her health history, tracing back to what might have happened during her in utero development, her access to food as a child, and her possible trauma as a young refugee. All these factors, among many others, might influence her growth, nutritional status, as well as her relationship with food. In her childbearing years, the girl's overall health, nutrition, and body weight will play key roles in the development of her own children and, consequently, health of future generations.

It is simply fascinating to me to think it is possible, even if unlikely, I might come across this little girl in the future. My "aha" moment came with this realization. As an academic and dietitian, I could play an important role in her health. Through my research, I can better understand the various biological and sociocultural factors that might influence her health, in particular during pregnancy and postpartum. With these findings, I can effectively translate the knowledge to help other dietitians, health care professionals, and policy makers best support their clients who are immigrants and refugees (I have already made my first knowledge translation attempt through a video http://bit.ly/maternalhealthofmigrantwomen illustrating key findings from my PhD work with immigrant and refugee women). As a dietitian, I feel more engaged and enthusiastic about my work than ever. Dietitians work with food, and food represents a gateway for social change and healthier futures for individuals, communities and populations. Food has an immense potential to open doors to better health, from individualized nutrition care plans to policy advocacy for healthier environments and basic incomes to all Canadians. As dietitians, we need to look at food and nutrition with health and social lens because both lens will open an array of opportunities for discoveries and innovations in our field.