CHILD FEEDING PRACTICES AMONG NEW CANADIAN MOTHERS

CHILD FEEDING PRACTICES, AUTHORITATIVE KNOWLEDGE, AND THE MEDIATION OF SOCIAL SUPPORT NETWORKS AMONG NEW CANADIAN MOTHERS LIVING IN HAMILTON, ONTARIO

By

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A Thesis

Submitted to the School of Graduate Studies

in Partial Fulfilment of the Requirements

for the Degree

Master of Arts

McMaster University

MASTERS OF ARTS (2010)	McMaster University
(Anthropology)	Hamilton, Ontario
TITLE:	Child Feeding Practices, Authoritative Knowledge, and the Mediation of Social Support Networks Among New Canadian Mothers Living in Hamilton, Ontario
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NUMBER OF PAGES:	x, 93

Abstract

Migration and settlement are disruptive processes. Families are often under financial strain and are separated from family members and friends back in their home countries. For new mothers, this absence of social support adds to the challenge of raising a child in a new country.

This research employs a mixed methodological approach in an investigation of infant feeding practices, maternal social support systems and decision-making, and the construction of authoritative knowledge in infant nutritional health. Data from the Canadian Community Health Survey were used to explore national trends in a comparative study of breastfeeding and vitamin D supplementation practices between Canadian-born and immigrant mothers. A series of focus group interviews conducted in collaboration with the Ontario Early Years Centres (OEYC) of Hamilton inform the qualitative portion of the study, and the exploration of factors contributing to mothers' infant feeding decisions. Findings indicate immigrant status and education are strongly, positively associated with breastfeeding initiation and exclusive breastfeeding for at least six months. Educational attainment, possibly indicative of health literacy, is also positively associated with vitamin D supplementation for exclusively breastfed infants.

Many of the mothers who partook in the interviews also belonged to the Welcome Baby prenatal group facilitated by a public health nurse at the OEYC. The interview results suggest that the Welcome Baby program is an important source of information about infant care for New Canadian mothers, however, the advice they received often conflicts with the practices in their home countries. This thesis explores the production of authoritative knowledge and circumstances under which New Canadian mothers choose to incorporate Canadian health recommendations. Additionally, I discuss some of the existing recommendations and health messaging surrounding infant care and feeding which may undermine Ontario's public health goals to increase exclusive breastfeeding and its duration among mothers living in Canada.

Acknowledgements

I would like to acknowledge the contributions of the many people who made this research possible; first and foremost, my graduate supervisor, Dr. Tina Moffat, who has been endlessly patient and supportive, and with whom it has been a great joy and privilege to study these last two years. I am immensely thankful for all her work revising and editing this thesis.

I am grateful for the opportunity to work with and learn from our co-investigators in the vitamin D study, Drs. Warren Wilson, Esteban Parra, and Daniel Sellen; Dr. Sellen's attentive involvement in this project as my external reader is most heartily appreciated.

Thanks also to Dr. Wayne Warry, my other committee member, for his insight, encouragement and thoughtful questions. I would also like to acknowledge the support of the faculty, staff and students of the Department of Anthropology who have made my time at McMaster memorable.

I would like to express my deepest gratitude to all those who helped us through the data collection phase of this research: to Chris Maleta, Early Learning Service Coordinator of the Affiliated Services for Children and Youth, Nancy Harrower and Gayle Reece, coordinators at the Hamilton Ontario Early Years Centres (OEYC), and the OYEC staff for recruiting interview participants and accommodating us so eagerly, and of course, to all the mothers who graciously volunteered to share their knowledge and experiences with us; to Siobhan Stewart and Andrea Goertzen for their assistance, and to Arwa Al-Timimi for her diligent note-taking and transcription. Thanks also to the knowledgeable and friendly analysts at the McMaster Research Data Center, particularly Tina Hotton Mahony.

Many thanks are owed to Dr. Richard Lazenby, who encouraged me down this path and provided invaluable mentorship.

Finally, a special thanks to my parents, who have always supported my academic pursuits, and to my husband, Ryan, who has been my un-equivocal and tireless motivator.

Funding for this research was generously provided by the following sources:
McMaster University Graduate Scholarship
Ontario Graduate Scholarship
Social Science and Humanities Research Council – Research Development Initiative & Joseph-Armand Bombardier Canada Graduate Scholarship

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Chapter I
Introduction

The goal of this project is to explore how New Canadian mothers make decisions about infant feeding and infant care in Canada. As newcomers, these women already have a wealth of knowledge and recommendations from their home countries on how to best fulfill their children's dietary needs. However, upon arrival in Canada, many of them are separated from the social and familial networks that they would otherwise depend upon were they still in their home countries.

This research investigates maternal infant feeding practices in Canada in two parts: the first part consists of an analysis of infant feeding practices based on data collected in the 2007 Canadian Community Health Survey (CCHS). The second part of this research employs qualitative data collection methods, specifically focus group interviews, to explore how mothers negotiate new systems of knowledge and incorporate Canadian recommendations and practices from their home countries into everyday care practices for their families. In addition, this research also examines the dynamics of knowledge transmission between established representatives and educators of the Canadian health system (i.e. public health nurses) and the consumers and practitioners of this knowledge (mothers). The purpose of employing mixed methodologies in this study is to capture the variability in mothers' infant care practices and migration experiences and to illuminate some of the shortcomings of population health models, specifically the 'healthy immigrant effect' model, which has been popularized by Canadian studies of immigrant health over the last twenty years (Chen, et al. 1996; McDonald and Kennedy 2004; Newbold 2009; Ng, et al. 2005; Perez 2002).

The qualitative focus group interviews for this research were conducted at four Ontario Early Years Centres located in Hamilton, Ontario. The Ontario Early Years Centres, or OEYCs, are community centres sponsored by the Ontario Ministry of Children and Youth Services, where parents and children can participate in a range of programming together. There are three main OEYC sites located in West Hamilton, East Hamilton and Hamilton Mountain, and each main site oversees the operation of between six and ten satellite sites in their respective areas of the city. The OEYCs host educational programs for families, including Healthy Moms, Healthy Babies, a drop-in post-natal information session for mothers, and Welcome Baby, a pre-/post-natal support group for expecting mothers and mothers with young children, both facilitated by public health nurses or dieticians. The OEYCs also provide mothers, many of them new immigrants (and often from low income households), an opportunity to connect with and

interact with other mothers, community members and other health professionals. Welcome Baby and Healthy Moms, Healthy Babies are initiatives of the Hamilton Prenatal Nutrition Project funded by the Public Health Agency of Canada through the Canada Prenatal Nutrition Program, designed to link prenatal services offered at nine OEYCs in the city (City of Hamilton 2010). As a government service organization, the OEYCs' educational programs are an ideal vector for disseminating the latest health recommendations. This study is part of a larger, collaborative, ongoing Social Science and Humanities Research Council-funded (SSHRC) Research Development Initiative headed by my M.A. supervisor, Dr. Tina Moffat. Six focus group interviews with both immigrant (four focus groups) and Canadian-born (two focus groups) women were conducted in Hamilton in October and November of 2009. The same types of focus group interviews were recently completed in Toronto and Calgary, conducted by our other co-investigators, Dr. Daniel Sellen (University of Toronto) and Dr. Warren Wilson (University of Calgary). The project, titled *From Knowledge to Practice: Vitamin D and New Canadian Mothers and Children*, aims to explore maternal-infant vitamin D supplementation practices of Canadian mothers.

In humans, vitamin D is primarily synthesized in the skin from exposure to ultraviolet B radiation (UVB) in sunlight. However, increased use of sun-block and protective clothing, limited time spent out of doors, and Canada's northern latitude diminish UVB exposure, especially throughout the winter months. Furthermore, individuals with intermediate or darker skin pigmentation require greater UVB exposure to synthesize comparable quantities of vitamin D produced by those with lighter skin pigmentation (Calvo and Whiting 2003; Datta, et al. 2002; Prentice 2008). The reduction in UVB exposure and vitamin D synthesis increases the risk of vitamin D deficiency among Canadians, particularly exclusively breastfed infants as breast milk contains very little vitamin D (Holick 2007; Ward 2005).

Vitamin D is best known for its role in calcium absorption and bone mineralization. In very young children, extreme vitamin D deficiency manifests as rickets, a severe bone-deforming disease (Holick 2007). In adults, bone softening characteristic of vitamin D deficiency is called osteomalacia. In addition to skeletal degeneration, vitamin D deficiency has also been linked to increased risk of colon, prostate and breast cancers, autoimmune disease, arthritis, cardiovascular disease and congestive heart failure (Holick 2007). Recent research has uncovered vitamin D receptors in cells throughout the body (Holick 2007), and we are only just beginning to grasp the complexity of the role vitamin D plays in development and everyday bodily functions.

Since there is too little UVB at high latitudes through the winter, and it is often too cold to be outside with bare skin, Canadians must consume vitamin D in other forms to meet the recommended intake (Ward 2005).

Fatty fish and cod liver oil have traditionally been good sources of vitamin D (Wagner, et al. 2008; Ward 2005) and most commercial fluid milk products, or milk substitutes (e.g. soy milk) are fortified with vitamin D (Calvo, et al. 2004). Most Canadian grocery stores also stock calcium and vitamin d-fortified orange juice. Alternatively, some individuals may choose to take a vitamin D supplement, and this is certainly one of the simplest options available for exclusively breastfed babies.

Families struggling with financial insecurity or household food insecurity may have a difficult time procuring vitamin D-rich foods. Cross-cultural communication difficulties and other systemic barriers may impede access to information about vitamin D supplementation, and other health resources.

Presented here are the results of an analysis and discussion of four of the Hamilton interviews (those interviews conducted with immigrant mothers only), including twenty-two mothers from Asia, Africa, Europe and the Middle East.

This research employs a biocultural approach (Goodman and Leatherman 1998), which is particularly pertinent as birth and its surrounding physiological processes are highly ritualized and regulated by knowledge and customs external to the individuals at its epicenter (mother and baby). In this light, I also explore the interview data in the context of Brigitte Jordan's ([1978]1993) concept of authoritative knowledge. In the case of New Canadians, I am particularly interested in how these mothers choose to reconfigure their knowledge of infant feeding practices in Canada.

Overview

Chapter II reviews the scholarly literature pertaining to the theoretical approaches discussed in this thesis, as well as some of the necessary background information on Canadian immigration policy, social support systems in maternal-child care and public health recommendations for infant feeding. The biocultural approach is used as the overarching theoretical perspective which has informed the development, data collection and analysis of this project. Its influence is also apparent in most current nutritional and immigrant health related studies commanded by researchers in the social and health science disciplines. The healthy immigrant hypothesis and acculturation models are briefly explored as examples of pervasive large-scale approaches to immigrant health research. The review touches on the social determinants of health approach that was largely developed by Canadian researchers, and has found its way into the public health vocabulary. The last theoretical framework presented in this chapter is Jordan's ([1978]1993) concept of authoritative knowledge which provides the foundation for the discussion of the focus group interview results.

In Chapter III, I outline the mixed methods employed in this study and discuss the process of completing this research from within the larger project while functioning as a research assistant. I address the use of a grounded constructivist theoretical approach, the need for flexible research plans, and the challenges of distinguishing the research for this thesis from the larger *Vitamin D* project.

The subsequent two chapters are divided methodologically; chapter IV presents the quantitative results of the Canadian Community Health Survey (CCHS) analysis, and chapter V presents the results of the focus group interviews. Briefly, data from the CCHS indicate that more immigrant mothers initiate breastfeeding, breastfeed exclusively and breastfeed for at least six months than their Canadian-born counterparts. Educational attainment emerges as an important determinant of infant feeding behavior. Additionally, mothers' reasons for weaning reflect changing infant feeding health messaging. Chapter IV discusses these findings in the context of the popular healthy immigrant hypothesis and acculturation models, as well as Canadian breastfeeding and infant feeding recommendations.

Participants in our interviews primarily breastfed their children, though many added solid foods before the recommended age of six months. The Welcome Baby group offered at the OEYCs emerged as an important source of information and a venue of medical and/or health socialization for New Canadian mothers. Chapter V discusses these findings in the context of Jordan's ([1978]1993) authoritative knowledge.

The concluding chapter discusses the findings from chapters IV and V as a whole, highlighting the value of mixed methodological approaches in health research. This chapter also offers some recommendations for future avenues of investigation for the ongoing *Vitamin D* project.

Chapter II
Literature Review

Introduction

This research applies a biocultural approach in an investigation of perinatal practices among New Canadian mothers. In doing so, it explores: the variability of maternal-child feeding practices during pregnancy, after birth, and into early childhood; Canadian migration policy and immigrant settlement experiences; migration as a determinant of health; the sources of contested information or recommendations about infant and child feeding, and how mothers apply various forms of knowledge to their decision-making and everyday practices. The relevant literatures are presented in this chapter.

Biocultural anthropology and nutrition

At its core, biocultural anthropology is an examination of the influences and interconnectedness of biology and culture in human health. Goodman and Leatherman's (1998) political-economy approach to biocultural anthropology impresses the importance of political power, social stratification, wealth and access to material resources as the primary contributing determinants of human health and well-being. McElroy and Townsend (2004) espouse a political-ecology perspective, which emphasizes the role of the environment in human health, prioritizes adaptation, and frames health as a measure of an individual or group's adaptation to a particular environment. Baer, Singer and Susser (2003) engage in a critical medical anthropology (CMA) – an approach that aims to understand and challenge the construction and power hierarchy of the biomedical system. Though rooted in neo-Marxist thought, CMA also discusses the power distribution at the macro-social, intermediate, micro-social and individual levels of diverse political structures (Baer, et al. 2003; Singer 1998). CMA has also been heavily influenced by Scheper-Hughes and Lock's (1987) critical-interpretive approach which highlights health as an embodied, socially-constructed experience.

For a time, medical anthropology appeared to be irreparably fractured while members of both the biocultural and critical medical anthropology camps leveled criticisms at each other's theoretical approaches. Goodman and Leatherman's (1998) compilation work, however, made significant strides to synthesize these approaches. Merrill Singer and Hans Baer contributed to the edited volume to further critical biocultural

anthropology. Meanwhile, the biocultural approach continues to face criticism for its underdeveloped culture theory. Dressler (2005) asserts that the challenge of studying health in the context of culture is that it requires a reliably accurate assessment of "what is cultural about the behaviour of an individual" (27), which, by most definitions, is a collective phenomenon.

Once a brief highlight in many ethnographic works, food and nutrition have become an important focus of anthropological research and its study has flourished into a distinguished sub-discipline – nutritional anthropology. Many nutritional anthropologists have adopted a biocultural approach in their investigation of food as biological sustenance and as an important vector of socio-cultural meaning and economic consequence (Himmelgreen and Crooks 2005; Mintz and Du Bois 2002; Pelto, et al. 2000). While several disciplines explore the relationship between people and food (epidemiology, biochemistry, etc.), Pelto et al. explain that

> *nutritional anthropology is fundamentally concerned with understanding the interrelationships of biological and social forces in shaping human food use and the nutritional status of individuals and populations*" (emphasis in the original) (2000:1)

Human nutritional status, physiology and adaptation, food production, ecology, processing, access, preparation, consumption, culture, ritual, symbolism, and identity are just some of the diverse areas of study within nutritional anthropology. Much of nutritional anthropology employs a holistic approach, examining multiple facets of any given issue to enrich the investigation (Pelto, et al. 2000). Additionally, nutritional anthropology study samples tend to be larger – focusing on communities or populations, rather than individuals (Pelto, et al. 2000).

Biocultural anthropology is well-suited to food and nutrition research as it necessitates the consideration of ecological, political-economic, social and cultural facets of human existence in the exploration of biological and health outcomes. Limited employment or underemployment is a particularly important stressor in considerations of nutritional well-being, especially when it leads to financial insecurity and household food insecurity. The official position of the Canadian Dietetic Association (1994 [1994]) is that all Canadians have a right to food security, "a condition in which all people at all times can acquire safe, nutritionally adequate and personally acceptable foods that are accessible in a manner that maintains human dignity" (97). Food insecurity results when people are either unable or worried about being unable to adequately feed their household – for immigrants this also incorporates the cultural appropriateness of household eating practices. Obvious biological implications of household insecurity concern the inability to acquire suitably nutritious foods.

Tarasuk and Beaton (1999), employing a modified version of the United States Department of Agriculture Food Security Model to measure household food insecurity, assessed Toronto-area women from food insecure households who are depending on charitable food assistance programs and confirmed that women from households reporting food insecurity have compromised dietary intake of micronutrients. The estimated prevalence of micronutrient deficiencies among the sample of women ranged from 3.0% (vitamin C) to 38.3% (iron). The authors confirmed that household food insecurity presented a risk to women's nutritional health (Tarasuk and Beaton 1999). Rush, et al. (2007) evaluated food intake among Columbian food-bank users in Ontario, using a 24-hour dietary recall, and reported that 73% of the participants consumed a diet that was low in fruits and vegetables, and 58% consumed a diet low in milk and other dairy products. Severity of food insecurity was inversely associated with length of residency and income.

Social Determinants of Health

The social determinants of health approach is not a new construct in health or social science research. Proponents of the determinants of health model trace an intellectual lineage to the work of noted Marxist Friedrich Engels, *The Condition of the Working Class in England* (1958), first published in 1845. Engels demonstrated that the higher mortality rates of the suburbs were correlated with the poor housing quality and poor working conditions of the working class. The model focuses on the social and environmental conditions that contribute to illness and disease rather than the biomedical causes. Social and environmental conditions include income, housing, food security, employment and working conditions. This contrasts with biomedical factors that are much more individually centered: risky behaviour like smoking, drinking or drug use, exercise habits, cholesterol levels, nutrition and body weight management (Raphael 2004). Most of Canadian researchers' contributions to the determinants of health approach have focused on income inequalities, though recently researchers have expanded their scope to capture marginalized groups who are systematically excluded from mainstream society (Raphael 2004). Pertinent social determinants in this new arena include gender and sexual orientation (including queer or transgendered), ethnic or cultural identity, immigrant or refugee status, and visible minority or Aboriginal status. The social determinants of health approach aims to illuminate the causes of health inequalities in a given population, and fits comfortably within the constructs of the political- economic biocultural approach.

The social determinants of health model assumes that there is a trickle-down effect to grander social, economical and political decisions

which directly affect the health outcomes of individuals. Raphael identifies four major themes within the social determinants model (2004). The first is the need for empirical evidence validating the social determinants of health approach. Persisting socioeconomic inequalities explain health differences among Canadians. In addition, advocates of the social determinants of health model cite varied degrees of nation-state health disparities in conjunction with political and economic resource distribution. For example, the United States, while one of the world's most affluent countries, also exemplifies one of the greatest income and health disparities for its population (Raphael 2004). In contrast, Sweden, under a more socialist political-economic system, distributes its resources more equitably in an effort to guarantee a better quality of life and better health for all its citizens (Raphael 2004).

Raphael's (2004) second theme deals with the mechanisms by which social determinants influence health, and highlights the materialist orientation of the model. The materialist approach focuses on how material conditions (access to resources) impact the living conditions, community and family interactions, individual growth and development, and consequently, influence an individual's susceptibility to disease and injury (Raphael 2004).

In logical succession, the third theme elaborates on the individual's growth and development by emphasizing the importance of a life-course perspective which focuses on the early adoption of healthy lifestyle and the (arguably cumulative) role of social determinants throughout an individual's lifetime (Raphael 2004).

The final theme that Raphael (2004) identifies is the role of policy environments. The Canadian Population Health Initiative (2002) asserts that by applying this – largely Canadian-produced – knowledge base, the United Kingdom has developed national strategies to address not only disease, injury and mental health, but also child poverty and nutrition, housing and crime in low-income neighbourhoods, and unemployment. The United Kingdom has also provided funding for educational and healthcare initiatives and to raise minimum wages. Raphael (2004) laments that the decline of Canada's welfare state threatens to increase the income and health disparities of Canadians.

David Langille (2004) uses this last theme as a lens to focus on the impact of trickle-down politics on Canadians' health. The erosion of Canada's welfare state since the 1970s, he argues, has resulted in the dichotomization of representation in the form of political parties and interest groups. Under the growing neo-liberalisation of the Canadian government, business has held more influence than individual citizens. He postulates that government is guided by the principle that a prosperous economy will breed happy, healthy citizens, when in reality, Canada's businesses are profiting from a systemic devaluation of Canadian labour. Langille (2004) ties the influence of big business in government to the health outcomes of the average Canadian

by illustrating the trickle-down effect of big business policy. Government policy, taking cues from business, dictates institutional policy and regulates resource distribution; and the competing ideologies of neo-liberalism (free-trade, fiscal conservatism) and neo-conservatism (national security and a strong state) wear on everyday Canadians. Langille (2004) argues that politics are the overarching umbrella for all social and economic determinants of health.

Critics of the social determinants of health model point out that while population-based models may have their uses, they are in fact narrow in scope and limited in their ability to inform policy of the reality of any individual or community's health situation (Coburn, et al. 2003). As a replacement for the health promotion bottom-up approach of the 1970s and 80s, Coburn et al. (2003) criticise the population health model as overly focused on "statistical aggregates rather than real people with real connections with one another," elaborating that "population health researchers have excised the notions of agency and local action" (394). While the population health model focuses on the impact of unequal socioeconomic status (SES), it rarely questions the determinants of said inequality (Coburn, et al. 2003). Coburn et al. (2003) offer class as an alternative to SES, as a means of reframing the question of determinants of health and social inequality – the authors propose that class offers at once a more historically contextualized and more comprehensive route of inquiry into the structural disparities of status and health. Coburn et al. (2003) challenge population health's assumed transparency, neutrality and objectivity, and assert that rather than producing a "reliable proxy for reality" (393) by dividing broad layers of context into smaller, manageable units of analysis, the knowledge produced by this model is a product of the economic and epidemiological disciplines that founded the approach, and as such is not free of bias. Moreover, by dividing social phenomena into palatable packages (i.e. determinants of health such as income or educational attainment), the richness and depth of context is lost, as is the connection and relevance to any real community, family or individual (Coburn, et al. 2003)

Immigrant Health

Biocultural (Goodman and Leatherman 1998) and the Social Determinants of Health (Raphael 2004) approaches are useful in examining the health of immigrants in Canada and elsewhere. In this particular research economic conditions affect the stresses of migration and resettlement and political considerations include Canada's migration policy and the power dynamics between incoming migrants and the existing Canadian institutions. Social conditions that are particularly relevant to new mothers and especially New Canadian mothers comprise issues of social

isolation due to language, physical separation from one's family and friends back home, and the need to establish ties in a new community, often through community-based service organizations. Cultural considerations encompass the other aspects of everyday life and many of these pertain directly to infant and maternal nutrition, e.g. acquiring and preparing appropriate foods.

Immigration Policy in Canada

Immigrants to Canada can apply under three possible immigrant classes: economic, family, or humanitarian. Economic class immigrants are admitted to the country on the basis of their skills, training and experience. They must provide substantial evidence that they will be capable of supporting themselves and their dependants in their new life in Canada. The family class of migration is designed to reunify family members; established Canadian immigrants may sponsor the immigration of family members from their home country to Canada. An individual migrating on humanitarian grounds comes as an asylum seeker and applies for refugee status once he or she has arrived in Canada. For economic and family class migrants, the bureaucratic process of acquiring permanent residency status begins well before arriving in Canada; for asylum seekers, the process begins upon arrival in Canada. Part of the procedure involves a qualifying medical examination. The purpose of the immigration medical examination screening is to determine inadmissibility to the country on the grounds of existing medical conditions that would threaten the public's health or safety, or burden the Canadian tax-payer funded health care system (Gushulak and Williams 2004; McDonald and Kennedy 2004; Zencovich, et al. 2006). The immigrant medical exam requires a complete physical exam and screens for tuberculosis (Heywood, et al. 2003), syphilis (MacPherson and Gushulak 2008), and HIV/AIDS (Zencovich, et al. 2006). While the medical exam is intended to secure the well-being of newcomers and the safety of the Canadian public, the nature of the Canadian refugee policy and practices reduce the efficacy of the exam with regards to its primary goals. Refugees, refugee claimants and family class immigrants are required to complete a medical exam, but are rarely refused entry into the country on medical grounds. Zencovich et al. report that "the majorities of HIV-positive persons are exempt from exclusion from Canada due to class of application (refugee, family) or are already in Canada (refugee claimant)" (2006:813).

The Healthy Immigrant Hypothesis

The Canadian Immigrant Medical Examination is often cited as a reason for the relatively higher reported health status among recent immigrants, compared to native-born Canadians (Beiser 2005; Beiser, et al. 2002; McDonald and Kennedy 2004; Newbold 2005). The Healthy Immigrant

Effect, as presented by Chen et al. (1996) and Perez (2002), is based on the findings that recent immigrants report higher health status, greater satisfaction with health care services, have fewer chronic illnesses, and report fewer cases of disability than their native-born Canadian counterparts. However, it is well established in the literature that immigrant health status subsequently declines and converges with that of native-born Canadians (Chen, et al. 1996; Dunn and Dyck 2000; McDonald and Kennedy 2004; Newbold 2005; Newbold 2009; Newbold and Danforth 2003; Ng, et al. 2005; Perez 2002).

Most studies of the healthy immigrant effect and subsequent decline of immigrant health status mark the beginning of the health decline between five and ten years after arrival in Canada. Newbold's (2009) most recent publication, however, presents detailed findings from Statistics Canada's Longitudinal Survey of Immigrants to Canada (SLIC) which suggest that immigrant health declines much more rapidly than previously expected. Based on a series of three surveys administered to recent immigrants at 6 months (Wave 1), 18 months (Wave 2) and 24 months (Wave 3) after arrival, Newbold's analysis reveals that there is a dramatic increase in self- assessed health status of fair or poor health (from 3% in Wave 1 to 8% by Wave 3) and a significant decrease in self-assessed health status of excellent health (from 42% in Wave 1 to 22.9% in Wave 3). Intermediary self assessed health status of good, or very good, increased only slightly from 35.3% to 37.1% for the same time period.

Additionally, previous studies have lacked depth or detailed data on immigrant classes. Most studies of the healthy immigrant effect have treated all immigrants as a single homogeneous group, despite a considerable body of evidence confirming that refugees have markedly worse health conditions both mentally and physically upon arrival in Canada than their counterparts in other migration classes (Beiser 2005; Gagnon, et al. 2007; Rousseau, et al. 2002; Rousseau, et al. 1998; Simich, et al. 2005). Newbold (2009) has utilized data on immigrants' migrant classes to capture some of the health disparities across immigrant classes. Refugees were not only more likely to report fair or poor health in their early months after arrival, but were also twice as likely as economic class migrants to transition to fair or poor health status in the first few years after arrival (Newbold 2009). Family class migrants were also more likely than economic class migrants to transition to fair or poor health (~43% more likely) (Newbold 2009). Other social determinants indicative of transitioning health status were income level and employment – individuals who were working were less likely to report declining health (Newbold 2009). Immigrants with an income greater than $100,000 were less at risk of transitioning to fair or poor health status. Satisfaction with the settlement process (intended to capture some of the stressors associated with settlement) was also indicative of better reported health and

maintenance of a higher health status (Newbold 2009). Individuals who reported that they were satisfied, or neither satisfied nor dissatisfied, were less likely to rate their initial health upon arrival as fair or poor, and less likely to transition to fair or poor health status within the first two years after arrival (Newbold 2009). Determinants that were not significantly predictive of immigrant health status, despite literature theorizing on the many health benefits, were marital status and social interaction (Newbold 2009). Having a spouse, visiting with friends or family, or interacting with community groups were unimportant determinants of self-assessed health.

Proponents of the healthy immigrant hypothesis acknowledge that the observed decline in health among Canada's immigrants could also be an increase in vocalization of health concerns as a result of increased familiarity and access to health care providers, which could create bias in the data (McDonald and Kennedy 2004; Newbold 2005). The dramatic change in health status may be the result of a change in perceived health status, rather than a decline of physical health from the first year of residency to the fifth, tenth, and so on. While the healthy immigrant model may be a relatively effective means of modelling changes in health status in the Canadian immigrant population at large, its failure to offer any explanation or mechanisms for these outcomes is a major limitation of this research approach (Dunn and Dyck 2000). While selected determinants may be able to indicate which New Canadians are at risk for further health depreciation, the healthy immigrant effect's large scale, statistical model is mostly ineffective at a community or individual level. It makes no attempt to describe the actual changes that occur and stressors that imbue the settlement experience.

Acculturation model

Acculturation is a popular culture-based model employed in immigrant health research that is used to assess immigrant integration into a host culture. Like the biocultural approach, culture is employed as a determinant of health, and is over-simplified for the purposes of rapid assessment in health research. Like the healthy immigrant model, acculturation models are used to assess changes in large immigrant sample populations, though often in specific ethnic groups. Abraído-Lanza et al. define acculturation broadly "as the process by which individuals adopt the attitudes, values, customs, beliefs, and behaviours of another culture" (2006, 1342). Thompson and Hoffman-Goetz (2009) summarize that definitions and, consequently, models of measurement of acculturation vary from complete and irreversible assimilation into the host culture, a sliding scale of interactivity between two cultures, or more recently, separate processes of integration and maintenance of original culture. Most measurements of acculturation rely on proxy measures to estimate immigrant integration in to

the host society. Country of birth, ethnic identity, language of choice, English (or in parts of Canada – French) language proficiency are proxy measures common to almost all acculturation measurement systems. Other, more comprehensive measurement strategies also take into account generational status, number of years lived in the host country, age at immigration, and some also attempt to estimate changes in values and beliefs (Thomson and Hoffman-Goetz 2009).

There are several criticisms of the acculturation model. It lacks adequate theoretical grounding (Abraído-Lanza, et al. 2006; Thomson and Hoffman-Goetz 2009) and researchers seem to use diverse and ill-defined guidelines of 'acculturation'. Proxy measures of language and nativity are not suitably sensitive measures of integration and access (Thomson and Hoffman-Goetz 2009). The model ignores the importance of socio-economic status (SES), and too often, in the case of newcomers, low SES (Carter-Pokras and Bethune 2009). And, like the healthy immigrant hypothesis, acculturation models assume a certain degree of homogeneity across study groups. Many acculturation models, for example, aim to model acculturation among Latinos living in the United States. These models do not thoroughly differentiate between people immigrating from South America, Central America or the Caribbean (Carter-Pokras and Bethune 2009).

Carter-Pokras and Bethune (2009) maintain, however, that language proficiency and nativity have proven their validity as strong proxy measures of care and resource access and by extension, health equity. Alegria (2009) asserts that the acculturation model has its place as a rapid assessment tool for evaluating changes in economic and health status due to resettlement. Abraído-Lanza et al. (2006) have suggested that combining elements of the determinants of health model that deal with structural inequalities of resource access with the measures of acculturation may strengthen the existing model, but that the inquiry into the role of culture remains problematic. Culture, like acculturation, remains poorly defined in this arena of research, as is its role in health maintenance or degradation. The current use of proxy measures for culture continues to perpetuate the often vaguely inferered association between culture and health, and neglects to inquire after the situational contexts that may actually be promoting or inhibiting health (Abraído-Lanza, et al. 2006).

With regard to the health consequences of culturally inappropriate dietary changes, consider the following case studies of Canadian-Vietnamese mothers. In addition to other social determinants, social barriers prohibiting the completion of specific postpartum rites (i.e. the consumption of culturally dictated foods and practices carried out during the post-partum period) may significantly influence a mother's decision to breastfeed her infant. Ninety-two percent of immigrant mothers in Canada report that they breastfeed their infants (compared to 83% of non-immigrants) (Millar and Maclean

2005); however, among some ethnic groups breastfeeding has decreased since arrival in Canada. Among Vietnamese immigrant mothers in particular, breastfeeding initiation rates are dramatically different from those of their counterparts in Vietnam: 86% in Vietnam compared to between 36% (Sutton, et al. 2007), or 26% (Groleau, et al. 2006) since arrival in Canada, based on two small-scale qualitative studies. While Sutton, et al. (2007) suggest that this decision not to breastfeed is partly due to perceived poor maternal diet, Groleau, et al. (2006) probed further and determined that the usual excuses for not breastfeeding (not enough milk, distortion of breasts, need to return to work) were actually a mask for the real reason behind the decision to abandon breastfeeding: that the mothers' health was out of balance, as prescribed by the Vietnamese humoral health theory of *am/duong* (*yin/yang* or *hot* and *cold*). For Groleau, et al.'s (2006) participants, the loss of a social support network associated with migration had resulted in a failure to fulfill prescribed postpartum behaviours to re-establish the mothers' health after the birth. The mothers' perceived poor health then determined the perceived poor quality of their breast milk and their decision not to breastfeed (Groleau, et al. 2006). The loss of familial and other social support systems for new immigrant mothers can have important biological consequences; and the cultural roots of these problems are not necessarily uncovered using existing standardized methods such as large-scale cross-sectional surveys.

Child-maternal health and social support systems

While Newbold's (2009) study may not have found a relationship between social interaction and immigrant health status, there are a number of studies that suggest that social support systems are important in perinatal care and infant health. In the context of immigration, many expecting mothers may be separated from their social support network. As a result, these mothers are often dependant solely on themselves and their spouses for support and care, whereas ordinarily in their home countries, these women would rely on the assistance and attentions of extended family networks. The impact of extensive perinatal social support networks is measurable in birth outcomes. Feldman et al.'s (2000) UK study demonstrates a positive predictive correlation between maternal social support, fetal growth and birth weight. Dejin-Karlsson and Östergren's (2004) Scandinavian study of Swedish mothers and recent immigrant mothers from the Middle-East and Northern Africa suggests that perinatal social support is a particularly pertinent determinant among immigrant mothers for fetal growth. A study in the US among pregnant migrants from Mexico indicates that women with higher levels of social support during pregnancy also had a higher quality diet and fewer of the negative dietary

changes associated with living in the US observed in expecting immigrant mothers with low levels social support (Harley and Eskenazi 2006). These studies speak to the value of social support networks in perinatal care, and moreover, the importance of grounded qualitative studies in immigrant health research. Smaller-scale qualitative studies may allow the researcher to investigate issues in immigrant health that are not adequately captured in population-based statistical analyses, such as these maternal support networks and the barriers to breastfeeding among Vietnamese mothers (Groleau, et al. 2006; Sutton, et al. 2007).

Authoritative Knowledge

One of the aims of this research is to examine where mothers gather information about child care, and how they choose to use the knowledge acquired from various sources. Different sources of knowledge and different types of knowledge are assigned varying importance. Brigitte Jordan ([1978]1993) describes this phenomenon as authoritative knowledge, in which knowledge is distributed hierarchically, and particular ways of knowing gain validity while other forms of knowledge are delegitimized. Irwin and Jordan (1987) explain that authoritative knowledge is accepted "not only because it seems natural and reasonable" but also because it is often "associated with a stronger power base" (319). Authoritative knowledge is validated and accepted through practice, and social interaction (Irwin and Jordan 1987; Sargent and Bascope 1997).

The challenge for New Canadians lies in negotiating between the familiar authoritative knowledge systems of their home countries and the authoritative knowledge of the Canadian public health system. The authority of the Canadian public health system is reified in the form of recommendations – the recommendations of concern here are those pertaining to infant nutritional health. The World Health Organization (2010) and Health Canada (Health Canada 2004) recommend exclusive breastfeeding for the first six months of life. Breast milk is considered the most complete form of nutrition for infants; however, since breast milk may not contain sufficient amounts of vitamin D, Health Canada recommends that exclusively breastfed infants receive 400 international units (IU) of vitamin D supplementation until one year of age (2004). Health Canada advises that solid foods should be introduced at 6 months of age, and that parents should take care to ensure that these new additions to their infant's diet are nutritionally rich, particularly in iron (2004). Other Health Canada recommendations for maternal prenatal nutrition include vitamin supplementation and healthy weight gain during pregnancy. These are the recommendations that form the foundation of the prenatal curriculum of the OEYC group. These recommendations are also the standard against which

most Canadian population health studies compare breastfeeding initiation and duration rates. The authority and consequence of the Canadian biomedical system is affirmed through the use of recommendations as standards in formal research.

Conclusion

Biocultural theory explores the link between health disparities and disparities in power and access to material resources. The exploration of health as a product of SES has been furthered by the development of the social determinants of health model, which crystallizes the connection between environment, resource access, education and health. Both these models are particularly relevant to the investigation of immigrant health in Canada, as many immigrants, particularly recent immigrants, struggle with financial insecurity, under employment, as well as language and cultural barriers to social and material resources.

Immigrant health has largely been explored using population health models. In Canada, researchers favor the healthy immigrant hypothesis to explore and explain the rapid decline in health status among immigrants shortly after arrival in Canada. In the United States, researchers seem to favor the acculturation model – a large scale survey-based assessment of immigrants' integration into North American society. While these models are concededly useful tools for rapid assessment of large samples, they do not connect to the experiences of individuals on the ground, and as such, they cannot offer context or explanations for many of the phenomena they measure. A critical analysis of 'culture' and the construction of authoritative knowledge adds a dimension to immigrant health studies that examine maternal infant and child feeding practices that is otherwise missing from immigrant population health studies. Jordan's ([1978]1993) construction of authoritative knowledge through hierarchical power dynamics and didactic education resonates with the themes of unequal power and political authority expounded upon in both the social determinants of health and biocultural models. Additionally, examining these care practices and social support strategies qualitatively at the local level allows for the exploration of the heterogeneity of immigrant populations, the variability in migration experiences, and the complexity of maternal decision-making processes that have been, for the most part, consistently generalized in the literature.

Chapter III
Methods

Introduction

Completing Master's research in a collaborative research setting

This research is part of an on-going larger SSHRC-funded Research Development Initiative titled *From Knowledge to Practice: Vitamin D and New Canadian Mothers and Children*. This project is a collaborative investigation involving researchers at four Canadian institutions: Daniel Sellen (University of Toronto), Warren Wilson (University of Calgary), Esteban Parra (University of Toronto – Mississauga), and the primary investigator (and my graduate supervisor), Tina Moffat (McMaster University). My research plan has undergone several revisions and reiterations over the course of this collaboration and it has been an invigorating and often challenging experience to find a balance between my responsibilities as one of the project's three student research assistants and my research objectives as a Master's student in Anthropology.

The original aims of the larger *Vitamin D* research project have also been revisited since its initial proposal. The original research proposal justified the investigation of vitamin D status solely among New Canadian mothers and infants for a number of reasons: (1) Canada's northern latitude reduces our exposure to ultraviolet (UV) light, particularly through the winter months, thus limiting our synthesis of vitamin D and making us more reliant on dietary sources to meet recommended daily intake levels. (2) Skin pigmentation plays an important role in UV exposure and vitamin D synthesis; individuals with darker skin pigmentation require more UV exposure to produce comparable quantities of vitamin D (Brooke, et al. 1981; Calvo and Whiting 2003; Datta, et al. 2002; Glerup, et al. 2004; Holick 2007; Lips 2006; Ward 2005; Wishart, et al. 2007). (3) Social inequalities such as household financial or food insecurity, and structural barriers such as language, and access to education and nutritional information may influence the intake of vitamin D in the diets of New Canadian families (Beiser 2005; Chen, et al. 1996; Newbold 2009; Rush, et al. 2007). (4) Canada's increasingly multicultural demographic makes this line of questioning pertinent and timely as the health outcomes associated with migration and resettlement are further explored. In February, 2009, the project investigators hosted a workshop at the University of Toronto – Mississauga with experts in the fields of vitamin D research, pediatrics, lactation, and immigrant and refugee

health from across the country. Highlights from the workshop round-table discussion emphasized the fact that vitamin D deficiency is a concern for all Canadians, not only New Canadians. In light of this observation, and for comparative reasons, the focus group interviews were expanded to include interviews with Canadian-born mothers.

As a collaborative project, the team's decisions are determined by a committee process. The committee process is democratic, and has allowed the team to draw on many of the strengths of the researchers involved. One of the setbacks to the committee process is that it draws out the period of time required for each step in the research process; and the long-distances between institutions often makes the committee vetting process even more lengthy.

As a team, we developed two interview guides, one for interviews with immigrant mothers and one for interviews with Canadian-born mothers. The collaborating researchers stem from a background in anthropology, but their varied sub-disciplines and research interests contributed to an extensive preliminary list of questions which required editing and refinement. Since I was working under the lead investigator, and because my research timeline was the most restricted, Dr. Moffat and I took the lead on the question development for the interviews. As such, I had the opportunity to tailor a few of the questions to my specific research interests, namely how immigrant mothers' perinatal care practices had changed since their arrival in Canada, and the role of social support networks in maternal/child care.

As the only Master's student involved in the project, my research timeline has been much more pressing and immediate than the timelines of my fellow research assistants (now both 2nd year doctoral candidates). As a result, my research aims and methods have had to be flexible. Knowing that the focus group interviews would likely not take place until the fall of my second year, I incorporated quantitative methods into my research plan that could be conducted in the interim. My analysis of the 2007 CCHS data was conducted independently from the project, but has informed some of the questions included in the interview guides.

Theoretical approach

Given the need for flexibility in my research plan, this investigation has assumed many of the characteristics of a grounded theory (GT) approach – particularly constructivist grounded theory (Charmaz 2000). Both constructivist and objectivist grounded theory approaches draw on data from a variety of sources, collecting and analyzing data somewhat simultaneously, and using the accumulating results to refine the line of questioning. Grounded theory is a form of inductive reasoning. By exploring

themes that emerge from the data, researchers can avoid the trap of trying to fit data into preexisting frameworks and theories, and allow the data to represent itself. Several criticisms have been leveled against Glaser and Stauss' (1967) original grounded theory approach, in particular postmodernists have highlighted the limitations of GT's positivistic approach, questioning the value of 'maintaining objectivity' and whether such a feat is even possible (Charmaz 2000; Mills, et al. 2006). Kathy Charmaz's (2000) constructivist approach to GT addresses many of the postmodernists' criticisms, and embraces a more interpretive approach that relishes the role of the researcher as author. Charmaz explains,

> A constructivistic grounded theory recognizes that the viewer creates the data and ensuing analysis through interaction with the viewed.... The viewer then is part of what is viewed rather than separate from it. What a viewer sees shapes what he or she will define, measure, and analyze. (2000: 524-523)

By employing a flexible, exploratory approach in this study, I feel I have allowed the data at hand to inform subsequent stages of this research, which has in turn helped to shape the analysis. The constructivist GT approach seems to be particularly well suited to focus group interview methods where the interviewer participates directly in the discussion and the generation of data – guiding the conversation through the semi-structured interview guide, and often admittedly validating the responses of the participants.

Quantitative Data

The purpose of using quantitative data in this study is to situate the child feeding and care practices of New Canadian mothers in Hamilton, Ontario within the national context. This portion of the research employs a comparative approach (between New Canadian mothers and Canadian-born mothers) similar to that of other social determinants of health studies and studies of the healthy immigrant effect (Chen, et al. 1996; McDonald and Kennedy 2004; Millar and Maclean 2005; Newbold and Danforth 2003).

This portion of the research uses data from the 2007 CCHS courtesy of the Statistics Canada Research Data Centre (RDC) at McMaster University. RDCs are located in numerous academic institutions across the country and house the confidential datasets of all the surveys administered by Statistics Canada. In order to access these files, researchers must apply for clearance, and justify the need to use the confidential (i.e. complete) files over the Public Use Micro-files (or PUMF). The PUMF are distributed by the Statistics Canada Data Liberation Initiative – these files are available to the public, but usually several months after the confidential files are available in the RDCs. In addition, the PUMF data have been adjusted or weighted to maintain the

confidentiality of the survey participants. Many of the survey categories are aggregated into broader categories, disabling sensitive inquiries. For example, data on immigrant participants' country of origin are not available in the CCHS PUMF (the values for this variable in the PUMF are 'born in Canada' and 'born outside of Canada'); data on the specific countries of origin are available, however, in the confidential dataset. Thus, the most current and complete data are only available through the RDCs.

A Statistics Canada analyst in Ottawa reviews each application to verify that the research project is appropriately suited to the datasets that have been requested. Researchers must specify which surveys they intend to use and which variables are of interest. This review process takes approximately six to eight weeks, and amendments to the application form add time to this process.

The RDCs are secure computing facilities with restricted keycard access only. Each project is password protected and there is no external internet access within the facility. Data must be vetted by an analyst before it can be removed from the RDC. Any attributes that result in a value of less than 5 (for example, in a cross-tabulation) must be aggregated to protect the confidentiality of survey participants. After a portion of the data has been released, special care must be taken when seeking the release of subsequent data so as not to produce shadow values that violate this RDC policy. Shadow values are the values that could potentially be obtained by comparing data releases that have been treated slightly differently (i.e. applying different filters, or aggregating values differently).

The CCHS is a national cross-sectional survey sampling Canadians 12 years of age and older from all provinces and territories, excluding institutional residents, residents of aboriginal reserves, full-time members of the Canadian Forces, and residents of some remote areas. While there are other national Canadian surveys that sample Canada's immigrant population exclusively, the CCHS was used because it contains questions about infant feeding and vitamin D supplementation. In the interest of comparison, the CCHS survey sample population also includes Canadian-born residents. Descriptive statistical analysis (cross-tabulation and frequencies) and regression analysis (binary logistic, and linear regression) were used to explore various social and demographic determinants as indicators of breastfeeding and supplementation practices among both Canadian-born and New Canadian mothers. The sample consisted of women who had given birth in the last five years at the time the survey was conducted. Statistical computing software SPSS Version 16, provided by the RDC, was used for this analysis. Adjusted weights were used for all cross-tabulations and logistic regression analyses (Master weight * sample n / master-weighted sample n). Statistical significance was determined for p values < 0.05.

All the statistical data presented in this thesis has been approved for release and publication by Statistics Canada, however, while the research and analysis are based on data from Statistics Canada, the opinions expressed do not represent the views of Statistics Canada.

Qualitative Data

Qualitative data collection allows the researcher to explore the heterogeneity of New Canadian mothers' agency, compliance, and decision-making that is otherwise unobservable with population-based quantitative approaches.

Focus Group Interviews

The research team decided to employ focus group interviews as the primary means of data collection for a number of reasons. Focus groups are unique among qualitative research methodologies in that they provide a space for participants to interact with one another and the mediator (Lehoux, et al. 2006). Focus groups can be an invaluable tool for pilot studies because they allow for the efficient collection of large amounts of data. In Hamilton a total of six focus group interviews were conducted with 37 mothers – 22 of whom were immigrants. The two group interviews with Canadian-born mothers and immigrant mothers were conducted separately with tailored interview guides reflecting disparate life experiences. Interviews with New Canadian mothers consisted of thirteen questions which explored family eating habits, infant feeding practices, breastfeeding, vitamin supplementation, perinatal practices and social support. Following Krueger's (2009) recommendation that no interview take longer than two hours, and out of respect for participants' busy schedules, we aimed for each interview to take approximately one hour for questions, plus 20 – 30 minutes beforehand for registration and review of the letter of information (see Appendix A).

Participants were recruited through a cooperative effort with the Ontario Early Years Centers in Hamilton, Ontario. Ontario Early Years Centers (OEYCs) are government-funded community-based organizations providing recreational and educational facilities and programming for young children and their care-givers. The Centers are affiliated with Hamilton Public Health, which provides the services of a public health nurse and dietician for the Welcome Baby program hosted at the OYECs created for expecting mothers. The OEYC staff at four different centers in the city was provided with information about the study to pass along to the OEYC patrons. The OEYC were provided with screening criteria (immigrant or Canadian-born; must have a child under the age of three). Mothers who were interested in participating in the focus group interviews were provided with

a letter of information, scheduled to attend the appropriate focus group (New Canadian/Canadian-born) and later contacted by telephone to confirm their attendance at the interview. On the day of the interview, the primary interviewer (myself or Dr. Moffat) reviewed the letter of information to ensure that participation was voluntary. Along with a form of consent, the participants also completed a short demographic survey (Appendix B). Though translated versions of the study information were offered, in the end, the study information was provided in English at the advisement of the OEYC coordinator. The interviews were also conducted in English. The interviews were held at the four OEYCs, all but one of the interviews were conducted in private rooms. This setting was deemed appropriate as many of the mothers had attended *Welcome Baby* group sessions and other child/maternal educational programs at the Centers (Krueger 2009). It was also a convenient location for mothers with older children because the OEYCs provided child minding services during the interviews. At the end of focus groups, each mother was provided with some information about vitamin D and infant nutrition, and compensated for their participation and travel expenses with a $25 grocery gift card and bus tickets. Ethical approval was obtained from the McMaster University Research Ethics Board prior to contacting the OEYC coordinators.

The focus of my research from the outset has been on New Canadian mothers – several questions in the interview pertain directly to changing perinatal and childcare practices since arrival in Canada – thus I have focused my analysis on the data collected in the interviews with the New Canadian mothers only. The study sample of concern for the purpose of the research presented in this thesis consists of twenty-two immigrant women originating from various countries in Europe, the Middle East and Asia. Digital audio recordings of the interviews were transcribed for the purposes of analysis. I began my analysis with a reading of the transcripts – initially with the following research questions in mind: (1) the role of dietary practices and social support systems in pre-natal, post-natal and early child health; (2) and how mothers of different immigrant groups have maintained or modified these practices and social networks since their arrival in Canada. Upon discovery of a recurring pertinent theme that I had not originally considered, I revised the research objectives of my original research proposal to include lines of questioning that addressed the sources of contested information or recommendations about infant and child feeding and how mothers apply it to their decision-making and everyday practices. The transcriptions were then coded thematically in NVivo 8 (QSR International), using the three revised research questions to form the broadest, parent tree-nodes. Opinions of using computer-based analysis software to assist in analysis are mixed. Charmaz (2000) summarizes the views of both camps: on the one hand, programs like NVivo have been built to facilitate emergent theme analysis,

allowing researchers to organize themes for effective mapping and relationship visualization and attach memos directly to text (520). Other researchers favor a more interpretive approach, chiding software analyst users for fragmenting the data and ignoring the whole story – particularly, for a constructivist approach. As a first-time NVivo user, I found the program frustrating at first for these exact reasons. Only a few lines of the transcript are viewable at a time in the source window, and it was difficult to create themes and connect them based on such a small amount of visible text. To resolve this issue, I printed the transcripts and indentified the material to be coded on paper – this allowed me to examine the responses of each participant from the beginning to the end of each interview, and explore the participants' interactions with one another and with the interviewer. The paper-based coding exercise involved writing margin notes and brief memos, and identifying material from the transcripts that could be coded into the broad revised objectives (recall, one of these objectives was revised after an immersive reading of the transcripts). The results of the paper-based analysis exercise were then entered into NVivo, where I was then able to create more detailed sub-categories (or child-nodes) for each parent-node. Using these methods in tandem has allowed me to consider the interviews as a whole, apply my observations to a thematic coding scheme and visualize relationships between the data.

Limitations

The limitations and challenges associated with the CCHS pertain largely to sample size and representation. Since this analysis focuses on the sample of women who have given birth in the last five years, and the population of interest is immigrant women, the small sample size often means giving up the desired statistical sensitivity. Several divisive categories were aggregated during the analysis in order to respect participant anonymity. The CCHS does not distinguish between different classes of immigrants (economic, family, refugee) despite evidence confirming that refugees have considerably poorer health statuses than immigrants of other migrant classes (Barnes and Harrison 2004; Beiser 2005; Newbold 2009; Rush, et al. 2007; Simich, et al. 2005). Geographical sensitivity, both country of origin and area of residence in Canada, was unobtainable using this particular survey due to the restricted sample size.

Population health models are often critiqued for not meaningfully representing the reality of individual or community lived experience; social determinants of health models are also critiqued for avoiding the subject of causation when it comes to exploring inequalities. By pairing these large-scale survey quantitative methods with small-scale qualitative methods, some of these shortcomings may be addressed.

While recruiting in cooperation with the OEYCs was convenient and efficient, drawing from this pool of potential participants has created a biased sample. The participants of this study are for the most part well-informed about infant feeding practices and Health Canada's recommendations for maternal and child care because they have attended Welcome Baby classes. These mothers have become demonstrably involved in their neighbourhood communities (through the OEYCs) since their arrival in Canada, creating new social networks and accessing community resources. As such, this research is as much an exploration of the role of the OEYCs in migrant settlement as it is an investigation of the maintenance and modification of diverse perinatal and child care practices in Canada. Additionally, by hosting the interviews at the OEYCs and collaborating with the OEYC coordinators, we have likely influenced the mothers' responses to our questions, more so than if these interviews had been conducted outside the OEYCs in a more neutral setting. As such, responses validating the importance of the OEYCs, and the success of the public health programming should be carefully interpreted.

While the original research plan proposed to conduct the New Canadian focus group interviews in three or four different languages and employ translators, recruiting through the OEYCs meant that there were far more mother tongues than could feasibly be accommodated in only four interviews. As such, all the interviews were conducted in English. Communication was challenging at times, but the interviewers were careful to rephrase any questions that seemed unclear, and the participants helped each other search for words and often finished each other's sentences. The experience was rich, and though perhaps not as deep or detailed, it has only served to highlight the potential for more research in this arena. A further limitation of this pilot study is that we only interviewed mothers. Spouses, other family members, friends and OEYC staff members were not included in our research sample. This may be an important consideration for future studies, as the attitudes and support of mothers may measurably contribute to their infant feeding practices.

The use of semi-structured interviews lends itself to a range of responses which are not always comparable across interview groups or replicable. Participants often steer the conversation away from the interviewer's intended meaning, illuminating the heterogeneity of interpretations and exploiting the interviewer's assumptions. The semi-structured interview allows the participants to discuss what they consider to be the most pertinent aspects of the question, which can be very informative. Retrospectively, the lack of observation of *Welcome Baby* sessions and other activities at the OEYCs is perhaps a pertinent limitation in this research. Upon completion of the analysis of the focus group data, it has become clear that the OEYCs have an important role to play in communicating public

health information, and indeed play a determining role in the decision-making process of many of the participating mothers. From an applied anthropology perspective, the OEYCs may represent a fruitful avenue of access and intervention for future research with New Canadian families. Follow-up questions about contested knowledge and decision-making could triangulate these emergent themes more explicitly; however, arguably, these themes are based on multiple responses from multiple participants in all four interviews, often un-prompted by the interviewer, and may be considered valid.

Overall, the most challenging aspect of this project has been to find a way to distinguish the research for my Master's thesis from the larger *Vitamin D* project. By targeting New Canadian mothers only and concentrating my analysis of the focus group interviews on knowledge acquisition, decision-making and social support strategies (as opposed to breastfeeding, and vitamin supplementation practices), I have been able to share the collected data, but produce a body of research that is unique. Having a somewhat flexible plan has also allowed me to take advantage of and explore emerging themes that, at first glance, appear peripheral to the content of the interviews.

Conclusion

This study utilizes quantitative data from the CCHS and focus group interview data in a multi-level, and complimentary analysis of maternal and childcare practices among New Canadian mothers. Determinants of health, such as education, income, and marital status are explored at the population level, while some of the finer aspects of social support and knowledge acquisition are explored at the community or individual level. Together, the results of these methods contextualize each other and enrich the picture of an immigrant mother raising a young child in Canada.

Chapter IV
Evidence from the 2007 Canadian Community Health Survey

Introduction

This chapter presents the results from the statistical analysis of the 2007 CCHS data and a discussion of these results. This analysis examines breastfeeding, exclusive breast feeding and vitamin D supplementation practices among New Canadian and Canadian-born mothers. The purpose of this quantitative analysis is to explore these practices with respect to national and international recommendations.

Health Recommendations

The term 'weaning' is somewhat ambiguous as it is often used to describe both the introduction of solid foods and the cessation of breastfeeding. Moffat (2001) summarizes that weaning should be considered a process that involves both of these stages, including an intermediate period of breastfeeding with complementary feeding. Throughout this thesis, I have used the terms 'introduction of solid foods/liquids' and 'cessation of breastfeeding, or exclusive breastfeeding' to avoid confusion. The term 'weaning' is only used in discussions of publications where the authors have used 'weaning' to mean 'introduction of solid foods'.

Exclusive breastfeeding for the first six months of life is universally recommended by Health Canada (Health Canada 2004) and the World Health Organization (WHO) (World Health Organization 2001). Although the WHO issued the recommendation in 2001, Health Canada weighed the evidence presented by the WHO against the results of large infant feeding studies conducted elsewhere in the world, including Belarus (a setting Health Canada considers comparable to Canada's with regards to potable water and sanitation), before officially adopting the recommendation (Health Canada 2004). Exclusive breastfeeding refers to feeding infants solely breast milk, to the exclusion of all other liquids, breast milk replacements, and solid foods (Health Canada 2004). By extending the exclusive breastfeeding period from four to six months, infants reportedly experience fewer gastrointestinal infections and mothers delay menses; additional advantages associated with the latter include a longer period between births, and a decreased loss of blood, and thus decreased loss of iron (Health Canada 2004).

At six months, Health Canada recommends that parents begin adding transitional foods to their infants' diets in addition to breast milk (Health Canada 2004). Mothers are encouraged to continue partial breastfeeding until at least two years of age, and Sellen (2007) suggests that epidemiological and evolutionary lines of evidence support these recommendations with an even longer optimal breastfeeding period of at least three years. In practice, however, it is clear that few women actually wait until their children are six months of age before introducing complementary foods. The delayed introduction of complementary foods until four to six months of age is thought to decrease a child's risk of food sensitivity, allergies, eczema and asthma (Greer, et al. 2008; Zutavern, et al. 2008). There is also evidence that delayed introduction of complementary foods many reduce the risk of overweight and obesity in older children (Seach, et al. 2010).

As a co-requisite of exclusive breastfeeding, Health Canada also recommends that infants' diets are supplemented with vitamin D (Health Canada 2004). Vitamin D is synthesized in the body through exposure to UV rays, and may also be obtained from dietary sources such as fatty fish, or fortified foods (i.e. fluid milk and milk substitutes, some juices) (Holick 2007; Lips 2006). Although human milk contains greater quantities of vitamin D than unfortified cow's milk (Greer, et al. 1982), it generally doesn't contain adequate levels of vitamin D to satisfy the nutritional requirements of an exclusively breastfed infant (Hollis and Wagner 2004). Adequate maternal vitamin D stores contribute to infantile vitamin D levels and are integral to third trimester fetal skeletal development and preventing infantile rickets – as such, it is also recommended that pregnant and lactating mothers supplement their diets with vitamin D (Prentice 2008; Ward 2005). Hollis and Wagner's research (2004) demonstrate that infant vitamin D requirements may be met by improving maternal vitamin D stores by supplementing substantially beyond the recommended 400 international units per day (IU/d). The authors observed that maternal vitamin D supplementation in the ball park of ~4000 IU/d satisfies both maternal and breastfed infant vitamin D requirements by increasing the mother's vitamin D stores and thus the vitamin D content of her breast milk - moreover, 4000 IU/d appears to be safe for both mothers and infants. While Calvo and Whiting's (2009) review of the current literature on vitamin D supplementation also supports higher supplementation doses than the current 400 IU/d, the authors indicate that the safe upper intake levels – no risk of ill effects in healthy people – is only 2000 IU for anyone older than one year, and 1000 IU for children under one year (Calvo and Whiting 2009:367). Hollis and Wagner (2004) consider sun-safe messaging and sunscreen use to be the culprit for a reduction of individual vitamin D synthesis on the range of 10000–20000 IU/d. They conclude that the current recommendation of

400 IU/d is outdated, and fails to demonstrably improve maternal or breastfed infant nutritional status.

With respect to the Canadian demographic, higher latitude is expected to reduce UV exposure and thus vitamin D levels; this presents a concern for Canadians through the winter months, especially individuals with darker skin pigmentation who require between 5 and 10 times as much UV exposure to produce comparable quantities of vitamin D (Chen, et al. 2007). Beyond biological risk factors, social or economic strain, potentially resulting in household food insecurity, or limited access to health services and information, or culturally mediated behavior, such as keeping covered outdoors, may restrict the bioavailability of vitamin D (Kimball, et al. 2008; Lips 2006; Wishart, et al. 2007).

Sample

This analysis uses data from the 2007 CCHS. The CCHS is a national cross-sections survey which collects data on the health status and the health determinants of Canadians. According to the CCHS User Guide, a document explaining the methods employed in the collection and administration of data for the CCHS, Statistics Canada employs interviewers with a variety of language backgrounds in an attempt to remove language barriers and facilitate the equitable collection of data (Statistics Canada 2009).

Table 4.1 presents the sample of 2701 women by selected descriptive demographic variables: age, marital status, breastfeeding experience, immigrant status, educational attainment and annual household income. Missing values account for cases where the respondent did not know, refused to answer, did not respond, or the question was non-applicable. The sample consists of women who have given birth in the five years preceding the data collection, for this survey cycle, women who had given birth between 2002 and 2007. This is a qualifying criterion for a series of questions regarding maternal experiences; many of the maternal experience variables are explored in this analysis.

Total: 2701	n	%
Age:		
< 25:	329	12.2%
25-29:	572	21.2%
30-34:	850	31.5%
35+:	950	35.2%
Marital Status:		
Single, Divorced, Separated, Widowed:	406	15.0%
Married, Common-law:	2294	84.9%
Initiated Breastfeeding:		
Yes:	2351	87.1%
No:	350	12.9%
Exclusively breastfed last child for at least 6 months:		
Yes:	576	21.3%
No:	1975	73.1%
Immigrant Status:		
Immigrant:	623	23.1%
Canadian-born:	2068	76.8%
Highest Level of Education:		
Less than high school:	291	10.8%
High school graduate:	375	13.9%
Some post-secondary:	187	6.9%
Post-secondary graduate:	1836	68.0%
Annual Household Income:		
< $30,000:	454	16.8%
$30,000 - $49,000:	404	14.9%
$50,000 - $80,000:	702	26.0%
> $80,000:	927	34.3%
Household Food Security Status:		
Food secure:	2319	85.9%
Moderately food insecure:	283	10.5%
Severe food insecurity:	53	2.0%

Table 4.1: Profile of sample – Women who have given birth in the last five years (CCHS 2007)

Results

Breastfeeding Practices and Vitamin D Supplementation

Nearly all the mothers in the sample initiated breastfeeding (87.1%), though more New Canadian mothers initiated breastfeeding than their Canadian-born counterparts (94% compared to 85%) (Figure 4.1). The same pattern holds for exclusive breastfeeding for at least six months, with 28% of New Canadian mothers, but only 21% of Canadian-born mothers meeting the Health Canada exclusive breastfeeding recommendation.

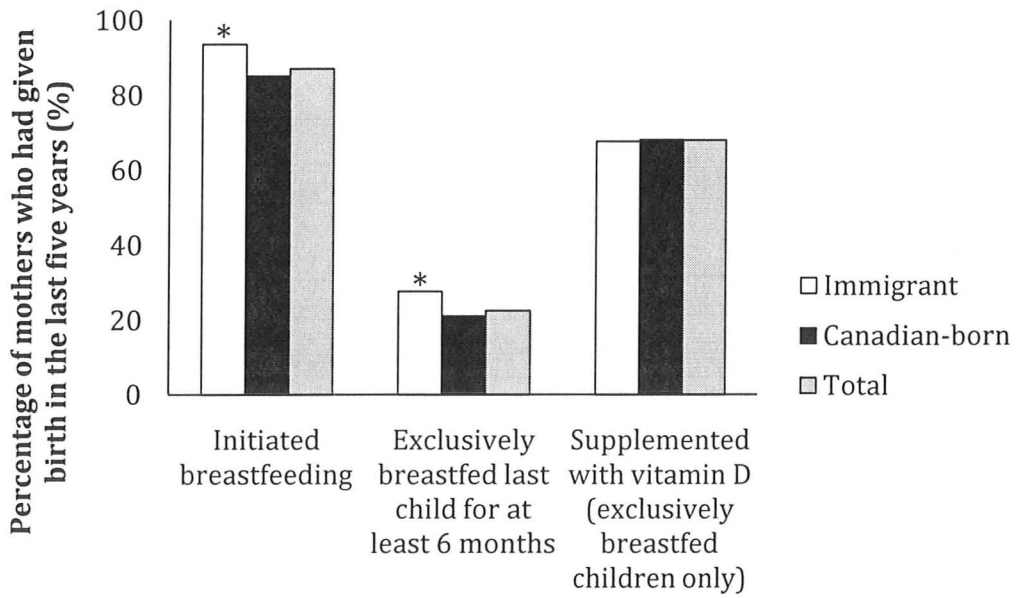

Figure 4.1: Breastfeeding initiation, exclusive breastfeeding for at least six months, and vitamin D supplementation among immigrant and Canadian-born mothers.
* Significantly different from value for total ($p \leq 0.001$)

The prevalence of breastfeeding initiation and exclusive breastfeeding for at least six months among immigrant mothers was significantly different from the value for the total ($p = 0.000$ and 0.001, respectively). Among exclusively breastfeeding mothers, roughly the equivalent proportion of immigrant mothers and Canadian-born mothers supplemented their children with vitamin D (67.7% and 68.1%, respectively).

Determinants of Breastfeeding Practices

Social determinants of health variables were tested to evaluate their associations with breastfeeding practices. Age, marital status, educational attainment, annual household income and immigrant status were explored as possible predictive factors.

The prevalence of breastfeeding initiation was lower than the value for the total among mothers between the ages of 25 and 29 (83.5%), and among mothers who were single, divorced, separated or widowed (81.3%). Breastfeeding initiation was also lower among mothers from lower income households (<$30,000 annually) (79.1%), while women from the highest income households (>$80,000 annually) exhibited higher-than average breastfeeding initiation prevalence (91.3%) (Table 4.2). In terms of exclusive breastfeeding for at least six months, the prevalence fell well below the total value for mothers under the age of 25 (13.7%). More than two thirds of exclusively breastfeeding mothers supplemented with vitamin D; however, fewer mothers from the lowest two household income brackets (58.3% and 61.0%) supplemented compared to their counterparts in the highest income bracket (75.2%). Single mothers also exhibited a lower prevalence of vitamin D supplementation (57.2%) compared to their counterparts who were married or living with a common-law partner (Table 4.2).

Education was an important determinant; nearly every increase in educational attainment (i.e. from 'Less than high school' to 'High school graduate') was associated with an increase in prevalence of breastfeeding initiation, exclusive breastfeeding for at least six months, and vitamin D supplementation (Table 4.2). Binary logistic regression was used to test which determinants were predictive of breastfeeding and vitamin supplementation practices (Table 4.3). Mothers with higher educational attainment were more likely to initiate breastfeeding, exclusively breastfeed for at least six months and supplement their infants with vitamin D ($p < 0.001$ in all cases). Canadian-born mothers were less likely to breastfeed or exclusively breastfeed than their immigrant counterparts. Immigrant status, however, does not appear to be indicative of vitamin D supplementation practices.

Whether mothers took folic acid during their pregnancy was used as a proxy measure of general health knowledge and compliance with health recommendations. It appears to be related to exclusive breastfeeding and vitamin D supplementation practices, as mothers who did not take folic acid while pregnant were less likely to exclusively breastfeed or supplement with vitamin D ($p \leq 0.001$).

Model chi-square values indicate that the variables in the logistic regression model are significantly predictive of dependant variable out-

comes, however, the Nagelkerke (pseudo) P3 values indicate that only approximately 4%-12% of the variation can be explained by the model.

	n	Initiated breast-feeding	Exclusive breastfeeding for at least 6 months	Supple-mented with vitamin D[2]
		Prevalence %	Prevalence %	Prevalence %
Total:	2701	87.1%	22.6%	68.0%
Age:				
< 25:	329	85.7%	*13.7%	61.9%
25-29:	572	*83.5%	21.4%	69.0%
30-34:	850	89.5%	24.0%	69.8%
35+:	950	87.4%	25.1%	67.9%
Marital Status:				
Single:	406	*80.3%	21.9%	*57.2%
Married, Common-law:	2294	88.2%	22.7%	69.7%
Highest Level of Education:				
Less than high school:	291	*64.9%	*10.8%	*49.7%
High school graduate:	375	*81.6%	*16.3%	*58.8%
Some post-secondary:	187	*94.1%	23.5%	*55.6%
Post-secondary graduate:	1836	*91.1%	*25.8%	*72.5%
Annual Household Income:				
< $30,000:	454	*79.1%	20.0%	*58.3%
$30,000 - $49,000:	404	84.7%	23.3%	*61.0%
$50,000 - $80,000:	702	87.2%	22.1%	67.9%
> $80,000:	927	*91.3%	23.6%	*75.2%
Immigrant Status:				
Immigrant:	623	*93.6%	*27.7%	67.6%
Canadian-born:	2068	85.1%	21.1%	68.1%

Table 4.2: Prevalence of breastfeeding initiation, exclusive breastfeeding, and vitamin D supplementation of exclusively breastfed infants among Canadian mothers by age, marital status, level of education, household income and immigrant status (2007 CCHS)

* Significantly different from value for total (p = 0.05).

[2] Exclusively breastfed infants only.

Breastfeeding initiation[a] *n = 2683*	*B*	Wald χ^2	Inverted odds ratio	*p*
Age: (1, 2, 3, 4 categories)	0.186	9.257	0.83	0.002
Marital Status (0: no, 1: yes)	-0.318	4.279	1.376	0.039
Highest Level of Education: (1, 2, 3, 4 categories)	-0.577	120.229	1.78	< 0.001
Annual Household Income: (1, 2, 3, 4, categories)	-0.004	2.486	1.004	0.115
Immigrant Status: (1: immigrant, 2: non-immigrant)	1.016	30.919	0.362	< 0.001
Took Folic Acid while Pregnant: (1: yes, 2: no)	...	...	...	...
Exclusive breastfeeding for at least 6 months[b] *n = 2516*	*B*	Wald χ^2	Inverted odds ratio	*p*
Age: (1, 2, 3, 4 categories)	-0.078	4.509	1.081	0.034
Marital Status: (0: no, 1: yes)	0.247	6.373	0.781	0.012
Highest Level of Education: (1, 2, 3, 4 categories)	-0.267	49.975	1.305	< 0.001
Annual Household Income: (1, 2, 3, 4 categories)	-0.001	1.146	1.001	0.284
Immigrant Status: (1: immigrant, 2: non-immigrant)	0.342	19.995	0.711	< 0.001
Took Folic Acid while Pregnant: (1: yes, 2: no)	0.296	16.051	0.743	< 0.001
Supplemented with vitamin D[c] **(exclusively breastfed infants only)** *n = 1961*	*B*	Wald χ^2	Inverted odds ratio	*p*
Age: (1, 2, 3, 4 categories)	0.161	8.063	0.851	0.005
Marital Status: (0: no, 1: yes)	-0.364	6.052	1.439	0.14
Highest Level of Education: (1, 2, 3, 4 categories)	-0.291	29.02	1.337	< 0.001
Annual Household Income: (1, 2, 3, 4 categories)	0.001	0.98	0.999	0.755
Immigrant Status: (1: immigrant, 2: non-immigrant)	0.001	0	0.999	0.996
Took Folic Acid while Pregnant: (1: yes, 2: no)	0.686	5.298	0.503	< 0.001

Table 4.3: Binary logistic regression analyses: breastfeeding initiation, exclusive breastfeeding and vitamin D supplementation (2007 CCHS)

a. Model Omnibus $\chi^2 = 173.681$, df = 5, sig. < 0.001; Nagelkerke P3 0.117
b. Model Omnibus $\chi^2 = 138.461$, df = 6, sig. < 0.001; Nagelkerke P3 0.039
c. Model Omnibus $\chi^2 = 94.512$, df = 6, sig. < 0.001; Nagelkerke P3 0.069

Duration of Breastfeeding

Most women initiated breastfeeding, and nearly half (~48%) of the mothers surveyed breastfed their children to the age of six months. Approximately 45% of Canadian-born mothers breastfed for at least six months, whereas, more than 60% of immigrant mothers breastfed for at least six months (Figure 4.2).

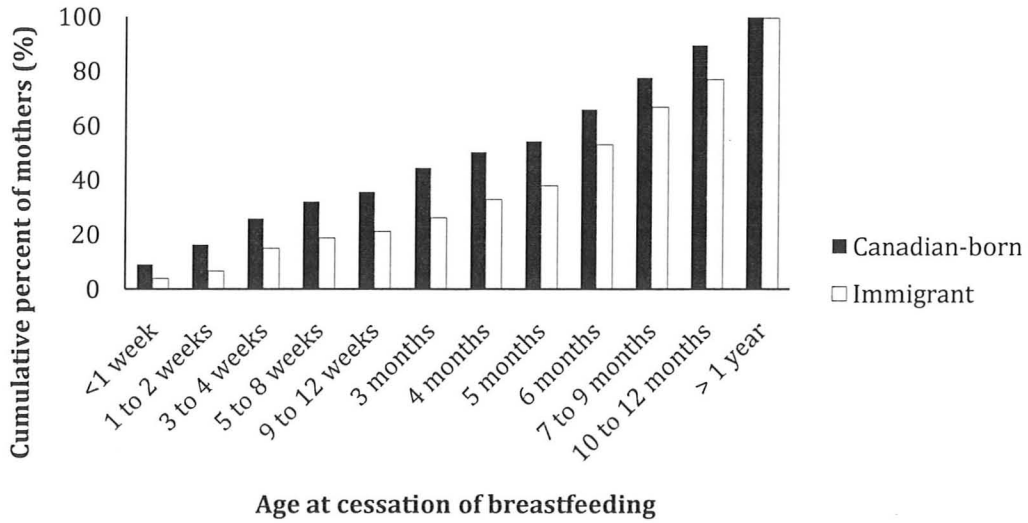

Figure 4.2: Breastfeeding cessation among Canadian-born and immigrant mothers who have given birth in the last 5 years, *n = 1599* and *n = 296*, respectively (2007 CCHS).

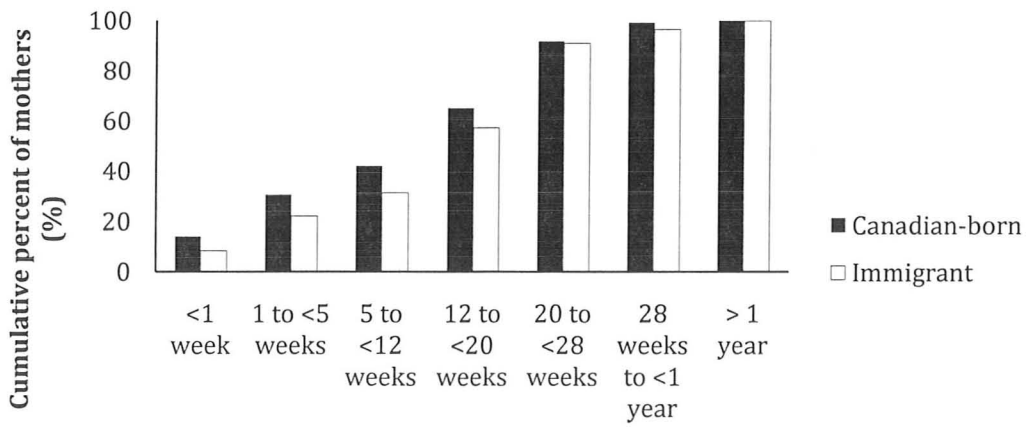

Figure 4.3: Exclusive breastfeeding cessation among Canadian-born and immigrant mothers who have given birth in the last 5 years, *n = 1800* and *n = 379*, respectively (2007 CCHS).

Thirty percent of Canadian-born mothers stopped exclusively breastfeeding within the first five weeks after birth, and 65% had quit within 5 months (Figure 4.3). In contrast, only 22% of immigrant mothers had stopped exclusively breastfeeding within 5 weeks, and only 57% within 5 months (Figure 4.3). Though by 28 weeks, ~91% of both immigrant and Canadian-born mothers had ceased exclusive breastfeeding.

A linear regression analysis revealed that the length of time in Canada (immigrant only) was not significantly associated with duration of breastfeeding ($t(1) = -1.573$, $p = 0.117$) or exclusive breastfeeding ($t(1) = -.261$, $p = 0.794$).

Nearly one quarter of all the mothers surveyed justified stopping breastfeeding because they no longer produced enough milk for their child. Frequently offered alternative explanations included '[baby] was' ready for solid foods' and '[baby] weaned [his/her] self' (Table 4.4).

CCHS 2007		CCHS 2003 (Millar and Maclean 2005)	
Not enough milk	24.1%	Not enough milk	23%
Ready for solid foods	15.4%	Child weaned self	17%
Child weaned self	13.7%	Returned to work/school	14%
Planned to stop	10.0%	Inconvenient	12%
Inconvenient	8.7%		
Difficulty	8.2%		
Returned to work/school	8.0%		
Medical condition (baby)	4.4%		
Medical condition (mother)	3.9%		
Formula healthy	1.2%		
Advice of doctor	1.1%		
Advice of others	0.4%		
Other	0.9%		

Table 4.4: Most common reasons for stopping breastfeeding 2003 CCHS (Millar and Mclean, 2005) and 2007 (women who have given birth in the last 5 years – 2007 CCHS)

Reasons for adding solid foods and other liquids differed depending on the child's age at introduction. Mothers who introduced foods and liquids earlier (3 months old or younger), were more likely to cite 'not enough breast milk', 'difficulty breastfeeding' or 'breastfeeding was an inconvenience' as reasons for introducing solids compared to the mothers who introduced foods later. Thirty-four percent of mothers who introduced foods/liquids early explained that they had done so because they did not

have enough breast milk, whereas only 12% of mothers who introduced solid foods later offered this response. 'Baby was ready for solid foods' was offered in explanation by 61% of mothers who started foods after four months of age, but only for 19% of mothers who started solid foods before the age of four months (Table 4.5).

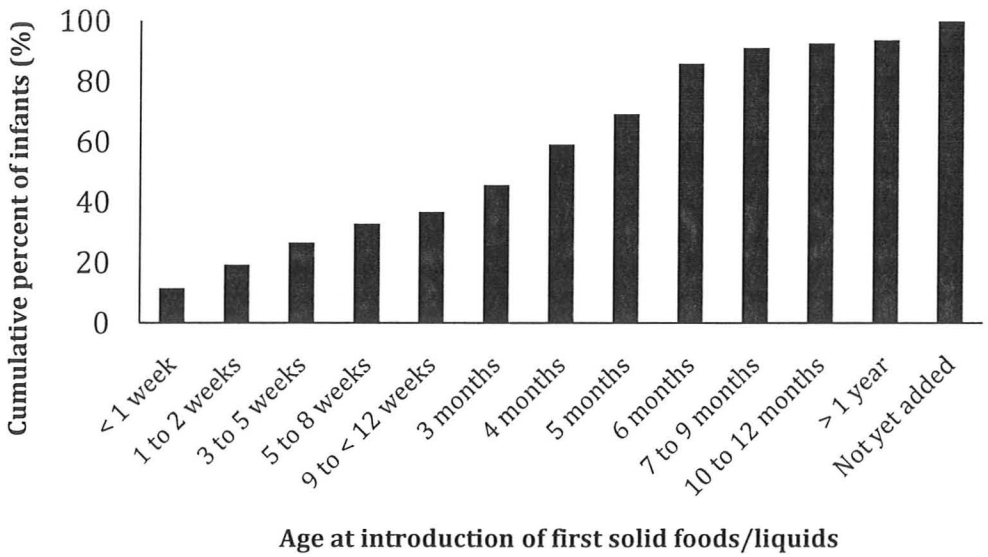

Figure 4.4: Age at introduction of first solid foods and other liquids (women who have given birth in the last 5 years – 2007 CCHS)

Main reason for adding other foods/liquids	Age at introduction of first solid foods/liquids	
	3 months and younger *n = 1045*	4 months and older *n = 1092*
Not enough breast milk	34%	12%
Baby was ready for solids	19%	61%
Advice of doctor	5%	17%
Difficulty	15%	1%
Inconvenience	9%	2%
Med. cond. (baby)	9%	1%
Med. cond. (mother)	3%	1%
Returned to work	3%	3%
Advice of others	1%	1%
Formula healthy	1%	1%
Other	2%	1%

Table 4.5: Reasons for adding solid foods and other liquids by age at introduction (2 categories) (women who have given birth – 2007 CCHS)

Discussion

Education and Immigrant Status – Key Determinants

Education was found to be a key determinant in breastfeeding initiation, exclusive breastfeeding and vitamin D supplementation. Similar results were reported for a study among Californian mothers (Heck, et al. 2006). Several determinants were evaluated including maternal and paternal educational attainment, maternal and paternal occupation and household income. Following adjustment, only education, particularly paternal education, remained an important variable in breastfeeding initiation. Mothers who had low educational attainment or spouses with low educational attainment were considerably less likely to breastfeed. Celi, et al. (2005) found that maternal education and household income were both important predictors of breastfeeding initiation. Celi, et al.'s study also analyzed "race/ethnicity" as determinants in breastfeeding initiation. Contrary to previous studies, the authors report that "race/ethnicity" (white, black, Hispanic) had little bearing on initiation rates, but that considerable variation existed within groups. In each "racial/ethnic" group, immigrant mothers exhibited higher rates of initiation than their US-born counterparts.

Other studies conducted in the United States report higher rates of breastfeeding initiation among immigrant mothers (Harley, et al. 2007; Singh, et al. 2007; Sussner, et al. 2008). A decline in breastfeeding initiation and duration was associated with length of residency – a common proxy measurement of acculturation. In addition to length of residency, Sussner, et al. (2008) explored the role of language use and parental nativity (born inside or outside of the US) in acculturation. Mothers who spoke their mother tongue exclusively were more likely to initiate breastfeeding and more likely to breastfeed for longer periods. Mothers' parents' nativity status was also a predictive factor in breastfeeding practices. Women of parents born outside of the US were more likely to initiate breastfeeding. The authors conclude that the "cultural practices of mothers' parents' native countries may also influence the infant-feeding practices of immigrant mothers now living in the US" (Sussner, et al. 2008:688).

Sussner and colleagues' observation highlights some of the shortcomings of the acculturation model, namely that identity and culture are geographically derived, or are geographically bounded, and are measureable products of having lived in one country long enough; that, like other population health models, the acculturation model focuses on observing many individuals as isolated cases, such that the model neglects the wider, richer networks that make an individual a member of a family, a community, a nation. In neglecting these networks and layered identities, the acculturation model neglects a very basic social truth, that we learn from

each other, that friends and family members are invaluable resources, and have an integral role to play in knowledge acquisition and consequently, in decision-making, particularly for new mothers. As mentioned above (see Chapter 2), the acculturation model assumes a certain degree of homogeneity within groups. The model also seems to assume that the resettlement process acts as an equalizer, making factors such as SES prior to migration and race/ethnicity insignificant as predictors of breastfeeding practices as demonstrated by Celi et al. (2005) and Sussner et al.'s (2008) studies.

'Readiness to Wean' – Advice and Practice

The prevalence of breastfeeding initiation and exclusive breastfeeding has increased from previous survey years. Millar and MacLean (2005) report that 85% of mothers surveyed for the 2003 CCHS initiated breastfeeding and that 17% exclusively breastfed for at least six months. While this observation is encouraging for public health educators, only half of Canadian mothers are continuing to breastfeed beyond 5 months, despite the WHO and Health Canada's two-year recommendation.

In recent years, public health messaging from Best Start (Ontario's maternal, newborn and early child development resource centre) has coupled the six-month recommendations with messaging for parents to watch for developmental signs of readiness in their infants before introducing solid foods (Table 4.6).

Your baby is ready to start eating solids when she:

- Is six months old;
- Holds her head up;
- Sits up in a high chair;
- Opens her mouth wide when you offer food on a spoon;
- Turns her face away if she doesn't want the food;
- Closes her lips over the spoon;
- Keeps food in her mouth and swallows it instead of pushing it out.

Table 4.6: Signs of readiness for starting solid foods at six months. Source: Best Start & Nutrition Resource Centre: *Feeding Your Baby: From six months to 1 year* (Best Start and Nutrition Resource Centre 2007)

Despite the explicit recommendation to wait until a child is six months old to introduce solid foods, Heinig et al. (2006) convey concern that parents may misinterpret these recommendations and use developmental milestones as the primary indicators of readiness. The authors' study explores infant

feeding practices among low-income mothers and they caution that "overemphasis of these often subjective milestones may result in parents starting solid foods too early, particularly among families who view their children as precocious and thus ready for foods earlier than is recommended" (37). Pridham's (1990) earlier research indicates that this has been an ongoing issue in infant feeding education and practice. Pridham observes that an infant's temporary disinterest in breast milk may be misread as a sign of readiness to wean (1990: P277). Allcutt and Sweeney (2010) question whether health professionals advising parents about breastfeeding and infant feeding practices are keeping abreast of the latest recommendations. The authors surveyed health professionals in Ireland and found that, "breast fed infants were being recommended to wean earlier than they should by a majority of respondents," and concluded that, "one can only assume that they are drawing from previous recommendations which once did advocate weaning[1] at 4 months of age regardless of feeding" (7).

The CCHS is an important tool for assessing the health status and health practices of Canadians. The data collected reflects the changes in public policy, care systems, and public health messaging. For the 2005 CCHS (Cycle 3.1), researchers added "baby was ready for solid foods" to the list of classifications for responses to the question "What is the main reason that you stopped breastfeeding?" As of 2007, "baby was ready for solid foods" is the second-most frequently offered reason for the cessation of breastfeeding among Canadian mothers. Unfortunately, only half of all Canadian mothers are breastfeeding to six months (including mothers who breastfeed exclusively). Whether the mothers' instruction to use developmental milestones as an indicator of readiness to wean came from doctors or other health professionals is unknowable based on the CCHS questionnaire. It may be fair to conclude that the message of 'signs of readiness' is pervasive throughout infant feeding and nutritional health promotion.

Vitamin D Supplementation

Infant vitamin D supplementation practices are comparable among immi-grant and Canadian-born mothers. Though it is unknown based on this survey whether this similarity in supplementation prevalence is due to high resource access (information/instruction about infant feeding, and access to supplements) and poor adherence to recommendations, or low resource access and high adherence to recommendations, it appears that neither New Canadian nor Canadian-born mothers are at a severe disadvantage compared to the other when it comes to vitamin D supplementation. Whether this

[1] In this case, Allcutt and Sweeney use the term 'weaning' to mean "the introduction of the first solid foods to infants" (2010:201).

observation translates to equal access to resources is unknowable based on this data.

Limitations: working with the CCHS

One of the limitations of working with closed-ended question survey designs is the reduced variability of the response. While this effect makes the responses quantifiable and manageable, particularly for large-scale studies, it relies heavily on the survey designers to write questions that will measure health practices accurately. Groleau, et al. (2006) and Sutton, et al. (2007) both observed lower breastfeeding initiation rates among Vietnamese mothers living in Canada. The authors reported that the mothers offered what they thought were standard survey responses, rather than explaining their actual reasons for not breastfeeding – namely that specific maternal cultural practices and social needs were not met in Canada and that this disruption was injurious to the mothers' health status and thus her ability to breastfeed. The lack of resolution in the data pertaining to immigrants in the CCHS illuminates the construction of immigrants as a homogeneous group in population health studies. Acculturation and population health models tend to oversimplify the dynamic nature of the migration and settlement processes.

Additionally, the CCHS sample may not be particularly representative of the Canadian population. The educational attainment of women who have given birth in the last five years who were sampled for this survey is considerably higher (68%) than that of women in the general Canadian public. According to the 2006 Census, 33% of Canadian women ages 25 to 34 and 25% of women ages 35 to 44 hold a university degree (Statistics Canada 2009). Twelve percent of women between the ages of 25 and 64 hold a college diploma. Though Millar and McLean (2005) reported similar levels of educational attainment for this population of mothers in previous CCHS cycles (~62% of mothers held post secondary degrees), this discrepancy in representation warrants further consideration.

Conclusion

While the high prevalence of breastfeeding initiation and its increasing prevalence from previous survey years is promising, the high drop-out rate and the low prevalence of exclusive breastfeeding (especially for at least six months) indicates that Canadian mothers are not meeting Health Canada's and the WHO's breastfeeding recommendations. Health recommendations directed at parents to begin feeding infants solid foods based on observed developmental milestones may be confusing and even counterproductive in terms of encouraging longer breastfeeding periods. At

this point, the nature of the relationship between access to health resources and practiced infant feeding and supplementation behaviors is unclear.

Though New Canadian mothers come out ahead of their Canadian-born counterparts when it comes to breastfeeding initiation and duration, the construction of 'immigrant' as an identity and immigration as a determinant of health in acculturation and population health models is problematic and ultimately vague. The results of this analysis highlight the need for more sensitive research methodologies in future studies.

Chapter V
Becoming a Mother in Canada

Mediation of social networks and maternal-child care and feeding practices among New Canadian mothers in Hamilton, Ontario

This chapter is based on the data collected in a series of focus group interviews conducted with New Canadian mothers in Hamilton, Ontario for the larger collaborative project - *From Knowledge to Practice: Vitamin D and New Canadian Mothers and Children.* This analysis explores immigrant mothers' maternal care and infant feeding practices in the context of social network restructuring resulting from resettlement and the influence of Canadian health care messaging. This chapter will also touch on the numerous sources of information about infant feeding and child nutrition and the roles these different sources play in mothers' decision-making and in the construction of authoritative knowledge.

Background

As of the 2006 census, Hamilton, Ontario was home to approximately 126,500 immigrants, 16,500 of whom are considered recent immigrants and have relocated to Hamilton in the five years preceding the census year (2001-2005). Hamilton's total immigrant population and recent immigrant population account for 3.7% and 2.8% of Ontario's total immigrant and recent immigrant populations, respectively. According to the Ministry of Citizenship and Immigration Canada, this represents a slight increase over the 2001 census data, however, it remains only roughly half of the proportional immigrant population of Hamilton prior to 1970 (Citizenship and Immigration Canada 2005). Hamilton's immigrant population in 2006 accounts for approximately 24% of the total population of the city – the third largest foreign-born population in Canada, after Toronto and Vancouver. The recent immigrant population of Hamilton is composed primarily of economic class immigrants, followed by family class and refugees. The proportion of economic class immigrants in Hamilton has increased over the last two decades.

Canada's immigrant demographic continues to change; more immigrants are relocating to Canada from countries in Asia, the Middle East, Africa, South and Central America (Chui, et al. 2007; Meadows, et al. 2004). Figure 5.1 represents the five most populous recent immigrant groups by region of origin: Southern Asia, West Central Asia and the Middle East, Eastern Asia, Africa and Eastern Europe. Immigrants from these five regions of origin account for 68% of Hamilton's recent immigrant population.

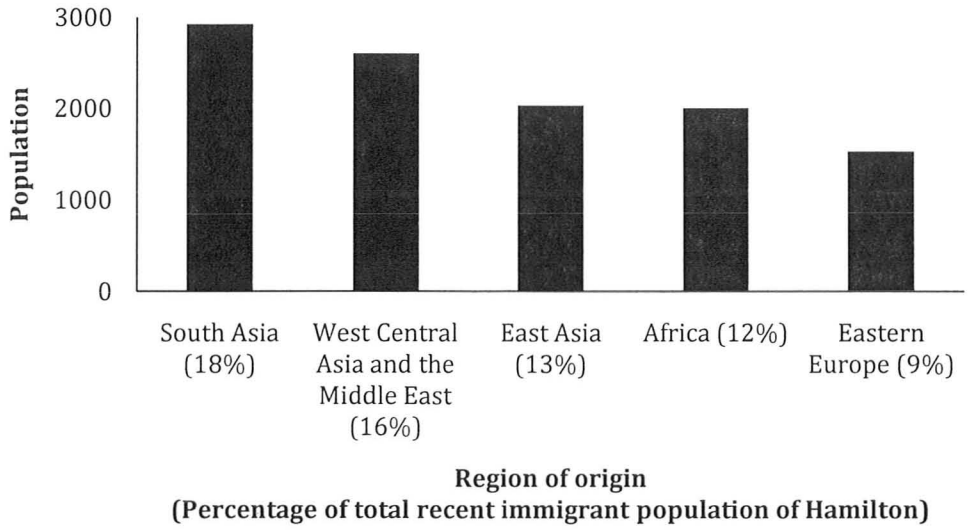

Figure 5.1: Hamilton, Ontario's five most populous recent immigrant groups by region of origin – Canadian Census 2006

The distribution of immigrants in the city is visualized in Figure 5.2, a map of Hamilton – a sixth region of origin (Southeast Asia) is also represented. This map represents Hamilton's immigrant population by region of origin based on census tracts – census tracts are geo-demographic units and vary in size depending on population density.[2]

The city of Hamilton is situated on the South-western shore of Lake Ontario, and is bordered to the West by the towns of Ancaster and Dundas, and to the East by Stoney Creek (though all three towns have been amalgamated into the greater metropolitan area of Hamilton). The city is divided lengthwise by the Niagara escarpment; the downtown centre and industrial areas are located in the north half of the city. Hamilton's immigrant population appears to be largely concentrated in the downtown of the city, though there are pockets of distinct immigrant groups (by region of origin) located throughout the city.

The focus group interviews were conducted at three different OEYCs in the city; two are located proximal to the central downtown area of the city, one is located in the east of the city and one nearby McMaster University in the west end of Hamilton (Figure 5.2). The four interviews were conducted at

[2] The dots on the map are randomly placed within each census tract and therefore do not correspond to an actual residential address. Blank areas on the map are the results of two possible outcomes: (1) the area is sparsely populated, therefore the census tract is larger in area (i.e. census tracts in some of Hamilton's industrial areas have fewer residential areas, thus they are larger than the census tracts of the city's residential neighbourhoods); (2) there too few immigrants in a given census tract and the data is omitted from the Census PUMF to protect the confidentiality of census participants.

the OEYCs located in neighbourhoods with known relatively denser immigrant populations.

Sample

Twenty-two New Canadian mothers from Asia, Africa, the Middle East and Europe participated in the focus group interviews (Table 5.1).

Country of Birth		**Years of Arrival**	
China	5	1982	1
Poland	3	1990	1
Pakistan	2	1999	2
Ethiopia	2	2002	2
Kosovo	2	2003	2
Indonesia	2	2004	3
Germany	1	2005	3
Jordan	1	2006	5
India	1	2007	2
England	1	2009	1
Bangladesh	1		
Palestine	1		
Educational Attainment		**Age**	
College/University degree	16	Range:	26-40
Some college or university	2	Mean:	32
Finished high school, no university	3	Median:	30
Did not finish high school	1		
Marital Status		**Household Income**	
Married/Common-law	20	<$20,000	8
Single/Divorced	2	$20-$39,000	5
Employment		$40-$79,000	6
Maternity leave	4	>$80,000	1
Currently working	3	Non response	2
Unemployed	15		

Table 5.1: Socio-demographic profile of mothers interviewed in October and November, 2009 at Hamilton's OEYCs.

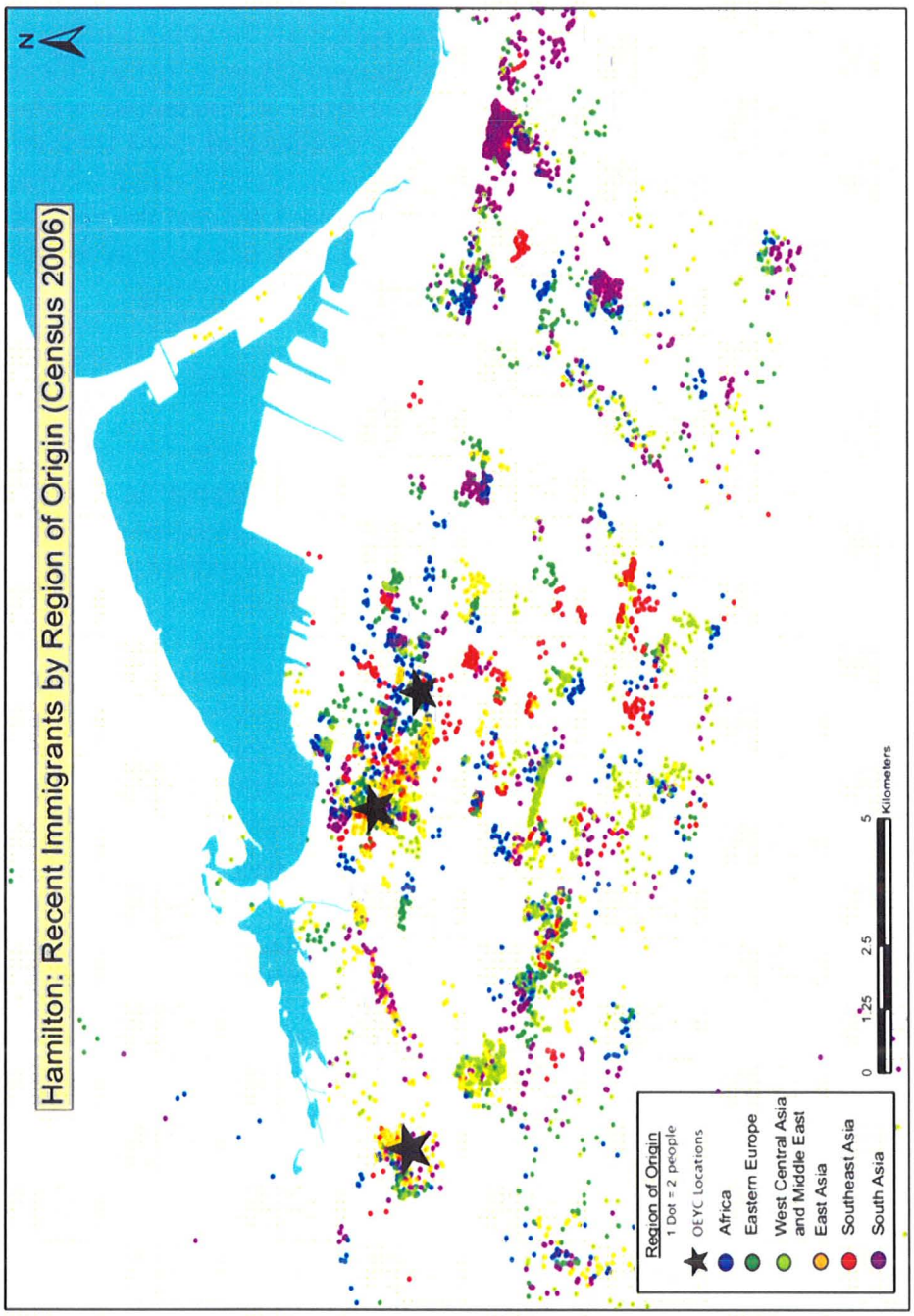

Figure 5.2: Distribution of recent immigrants by region of origin in Hamilton, Ontario – Canadian Census 2006 (Stars indicate the location of the collaborating OEYCs).

Nearly all were married or living with a common-law partner and nearly three quarters of the women held a university or college degree. More than half immigrated to Canada between 2004 and 2009. Eight of the twenty-two mothers lived in households earning less than $20,000 annually, and more than half of the mothers came from households with annual incomes of less than $40,000. Only one mother came from a household with an annual income greater than $80,000. Only one mother had more than two children at home (otherwise equally divided between 1 and 2-child families), she had nine children, the eldest of whom was 19 years old and the youngest just one year. Five mothers were pregnant at the time of the interviews, four were taking maternity leave, and three were currently working.

Results

Breastfeeding practices

Almost all of the mothers who participated in the focus group interviews breastfed their children. Duration of breastfeeding varied greatly, ranging from 3 months to 3.5 years. Mothers weaned for a variety of reasons; several supplemented breast milk with formula around the age of three months, and as a result some mothers found that the child no longer wanted to feed from the breast. One mother explained, *"When you start using formula and breastfeeding then he will go to formula because it's sweeter than the, the, um, and then he stop the breastfeeding for the formula, that's what I found."* Others were compelled to introduce formula when they returned to work; mothers who were not working generally breastfed for longer periods of time. One mother who had moved to Canada from Poland at very early age, described her experience in both situations, having been unemployed while she breastfed her first child 9 years earlier, and now breastfeeding her second child, but expected to return to work shortly: *"Two years I breastfed.... I didn't have to go back to work, so I was able to. But now with this one I have to go back at once, so it's going to be harder, I'll have to start breastfeeding at night...."* And speaking of her experience of breastfeeding her eldest child as a toddler: *"It was harder – it was harder, like when she was two and she was yelling 'Boob!'"*

Mothers offered numerous reasons for choosing to breastfeed: breastfeeding is good for the baby, it's economical, it's convenient, it's easier, it's faster, and it helps the mother to lose weight. One pregnant mother from China with two sons recalled her physician's advice, but also conveyed a sense of uncertainty about whether breastfeeding was the "right" option.

> *Yeah, I give my two sons breastfeed one years. But I see the doctor, the doctor, she tell me is breastfeeding is very good for baby. She, she say, it you, like, uh, drink a lot of milk, expensive,*

> *she says like, save money, like convenient, and uh, like, low, like, rash , so she say, um, breastfeeding. I, I'm not sure, I don't know about it, a lot of people think, I don't is right or not, I don't know is right or not, but I don't have idea, but I hear most people say breastfeeding is good for babies, yeah.*

She also highlights the value of public or peer opinion, indicating that a lot of people think that breastfeeding is the proper way to feed an infant.

Another mother from Pakistan with two daughters had also researched the benefits of breastfeeding, but was wary of the outcome.

> [Speaking of her youngest daughter] *When she, this one is just turning one, I just struggle, because, I don't know, though I know this fact, I have studied that the breastfeeding is really, really good, it has a lot of you know, protections from many, many other things. But I don't know – my kids are not very good in health... though, she is healthy, I don't know, I'm not saying that she is not healthy, but as she, you know, the, like, fat – gaining a lot of weight – initially specially, and she has some sort of problem, like iron deficiency. I don't know, maybe I have iron, iron deficiency, therefore she has, but I have that problem, for this baby, but not for the one.*

Infant health issues were also a concern for another mother whose daughter was diagnosed with cow's milk allergy at the age of four and a half months when she and her husband first introduced formula (also cow's milk based) into her daughter's diet. She continued to breastfeed until her daughter was a year old out of necessity.

Advice about breastfeeding came from a number of sources. Most of the mothers had discussed breastfeeding in the Welcome Baby groups facilitated by a public health nurse and hosted at the OEYCs. Others had addressed the topic with their physicians. Still others referred to friends or family members back home who were raising young children and had decided to breastfeed. Even prior to being asked directly about the difference between raising a child in Canada and raising a child in their home countries, many of the women volunteered that their mothers had offered advice that often contradicted the advice of the public health nurse and other health messaging in Canada. One of the younger mothers explained that she had arrived at the decision to breastfeed after attending the Welcome Baby information sessions, since her own mother (an Iraqi immigrant living in Germany) had not breastfed her (note: 'I' denotes Interviewer, 'P' denotes participants, and are numbered arbitrarily):

I: P1, did you [breastfeed]?
P1: Yeah, I think, before I am pregnant, I think I will no, because my mom doesn't give milk to me...but when I come here to the [Early Years] centre, they have -
I: So that's what helped you decide to come here to this program.
P1: Yeah, I had the pump for it...

One mother clarified the role of the Welcome Baby informational sessions in her decision to breastfeed:

P2: Basically, my opinion is that like, in my country, people know the importance of breast milk, but there are not education like here.
I: Mm, hmm.
P2: Like, prenatal programs and all that, like which tells us the benefit more, more clearly. They know from their mothers that, okay, the breast milk is good, that's it. So the training, proper training is more important, because in here, I know that fact that breast milk is important, but when we came to the program they tell us more deeply in detail.
I: Mm, hmm.
P2: And yeah, they, like, they convinced us that we have to breastfeed. So I think I just choose because of that.

This particular passage illuminates the, perhaps, aggressive messaging of the Welcome Baby sessions. Many of the mothers relocated from countries with rich breastfeeding cultures. Not having observed any of the Welcome Baby sessions, it cannot be concluded whether this authoritative tone is used with Canadian-born mothers and immigrant mothers alike, or only with immigrant mothers, who, perhaps because of communication difficulties, or because of a Canadian lack of awareness of breastfeeding practices in other parts of the world, the public health nurse feels a need to convince.

Maternal diets

When it came to maternal, prenatal diets, most of the mothers indicated that they used the Canadian Food Guide as a guideline for healthy eating during pregnancy. The Canadian Food Guide is used as an instructional tool in the Welcome Baby prenatal group and many of the mothers report that they refer to it at home when choosing meals for their families. The foods that the mothers avoided during pregnancy appear to conform to the Health Canada recommendations – beverages containing alcohol and caffeine, and unpasteurized cheeses were among the foods that mothers avoided consistently. Some mothers avoided meats (they explained

that the use of hormones in commercial meat products was a deterrent). Some of the recommendations may require clarification: one mother explained that she avoided shrimp because of its mercury content, despite shrimp's inclusion in Health Canada's pregnancy-safe, low-mercury fish and shellfish database (Health Canada 2007). The mothers reported that they made an effort to eat well, to eat more vegetables and meat, and to drink more milk. Some foods were added to the mothers' diets specifically for the pregnancy for aesthetic purposes relating to traditional folk knowledge: one mother from India explained that her mother had encouraged her to drink milk with saffron to her diet to produce fairness of skin in her baby.

> *P3: And in India, like, I don't know how that is true, but the saffron, the threads.*
> *I: Yes.*
> *P3: Saffron threads, if you drink it, like, starting after four months and if you continue throughout pregnancy, the kids who are born will be fair.*
> *I: Oh, okay.*
> *P3: That's the thing. (Laughs) I think that's-*
> *I: So did you do that?*
> *P3: I did it, but not so much, that's why my mom says, 'Your son is dark because you didn't eat saffron' – but still my husband is dark, so I can't help it. (Laughs) Yeah, I know it's all genetic, but still, that's you know. You add it to the hot milk, and then consume it. It's probably something else-*
> *I: Sure there might be something else.*
> *P3: But the reason, the reason why they give us is for-*
> *I: For fair, yeah.*

Other white coloured foods like yogurt and milk were consumed by a mother from Pakistan for similar reasons, explaining the behaviour as part of a cultural construction or a "myth that the baby would be more fair".

Vitamin D supplementation

Nearly all of the mothers who had predominantly breastfed also supplemented their infants' diets with vitamin D. Though some had been instructed by their physicians or midwives, most of the mothers had been informed and instructed to supplement by the public health nurse at the Welcome Baby program. In most cases, the mothers had also been provided with a bottle of vitamin D supplement, or a gift card redeemable for the supplements at one of the local pharmacies. The mothers were familiar with the public health messaging about vitamin D – that in Canada, we cannot rely

on UV exposure, especially through the winter months, to fulfill physiological vitamin D requirements. They also knew that vitamin D supplements were only needed for infants who were primarily breastfed – most of the mothers who were formula feeding indicated that their doctors had informed them that they didn't need to supplement because formula is already fortified with vitamin D.

One of the limitations of using the CCHS, as discussed above in Chapter IV, for exploring vitamin supplementation practices among Canadians is that the survey question solicits a yes or no response and does not reflect the reality of giving vitamin drops to young children. The experts who participated in the February 2009 vitamin D workshop (described in Chapter 1), many of whom worked in clinical settings and/or were parents themselves, recounted their experiences and frustrations with supplementation. Doses were often forgotten for weeks or months at a time; some infants disliked the taste and spat the syrup back out.

A relatively new product on the market called Ddrops™ claims to provide the full daily intake of vitamin D (400IU) in a single convenient concentrated drop. A mother can place one drop of the supplement on her nipple before breastfeeding. However, the mothers we interviewed provided mixed reviews of the product. While some sung its praises, others had difficulty controlling the dosage (only one drop), and worried about over- or under-dosing if more than one drop was dispensed at once, or if the one drop wound up smeared over the infant's cheek instead of in his mouth. All of the mothers were aware that they should be supplementing their exclusively breastfed infants, though there was some uncertainty regarding the continuation of vitamin D supplements after the addition of solid foods. Most of the mothers had learned about vitamin D supplementation from the public health nurse at the Welcome Baby group. Some of the mothers had also received instructions on vitamin D supplementation from their physicians, though the importance of vitamin D supplementation wasn't explicitly emphasized (see P2's response on page 86).

Vitamin D supplementation for expecting mothers is an issue of some concern. Current recommendations advise that mothers supplement their diets with 400 IU of vitamin D daily during pregnancy (Ward 2005). Health Canada's prenatal nutrition resources do not explicitly address vitamin D supplementation, but rather to encourage physicians and mothers to ensure adequate fish and milk consumption (2010). All the women we interviewed took a prenatal multi-vitamin containing 400 IU of vitamin D, however, a growing body of evidence indicates that 400 IU has very little impact on maternal vitamin D levels (Holick 2007; Hollis and Wagner 2006; Wagner, et al. 2008; Ward 2005). Though some of the mothers we interviewed reported that they increased their consumption of milk during pregnancy, none of the women had been advised to supplement their vitamin D intake. The one

mother who had been taking vitamin D supplements had been advised by her nutritionist to stop for fear of exceeding the recommended daily intake.

> *P16: I don't know, before I ask nutritionist, um, because I take a vitamin D, I take a vitamin D, I ask him, he say, no, because you eat vitamin, vitamin, don't eat together with vitamin D, so I just stop. Before I just take a vitamin and vitamin D together, but he told me, no. Because here, vitamin, vitamin, he said, include vitamin D-*
> *I: In your diet?*
> *P16: Yeah.*
> *I: So...drinking lots of milk, or what, what do you do?*
> *P16: Yeah, yeah. He told me, like every day, like, drink three cup, two cups, yeah.*

The role of the OEYC

One of the outcomes of recruiting through the OEYCs is that the OEYC and particularly the Welcome Baby group featured heavily in the conversation. Whether this would have been the case if the mothers were recruited and interviewed elsewhere in the city is debatable; however, it is clear that the OEYC did have a large role to play in resource access, knowledge acquisition and decision-making for the mothers who did participate in our interviews. Since examining the influence of public health programming in breastfeeding and supplementation practices is not one of the objectives of the larger vitamin D project, it seems important to explore the topic in this thesis.

The OEYC appears to fulfill many roles for New Canadian mothers. It is a place to network with other new moms, connect with peers, and talk about some of the challenges of parenting and infant feeding. In the absence of extensive family and peer networks that would compose the resource networks of mothers back in their home countries, the prenatal programming (Welcome Baby) offered at the OEYC is an important source of information for new mothers, and may not necessarily be universally available. Two mothers from China explained that while there are daycares in China, there are no facilities where parents and young children can spend time together –the child resource facilities that do exist are very expensive. Another mother from Palestine, who gave birth to two of her nine children in Ireland, suggested that the OEYC is an important resource for new mothers especially:

> *I suffered with my first son and my daughter because they born in Ireland. There's no, uh, these kind of sources over there, and*

me and my husband alone, he was studying at that time. But, uh, in Canada I have experience already [laughs]. I am okay.

Another mother explained that the OEYCs provided the opportunity to talk with other mothers who were having the same problems with breastfeeding, and added that her own mother, who currently lives in China, had told her that she was not in a position to advise her daughter, that she "had forgot it all". One Pakistani woman with two young children was particularly appreciative of the Welcome Baby sessions, and indicated that the Welcome Baby program kept the mothers abreast of the latest recommendations (including vitamin D supplementation), and public health concerns.

I: Who told you to take vitamin D for your babies...with formula it's not necessary, but if you're breast- only breastfeeding – was it your doctors? Or you said, some of them were doctors, and others...
P2: Yeah, I came to know from the prenatal group.
I: From the prenatal group only, okay. And you had a doctor all the way through your pregnancy?
P2: Yeah. She was just, maybe sometimes, but she never emphasized, but in here...
I: Never emphasized, but it was emphasized here?
P2: Yeah, it's a very helpful program. I really appreciate this program, I learned a lot from this. And every new thing we came to know about, what was new, what was happening, about swine flu even, that was the new thing.

Certain messages seem to be adamantly communicated in the Welcome Baby group – one of them is that babies should not be given solid foods or water before the age of six months. The mothers who attended the course were all familiar with these recommendations, though many of them expressed uncertainty about adhering to the recommendations. In each interview, the topic of giving water to young babies arose. The three mothers from Poland, the mother from Jordan and the Iraqi mother from Germany indicated that herbal teas were an important part of infant feeding. Chamomile and anise are used to make soothing teas for babies. This practice is vehemently opposed in public health messaging and is impressed upon mothers even in public health nurse home visits following hospital release.

P4: That's another thing between my country and Canada. When the nurse come to my home and ask, what do you give her when she's thirsty, I told her, I give her herbal tea, because I was used, in Poland, and my mom gave us as well, you know. [Mimics public health nurse] No, no, you cannot give her

herbal tea since she's going to be six months. I always give her, and we had a Polish store, so I buy the herbal tea, babies who are even two weeks.

Some of the mothers gave their infants water or herbal tea, but others seemed to be concerned with following the recommendations of the Welcome Baby class.

P5: And for me, I don't give my daughter herbal tea.
I: No herbal tea, okay.
P5: Because they said, don't give water, it will fill her stomach.
I: Right. Okay. And would you have done that at home, though? Would you give water at home or other herbal teas?
P5: No, no.
I: At your home country, sorry.
P5: At, at- yeah.
I: You would do that?
P5: Yeah.
I: But you don't do it here?
P5: Yeah, yeah.

P6: ...back home they introduce the solid food earlier. Yeah.
I: So, before [six months]?
P6: Before - before, whatever we eat. I remember my mom. She just give him, uh, things, or whatever. Here no, I'm scared.

Some of the women were more questioning of the Welcome Baby recommendations, particularly when it came to herbal teas and water.

P1: ...like in our culture they give the baby water, and they give many herbs, like tea.
I: So do you do that now?
P1: Now, I'm afraid of giving water, because here they advise you not to give water. But I give my baby anise, like very little, because-
I: For digestion?
P1: For ...for colic.
I: For colic, right.
P7: Is it good?
I: Anise- is it good for it? Are you asking me?
P7: For, yeah, for babies.

I: Well, I do know. It's part of colic medicine that we give here. It's one of the active ingredients. I know I gave that to my daughter- the medicine, which has anise in it.
P1: Yeah, no, no, I bought the seeds and boiled it and give her.
I: So you're making your own, basically, yeah.
P1: Yeah.

P8: Yeah, but, I know I'm studying the Welcome Baby group and they don't give her water before 6 months. And my mother, you know, say because we open the heat, the baby feel dry so she need some water.

The mothers' eagerness to discuss giving water to babies with us, indeed asking us whether we thought it was safe or appropriate, is revealing of the mothers' concern about some of the public health nurse's recommendations. Since we did not observe any of the Welcome Baby sessions, I cannot speak to the nature of the information provided in the groups about giving babies water; whether the mothers' questions were properly addressed, or whether these concerns were dismissed owing to the perceived disparity in expertise and authority on the issue. Brigitte Jordan describes a similar scenario in the training of traditional midwives by urban "cosmopolitan" obstetric health educators in certification programs offered by the Mexican Ministry of Health ([1978]1993).

> The curriculum of medical training programs ignores [the differences in world views] and instead imposes its own view of reality, seemingly without any awareness that new information is not poured into a vacuum but interacts with a coherent and entrenched ethno-obstetric system of birth management....The trainers function, and perceive themselves, as representatives of biomedicine, of science, of the central government and its institutions....When operating in this official mode, they dismiss the relevance of any other mode of being in the world. (Jordan [1978]1993:184)

That many of the mothers continue to give their children water or herbal teas in Canada suggests that their questions remain unresolved, and in the absence of verification, they turn to what they know – the "entrenched ethno" – in this case, infant feeding – "system" from their home countries.

Grandparents

The mothers' mothers played an important part in the discussion of infant feeding, particularly when it came to questions about sources of knowledge and comparing practices in Canada and in the women's home

countries. At some point during the interview most of the mothers indicated that the expected age to introduce solid foods was earlier (3 or 4 months) than the recommended age in Canada. Whether these accounts represent current feeding practices in the mothers' home countries or the practices of their own mothers' generation is unknown. Many of the participants expressed frustration about the conflicting advice and the pressure they felt from their own mothers to add solid foods and other liquids before the recommended age.

> *P3: And with him, he's four months now, and I'm exclusively breastfeeding him.*
> *I: Okay.*
> *P3: Though there's a lot of pressure from my mom to give him milk [laughs]*
> *P3: They always feed-*
> *I: From the mothers, yeah.*
> *P3: [mimicking mother] 'He face has reduced, it's become small, he's not active, so give him milk now', but no! But he's growing, growing pretty well, and his weight is, you know, okay, so I plan to, breastfeed him till, exclusively breastfeed him till five months at least, and then probably start giving him semi solids mixed with formula.*

The youngest mother in the group expressed some hesitation, confiding, "*I don't know what to do*," when it came to negotiating conflicting recommendations.

> *I: You're not feeding any solid food at this point?*
> *P1: Yeah, my mom back home, she tells me every time, you didn't give her solid food yet?*
> *I: Oh, okay. So how old is your-?*
> *P1: Four months.*
> *I: Four months, okay.*
> *P1: And they used to feed the baby when – solid foods – even three months.*
> *I: Right.*
> *P1: And like sometimes, I let her just taste fruit, then I say, oh, it's not so good.*
> *I: Mm, hmm.*
> *P1: But, like, I hear from mine, my mom, I don't know what to do.*

When discussing the introduction of solid foods, this same mother acknowledged minutes later, "*She's four months, but I know they recommend six months, but I- my baby is ready already.*"

One mother who had given birth to her eldest daughter in her home country of Pakistan explained that it was her father-in-law who had urged her to introduce other liquids, but that she had delayed the introduction of foods and other liquids for her youngest daughter who was born in Canada.

> *And me, my other one, I have different situations in both cases, because when my, I was, my daughter was three and a half months old, other one, I was in Pakistan with my family, and my father-in-law he said, no, she's healthy, and now you start feeding her some juices and some foods, you know, only the juice, nothing solid, you know, only juice liquid, something like that. But at the age of four and half months I started feeding her some solids. But in [my younger daughter's] case, I just start at the age of five months (laughs).*

The absence of maternal grandmothers and other female relatives was noted as particularly challenging. Where the mothers would have had the assistance and advice of their mothers, sisters, grandparents, aunts and friends back in their home countries, here in Canada, almost all of the mothers had only their husbands for continuous support. Many of the women had their mothers come to stay with them for a few weeks to several months when the baby was first born, and though they continue to consult them (often daily) by telephone, the women we interviewed generally lamented not having another caregiver around as their children got older, especially when it came time to go back to work.

> *I: And do you have anyone now who's helping you?*
> *P4: No. It is hard, but I think that it's better, like, when she was, the time she was with me, my mom, I mean she helped me, but it was just that, I tried to feed her, then the baby would fall asleep, when we were sitting together, when she woke up, when she woke up we would, you know, run to her, both, both.*
> *I: Right.*
> *P4: So I think, that, that time she helped me, but not like right now, when my daughter she's two, she's almost three, when I need more time to get a job, or do some another-*
> *I: To get some child care, yeah.*
> *P4: Yeah, so I think when I have another baby, I going to invite her when-*
> *I: Yeah. Later on, that's right.*

The women who did not have their mothers around to help explained that while there were certain traditional foods and practices they would have liked to observe, the absence of extended family made it difficult.

P5: In our country, they drink, um...cinnamon.
I: Cinnamon?
P5: With water, yeah. It's good for the milk [production].
I: Oh, okay. Did you do that here?
P5: No, because I want someone to make it.
I: Oh, you didn't have anyone to make.
P2: Yeah, exactly, most of the things I want I didn't practice, because nobody was there-

In a collaborative effort, mothers from China, Ethiopia, and Pakistan described some of the roles of grandparents in infant and maternal care after birth.

P9: And the grandma, look after the children, always, because, you know, parents always have a job, and they're very busy.
P10: They give you like healthy food for back ache, like, natural foods-
P11: Yeah, same, yeah, massage, lot of things.
P10: And they make, I don't know, like porridge, but special, like powder, many kind of like, six and-
P11: Nuts.
P10: Seven things, powder, they make powder, then they make, um, like, juice, then after that they say for back.
I: For your back?
P10: Yeah, it's good. You are after that, you are so good (laughs). Here you know-that's like a-
P7: Really expensive.
P11: Same in my country, after forty days, the woman has to lay on the bed, and a lot of food, and soups, and nuts, and a lot of food cooked in nuts.
I: So were you able to do any of these kinds of practices at home here in Canada when your baby was born?
P7: No, no.
P10: No, because we don't have like, nobody help you like that.

While some of the traditional practices appear to be interrupted by the Welcome Baby messaging, such as giving newborns honey or honey water before first milk, maternal grandmothers seem to play a key role in maintaining certain cultural practices. Many of the mothers from Asia, and

one from Ethiopia, spoke of observing a thirty- to forty-day period of rest after birth, during which time the visiting grandmothers and husbands took on the household chores. The visiting grandmothers were often a staple figure in carrying out maternal care practices. Many of the women observed practices following a humoral health system and noted that in the period after the birth they used only warm water for washing, and that they "don't touch the cold water." Two mothers from China laughed as they recalled their experience in the hospital after delivery.

P12: Yeah, in the hospital, the nurse give some, uh, cold milk, I go to the microwave to – to make it warm. They give me some, uh, cold – the ice –
I: Oh, 'cause you didn't want that ice cold –
P12: Yeah, I don't - I say I don't eat.
P8: When I stay in hospital, (Laughs) every time open door, 'Do you need some ice?' (Laughs) I just remember that, 'Do you need some ice?' (Laughs)
I: Right. You didn't want ice.
P8: Yeah, I just, 'Oh, thanks a lot.... Yeah, I remember that, every time open door, "Do you need some ice?" (Laughs) Ice water.

Other practices of hot/cold systems applied to postpartum foods. Two mothers, one from India and one from Pakistan explained and elaborated that in actuality the practice of their beliefs was much more flexible than many Canadians might believe.

P2: And one more thing I want to add, like in my culture, for six weeks, we take care of the baby and for ourselves a lot. Like we used to eat hot things, we don't eat cold.
I: Hot, hot.
P2: Soups, like, you know, in the six weeks, for six weeks after the delivery.
I: Okay, for six weeks, hot, temperature hot, and hot kind of foods?
P2: Yeah, no, um, foods like the soups, not the, like, ice cubes, juices, cold juices, and not like that, all the hot stuff.
I: All the things that warm your body, yeah, for six weeks.
P2: Yeah, exactly, in my culture, it's said, that, people say that you bleed well, you bleed well and your uterus shrinks and goes back to the place, well, if you eat the hot stuff.
I: Hot stuff, okay.
P2: So your, like, the blood will go easily.

I: *Mm, hmm, and did that, did you do that in Canada?*
P2: *Yes.*
I: *You did that.*
P2: *Yes, I did that.*
I: *Did you do that as well? (to P3)*
P3: *Same thing here. We call it hot stuff, I really don't know how, from where it comes, it's not a medical thing though.*
P2: *Yeah, I know.*
P3: *So, my mom, she told me to eat pepper. The pepper with the butter, clarified butter, we call it ghee.*
I: *After, after your baby is born.*
P3: *After my baby is born, but um-*
I: *As a hot food.*
P3: *That's a hot food, add it to the rice and eat it. Actually, my mom, she brought it from India, and she gave it also – but I had this problem of anal fissure, so I was not-*
I: *That's not a good thing to be eating – pepper.*
P3: *'You want me to suffer from that?' so I told her, and she's very understanding, and she said no, it's not good, so eat lots of vegetables, so I did not eat anything, so we changed the whole thing.*
I: *Okay.*
P3: *So, it is still there, the custom, but I explained to her, probably it's a climate thing.*
I: *Mm, hmm.*
P3: *Certain things, certain foods will go with certain climates. This is a different climate-*
I: *Climate, right.*
P3: *So it doesn't work here. And she was fine with that.*
P2: *Especially, like in my country, like they give the soups, like, you know, meat, more meat in the diet, 'cause in order to prevent the weakness, you know, after you deliver the baby, that's the, more, more nutritional things.*
I: *Right.*
P2: *So that is the purpose behind it. So you get more healthier foods so you can get recovered earlier, and especially, you, your body gets so weak and after that, so strengthen the body.*
I: *Strengthening, okay.*

The degree of influence of the Welcome Baby programming is variable. Some mothers follow the advice of the public health nurse at the Welcome Baby classes very closely, though they are aware of the multifarious

recommendations practiced in their home countries and by previous generations (i.e. grandmothers). Several mothers indicated that there were practices (often traditional ones) that they would fulfill if they were still living in their birth country, but that they would not practice them here in Canada. Though the fulfillment of some of these practices was obstructed by the absence of family members (for instance, in the preparation of specific foods), others, such as the introduction of water or solid foods at an early age, were avoided in Canada. The avoidance of the early introduction of solid foods and water is arguably attributable to the influence of the public health education program. Mothers in two different interviews explained that they were "scared" or "afraid" to add solid foods or water to their child's diet here in Canada. The mothers who did not follow the public health nurse's recommendations closely remained conscientious of the recommendations and justified their decisions or actions as a compromise, using the Welcome Baby recommendations and the recommendations of their home country to create a more flexible time period for the introduction of solid foods.

I: *Four months, so, maybe four to six months is what you're saying.*

P2: *They say that six months, yeah sometimes, like, when we're eating, my son also looks at me while eating like he wants something. So that's why I want to, yeah, like, he's five months, so I'm just going, preparing for the rice cereal.*

I: *Okay, and you mentioned something about mom thinks earlier – is that different in Canada compared to-?*

(Group: [consenting] Yeah, yeah.)

I: *So what at home, what time do you think people would be introducing?*

P2: *Four, maybe, yeah, four months.*

I: *Four months.*

P2: *In my country, four months. As the child gets four months old, they start the semi-solids like bananas, apples, yeah.*

When it came to giving water, one mother seemed to have appropriated the 'cues for readiness', using their babies' physiological signals to justify adding other liquids.

I: *And is that when you started then, at 6 months?*

P8: *Um, yeah and, uh, when I go to the Welcome Baby group and public nurse, and I think everybody suggest me to start from 6 months.*

I: *Okay.*

P8: *I think it's okay, I have no – no idea about that.*

I: And that worked well, or - ? Did that work for your daughter? 6 months, yeah?

P8: Yeah, it's okay. She – I think she had no any allergies about that, just from the rice and whole wheat, I just follow the discussion for that. This is good, very useful information. But, they give me another information, 'If you continue to breastfeed your daughter and your daughter start the rice cereal, don't worry about the water, don't give her water.' But I think this is different, because my daughter, uh, started solid food, the rice cereal and found a poo – poo is a little bit hard. So, breast milk was –

I: It was not enough.

P8: Yeah. So every day, I give her just a little water. It help her.

I: It helps her.

P8: Just a little is okay, not one big drink, you know?

I: Yes.

P8: I think. Yeah, maybe different for baby –

Husbands

Though we did not interview any of the women's husbands, it became clear in the discussion that they were a crucial element of the mothers' social support system in Canada. Nearly all of the women we interviewed had moved to Canada with only their husbands. Although most of the women's mothers had visited for a period of several weeks or months, usually, it seems only for the birth of the mother's first child; husbands seem to have become the primary source of social support in the absence of other family members. Following delivery, many of the mothers reported that their husbands cooked, cleaned and cared for any older children while they recovered. The mothers also reported that their husbands were actively involved in researching infant care recommendations, and encouraged them in their care decisions.

P15: No, as I told you that my husband, almost 20 days I was just in bed, and my husband, he's very nice, he did almost everything, just the night is for me, because I have to look after, and he just went to bed at 9 or 10 o'clock, after that he just too, he's done, because he has to wash to the dishes, cooking food, take care of her, and um, cleaning the house, everything, washing the clothes- I was just in the bed all day and in the night I have duty with Fatima.

P4: And my husband also encouraged me to continue breastfeeding. My mother told me, give her one bottle – not all, um, um-

P2: Supplement, yeah.
I: Supplement with some formula.
P4: But, no.
I: You just breastfed, okay.
P4: I think it's better, and my husband also, he said, 'No, don't give her that.'
I: Just breastfeed.
P4: Because the medical [benefits] will be-
P2: Reduced.

Raising children in Canada

The mothers were asked how raising a child in Canada was different from raising a child in their home country. Nearly all the mothers agreed that the age of introduction of solid foods was younger in their home countries than in Canada. Following that, the responses diverged dramatically, though many of the responses pertained to health, perceived health, and interactions with Canadian healthcare professionals. Interestingly, most of the mothers who had lived in Eastern Europe or Russia at some point addressed the quality of Canada's health care infrastructure in comparison to that of their home country, particularly the accessibility of specialists (pediatricians).

P13: My children [in Canada] *not – didn't have blood test, nothing. No urine test, not, uh poop test. Nothing. They could have, uh, some, like, you know, I was so worried before, now like I'm a kid 'cause I used to live like this. But, I was, uh, for me it's strange why nobody check – maybe he doesn't have enough iron, maybe he doesn't have enough, uh, another thing. Like my, uh – like, if my child – like, my, uh, youngest son he poop seven, eight times a day. And if I ask doctor, like, why he did like – 'It's okay! Some children poop once, uh, seven days, some children poop seven times a day. It's like, uh, it's normal.' But for me it's not normal, you know? And I know if I was in back home, uh, my child has, uh, a good, um, the – they check him. His blood, his pressure – blood pressure, everything – everything, you know at the beginning. But here, no.*

P14: It is, um, I have to say this it is different 'cause I went with my son to Poland this summer. He was five or six months at the time. And then, I just want to check him with pediatrician in Poland. So I went over and when she saw

him, she told me he's very pale. So she ordered a couple of tests, blood test and urine test, and turned out he was anemic. Like, he didn't have enough iron. So when I came back – so she, um, ordered iron supplement, and I gave him that, uh, for a month. We came back to Canada and I went to see my family doctor, she's Polish too, and she said – she, uh, she's, um, very surprised that I had that test done, cause she wouldn't have done that because he's so small. And he's pale because I'm pale. And I said, but, um, the results are, kind of, worrying me. Because the normal – like, the normal was, like, thirty-two, um, and then he was six – yeah, six. That's low, for me. And then I said, 'Okay, so what do you want me to do with that?' And she said, 'Nothing. Just give it to him until the bottle is empty.' And – and I said, 'Are you going to check him afterwards?' and she's, 'No, there's no need to.' So, that – that is a difference. There is a difference, um, between – for here and Poland. But other than that he's fine, he's very energetic, and, so I don't want to say, like, he's anemic. But, like, when she saw him the first time I came into her office, she – she was, like, right away, 'He's too pale.' And she checked him thoroughly, and here, in order to get to a pediatrician, it's not as easy as there. And we have, like, private care there, so I could – I could pay for it. So, if I'm concerned about, in Poland, if I'm concerned about anything, if I'm concerned about anything, I just pay for it , I cover the expenses, and then I have my child checked. And here, when I asked her to - - can't do that, I can – I can take care of it. And I know he's not sick, it's not, like, a major thing but for me, a first-time mom, it was a big concern. That's what makes it different.

P4: What was new for me was that, when, um, when I was pregnant, I had, um, gyne, gyne, I don't know how to say in English, gyne-

P2: Gynecologist.

I: You had a gynecologist, right, yeah.

P4: But, when my daughter was born, my family doctor came to hospital and he checked her.

I: Yes.

P4: I thought it was supposed to be my doctor, my gyne-

I: Gynecologist.

P4: Yeah, do this, because the family doctor, he's supposed to know everything, right?

I: Mm, hmm.
P4: But it was something new for me, because in Poland, we used to have to come to hospital the pediatrician, because he's the specialist of children.
I: Children, not a family doctor.
P4: Not a family doctor, that's why I was surprised. But I found a pediatrician for my daughter, so I have family doctor and pediatrician.
I: And, okay.
P4: I think I feel more comfortable, more secure that I have pediatrician.
I: Mm, hmm, okay.
P4: And in Poland, we have the pediatrician who comes to the hospital.

For other mothers, though they agreed that the wait to see a pediatrician or other specialists in Canada was considerably longer than in their home countries, they were more concerned with environmental conditions contributing to their children's health. The use of chemicals (preservatives, dyes), salts, fats and sugars were all points of concern. Several mothers lamented the unavailability, the expense or the inaccessibility of organic, or farm-fresh produce, dairy and meats and almost wistfully longed for a simpler country lifestyle spent out of doors – though it was never clear whether these women were actually raised in a rural setting or whether it was simply a lifestyle they imagined to be healthier and happier than that of urban dwellers. 'Nature', and 'natural' were used to describe healthy foods, and one group of mothers expressed concerns about living space (the size of houses, yards to play in, exposure to fresh air), or as one mother put it, 'living standard', taking a toll on child growth and development.

P6: Back home is better. You can smell the – the – for example the smell of the fruit and vegetables. It's a different smell. Here you can't smell anything. For example, if you bring pears to the house, back home, you can smell it. Here there is no taste or smell, you just eat whatever, a pear or whatever. There's no – you can't smell the taste of it. There is lots of chemical in it, yeah.

P15: I remember my, you know, the countryside places, because inside the city, you know, a lot of changes are occurring over time, but in the countryside, still people, you know, fed their kids, like, in the oldest style, just the natural foods,

raw material. And, you know, the kids are playing on the floor and in the mud and they are very strong.

P15: Maybe, I think the one factor is that the, the, the people usually came from other countries, that, for example me, I came from Pakistan, or some other places, and I have a small house, you know, I don't know how much it affects the growth of the kids, but I think the living standard, living in the place where , the place where I am living, it's a small place, but in my country, there's big, big houses, you know the open houses, free air and fresh air, everywhere plants and like, natural things you know, a lot of nature. But I am living in an apartment for two and half years now, my kids just stay at home all the winter. All the winter! Yeah, it's hard, you know there's no change, no natural thing, just heating and you know you have purify it with something else, so it's little bit different from the nature. Maybe the growth is different, I don't know exactly, but I have this feeling, because in my country, the houses are big, open, fresh air, nature is very close to us, and we feel something, you know... natural. But here it's a little bit different.

Obesity was also a concern for some women – one mother exclaimed that she, like so many others, had moved to Canada and become 'fat'. Another mother described Canadian children: "You know, like in Canada, they get like, the kids, fat, fatter [group chuckles] they don't, they don't strong. Back home they are tiny, but, oh, they are very- very strong, yeah."

Which culture to take?

The mothers were also keenly aware of the social and emotional challenges that go along with raising a family in a new country. As one mother phrased it, "*I question which culture I should take – China culture or Canada culture? Because in the same question, maybe this different culture has a different answer than maybe they have. Which, which answer is good for him?*" Culture is a particularly pertinent facet of immigrant health research, which, arguably, rarely receives the attention it requires. Warry writes that the anthropological study of culture has changed; applying a relativistic approach, many anthropologists are exploring how cultures interact and change, how "smaller, more vulnerable cultures often resist taking on the values and ideas of dominant cultures and how some cultural traits continue while others are abandoned" ([2007] 2009 : 88). Warry's description of culture as adaptable, flexible, hybridized and anything but static is fitting for

the study of migration experiences. Warry chides neo-conservative anthropologists for equating the abandonment of some traditions with the loss of culture, and the adoption of mainstream practices and technologies with acculturation. To use Warry's example, the difference between "being Hindu in India" and "being Hindu in Canada" ([2007] 2009 : 88) is even more pronounced for recent immigrants on the proverbial frontier of cultural interaction. And though Warry insists that the discontinuation of traditional practices does not have to mean the diminution of culture, it was evident that the idea was worrying for many of the mothers we interviewed.

Though we never used the word 'culture' in any of our interview questions, the mothers used the word themselves in describing particular practices ('In my culture, we...'), and in describing an aspect of their former lives that was perhaps changing, or that they felt they were losing now that they were living in Canada. Culture was also used to describe the influence of Canadian society, and was especially prevalent in the discussions of family dynamics and gender/age roles. Two of the mothers from China indicated that they were uncomfortable with teenage girls dating; they agreed that women should not live with men before they are married and that, typically, in China women do not marry until they are approximately twenty-five years old and have completed a university degree. One of the mothers noted, however, "*But now I know, in China also has some young people live together, because China also change, but I'd like it to not change so quickly, you know.*" The Palestinian mother of nine children compared her relationships with her eldest daughters with her relationships with her other children who had lived in Canada from a young age.

> *P6: They need lots of work. Yeah, for the kids to listen and the – for example my older daughters they understand everything and they go whatever – they think the same way I'm thinking. But, for example, my – my eleven year old - my twelve year old, she came when she was, uh, five. Now she's thinking way far away, far way – it's the culture around here, surrounding here, control more than me, and it's hard.*

The mothers with younger children seemed to anticipate a similar sense of disconnect, or tension between themselves and their children. It was clear that instilling a sense of familial or parental respect in their children was an important goal.

> *P13: Because I get so, but I'm afraid. I, I, I hear so many stories, like, uh, children growing in Canada from, from parents like I, I am, and they not respect parents because, like, 'Oh mama, you can't speak English, mama you –' , like, I think*

> *for, for myself I, I think, one – the – the first one what I have to teach them to respect their parents. Yeah, we- we are not perfect and we here for, for the, our children future, and they have to respect it.*

P10: Yeah, they follow sometimes, your, like your family, yeah, they follow, sometimes not, they choose own way. But most of our country people, they are good, like until twenty, I think, eighteen years, they are doing good. They listen their mom, dad, they respect their mom and dad. Because you know, like our country back, we respect like our family very very... They say something – mom and dad – you have to listen. But here, you know, eighteen years, he said, now I am growing, I am going out, he said [laughs], it's very hard.

Authoritative knowledge

The mothers we interviewed sought out resources and information from a variety of sources: grandmothers or other female relatives (in Canada and in their home country), doctors and nurses in hospital pre- and post-delivery, family physicians or paediatricians, the facilitating public health nurse for the Welcome Baby program, other mothers at the OEYCs, husbands, online and print publications. It was apparent, based on the discussion and the mothers' reported behaviour that often the information garnered from many of these sources was considered in each decision about infant feeding and care. All of the mothers had tried to breastfeed their children – and many acknowledged that they did so based on the advice they had received at the Welcome Baby group sessions. When it came to the introduction of solid foods, mothers drew on the knowledge they had acquired from the Welcome Baby group and their own mothers. They also accessed a form of embodied knowledge, observing physiological cues in themselves (whether they had enough breast milk) and their infants. Despite the explicit instructions of the Welcome Baby program, most of the mothers did not wait six months to initiate solid foods. It is in this light that I wish to explore Brigitte Jordan's ([1978]1993) concept of authoritative knowledge. Jordan defines authoritative knowledge as:

> ...a state that is collaboratively achieved within a community of practice ...the knowledge that participants agree counts in a particular situation, that *they* see as consequential, on the basis of which *they* make decisions and provide justifications for courses of action. [Emphasis in the original] (154)

Sargent and Bascope (1997) add that "...authoritative knowledge distinctly *does not* mean the knowledge of persons in positions of power and authority" [emphasis in the original] (185).

One of the forms of knowledge central to Jordan's theory of authoritative knowledge, and others' interpretations of her theory, is embodied knowledge. Though it shares some similarities with Scheper-Hughes and Lock's (1987) embodied knowledge (i.e., that it is derived from an awareness of the individual body-self, and is intuitive in nature), authoritative embodied knowledge refers to a phenomenological and subjective form of knowledge. Browner and Press describe the particular brand of embodied knowledge as "subjective knowledge derived from a woman's perceptions of her body and its natural processes as these change throughout a pregnancy's course" (1996:142). Bodily cues serve as diagnostic criteria and are an influential source of information in many mothers' decisions about care practices. Where authoritative knowledge is imbued in the technological artefacts of birth, as Jordan describes is the case in most North American birth settings, consideration for a mother's embodied knowledge often falls by the wayside ([1978]1993).

Though Jordan's work focuses on the specific social setting of birth, the practice of infant feeding under medical scrutiny leads to the construction of another authoritative body of knowledge, and as such, lends itself to anthropological investigation. Of interest in this particular setting are the competing bodies of knowledge with which New Canadian mothers contend. For New Canadian mothers who are familiar with the Canadian recommendations and the recommendations of their home countries, the authority of western biomedical knowledge represented by the pre- and postnatal education program offered by public health is tenuous. However, by "forcefully promoting" the Welcome Baby regime through formal didactic educational settings, and the devaluation of other forms of knowledge, Canada's public health messages about infant feeding are established as "the only legitimate and authoritative model of care" (Sesia 1997:409).

Jordan's authoritative knowledge, however, stipulates that the authority of knowledge is "legitimized and reproduced" through practice and "social interaction" (Sargent and Bascope 1997:185). The mothers we interviewed reported that they did not adhere strictly to the recommendations of the Welcome Baby public health dietician or nurse, nor did they necessarily choose to follow the advice of their mothers and other family members back in their home countries. In Canada, however, it is clear that the recommendations of the pre- and postnatal programming do hold some authority, but so do the recommendations of their mothers and their home countries. By drawing on both sources to inform their decisions, the mothers establish the authority of both knowledge systems in Canada, and affirm the primacy of their own agency in infant feeding practices. The

mothers who chose to follow the recommendations of the public health nurse, arguably did so because they perceived greater risk, or greater consequences, for not adhering closely to the recommendations. For example, the mothers who explained that they were "scared" or "afraid" to introduce water or solid foods to their infant's diets too early, likely considered the outcome for noncompliance to be very grave. That both of these mothers indicated that they would not comply were they not living in Canada suggests that the women impose a geographical jurisdictional limit on the authority of Canada's public health messaging – outside of Canada, these recommendations would bear no consequences, and therefore no authority.

In practice, however, the transmission of knowledge is much more multidirectional; many of the mothers we interviewed are in touch with friends and relatives with young children in their home country, and they relay the teachings of the Welcome Baby program back to friends and family in their birth country. This challenges the acculturation model as evidently immigrant families are not cut-off from their countries of origin following their relocation to a new country. Knowledge and 'culture' continue to flow bi-directionally across borders, meaningfully and demonstrably contributing to social and health practices in their new home countries.

Browner and Press (1996) discuss the production of authoritative knowledge in American prenatal care. The authors interviewed 158 pregnant mothers – patients of several health maintenance organizations in southern California – and aimed to assess why, when and how pregnant mothers follow biomedical recommendations from their doctors or other (authoritative) care providers. The authors describe the women who participated in the study as:

> ...reflective actors who continually evaluate the clinical recommendations they receive. The extent to which they acknowledge those recommendations to be authoritative is based on the bodily changes they are experiencing, their own prior history and knowledge, and the everyday life situations in which their illnesses are experienced and treatments employed (Browner and Press 1996:152).

The expectant mothers who participated in Browner and Press' study chose to incorporate the biomedical recommendations of their physicians when the recommendations were considered feasible, when the benefits outweighed the costs, or when the outcomes of the recommended practices were verifiable through their own embodied knowledge. Only a few of Browner and Press' participants were considered immigrants (women who had moved to the U.S. from Mexico after the age of ten). The only reported

difference between these mothers and the rest of the study sample was that they justified rejecting the biomedical recommendations of their doctors based on "'social' considerations" (e.g. one mother flying home to Mexico seven months pregnant for her father's funeral) (Browner and Press, 1996: 151).

A study investigating the perceived roles of various health care practitioners in Ireland in providing information to parents about introducing solid foods provides a glimpse of the dynamics of knowledge transmission, the role of the expert and the construction of authoritative knowledge (Allcutt and Sweeney 2010). The authors surveyed general practitioners (GPs), practice nurses, public health nurses and community dieticians. Public health nurses and community dieticians were most likely to indicate that they were responsible for the dissemination of breastfeeding and weaning information to parents. Nineteen percent of practicing nurses and 7% of the GP respondents did not acknowledge their role in breastfeeding and weaning instruction, despite Irish public health messaging that recommends that parents consult these professionals. Unfortunately, with regard to knowledgeability, most of the respondents recommended introducing solid foods too early, and 87% of respondents did not recommend vitamin D supplementation. The authors account for the latter as a symptom of the Irish health authorities delaying the adoption of the recommendation.

This Irish study compliments this Canadian research as it provides some insight into construction and dissemination of health information from the perspectives of the representatives of regulatory health authorities. It also demonstrates the variability of information purveyed by different occupational classes within a single health system. Like Ireland, much of Canadian health messaging is accompanied by the directive to consult with a family doctor. However, many of the women we interviewed explained that most of their information about breastfeeding, commencing solid foods and supplementing exclusively breastfed infants' diets with vitamin D came from the Welcome Baby prenatal group. The sense of responsibility to provide parents with infant feeding directives and the confidence to impart this knowledge described by the public health nurses and the community dieticians participating in Allcutt and Sweeney's (2010) study, resonates with the determination with which Hamilton's public health nurses and dieticians promote official, authoritative health messaging.

Meeting recommendations?

The issue of compliance is met with reluctance and some chagrin. The term is widely used in biomedical settings to describe a patient's willingness to fulfill a physician's directive. While increased compliance with current

infant feeding recommendations is an objective of the Welcome Baby educational programming, 'compliance' does not adequately describe the complexity of behaviour and decision-making. The title of this section is phrased as a question to reflect the interpretive ambiguity that exists in this particular setting. While the goal of the facilitating public health nurse or dietician may be to increase the initiation and duration of breastfeeding among mothers in Hamilton, not all of these aims are shared with the mothers who attend the information sessions, who do so presumably to acquire knowledge and resources to care for their infants.

Only a few of the mothers we interviewed had not breastfed their babies. All three of the mothers who did not breastfeed described similar circumstances that led to their being unable to breastfeed – they described their condition as 'not having enough milk' despite efforts to increase milk production (through mechanical pumping and medicinal therapy), and explained that the hospital staff were responsible for introducing formula to their infants' diets. Two of the mothers had relented, and had fed their children formula since, but one mother continued to partially breastfeed and pump until, when her infant was two months old, she was primarily breastfeeding. This latter mother considers herself a success story, an example of just how wrong the doctors and nurses could be, and she conveyed this story to her family back home in China (her sister-in-law in China had recently been told she wouldn't have enough breast milk as well).

P8: And, I found first they, you know – my sister-in-law she has not enough breast milk. But, some – some people told her, "Okay, you have not enough breast milk, just use the baby formula."

I: This is at home that you're talking about?

P8: Yeah. 'You can stop the – the breastfeeding,' I told my brother and sister-in-law, 'don't worry about that, that's first – that's your first baby. Breast milk is not enough that's very normal. Yeah, at first week or at first month, it's very normal. You can keep trying, after two months, you will find it's enough. You can keep feed – feeding him.' But some people told her, 'No, some women don't have enough breast milk.' Let – they – the – different women – some different women–

P17: They can breastfeed their babies.

P8: Some different women couldn't breastfeed their babies. I just, 'No!' So, I told them to try, lucky because- [laughs]. Just – after – just after one month, it's enough!

For the other mothers who were not breastfeeding, the reaction was not so positive. It was clear that for one of the mothers in particular, not being able to breastfeed had been a considerable source of stress in her life. She explains:

> *When I had my daughter, I tried to breastfeed her, and I didn't have, have, have, enough milk. So even I tried to go to the clinic, I tried the machines, I took some pills – nothing's worked. So in the hospital, they give me formula.... I think that's a big problem right now for lots of women, because I really wanted to breastfeed, I really wanted, but I couldn't.... The question is why they can't breastfeed. Are lots of women working? They have stress at home, they have stress at work, so maybe that's why, I don't know.*

Her anxiety about not breastfeeding seemed to have developed into concern for not meeting other health recommendations, such as her daughter's adequate dairy intake, and also seems to have impacted her interactions with her physician.

> *That's why I have a problem, because my daughter doesn't want to drink [milk] – don't like....So I try something else, like yogurt or cheese.... But I spoke with my doctor, and I told him, you know – she doesn't like milk; I don't know what to do. And he told me, 'No, it's your fault.' He told me it's my fault. But I told him, 'I tried!' I give her raspberry milk and I give her chocolate milk, no! She doesn't like. She eating the cereal with the milk, but.... yeah, and, I told him, but he's like, because you, because you don't give her. I say, I try, I really try, I give her the cup, I bought her even a straw, it's sweet, I know, but I want to give her, so...*

These excerpts are pertinent because they illuminate the negative outcome of authoritative knowledge – what happens when a mother is unable to fulfill the internalized (in a Foucauldian sense) (Scheper-Hughes and Lock 1987) expectations and normalized behaviours dictated by authoritative knowledge. This mother's frustration and sense of judgement or blame are evident in these passages. In explaining herself, it was important for this mother to demonstrate that she had exhausted her resources and efforts in attempting to meet the recommendations. Jordan writes,

> ...the sense of superiority and moral requiredness that is built into every functioning system usually keeps its practitioners

> resistant to and often uninformed about alternate ways of doing birth...([1978]1993:5)

In a similar vein, Browner and Press note that,

> In reality, much of prenatal care can be seen as a process of medical socialization, in which providers attempt to teach pregnant women their own interpretations of the signs and symptoms the women will experience as the pregnancy proceeds and the significance that should be attached to them. (1996:144)

It is this moral component of authoritative knowledge, and the significance attached to breastfeeding, for example, through medical socialization that is so devastating to those who, for whatever reason, find themselves unable to fulfill the normal and "correct" behavioural expectations. For immigrant mothers the effect seems to be compounded since they seem to meet neither the Canadian recommendations nor the recommendations of their home countries.

Conclusions

The results presented in this chapter reveal that New Canadian mothers face the additional challenge of negotiating and accommodating new health information from Canadian health authorities and their representatives into existing authoritative knowledges about infant care and feeding from their home countries. Social isolation in Canada makes the maintenance of "cultural" practices difficult, and child care somewhat more onerous. Husbands assume many of the duties and support roles that would otherwise be fulfilled by extended family networks in the mothers' home countries.

The OEYCs and especially the Welcome Baby programs facilitated by the public health nurses and dieticians have an important role to play in the production of authoritative knowledge and the mothers' medical socialization. Parts of the interview, especially concerning conflicting advice (introduction of water and solid foods) and those mothers who could not breastfeed, suggest that there are perhaps differing cross-cultural understandings of infant feeding and care that need to be addressed in a more culturally sensitive manner, though further investigation is required. The effectiveness of authoritative knowledge in increasing compliance with biomedical recommendations is contested, and its reception in this study is certainly mixed. However, it is clear that the mothers we interviewed consider the Welcome Baby programming at the OEYC to be an important

source of information and support, and compliance with the program's recommendations an important part of becoming a mother in Canada.

On a theoretical note, these results serve to emphasize the simplicity of the acculturation model; it is clear that knowledge and "culture" continue to be exchanged across borders and across generations – that Canadian health information is not confined within Canadian borders, likewise for other countries' health recommendations. Furthermore, based on the results of this study, the OEYC and the public health nurse and dietician facilitators appear to be a primary point of contact for many mothers when it comes to seeking health and nutritional information – often even before or in place of the family physician. As such, the OEYC programs are important avenues of health care intervention and an under-investigated link in the dissemination of Canadian health messaging. This may be particularly pertinent for studies of New Canadians, as we suspect that a comparatively greater proportion of New Canadian mothers utilize the OEYC resources because they are relatively isolated from family and peers from their home countries.

Chapter VI
Conclusion

The goal of this study has been to examine the infant feeding practices and the factors that contribute to these practices and others among New Canadian mothers. Part of this research has involved exploring the data collected in the CCHS on maternal experiences. This part of the research helped to inform the design of some of the questions for the qualitative data collection – the focus group interviews. As data collected from interviews with twenty-two individuals is hardly indicative of national trends, it has been important to explore both the broader trends and some of the local trends in the hopes that the results of both analyses may contextualize the results of the other. The second part of this study has been in many ways experimental, in that the highlighted themes are the product of observation and analysis of the collected data, rather than the product of a specific line of questioning.

Summary of Results

Based on the CCHS, New Canadian mothers are more likely than their Canadian-born counterparts to initiate breastfeeding and exclusively breastfeed for at least six months. While there are several possible explanations for this observation, two reasons emerged from our focus group interviews which warrant discussion: (1) many New Canadian mothers have emigrated from countries with rich breastfeeding cultures, (2) contact with public health nurses (through OEYCs, Welcome Baby classes, home visits, or similar) and physicians may reinforce the authority of Canadian health recommendations and play a role in New Canadian mothers' decisions to breastfeed and breastfeed exclusively. In a study of mothers' health service needs and resource use, Kurtz Landy, et al. (2008) report that in Ontario, lower SES women have been identified as having greater health service needs, though they seldom receive them, despite professional guidelines. Recent immigrant mothers were flagged as a particularly vulnerable group as many of them struggle with social isolation and financial strain in the early years following arrival in Canada. Fifty-five percent of the study's low SES sample was composed of women who were born outside of Canada. The authors report that mothers in the low SES group were more than twice as likely to accept a post-partum visit from a public health nurse, and were more likely to continue involvement with public health services at four weeks post partum than mothers in the high SES group. This increased contact with public health nurses, with an emphasis on Canadian health

recommendations may account for some of the discrepancy in the prevalence of breastfeeding between New Canadian mothers and Canadian-born mothers.

Education and immigrant status emerged as strong determinants of breastfeeding initiation and exclusive breastfeeding for at least six months. Similar results were reported among breastfeeding mothers (immigrant and American-born) in the United States (Celi, et al. 2005; Harley and Eskenazi 2006; Heck, et al. 2006; Singh, et al. 2007; Sussner, et al. 2008). Higher educational attainment has been demonstrated to be strongly associated with a higher degree of health literacy. Simich describes health literacy as

> ...understanding health issues, knowing how to use the health care system, having the ability to advocate for health care and having access to information and resources that help to promote physical and mental health in everyday life. (2009:4)

Canadians with lower health literacy report lower health status and are less likely to have access to preventative care, causing health problems later in life (Zanchetta and Poureslami 2006). Health literacy is a function of educational attainment and literacy; poor language proficiency is also associated with poorer health literacy, thus immigrant population have been flagged as particularly vulnerable groups in this regard (Simich 2009). Immigrant women achieve lower language proficiency and literacy scores than their male counterparts, yet play a central role in family care and health decisions. Simich (2009) identifies several areas in need of improvement, the first of which is to better the cultural and linguistic competency of Canadian care services, the second of which is to diversify educational approaches to include more participatory, oral and visual methods of instruction. From our interviews, it is clear that while some of the mothers accessed health information online or in books, for the most part, the mothers learned about infant care and feeding through verbal media from their physicians, other mothers, or public health nurses.

Solid foods and other liquids were initiated earlier than recommended by nearly half of Canadian mothers. Among the most common responses for early solid food introduction (3 months of age, or younger) were 'not enough breast milk', 'baby was ready for solid foods', and 'difficulty with breastfeeding'. Among mothers who started solid foods when their infants were four months of age or older, the most common reasons were 'baby was ready for solid foods', 'advice of a doctor', and 'not enough breast milk'. The frequency with which 'baby was ready for solid foods/liquids' was cited as justification for the introduction of solid foods and other liquids in infants even younger than three months is somewhat alarming, though this likely refers to the introduction of infant formula, rather than solid foods. As

discussed in chapter IV, child developmental milestones have become the foundation of timing for the commencement of complementary feeding in the last decade. The permeation of this message throughout lactation and infant health promotion has been captured in the results of the CCHS. The message, which Best Start has phrased as "Your baby is ready to start eating solids when she is six months old, holds her head up, sits up in a high chair, opens her mouth wide when you offer food on a spoon..."(Best Start and Nutrition Resource Centre 2007), is demonstrably misinterpreted by Canadian mothers, 73% of whom initiate solid foods and other liquids before their children are six months old. Researchers have remarked with concern that these developmental criteria for weaning could be easily misinterpreted – that parents who perceive their children to be precocious in other ways may introduce solid foods too early (Heinig, et al. 2006; Pridham 1990).

Most of the mothers we interviewed had introduced solid foods before the age of six months. Though they were generally aware of the six month recommendation, practice in their home countries often dictated an earlier introduction of solid foods around three or four months. The mothers seemed to use the two recommended ages of introduction as an appropriate window in which to initiate solid foods, resulting in many mothers introducing solid foods to their infants between the age of four and a half and five month and a half months. A few of the mothers who had not yet begun to feed their still young children, expressed a desire to begin solids shortly because they felt their babies were ready.

Only a few of the mothers we interviewed had not breastfed their babies. This was not the result of a decision *not* to breastfeed, but rather the result of hospital health professionals advising the mothers that they were not producing enough milk to satisfy their babies and that they would *have* to formula feed. A study conducted at McGill University teaching hospital reported that insufficient milk supply was a commonly-cited reason among nurses for infant formula supplementation during post-partum hospital stays, despite consensus in the medical field that insufficient milk supply is in fact exceedingly rare (Gagnon, et al. 2005:402). Insufficient milk syndrome (IMS) has been characterized by researchers in a number of fields. The behaviour of the hospital staff subverts the aims of the Baby Friendly Hospital Initiative, which specifically directs health care providers to, "Give newborn infants no food or drink other than breastmilk, unless medically indicated" (cited in Chalmers, et al. 2009:126). The ubiquity of this 'myth' of insufficient milk supply is apparent in the CCHS data as well. Approximately 22% of Canadian mothers who have recently given birth responded that they introduced solid foods and liquids to their infants' diets because they hadn't enough breast milk. Additionally, infants of immigrant mothers participating in the McGill study were more likely to receive formula supplementation in-hospital, though the authors associated this with cultural perceptions of

colostrum as harmful, and early artificial feeding as beneficial (Gagnon, et al. 2005:402).

New Canadian mothers arrive in Canada with an existing body of knowledge about infant feeding practices and maternal prenatal and postpartum care. Far from their own families, husbands take on new roles, particularly in the capacity of maternal prenatal and postpartum care and child care. Isolation from the family and friends that compose a mother's social support network, and extended contact with Canadian public health nurses, reifies the authority of the Canadian health system and its recommendations in the construction of an authoritative knowledge of infant feeding and care. Integrating multiple authoritative knowledges proved to be challenging, though the mothers appeared to adhere more closely to the recommendations they deemed most authoritative for outcomes they considered most consequential. The conditions contributing to the construction of consequential outcomes are multifarious, but may be closely tied to the didactic interactions between New Canadian mothers and public health nurses in the pre- and postnatal education programs.

The mothers we interviewed displayed a high degree of health literacy; almost all of them held university or college degrees, they were relatively proficient in English, and they accessed community health resources in the form of Welcome Baby sessions, and other OEYC services. The existing literature suggests that among immigrant women, this degree of health literacy is atypical, as recent immigrants generally have lower French and English literacy scores, and much of Canada's health information is delivered in these languages (Rootman and Gordon-El-Bihbety 2008). However, if we consider the mothers in our study to be among those with higher health literacy, this research suggests that the OEYC may play an important part in the health literacy development of New Canadian mothers.

Suggestions for Future Research

The *Vitamin D* project continues, and there are a few shortcomings of this research which should be addressed in the development and execution of the next stages of the larger study. This research has demonstrated that mothers draw on a variety of sources for information about infant feeding and care, and in the process, develop and affirm their own knowledge, and decision-making algorithms. Throughout this thesis, I have highlighted the roles of several key players that the mothers we interviewed identified as contributors in their care decisions and practices. Efforts should be made to include husbands and visiting maternal grandmothers in the discussion of appropriate infant feeding and care for New Canadian mothers and their babies. OEYC coordinators, public health nurses, family physicians, and hospital health professionals (nurses and physicians) should also be included

in a discussion of current recommendations and practices, and the challenges of, or ideas for, delivering culturally competent services for immigrant mothers, and improving health literacy in immigrant populations. Additionally, I feel that an observational component, especially of Welcome Baby programs and the like, would help to triangulate some of the questions around the development of authoritative knowledge in Canada.

Future studies of infant feeding in Canada should consider exploring the following health messages in infant nutritional health promotion. (1) The use of developmental milestones in health messaging pertaining to the introduction of complementary foods – particularly the misinterpretation of these signs of readiness with respect to the early introduction of solid foods and other liquids. (2) The clinical validity of using 'not enough breast milk' to justify early formula supplementation in-hospital, and the resultant outcomes for breastfeeding promotion in Canada, and for children and mothers with low health literacy.

Much of the immigrant health research conducted in Canada stresses the vulnerability of New Canadians. While the structural barriers to equitable access to health resources persist for many immigrants, I hope that I have been able to convey the complexity of infant feeding and care decisions, and the dexterity and creativity with which the mothers we interviewed approach the challenge of raising a baby in a new country.

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Appendix A

Immigrant Focus Group Discussion Guide

Background:

We're going to begin be asking you a little bit about yourselves...

1. Introductions: Ask participants to introduce themselves
    a. How long have you lived in Canada?
    b. In what country were you born? In what country did you grow up? Did you live in any other country before you came to Canada?
    c. Who lives in your household? What are the ages of your children?

Now we're going to ask you about the foods your family eats...

2. Please tell us about the kinds of food your family eats?
   Probes:
    a. Do you have concerns about what you eat?
    b. Do you have any concerns about what your children (or child) eat?
    c. What kinds of food would you like your child(ren) to eat?
    d. If there are concerns, why can't you get your children to eat what you want them to?

Let's talk about feeding babies now...

Infant Feeding Practices

3. Tell us about how you are feeding your baby now? How did you feed your other children when they were babies (if have them)?
   Probes:
    a. Do you think breastfeeding is important? (Why or why not?)
    b. Have you thought about feeding infant formula (Why or why not?)
    c. Where did you learn about feeding your baby?
    d. When do you think it is a good time to start feeding your baby other foods and drinks (besides breast milk)?
    e. What are these other foods or drinks (infant formula, cow's milk, etc...)?
    f. How long do you think moms should feed their children breast milk only?

4. How is the way you feed your baby different now in Canada from the way it was done in your home country?
   Probes:
   a. Are breastfeeding practices different?
   b. Are the foods given to babies different?
   c. Why do you think babies are fed differently?
   d. Do you think babies are fed better, worse, or the same in Canada than they were in your home country? Why?

We'd like to ask you about some of the difficulties people might have feeding their families...

5. Do families in your neighbourhood ever have a hard time getting food, or foods that are good for them?
   Probe:
   a. If yes, why is it difficult to get food or healthy foods?
   b. If getting food is a problem, how does it affect moms and children?

Okay, we've talked about food, let's talk about other types of things that you might give your baby to make them healthy, like vitamins.

Knowledge of Vitamin D and supplementation practice

6. Do you give any vitamins to your baby?
7. Has anyone ever told you to take vitamins yourself or give them to your child? Who? (Family member, friend, health care provider....)
8. What have you been told to use for you and your baby? (*Probe for Vitamin D)*
9. Did you use the vitamins for yourself? Do you use them for your baby?
10. What do you know about Vitamin D?
11. Is it easy to give a baby a vitamin D supplement?
12. Why might a mother decide not to give her baby with vitamin D?

Okay, now let's talk about mom and baby care...

Perinatal Practices and Social Networks

13. In Canada how were you taken care of while pregnant and after your baby was born?
    Probes:
    a. Did you eat special foods during pregnancy?
    b. Who took care of you and your family after the baby was born?
    c. How did you learn about feeding and caring for your baby (including breastfeeding and supplementation)?

d. Did you see a health care provider while you were pregnant? Where did you have your baby? Have you seen a doctor since your baby was born?

14. If you had a baby in your home country, how would things have been different before and after your baby was born?
    Probes:
    a. Special pregnancy foods?
    b. Who would look after you and your baby after it is born?
    c. What special child care practices would you follow?
    d. Would you see a healthcare provider while pregnant? Where would your baby be born?
    e. Is it important to continue practices from your home country in Canada? If so, is it difficult to do this?

15. In Canada do you feel like you have good care and support for you and your baby?
    Probes:
    a. Who looks after your baby and other children during the day?
    b. Who do you usually spend time with during the day?
    c. Have you been able to join a mom & baby group?
    d. Is this different from your home country? If so, how?

16. Are there any other experiences or concerns that are important for us to know about?

Appendix B

Demographic survey

Please answer the questions below. Feel free to skip any questions you do not feel comfortable answering.
We will keep this information private and confidential.

Name:

Age:

Are you married? Yes ☐ No ☐

How many children do you have?

How old are your children?

What country were you born in?

If outside Canada, what year did you move to Canada?

Are you currently employed? Yes ☐ No ☐ Maternity leave ☐

Choose the response that best describes your level of education:

- ☐ Did not finish high school
- ☐ Finished high school, but no college or university
- ☐ Some college or university
- ☐ College diploma or university degree

Choose the response that best describes your household's annual income:

- ☐ Less than $20,000
- ☐ $20,000 - $39,000
- ☐ $40,000 - $79,000
- ☐ More than $80,000