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## Research report

Eating well with Canada's food guide? Authoritative knowledge about food and health among newcomer mothers<sup>☆</sup>L.C. Anderson<sup>a,\*</sup>, C.L. Mah<sup>b</sup>, D.W. Sellen<sup>c</sup><sup>a</sup> Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, 3280 Hospital Drive NW, Calgary, AB T2N 4Z6, Canada<sup>b</sup> Department of Community Health and Humanities, Faculty of Medicine, Memorial University of Newfoundland, Canada<sup>c</sup> Department of Anthropology, University of Toronto, Canada

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## ABSTRACT

**Problem:** Current versions of Canada's Food Guide (CFG) aim to inform a culturally diverse population, but it is not known how intended audiences from different cultural and linguistic groups within Canada's diverse population understand and apply its messages. **Methods:** We analyzed data from qualitative interviews conducted with 32 newcomer mothers of children aged 1–5 years to explore how conceptions of food and health change with migration to Canada among Spanish-speaking Latin American and Tamil Speaking Sri Lankan newcomers and may influence the appropriateness and applicability of Canada's Food Guide (CFG) as a nutrition education tool. We applied Jordan's model of authoritative knowledge to identify different forms of newcomer maternal nutrition knowledge, how they influence child feeding practices, and shifts causing some forms of knowledge to be devalued in favor of others. **Results:** Awareness of CFG differed between groups, with all Latin American and only half of Tamil participants familiar with it. Three distinct, overlapping ways of knowing about the relationship between food and health are identified within both groups of mothers: "natural" foods as healthy; influence of foods on illness susceptibility, and the nutritional components of food. CFG was found to be limited in its representations of recommended foods and its exclusive utilization of biomedical concepts of nutrition. **Conclusions:** Development of new, culturally competent versions of CFG that depict a variety of ethno-culturally meaningful diets and encompass both non-biomedical conceptualizations of food and health has the potential to enhance effective knowledge translation of CFG's key messages to an increasingly cosmopolitan Canadian population.

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## Introduction

The Canadian federal government has been disseminating nutrient requirement recommendations for Canadians through food guides since 1942, when *Canada's Official Food Rules* was published by the federal Health Department in 1942 (Bush, Martineau, Pronk, & Brule, 2007; Katamay et al., 2007). Since then, these rec-

ommendations have evolved from prescriptive diets to the current 2007 version, *Eating Well with Canada's Food Guide* (CFG), which has been translated into ten languages in addition to English and French. CFG aims to be a "description of a healthy pattern of eating intended to reduce the risk of chronic disease and obesity, and meet nutrient requirements for most Canadians [which] focuses on the amount and type of food to eat" (Bush et al., 2007). CFG is based on substantial epidemiological evidence and emphasizes preventing chronic disease through decreasing salt and saturated fat intake, increasing fruit and vegetable intake, and increasing physical activity (Bush & Kirkpatrick, 2003; Katamay et al., 2007).

The guide itself is a six-page booklet that outlines food intake patterns developed for nine groups stratified by sex and age, providing specific recommended serving numbers per day. The key message is to "enjoy a variety of foods from the four food groups" (Vegetables and Fruit; Grain Products; Milk and Alternatives; and Meat and Alternatives). Each of the food groups is presented as one stripe of a rainbow, with representative foods from each food group depicted pictorially. CFG also aims to "reflect Canada in 2007" (Bush et al., 2007), implying that it reflects the multicultural range of foods consumed by Canada's residents. As the primary health

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promotion tool for disseminating Health Canada's ideal food intake pattern, CFG's effectiveness likely depends on individual Canadians' exposure to and response to these guidelines, and how well the guidelines concord with culturally-informed understandings of food, health and their inter-connectedness.

Food-based dietary guidelines such as CFG and the USDA's MyPyramid in the United States are intended to improve public health by encouraging healthy individual eating decisions, which include decisions that parents make in feeding their children (Bush et al., 2007). However, these guidelines are not without controversy. There is ongoing academic and public debate as to the CFG's appropriateness, including its potential to in fact promote rather than prevent weight gain (Freedhoff & Hutchinson, 2014; Kondro, 2006). In addition to these critiques, while CFG aims to reflect Canada's cultural diversity, it is limited in meeting this aim in two respects. First, while the depiction of foods on the CFG website reflects a slightly greater diversity of foods by cultural preference, the guide itself features foods generally associated with a Western diet. Second, CFG's framework employs a Western biomedical perspective, which may not encompass other social and cultural frameworks for understanding health and nutrition (Airhihenbuwa, 1995). Research on health and nutrition knowledge has demonstrated that frameworks for understanding health and nutrition vary significantly between different cultural groups in Canada (Ristovski-Slijepcevic, Chapman, & Beagan, 2008). The aim of this study is to generate knowledge about how CFG is comprehended by newcomer mothers of young children in terms of the types of foods recommended, in order to inform public health strategies for future redevelopment and reconceptualization of CFG. The analyses explore the interplay between newcomers' previous dietary knowledge and practice and how their exposure to Canadian dietary guidelines via CFG, dietitians, community nutrition programs, physicians, and other sources influences dietary change on arrival to Canada.

### *Theoretical approach*

To examine the changes in diet associated with migration to Canada, we use Brigitte Jordan's concept of authoritative knowledge, which examines how particular health-related practices and ways of knowing are legitimized in a "community of practice" in specific situations (Jordan, 1993). Jordan (1993) argues that in any particular domain of human understanding, there are several different ways of knowing, but very often one type of knowledge – "authoritative knowledge" – gains authority over the others. This authoritative knowledge is often associated with a stronger power base, and is validated and accepted through both practice (medical or otherwise) and social interaction (Irwin & Jordan, 1987; Sargent & Bascope, 1997). Jordan's work examines the interplay between parallel cultures that result from the introduction of Western medical knowledge and practice, in particular between traditional birthing practices and Western medical birthing practices. Other scholars have applied the concept of authoritative knowledge to a variety of settings to further explore parallel forms of knowledge in the areas of reproductive health and nutrition (Chadwick, 2010; Ellison, 2003; Fiedler, 1996; Kingfisher & Millard, 1998; Saravanan, Turell, Johnson, Fraser, & Patterson, 2012; Vaga, Moland, Evjen-Olsen, Leshabari, & Blystad, 2013). The framework is well-suited to the context of migration, which exposes individuals to new ways of knowing.

Using Jordan's model we aim not only to identify the different forms of knowledge and explore how these influence child feeding practices, but also to examine what causes some forms of knowledge to be devalued in favor of others. We apply this model to examine the overlapping and potentially competing forms of knowledge to which individuals are quickly exposed through the process

of migration. This paper focuses first on identifying the ways that this diversity of knowledge might influence the appropriateness of Health Canada's dietary guidelines and CFG as a tool, and the applicability of these guidelines to our study participants. Second, we aim to identify the different types of knowledge about food and health in this sample. Overall, this research aims to inform the design of culturally competent programs aimed at improving young children's diets in newcomer families in Toronto, and will also assist providers and policymakers in understanding how child caregivers use and interpret nutrition recommendations.

## **Methods**

### *Research partners and coordination*

The research was conducted in partnership with a hospital-based initiative to improve access to healthcare among new immigrant families, along with the support of several community centers and programs in the study area. The Office of Research Ethics at the University of Toronto approved the study and the research team followed standard guidelines for best practice in research ethics regarding informed consent, confidentiality and anonymity.

### *Study setting*

The research was conducted in the Jane and Finch neighborhood, an inner-suburban neighborhood in Toronto, Ontario, Canada. The study team chose this neighborhood due to its high proportion of low-income households, high proportion of recent immigrants to Canada, and for the density of services available to newcomers.

### *Rationale for methodology*

The study design applied ethnographic approaches, employing a mix of formal and informal interviews with key informants and newcomer mothers. We developed the interview guides using an iterative process involving key informant interviews and consultations with dietitians, settlement counselors, social workers and early years professionals working in the Jane and Finch neighborhood, as well as pre-testing on two Spanish and Tamil speakers. We conducted interviews with study participants using in-depth, semi-structured interview guides. Individual interviews were necessary because of the depth of information required and the sensitive nature of several of the interview questions, which covered the precarious migration status of several of the participants (particularly those who were currently in the refugee claims process), migration experiences, and experiences with household food insecurity. To ensure privacy, interviewers gave participants the choice of being interviewed in their own homes, or in a private room at a community center.

### *Inclusion criteria*

To qualify for study participation, participants were required to meet the following inclusion criteria: (i) mother of at least one (index) child aged 1–5 years (if more than one child met this criteria, the eldest child in this age range was chosen as the index child); (ii) of Tamil-speaking Sri Lankan or Spanish-speaking Latin American country origin; (iii) household income below the Federal Low Income Cut-Off (a widely used measure of poverty in Canada); (iv) arrival in Canada either as refugee claimants or through the family sponsorship program; (v) arrival in Canada within the last five years. We targeted Sri Lankan Tamils and Latin Americans because both groups have high rates of refugee claims and family sponsorship,

and are among the five most numerous linguistic groups in the Jane and Finch neighborhood.

### Recruitment

The study team recruited participants through community service providers in Jane and Finch, including settlement counselors and home visitors, as well as through drop-in programs targeting newcomers and their children. Mothers of children aged 1–5 years were invited to participate.

### Data collection

Interviewers interviewed each participant two or three times, with interviews ranging from 45 minutes to 2.5 hours in length. The series of interviews explored participants' migration experiences, experiences accessing healthcare, accessing food and the experience of household food insecurity, mothers' dietary choices for their children, and their understandings of health and illness for their children. Interviews took place in either Spanish or Tamil (with the exception of one interview with a participant who spoke fluent English) by trained interviewers who were research assistants for the study. The lead author (LCA) was present for all of the first interviews with each participant and all but two of the follow-up interviews. Each interview was audio recorded and later translated and transcribed by a third party. LCA analyzed transcripts concurrently with data collection to determine when saturation was reached in both ethnocultural groups for the domains of interest. The study team determined that saturation was reached after interviews with 16 Tamil participants and 16 Latin American participants.

### Data analysis

LCA reviewed the first interview transcripts with interviewers and identified any potential clarification needed in subsequent interview(s). Interviewers checked and edited transcripts for accuracy with the recordings by interviewers. LCA analyzed data inductively using codes both developed prior to analysis, and also those developed inductively through the progression of data analysis. Our codes were informed by Jordan's (1993) framework of authoritative knowledge. Each transcript was coded for themes relating to caregivers' ways of knowing about food and health and their experience with CFG. The coding process identified common themes within and across groups. The second and third authors advised in the analysis and writing. For this analysis, we examined mothers' conceptualizations of the relationships between food and health in a new country, and we differentiated between two broad ethnocultural groups.

## Results

### Participant demographics

Interviews were completed with 32 participants who had arrived in Canada within the last five years with equal numbers of native Spanish speakers from Latin America and native Tamil speakers from Sri Lanka. Among Tamil participants, 10 arrived in Canada as family class immigrants, and six arrived as refugee claimants. Among Latin American participants, five arrived as family class immigrants, and 11 as refugee claimants. The median age of the index child was 3 (range = 1–5), and the median number of children in each household was 2 (range = 1–3). Other participant demographics are presented in Table 1.

### Awareness and application of dietary guidelines and Canada's food guide

All Latin American participants were familiar with CFG, while less than half of Tamil participants were aware of it. The high level of exposure to CFG among Latin American participants is likely due to the community nutrition programs that most of these participants attended, many of which were either run in Spanish or employed Spanish-speaking staff. While some Tamil participants were exposed to CFG in community programming, there were fewer programs specifically targeting this language group.

Among Latin American participants the concepts of the four food groups, balance and variety, and focus on the nutritional components of foods were widely discussed, and all but one participant indicated that they had learned these concepts from providers and programs using CFG. Among Tamil participants, these concepts were less widely used when describing their decision-making process regarding their children's food.

When describing CFG's utility, several participants expressed regret due to their perception that they did not know how to feed their children prior to exposure to the guide and other nutrition messaging:

Before perhaps I didn't give them food with nutrients. Now I have changed. Instead of giving them canned food I give them natural food...here you end up understanding what's good and what's bad. (*Latin American, Refugee Claimant*)

I realized everything I had done was done badly (laughter). So I told myself "If I have another child, I know what things to do right". For example, if I am doing something wrong with them, what can I do to change that. There are things or tips that can help you. (*Latin American, Refugee Claimant*)

Others believed they were not giving their children foods with nutrients, despite the fact that they reported giving them fresh, whole foods. They devalued their own previous knowledge ("non-authoritative knowledge"; Jordan, 1993) in favor of the authoritative knowledge learned from dietitians and other community service providers. Over a quarter of participants indicated they had obtained only limited knowledge in their countries of origin about how to feed their children:

The bad thing was that my mom perhaps didn't know much and you said you didn't want something and then you didn't eat. (Laughter). She didn't oblige us to eat. For example, if you didn't like milk, you didn't have it. I think that is [bad] because I think that somehow milk is good because of the calcium and so on. (*Latin American, Family Class*)

### Representation of food types in Canada's food guide

Several participants explained that because their traditional foods were not represented in CFG, they were unable to follow the dietary recommendations. Some explained that the types of flours they used were not healthy because they were not portrayed in CFG, and so they felt guilty for not following what they perceived to be best practices. Others indicated that they did not know how to prepare the types of food depicted in CFG and they did not understand how they could substitute traditional foods for those recommended in the CFG.

### Conceptualizing the relationship between food and health

Participants used three dominant, sometimes overlapping frameworks to conceptualize the relationship between health and food for their children. The first dominant framework emphasized the importance of "natural foods" as the healthiest food option for their children. The second dominant framework emphasized food's influence on illness susceptibility, which includes a sub-category

**Table 1**  
Participant demographics.

	Sri Lankan Tamil participants (n = 16)	Latin American participants (n = 16)
<b>Mother's age, years</b>	31 (23–44)	31 (21–46)
<b>Years mother has been in Canada [median (range)]</b>	4.5 (0.5–5.5)	2.6 (1.5–3.5)
<b>Mother's country of origin</b>	Sri Lanka (16)	Colombia (1) Ecuador (2) El Salvador (2) Honduras (1) Mexico (7) Nicaragua (1) Peru (1)
<b>Mother's immigration status on arrival in Canada</b>		
Permanent resident (family class)	10 (63%)	5 (31%)
Refugee claimant	6 (37%)	11 (69%)
<b>Mother's current immigration status</b>		
Citizen	1 (6%)	0
Permanent resident	11 (69%)	7 (44%)
Refugee claimant	4 (25%)	7 (44%)
Humanitarian claimant	0	2 (13%)
<b>Mother's highest level of education</b>		
Primary	1 (6%)	1 (6%)
High school	8 (50%)	7 (44%)
Some college/university	2 (13%)	1 (6%)
College/university	5 (31%)	7 (44%)
<b>Mother's English Speaking and Understanding Self-Assessment</b>		
Can't speak or understand	0	1 (6%)
Poor	3 (19%)	4 (25%)
Fairly well	13 (81%)	6 (37%)
Well	0	4 (25%)
Very well	0	1 (6%)
<b>Mother's English Reading and Writing Self-Assessment</b>		
Can't read or write	0	1 (6%)
Poor	1 (6%)	3 (19%)
Fairly well	13 (81%)	6 (38%)
Well	2 (13%)	5 (31%)
Very well	0	1 (6%)
<b>Husband's current immigration status</b>		
Citizen	7 (44%)	4 (25%)
Permanent Resident	4 (25%)	2 (13%)
Refugee Claimant	2 (13%)	5 (31%)
Humanitarian Claimant	0	2 (13%)
Does not live in Canada	2 (13%)	0
No husband	1 (6%)	3 (19%)
<b>Husband's highest level of education</b>		
Primary	0	2 (13%)
High school	13 (81%)	5 (31%)
Some college/university	0	3 (19%)
College/university	3 (19%)	3 (19%)
<b>Annual household income, SCAD [Median (range)]</b>	23,700 (12,480–44,000)	20,640 (14,400–62,000)
<b>% Receiving social assistance</b>	7 (44%)	7 (44%)
<b>% Renting house/apartment</b>	12 (75%)	13 (81%)
<b>% Have car</b>	7 (44%)	6 (38%)
<b># Children in household [Median (range)]</b>	2 (1–3)	2 (1–3)
<b>Age of index child [Median (range)]</b>	3 (1–5)	3 (1–5)
<b>% Index children born in Canada</b>	12 (75%)	8 (50%)

focusing on hygiene and food safety. The third dominant framework emphasized the nutritional components of food, including the concept of “balance” in the diet. These frameworks derived from both their countries of origin and Canadian influences.

#### Natural foods

This was the most widely used framework concerning food choice among both Tamil and Latin American participants. Participants' explanations for why they felt that “natural foods” were better for their children's health fell into three categories: 1) concern over the effects that chemicals from processed and non-organic foods have on their children's health; 2) concern over food that wasn't fresh and lacked sufficient nutrients to ensure proper growth and development; 3) concern about the effects of hormones and other additives on their children's growth and development.

When discussing produce in Canada, over three-quarters of participants were concerned about the presence of pesticides and hormones in fruits, vegetables and animal products. This framework was employed by most participants to explain their beliefs about the relationship between the food their children eat and their overall health. Many participants expressed a belief that in their home countries pesticides were not widely used, while they believed the produce available in Canada generally contained high levels of chemicals. Several Tamil participants indicated concern that the food at local grocery stores (which they perceive to be run by Chinese owners, although this is often not the case) had higher amounts of chemicals:

Then, they [community educators] used to say not to buy in Chinese stores... because it has many chemicals... Price Choppers and No Frills [chain discount grocers] are okay... if I get any

vegetables, they want me to buy from Price Choppers... if I buy fruits, they want me to buy from Price Choppers... they say it is good... fresh... even if it is costly... it is good for kids' health. (Tamil, Family Class)

Over half of participants explained that processed foods were more widely available in Canada than they had been in their countries of origin, and as a result they were more concerned about ensuring that their children ate “natural foods” in Canada than they would have been at home. In particular, participants expressed concern at the wide availability and consumption of canned and frozen foods, and processed meats, including in schools and in community programs. Several participants made this comparison between fresh foods in their home countries and processed foods in Canada:

[The food in my home country is] much fresher. If you want to eat chicken in the evening, the chicken is still alive in the morning (laughter). You go to the markets and everything is fresh, they have just cut the vegetables. Over here everything is more processed. (Latin American, Refugee Claimant)

This participant not only expressed her concern about the processed nature of foods, but also about the fact that she perceived meat and produce in her country of origin to be freshly killed or picked, respectively. Most participants reported similar concerns and felt that the produce available to them was insufficiently fresh.

Many participants felt that food in Canada was less healthy because of the perceived lack of nutritional value of frozen and pre-processed foods. One Tamil participant explained that foods in Canada were less fresh and had less taste, which she linked directly to nutritional content:

We eat freshly cooked food there... here we eat fridge food. There we eat fresh food every time, right? Now, we eat food without any nutrients, and without any taste (Tamil, Family Class)

Finally, a few participants explicitly stated that they were concerned about the presence of added hormones:

There is a difference between the chicken they sell there and the chicken they sell here. There, they grow and give there. Here, they grow in farms right, so there is difference in both the chickens...There is something in it, which would affect the kids' hormonal growth. (Tamil, Refugee Claimant)

Among both Latin American and Tamil participants, several also explained that their children did not have a taste for their traditional foods. One Latin American mother explained that once her son had been exposed at schools and community programs to processed “Canadian” foods such as macaroni and cheese and pizza, he developed a taste for those foods in particular. She felt that this would have not been the case in her country of origin because he wouldn't have been exposed to such foods:

[His diet would be better if we were still living in our home country] because he wouldn't know about macaroni and cheese...he would be used to eating the food over there. I don't know. He has eaten this type of food here in the [community centre drop in program]. So it is very difficult because he is used to that type of food.

#### Protection against illness

Participants' discussions about the relationship between health and food included concerns about both infectious and chronic disease and illness, using both traditional and Western models. All Tamil participants used aspects of traditional humoral medicine to discuss the relationships between health and illness. Humoral models of medical knowledge, such as the South Asian Ayurvedic tradition and some Latin American folk models differentiate between different

foods as being either producers of heat or cold (Helman, 2007; Logan, 1973). Illness, in turn, results from relative excess or deficiency in one or more of the humors (Helman, 2007).

In particular, many Tamil participants explained that they fed their children in Canada differently than they would have at home, and increased consumption of animal products, particularly meat and cheese, protected against illness brought on by the cold climate in Canada.

In cold places we have to take meat so that we can bear cold and be strong. [My husband] says that then only we could bear with the cold. So I started eating it and got adjusted to it. (Tamil, Family Class)

Both Tamil and Latin American participants conceptualized a healthy diet as a means of avoiding acute, or infectious illness and also as a means of preventing chronic disease. Several identified sugars, fats, and cholesterol as causes of cardiovascular disease, diabetes, and obesity in general. This was often, though not always, framed in terms of concern for their children based on experiences with chronic disease among family and friends.

Besides this, all my family have diabetes precedents, my mom and my older sister suffer from diabetes, so my children are prone to it. Everybody says that too much sugar is bad and wherever I go, for example in the school, they tell me not to give them chocolate or this or that. (Latin American, Refugee Claimant)

Several Latin American participants were concerned about preventing overweight and obesity in their children, while this was not a concern voiced by any Tamil participants. Children's strength and growth, and preventing underweight were concerns for many participants in both groups. Two participants explained their concerns about their child's strength and how they linked it to their diet:

Because from what I have learned and what I know, food is very important for the child's development. Since he was born very small, he has always been very skinny. In comparison to other children his age, he has less energy and strength. Therefore, I think food is important to improve those things. (Latin American, Refugee Claimant)

For me the food I give should be healthy and it should make her bones strong. (Tamil, Refugee Claimant)

The theme of cleanliness and food safety as important determinants of children's diets was very common among Tamil participants, the majority of whom identified hygiene as the most important factor to ensure that food was healthy for their children. While Tamil participants discussed hygiene at length, it was mentioned by only two Latin American participants:

We don't go out to eat, for example, to fast food restaurants. I am not going to lie, sometimes we go out and the children feel like eating there, but we don't eat French fries or stuff like that. They eat at home. They are here. [Because we are concerned about] the hygiene. We don't know how they prepare the food. (Latin American, Refugee Claimant)

Tamil participants primarily identified eating food outside the home as a major health concern. While most Tamil participants identified hygiene as one of the most important determinants of whether a food was healthy or not, a few felt that they did not need to worry about hygiene in Canada as much as they had in Sri Lanka.

#### Nutritional components of food

Latin American participants employed the concepts of balance and variety widely to describe their understanding of a healthy diet. CFG emphasizes variety using a key message to “enjoy a variety of foods from the four food groups” (Health Canada, 2007).

Participants used the term “variety”, lifted directly from CFG and likely from dietitians and nutrition educators, to indicate that they were eating from the range of food groups outlined in CFG. Furthermore, many ensured their children ate foods containing a range of macro- and micronutrients, directly citing the importance of vitamins and proteins in particular. Almost all Latin American participants had learned about this concept in Canada, but several had also been exposed to the concept of balancing their diets in their countries of origin. One participant explained why she wanted to ensure balance in her child’s diet:

Besides the fact is that I was fed in that way, at the school and in the programs I have attended [drop-in program for children and caregivers]. I have been told that all those foods mean a balance and healthy diet. They have nutrients and proteins and everything our body needs, so they are healthy...I remember being taught about food groups since I was at school. (*Latin American, Refugee Claimant*)

Others, however, had only encountered this concept since arriving in Canada. Many were familiar with the term “balanced diet” used by dietitians and physicians. Although all Latin American participants indicated that they understood a “balanced” diet to be considered healthy in Canada, not all chose foods for their children accordingly, nor could they identify precisely what this concept meant. One participant explained that rather than following CFG’s approach, she was more traditional:

It is not that I consider it bad, but perhaps in Mexico we are not used to following a food guide. We are very traditional and we eat what we are used [to], no matter if you eat pork or the same vegetables every day. We don’t try to complement meals. (*Latin American, Refugee Claimant*)

All participants in both groups discussed the importance of eating fruits and vegetables. Most felt that fruits and vegetables were an integral part of their traditional diets, and cited their own childhood exposure to fruits and vegetables and their own mothers’ focus on their health benefits as reasons for their belief. Some Latin American participants, however, explained that they had only learned in Canada about the nutritional importance of fresh fruits and vegetables. In particular, this focus came in the form of a focus on the consumption of raw vegetables, especially salads. These participants explained that they had learned that this was what “healthy food” was in Canada. Several felt that their families at home would be perplexed by their salad consumption, but felt it was a healthier way to eat. One participant explained how she and her husband had decided that salads were healthier:

My husband learned it from, uh, I think that he had a friend...and he always said, her skin is very nice...he said that everybody that lives here, the skin, they are more healthy, because here they eat more salad, more lettuce, tomatoes, more vegetables, right. He said “no, no, no, we are going to eat salad.” It’s better for our body. (*Latin American, Family Class*)

Many Tamil participants also employed the concept of balance or variety, although indirectly, through discussions of various nutritional components of foods (micronutrients and macronutrients) as important consideration for health. One Tamil participant discussed the importance of feeding her children a range of foods to ensure protection against illness:

Add more vitamins, then the children don’t get sick fast. Sick means, like, if they eat more cheese or more carbohydrates, they get disease, or if vitamins gets reduced in food, they get disease, so everything should be in equal (*Tamil, Family Class*)

Both Latin American and Tamil participants widely employed the concepts of nutrients, vitamins and macronutrients to varying degrees.

## Discussion

This analysis provides strong evidence of a variety of conceptualizations of the relationship between food and health in these samples of Latin American and Sri Lankan Tamil newcomer mothers, and that community programming introducing newcomers to CFG strongly influences shifts in these conceptualizations toward biomedical concepts of nutrition. Overall, the range of conceptualizations evident in this sample limits the utility of CFG as a tool for dietary guidance. There are three key limitations to CFG’s effectiveness among newcomer groups: These limitations lie in its representations of recommended foods, its exclusive utilization of biomedical concepts of nutrition, and its limited exposure to some groups (i.e. Tamil participants in this study) of newcomers. In response to these limitations, we recommend that CFG’s function as a source of generalizable dietary guidance, as well as its limitations for Canada’s diverse population be more clearly communicated both in the guide itself and by health professionals and other service providers promoting key nutritional guidelines. Furthermore, modifications to CFG and the development of separate guides for particular dietary cultures are needed to further improve its utility. These modifications would be equally applicable to dietary guidelines in other countries, including the USDA’s MyPyramid in the United States.

### Forms of knowledge

Using [Jordan’s \(1993\)](#) concept of authoritative knowledge we examined how participants in our sample negotiated between different constructions of the relationships between food and health, and how this influenced their child feeding practices. Several caregivers indicated feeling guilty because they were unable to feed their children according to dietitians’ recommendations and CFG. There was a sharp contrast here between Latin American and Tamil participants’ constructions of the relationships between food and health. Among Tamil participants humoral models of health and diet were constituted to be authoritative, although the knowledge system applied in CFG was considered in parallel. Among Latin American participants, the knowledge system applied in CFG was constituted to be authoritative. When Latin American participants were asked to contrast between the foods they ate at home with what they feed their children in Canada there was a tendency to explain that in their countries of origin they “didn’t know anything” about how to feed their children. The knowledge participants attained through CFG, dietitians and nutrition programs was continually prioritized, and in doing so they devalued their former models of thinking about food and health. It is also noteworthy that as researchers affiliated with the University of Toronto and The Hospital for Sick Children, participants may have viewed the research team as part of the structures that govern the dominant Western frameworks of food and health, in turn biasing their responses.

### Exposure to Canada’s food guide

There was a distinct difference in exposure to CFG between the Tamil and Latin American groups. Previous research has documented very low utilization of CFG in several groups across Canada, and non-Caucasian ethnic origin is a risk factor for low awareness of CFG ([Jacobs Starkey, Johnson-Down, & Gray-Donald, 2001](#); [Mathe et al., 2015](#)). In our sample, most of the Tamil participants are no exception. Nonetheless, the high rate of knowledge and application of CFG among the Latin American participants indicates there are effective programs in Jane and Finch exposing newcomers to

these dietary guidelines. This finding suggests that these programs provide participants with spaces to negotiate different ways of knowing as they are introduced to CFG. Many participants described their introduction to CFG through nutrition programs as a turning point in their child feeding decisions. The way they compare their knowledge acquired since arrival in Canada with that of their family at home is strongly indicative of the shift in their perceived hierarchy of knowledge types. As [Jordan \(1993\)](#) found in her work on birth in Mexico, when there are competing forms of knowledge, one type often gains authority over the others. While participants would have been exposed to traditional child feeding knowledge and practice in their home countries, their failure to identify it as “knowledge” indicates that they devalue this form of knowledge in favor of Canada’s dietary guidelines. The process of acculturation as outlined by [Berry \(1997\)](#) is influenced in particular by their exposure to nutrition programs and guidelines, which leads to a shift in newcomers’ conceptions of the hierarchy of forms of knowledge. Several types of knowledge can be applied at once, but one type of knowledge – in this case, knowledge derived from nutrition education programs based on CFG – gains authority. This authoritative knowledge from the guidelines is complemented by other forms of knowledge which, while utilized are not identified by participants as “knowledge”, in particular their conceptualizations of healthy food as necessarily fresh food.

#### Major conceptual themes

Among Latin American participants in our sample, Western constructs of nutritional science were central to how the participants themselves conceptualize what constitutes healthy food for their children. In contrast, among Tamil participants this was not their primary way of knowing. While many Tamil participants focused on including macro- and micronutrients in their diet – focusing generally on vitamins, and on limiting fats – overall a focus on protection against illness, and a focus on the cleanliness of food were the dominant frameworks used. Among the Latin American participants, the concept of balance/variety was widely employed to explain how they chose to feed their children. However, though many of the participants had learned the term “balance” from health and nutrition professionals, they were unsure of its precise meaning. [Keane and Willets \(1996\)](#) similarly found in a UK sample that while participants were aware that using the language of “balance” indicated that they were applying key concepts from nutritional science, they were unsure how to define it. This disconnect between their language and knowledge may suggest the beginning of a shift toward valuing knowledge from a nutritional science perspective. Particularly in the context of recent migration, this tension between valuation of the Western concept of balance as authoritative knowledge and the lack of clarity on the exact definition suggests a desire to adopt the knowledge systems perceived to hold authority in Canada. However, lack of clarity in applying the key concept of “balance” suggests that a more in-depth assessment of the cultural competency of CFG’s messages is warranted.

The concept of “natural foods” was the most widely used framework for linking food and health in both groups. This is consistent with previous work ([Falk et al., 2001](#); [Povey, Conner, Sparks, James, & Shepherd, 1998](#)) that has identified a focus on organic, pesticide-free and unprocessed foods to be an important component of Americans’ conceptualization of what makes up healthy food. In Canada, a focus on natural foods has been found to be important among only some ethnocultural groups ([Ristovski-Slijepcevic et al., 2008](#)). This strong emphasis on “natural foods” as essential to ensuring that children’s health is consistent with findings in the United States that Latin American newcomers find it very stressful when they are unable to find the fresh foods they are accustomed to eating in their home countries (e.g. [Himmelgreen, Romero Daza, Cooper,](#)

[& Martinez, 2007](#)). This is relevant to our population because it challenges the perception held by many that food insecure families should be grateful for whatever food they are able to procure, whether from purchasing with employment or social assistance income, or from food banks ([Tarasuk & Eakin, 2003](#)).

Tamil participants conceptualized the relationship between food and illness using concepts widely used in the ancient Indian medical tradition of Ayurveda, which describes three humors in the body: wind, bile, and phlegm ([Obeyesekere, 1977](#)). Ayurveda is a humoral medical system, which characterizes certain foods as producing heat and others producing cold, and places a high value on cleanliness. Similarly, illness results from relative excess or deficiency in one or more of the humors ([Helman, 2007](#)). Although some forms of Latin American folk medicine use similar humoral models ([Logan, 1973](#)), none of our Latin American participants described relationships between food and health in this manner. In Sri Lanka and India the Ayurvedic system operates alongside biomedicine as a parallel, complementary form of medical knowledge ([Pugh, 2006](#)). The strength of the Ayurvedic tradition in Sri Lanka alongside Western biomedicine helps explain the persistence of the Ayurvedic tradition among Tamil participants, resulting in a resistance to adopt the knowledge systems proposed in CFG.

#### Utility of Canada’s food guide

Overall, nutrition education activities, including exposure to CFG, function to acculturate Canadian newcomer groups into Western biomedical models of nutrition and result in a shift in authoritative knowledge. One of the key messages of CFG – to eat from all four food groups, and ensure “balance” – was widely understood among Latin American participants. This concept of “balance” in the diet comes from a largely Western biomedical discourse around food ([Keane & Willets, 1996](#)), and is one about which the majority of participants expressed lack of familiarity prior to arrival in Canada. However, many participants were interpreting CFG extremely literally. Specifically, they felt that the foods that were not pictorially represented did not fall under the umbrella of what CFG determined to be “healthy” foods. While CFG is available in both Spanish and Tamil (and in ten other languages including English and French), it has not been adapted to include foods more commonly eaten by these ethnocultural groups, nor has it been adapted to include differences in their conceptions of meals, servings, or other implied constructs used in CFG. While the stated aim was to create a food guide that is “of our times” and reflects the multiplicity of food cultures in Canada ([Bush et al., 2007](#)), our findings indicate a different reality. Several of our participants felt that their staple foods were not depicted in the images of CFG. To date, there has been progress in improving CFG’s cultural competency for Canadian First Nations, Inuit, and Metis populations. Not only has it been translated into four First Nations languages, but the foods depicted reflect staples in this population. Furthermore, this adapted CFG is arranged in a circular format, rather than the “rainbow” used in the general CFG, which is a more meaningful layout for these populations ([Health Canada, 2010](#)). Similar adaptations for large newcomer groups in Canada would be extremely useful, and could emphasize rather than devalue non-biomedical constructions of health and nutrition, which can then be applied to complement the biomedical models currently employed in CFG.

#### Relation to previous studies of newcomer feeding decisions

This study aimed to explore a major determinant of caregiver child feeding decisions: conceptualizations of which foods are healthiest for their children. Of course, there are many other factors driving these decisions, including socioeconomic and political factors, geographical access to food, and children’s preferences.

Individuals may conceptualize “healthy eating” in many different ways, which will vary between cultures as well as among individuals within a culture (Falk et al., 2001; Lappalainen, Kearney, & Gibney, 1998; Povey et al., 1998). Individual knowledge of health and diet is constructed through social interaction and negotiations, and has the potential to change with migration to a new country (Jovchelovitch & Gervais, 1999; Patil, McGown, Nahayo, & Hadley, 2010). These changes are a result of the process of acculturation – the cultural changes that result when groups of individuals from different cultures come into continuous first-hand contact – and are associated with a trend toward a Western-style diet characterized by higher energy density and lower nutrient density (Berry, 1997; Himmelgreen et al., 2007; Novotny, Williams, Vinoya, Oshiro, & Vogt, 2009; Perez-Escamilla, 2009; Satia-Abouta, Patterson, Neuhouser, & Elder, 2002). Second, caregivers’ level of nutrition knowledge, access to nutrition information, and attitudes to child diet and health can strongly influence feeding practices and the types of foods their children are fed (Coveney, 2005). It is known that the circumstances of international migration, accompanied by social exclusion and poverty, can put children at risk of limited access to a nutrient-dense diet and also places stress on families (Chilton et al., 2009; Hadley, Zodhiates, & Sellen, 2007; Kersey, Geppert, & Cutts, 2007).

#### Changes associated with the process of resettlement

Of particular note in our sample is that participants described changes in their children’s food preferences since arriving in Canada, and identified these changes as primary determinants of their children’s diets. The discrepancy between the two groups’ exposure to Canada’s Food Guide is consistent with our findings that Tamil participants were unaware of how to access dietitians, experienced more limited access to social support, and as a group were much less likely than Latin American participants to know how to access social programs and had more limited access to social support. Previous research indicates that there are systematic challenges to providing social support for immigrants and refugees in Canada, and issues such as lack of integration of services limits service providers’ ability to meet newcomers’ needs (Simich, Beiser, Stewart, & Mwakarimba, 2005). This lack of access to services, including those that would provide information concerning CFG is, after affordability of foods, another barrier.

#### Limitations

Participants were recruited through community partners; we have therefore not included individuals who have not yet accessed these services in our sample. It is therefore likely that we have not sampled those who are more socially isolated and not accessing services. Due to language constraints we limited our sample to only two language groups, both of which have a high known vulnerability as determined during the formative research stage.

Further, while our results represent a wide range of experiences in our sample population, due to the purposive nature of our sampling strategy we do not attempt to draw conclusions about the study population as a whole. Finally, although we sought to minimize interviewer bias by creating a standardized interview guide, differences between our Spanish and Tamil interviewers’ experiences and perspectives may have influenced follow-up questions and the content of parts of the interviews.

#### Implications

The findings have implications for the further development of CFG and national food guidelines in other countries. Indications are that CFG is effective in transmitting key messages concerning healthy eating to some newcomer groups: Messages about limiting oils and fats are well understood, and the message to eat vegetables and to eat a variety of foods is fairly well transmitted. However, other in-

dications are that three key domains of CFG and its delivery limit its effectiveness in newcomer groups. First, the pictorial representations of foods currently in CFG do not depict the dietary staples typical of many newcomer groups. Second, CFG utilizes only biomedical concepts of nutrition of health and neglects to integrate parallel nutritional knowledge systems espoused by many newcomer groups. Third, some newcomer groups are not exposed to CFG and its messages. We propose further research to examine CFG’s limitations in other ethnocultural groups in Canada. We suggest a restructuring of CFG to engage with concepts of natural foods and traditional links between food and illness could help make the guide more applicable to specific newcomer groups. We propose the development of culturally competent nutrition education programs aimed at supplementing the guide’s messages, and targeted outreach to ensure the transmission of dietary messages to newcomer groups across Canada. Additional formative research may be useful in guiding the development of new, culturally competent versions of CFG for several of Canada’s largest ethnocultural groups.

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