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Growing Roots: A Newcomer Nutrition Program Designed Using Action Research Methods

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ABSTRACT

Many newcomers to Canada struggle with food insecurity and the health impacts of dietary acculturation. "Growing Roots" is a newcomer nutrition program designed through a community development approach to help immigrants and refugees adapt positively to the Canadian food environment. This qualitative action research project documented the development, implementation and impacts of the program in an inner city neighbourhood of Winnipeg, Manitoba, Canada. Data was collected through oral questionnaires and interviews. Impacts included: 1) Healthy adaptation to the Canadian foodscape; 2) Enhanced nutrition knowledge and behaviours; 3) Improvements to food security status; and 4) Enhanced social networks.

KEYWORDS

Newcomer nutrition; food security; health promotion; immigrant integration; diet acculturation

Introduction

When newcomers (a term used to describe both immigrants and refugees) arrive in Canada they often find themselves in a very different food environment than they are accustomed. Bombarded with processed and convenience foods and often lacking easy access to healthy familiar foods from home countries, newcomers face many challenges in eating healthfully (Adekunle, Cidro, and Filson 2015; Henderson, Epp-Koop, and Slater 2017; NEEDS 2009). These issues are compounded by the many other obstacles faced upon arrival, including difficulty obtaining suitable housing (Carter 2008; Simone and Newbold 2014) and employment (Creese and Wiebe 2012; Guo 2013; Lochhead and Mackenzie 2005; Raza, Beaujot, and Woldemicael 2013). Subsequently, high rates of poverty (Canada Without Poverty 2011) make food security a struggle for many newcomer families (Government of Canada 2012; Rush et al. 2007; Tarasuk et al. 2016; Vahabi et al. 2011)

Food security is defined as: "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (Food and Agriculture Organization of the United Nations 2008). In short, if a person does not have access to enough healthy food they are food

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insecure. Food security is widely thought to be dependent on 4 pillars: availability; access; utilization; and stability (Food and Agriculture Organization of the United Nations 2008). Although the latter has few implications for newcomers to Canada, the former three can be of concern. Availability of familiar foods, economic access to food, and the ability to use 'Canadian'[1] foods, can all be barriers to food security for newcomers (Moffat, Mohammed, and Bruce Newbold 2017).

Food insecurity can result in diminished health status and increased risk for chronic diseases, such as type 2 diabetes and cardiovascular disease (Bilkis et al. 2004; Pottie et al. 2008; Van Hulst et al. 2011). Recent newcomers, who have been in Canada for less than five years, are nearly 60% more likely to be food insecure than Canadian-born citizens (Tarasuk, Mitchell, and Dachner 2014). While food security status tends to improve for newcomers who have been in Canada for more than five years (Tarasuk, Mitchell, and Dachner 2014), their health often begins to decline (McDonald and Kennedy 2005; Sanou et al. 2014; Varghese and Moore-Orr 2002). This health decline is thought to be the result of several lifestyle changes, including dietary acculturation – the transition to a more 'Western' diet (Sanou et al. 2014) high in sodium, fat and sugar, putting newcomers at increased risk for many chronic diseases (McDonald and Kennedy 2005; Regev-Tobias et al. 2012; Sanou et al. 2014; Varghese and Moore-Orr 2002).

Dietary acculturation is driven by many factors including lack of access to familiar foods, social pressures, and requests from children who are exposed to unhealthy convenience foods at school and in the community (Henderson, Epp-Koop, and Slater 2017; Sanou et al. 2014). Other barriers to healthy eating for newcomers include a lack of nutrition knowledge in the Canadian context (i.e. nutrition label reading), as well as time constraints and poverty (Henderson, Epp-Koop, and Slater 2017).

The Winnipeg context

Approximately 16,000 new arrivals come to Manitoba, Canada annually, with about 83% of these settling in the provincial capital of Winnipeg (pop. 705,244 (City of Winnipeg 2018)) (Government of Manitoba 2017). In 2016, newcomers were primarily from the Philippines (21.4%), India (17.8%), Eritrea (8.4%), Syria (7.4%), and China (6.1%), with 22% being government-sponsored refugees, 14% being privately-sponsored, and the rest arriving as provincial nominees (economic/skilled workers) (Government of Manitoba 2017).

Increasingly, newcomers are settling in the inner city neighbourhood known as the North End, which has lower-cost and subsidized housing (Carter, Polevychok, and Osborne 2009), and in many cases, other community members from their country of origin. Over a five-year period between

2006 and 2011, the recent newcomer population in the North End more than doubled (Statistics Canada 2013). Despite this trend most settlement services are located in other areas of the city.

As in other areas of Canada, poverty rates are high for newcomers in Winnipeg. A 2008 Winnipeg-based study found that 94% of the refugee families in the study were living below the poverty line, and average household income was just over $22,000 – one third of the city average (Carter 2008).

Newcomers in Winnipeg, similar to other newcomers across Canada, experience barriers to healthy food access. A study published in 2009 described newcomers' difficulties accessing fresh, affordable fruits and vegetables – especially those people living in the inner-city (NEEDS 2009). These findings were corroborated by two other studies in 2015 and 2017 (Henderson, Epp-Koop, and Slater 2017;Adekunle, Cidro, and Filson 2015). These difficulties can leave newcomers purchasing lower-cost processed/packaged foods which are less healthy and more widely available than familiar foods. Few culturally-appropriate programs or resources are available in Winnipeg to support newcomers in accessing healthy food, and the food and nutrition programs that do exist have long waiting lists, indicating that the demand for this support is not being met (Henderson, Epp-Koop, and Slater 2017; NEEDS 2009).

Newcomer food and nutrition education

As the newcomer population in Canada grows, many organizations are attempting to deliver health promotion programs for these new arrivals; however, the social safety net for newcomers is still lacking in resources, coordination and collaboration (Henderson, Epp-Koop, and Slater 2017). The programs and services that *are* available are not always culturally-relevant or able to meet the growing demand from the immigrant and refugee community (Anderson, Mah, and Sellen 2015; Edge, Newbold, and Marie 2014; Henderson, Epp-Koop, and Slater 2017; Hyman and Guruge 2002; Simich et al. 2005). In a 2002 review of health promotion strategies for recent newcomer women, it was identified that only a few culturally-appropriate programs existed and even fewer had ever been evaluated (Hyman and Guruge 2002). Sixteen years later, evidence-based newcomer health promotion programs are still few and far between and limited academic literature exists to support the development of such programs (Henderson, Epp-Koop, and Slater 2017).

Research does show, however, that food and nutrition education should focus on helping newcomers to find a balance between familiar foods and foods that are common in their new home. According to D'Sylva and Beagan (2011) food traditions can take on an especially important role in a context

where language, dress and other aspects of one's culture are not well understood. Food becomes a way of passing on traditions and maintaining cultural identity, both within the family and as a community (D'Sylva and Beagan 2011).

In order to find this balance many newcomers require support and nutrition education to find ways of adapting their familiar, traditional diets in the healthiest manner (Henderson, Epp-Koop, and Slater 2017). Supporting the cultural identity of nutrition program participants should be an important focus for nutrition educators. Without this consideration these programs may do more harm than good by eliciting feelings of guilt, and making some feel that they have been failing their families (Anderson, Mah, and Sellen 2015).

Study significance

This study aimed to contribute to knowledge regarding development and implementationof effective newcomer food and nutrition programs, in order to facilitate successful adaptation to the Canadian food environment for participants. It also evaluated potential impacts on participants' knowledge, attitudes and food security status. This action research project presented a unique opportunity to develop, implement and evaluate a nutrition program in close consultation with the newcomer community, immigrant settlement workers and Food Matters Manitoba, a local non-profit organization engaged in food security work.

Methodology

Qualitative action research design

Newcomer health promotion programs should be evidence-based, and the literature confirms that community involvement in program development and evaluation is needed (Hyman and Guruge 2002). Action research is the preferred strategy with which to do this, as it includes cycles of community consultation throughout program delivery and evaluation (Stringer 2013).

In 2014 a community-based research project took place in Winnipeg's North End to determine the food-related barriers and opportunities that existed for newcomers (Henderson, Epp-Koop, and Slater 2017). The results of this study led to the development of a 5-week pilot newcomer nutrition program, in partnership with several community agencies. The pilot program was evaluated and informed the development of the more comprehensive *Growing Roots* newcomer nutrition program described in this paper.

Growing Roots program development

Using action research principles, the *Growing Roots* program underwent two cycles of community consultation, program development, implementation, evaluation and modification. The local settlement organization was a key partner from the pilot stage through to the evaluation phase of the project. They were the key liaisons with the newcomer community, translators and provided local context and knowledge. Settlement workers attended regular meetings and program sessions and their input was constantly solicited and acted upon. This produced a flexible model that was responsive to participants' needs. Program objectives were: 1) To give newcomers the knowledge and skills needed to eat healthily in the Canadian context; 2) To help newcomers find a healthy balance between familiar foods from home countries and 'Canadian' foods; and 3) To provide an environment where familiar and traditional food practices are shared and encouraged. Curriculum covered: food safety, whole foods vs packaged foods, label/package reading, healthy school lunch ideas, sugar, plant foods and a grocery store tour (Table 1).

There was a substantial cooking component to the classes, where participants learned to prepare mainly healthy Canadian foods. Originally, it was planned to prepare more familiar/traditional recipes tailored for the Canadian kitchen; however, participants wanted to learn to make the Canadian foods that their children often requested, such as pizza and burgers. Program attendees included newcomer participants, settlement workers and translators.

Nutrition information was incorporated informally while sitting around a table with attendees. A large focus was put towards encouraging participants to share their knowledge and ideas, as well as ask questions and interact with tactile and visual learning tools, such as sugar cubes, dried pulses, food packages and plain-language handouts. Additional teaching took place in the kitchen while preparing recipes together. Topics included healthy preparation methods, how to use an oven, and how to make common store-bought foods at home. Participants were encouraged throughout the program to suggest recipes that they wanted to learn, and program facilitators made every effort to accommodate these requests.

Table 1. Growing roots curriculum overview.

Curriculum Topics
Module 1- Course Introduction & Food Safety
Module 2- Healthy Eating
Module 3- Plant Foods
Module 4- Packaged Food and Label Reading
Module 5- Sugar
Module 6- Healthy Eating on a Budget
Module 7- Grocery Store Tour
Module 8- Celebration Day & Nutrition Trivia

Program and evaluation participants

Twenty-two newcomers participated in the two program cycles, who were from a variety of countries, age groups and family types (Tables 2 & 3). Translation was provided by the settlement workers where required. All newcomer participants in the *Growing Roots* program were included in the program evaluation, as well as two neighbourhood immigrant settlement workers and one nutrition program volunteer. Consent was obtained from all participants and ethical approval was provided by the University of Manitoba Joint-Faculty Human Ethics Board.

Evaluation data collection

Data included participant responses to oral questionnaires and interviews, as well as observations, administrative data and field notes and were all collected by the primary researcher.

Table 2. Inclusion and exclusion criteria for newcomer participants.

Inclusion Criteria	Exclusion Criteria
• Interest in the program	• under 18 years of age
• 18 years or older	• Canadian-born
• self-identify as a newcomer	
• live in North End community	
• self-identify as having a predominant role in household food work	

Table 3. Program participant demographics.

Characteristic	Number of Program Participants (N = 22)
Age range, in years	
18–29	4
30–39	6
40–49	8
50–59	2
60+	1
Did not enter	1
Gender	
Male	1
Female	20
Did not enter	1
Country of birth	
Burma	5
Congo	2
Philippines	11
Syria	4
Years in Canada	
<1	7
01-May	9
06-Oct	5
>10	1
Required translation during program	
Yes	11
No	11

Table 4. Sample semi-structured participant interview questions.

Sample Questions
• What made you interested in taking this program?
• What did you think of the program?
• What information did you find most useful?
• Have you used any information or skills that you learned in the program since it ended?
• Do you eat more, less or the same amount of traditional foods since the program?
• Did the program effect the amount of money that you spend on food each month?
• Have you shared any of the information that you learned in the program with anyone who wasn't there?
• How can the program be improved for future participants?

Oral questionnaires were completed with all 22 program participants each week throughout the program. Semi-structured interviews were completed six to eight weeks after each 8-week program session, with 13 program participants, 2 settlement workers and 1 program volunteer. See Table 4 for interview questions.

Data analysis

Experiential thematic analysis (Braun and Clarke 2013, 175) was used to analyze participant interviews and oral questionnaire data in order to gain an in-depth understanding of participant experiences in and after the program.

The semi-structured interviews were transcribed orthographically then uploaded to NVIVO 10, where they underwent thematic analysis, using deductive and inductive coding. The results of the thematic analysis were then triangulated with the field notes taken during the program, and underwent member-checking with the settlement workers to ensure that the results were in line with their experiences and views of the program impacts on their newcomer clients. The inter-rater reliability tool in NVIVO 10 was also used to confirm a high percentage of agreement between researchers, helping to ensure the coding scheme was valid and meaningful.

Results

Program participants and settlement workers reported many positive impacts of the *Growing Roots* food and nutrition program and many of these were confirmed in observations and field notes taken throughout the program. Impacts of the program included changes in attitudes, knowledge and behaviours indicated by: 1) Healthy adaptation to the Canadian foodscape; 2) Enhanced nutrition knowledge and behaviours; 3) Marginal improvements to food security for some participants; and 4) Additional benefits such as cross-cultural understanding and enhanced social networks.

Theme 1: Healthy adaptation to the Canadian foodscape

The program helped participants adjust to their new food environment without sacrificing healthy food traditions. For many participants, buying, storing and preparing food was very different in Canada when compared to back home. Fresh food markets, family farms and food aid in refugee camps were some of their main food sources prior to their arrival in Canada. Once here, they were bombarded with premade, packaged and fast foods making it difficult to make healthy food choices in this new environment. It was also difficult for some participants to find their healthy familiar foods here, especially ones that were fresh and affordable, making healthy eating that much more challenging. It was for these reasons, and others, that participants became interested in the program.

Sub-theme 1.1: Changes in attitudes about Canadian food

Although attitudes were already generally positive towards learning about Canadian foods, by the end of the program participants' feelings towards Canadian food generally became more positive. Some participants described a lack of interest in eating Canadian foods prior to the program, but then enjoyed the taste, simplicity and nutritious properties of the healthy Canadian recipes that were prepared in the program.

> *Yeah, because of the program I started doing the baking because I had no … because I've been here for almost 3 years and before I said 'it's ok, I'm fine not to use the oven and not to learn how to use that'; however, when I do the dishes, now I'm operating it, using it.*
>
> – Filipina[2] Participant

> *I never liked Canadian food, honestly. But I think I try more Canadian food* [after the program].
>
> – Female Karen Participant

One participant also commented that she was happy to now know how to prepare foods that were well-suited to the Canadian climate – such as soups and stews, that she felt were great recipes to make during the cold winter months.

> *Yes, especially we have a long cold weather here so it's really favourable if you know how to make soup.*
>
> – Filipina Participant

Participants' perceptions about what 'Canadian foods' *are* changed during the program. When asked what they thought 'Canadian foods' were prior to the program, most described fast foods. As one Filipina participant described,

> *Burgers. Yeah literally. I think Canadian people eat burger.*
>
> – Filipina Participant

Some participants did say, however, that even though they enjoyed the Canadian recipes and knew they were healthy, they did not feel 'full' as they do when consuming rice.

Although all of them won't make me full but it's all healthy.
– Filipina Participant

Sub-theme 1.2: Attitudes about familiar food

Generally, preferences for and feelings about familiar food from home countries did not change for participants, and all participants reported still eating predominantly traditional diets after the program, but usually with some modifications. Throughout the program, participants described many 'healthy' and 'unhealthy' aspects of their familiar foods and the cooking methods used to prepare them, based on the subject matter of the day. For example, during the lesson about sugar, they discussed the common familiar dishes they eat that contain large amounts of sugar. Or, during the lesson about plant foods, they discussed the familiar vegetables that they eat, and that they miss from home.

Some participants realized that their traditional diets were quite healthy, either because of consuming a mostly plant-based diet, or because most dishes were traditionally made from scratch at home.

They're both healthy in their own way [Canadian versus traditional diets], for example, our traditional food also, is very healthy because it, we eat a lot of vegetables …
– Female Karen Participant

Throughout the program and during the interviews, participants often identified foods, or common practices in their respective cultures that they now felt were not healthy, such as deep-frying, eating large quantities of sugary or salty foods and cooking with large amounts of butter.

We Filipinos loves sweet foods.
– Filipina Participant

We have a sweet tooth and a salty tongue
– Filipina Participant

One point she's telling one point about the fat, or for her culture, butter number 1 on most of the recipes.
– Female Syrian Participant

Despite their desire to eat familiar foods here in Canada, in some cases, there were barriers to doing this. Many referred to their traditional dishes as 'complicated' and/or time consuming, and others described not enjoying these foods as much in Canada, due to lack of freshness or different taste compared to back home.

Anyways, Canadian way it's prepare like very simple but Filipino way, we prepare it more complicated.

– Filipina Participant

Yeah it's not fresh and I don't like the taste, especially if I prepare veggies with coconut milk because we really do it that way back home. I really don't like it, I cook it like, oh everybody's like testing it, like very very good. They feel like it's yummy but I don't really like it. It's like sweet.

– Filipina Participant

Sub-theme 1.3: Changes in knowledge about Canadian food and food environment

Prior to the program many participants were unfamiliar with many of the staple foods in Canada, as well as where food came from, where to best purchase it and how to prepare it. It can be difficult for newcomers to know if a Canadian produce item should be cooked, peeled, or just consumed as is. Moreover, it is very difficult for them to know which foods should be avoided or eaten minimally – such as processed meats. During one of the grocery store tours in the program, participants found it shocking that so many processed meats were available despite the fact that they are shown to have such negative health impacts. Prior to this, many trusted that if it was being sold in Canada, it must be ok to consume.

All participants reported an increase in knowledge about foods that were commonly available in Canada, such as fruits and vegetables, as well as dishes that are commonly consumed, like salads.

But to me, since after the program, I know how to make salad so I make vegetable salads a lot for my husband.

– Female Karen Participant

I had been in Canada many years but didn't know how to make soup or salad but I learned here

– Filipina Participant

Participants also gained knowledge about the food system, such as how and where to best purchase food in Canada and where foods come from. Some participants had previously been purchasing all of their food from specialty stores, but were very happy to learn that many of their familiar foods could be found at larger grocery stores for a fraction of the price. Others just felt they had a better understanding of the 'food process', in general.

Here don't know where the food is from – how it is produced – not like home where we know where it is from … fruit trees, fishing, vegetable markets … Now we know how to look at the label and make healthy food for our kids.

– Female Karen Participant

The thing is that newcomers … I think most of the newcomers just like us. We came to the new country, we did not know how to read, we don't familiar with the foods so since we attend so many program, included this program, so we know how to look at the food process.

– Female Karen Participant

Sub-theme 1.4: Finding a balance between Canadian and traditional food

Participants described how they managed to find a balance between eating both their familiar food and the Canadian food that they learned about in the program. This balance looked different for each participant, some eating more Canadian food than before the program and some eating the same (minimal) amount. Those eating more Canadian food described eating the healthy Canadian food that they had learned to prepare in the program, such as salads and fruits, whereas the participants who were still eating the same amount of familiar food, often described making these healthy Canadian foods for the children in the household, while the adults continued to eat their cultural foods.

Yes, I make a salad and I make a breakfast for my kids and for myself and the salad everybody enjoys that.

– Female Karen Participant

I still eat the same. But usually the change is usually breakfast we try to eat more Canadian food, we eat more Canadian food, the breakfast especially.

– Female Karen Participant

Less, less traditional food. Because now we make salad, like the vegetable salad.

– Filipina Participant

After the program, many parents discussed the simplicity of the Canadian recipes prepared in the program compared to their traditional dishes. They felt these new recipes were quick and easy options for their children's school lunches, but at home most still described eating their traditional foods for dinner. One Karen woman from Burma described her attitude towards her traditional food versus Canadian food and how that has affected the food that she prepares:

They're both healthy in their own way, for example, our traditional food also is healthy because it, we eat a lot of vegetables. Other thing is we need to cook it every day but this is, we do it [prepare Canadian food] for our kids because we pack for their lunches so they eat it for lunch time, but when they came home, we still eat our [traditional] foods.

– Female Karen Participant

… the recipe that she learned if she wants to do something fast and healthy, always back to the recipes that she learned [in the program], especially she was, she like the pasta. It was very fast and delicious and she like and she's telling, she like to make it.

– Female Syrian Participant

As stated earlier, participants often reflected on the less healthy aspects of their cultural food practices and many reported changes to these practices after the program. They often described watching the facilitator use only small amounts of sugar, salt and oil in the recipes and realized that the dishes still tasted good despite this. Several participants stated that this realization resulted in changes to their preparation methods of familiar dishes, while often still eating primarily familiar foods.

> *And also the salt, because like I always said on the class that we have a salty tongue so we really love salty, now it's lower down [in our cooking] and we are used to it.*
> – Filipina Participant

> *She has motivation little by little because if she make dramatic change she will not find acceptance and she will not an expert in doing this. She's keeping on the change a little bit.*
> – Female Syrian Participant

> *" … she's telling now she's always thinking about cholesterol and she doesn't like have high cholesterol. So she changed a lot of her recipes."*
> – Female Syrian Participant

Participants from Burma and the Philippines often described eating rice for every meal, but were finding that the Canadian breakfast recipes learned in the program (oatmeal, smoothies, fruit salad), gave them some healthy choices that they could make more quickly in the morning. Some also explained that they had become bored with eating rice at every meal and were happy to try something new.

Participants maintained positive views of their familiar and traditional foods, and continued to eat them most often, while incorporating healthy foods into their diets that are commonly found in Canada and often making these foods for their children.

Theme 2: Enhanced nutrition knowledge and behaviours

Participants reported substantial changes in knowledge and behaviours in a wide variety of food and nutrition areas, and many of these changes were also observed by the researcher during the program, as well as reported to the settlement workers by participants. Participants often demonstrated their enhanced knowledge by reiterating information from past lessons (example: risks of high sugar consumption), being able to compare food packages and choose the healthier option (example: 100% juice versus fruit drink), as well as explaining why making homemade versions of foods would be healthier than the store-bought version. Many of these topics also came up during the interviews, such as the importance of whole foods and homecooked meals, healthy grocery shopping practices that had been adopted, as well as general healthy eating principals, such as eating a variety and the importance of

plant-based foods. Attitudes about food and nutrition changed as a result of this enhanced knowledge, as did behaviours.

Sub-theme 2.1: Changes in attitudes about nutrition

Some participants began the program with some preexisting nutrition knowledge, which affected their attitudes about nutrition and its importance for health. Participants discussed the importance of nutrition in relation to the aging process, maintaining a healthy weight as well as the general health of their children.

> *Because you know, we're aging. We really need to be healthy. Almonds yeah!*
> – Filipina Participant

> *Because it's all about food, especially if it's nutritious and healthy. Especially... if somebody is married and she has some children to feed. Yeah. They would be very eager to have this program.*
> – Filipina Participant

> *For me, when I came here, my weight started, to gain weight and because I, health is priority so I decided really to know what is the nutritious food and where can I get those things and I'm not, I'm not familiar with foods here and that's why I said, I really need to go for the nutrition class.*
> – Filipina Participant

For some, nutrition was already a priority, but for others, thinking about the relationship between food and health was a new concept. One participant described a change in attitude about the importance of nutrition in general. She said:

> *… for us [in Karen culture] we never mention our food soooo we just take whatever we want and then we taste it so we don't know how much there is fat, how much the … whatever it's salt or oil we just check whatever we have to taste so … we never make sure it's healthy or not.*
> – Female Karen Participant

Sub-theme 2.2: General healthy eating

Participants discussed learning the importance of various healthy eating practices, such as eating a variety of foods, and consumption of fruits and vegetables:

> *… we need the variety because we are focus on just rice and meat, that's all, for the 3 times a day. Now, as we've learned, we need a variety of food, like vegetable and fruits.*
> – Filipina Participant

Sugar was also one of the most frequently-mentioned areas of behavior change for the families of participants. Many discussed having a better understanding of the risks of high sugar consumption, especially for children, and described the many changes that they had made, such as replacing sugar-sweetened beverages with the fruit smoothie recipe learned in the program.

The other point which she's telling is really the most favourite thing for her is about the sugar content and when you talked about juice and the daily requirement of the sugar, especially about the kids. She asked you especially about the kids and the requirement, the daily requirement of sugar for them, so she's happy with this as she knew something, now she knows something she doesn't know before.
– Female Syrian Participant

Some participants described their newly acquired knowledge about whole grains, the importance of fibre and how they have shared this and other information from the program with their families. As one Karen participant stated:

… usually we eat white bread and then I talked to my families that the benefit of the whole bread, all this, and look at the label when we go shopping.
– Female Karen Participant

Lastly, some participants acquired new knowledge with regards to food safety practices, such as handling of raw meat and thawing of frozen food. For many newcomers frozen food was a new concept, having been accustomed mainly to fresh food in their home countries

It's the wrong way I did, I used to do the wrong way and when I attend this and I realize that I should not thaw the meat a day on the counter like that and there is a certain temperature that they need to keep them.
– Filipina Participant

Sub-theme 2.3: Cooking from scratch

Many completed the program with a deeper understanding and greater value placed on the importance of home cooked meals and the risks associated with consuming large amounts of processed food. This was knowledge that participants were able to demonstrate early on in the program, as well as during the grocery store tour. When discussing frozen, ready-made dinners, one of the settlement workers (also a newcomer) described them as "quick to make, quick to die".

Many participants had little exposure to packaged foods before arriving in Canada, or came from places where they were less readily available. Feelings about these foods were mixed. Some had adopted these foods into their diets in Canada, but others found the concept of frozen and canned foods repulsive. Regardless of their feelings towards these foods prior to the program, all reported a better understanding of how to choose packaged foods that are healthier than other alternatives. Some also reported increased knowledge about frozen fruits and vegetables and their nutritional qualities, whereas before they had assumed these items were less healthy than their fresh counterparts.

Before I heard that frozen was not okay, but now when we join the program we know, and we are surprised that, 'oh, frozen is still good.
– Filipina Participant

The Syrian participants in particular, described the common practices of making everything from scratch back in Syria. Frequent examples given were fermented bread, yogurt and cheese. Here in Canada, however, they had begun to eat more processed and ready-made foods, due to time constraints and the frequent availability of ready-made foods. After the program, one mother described (through a translator) her return to her previous food preparation practices from home:

> *In Syria, they used to bring things to prepare everything at home … .When she moved here, she started to preparing everything nearly ready-made or pre-cooked. She has limited role in everything. But now she returned back for, after the course started to realize the importance to do everything by herself so she's telling, now she's doing the yogurt at home, the cheese at home, the pizza. Now she's doing most of things at home.*
>
> – Female Syrian Participant

Prior to the program many of the participants' children would ask for Canadian foods that they had tried at school, or in the community, such as pizza, but participants were unaware of how to make these foods, sometimes leading them to buy a prepackaged version of the dish.

> *Because it's not our food so our children like it when people prepare it but I have no idea how to do it.*
>
> – Female Karen Participant

Sub-theme 2.4: Grocery shopping practices

The most frequently self-identified behavior changes expressed by participants were changes to their grocery shopping practices – reported by 100% of participants interviewed. One of the settlement workers who was interviewed, who is also a newcomer, reported that participants, herself included, viewed food selection differently and began to read labels and food packaging prior to purchasing a food – often looking at sugar content, trans fat, sodium and fibre.

> *They're doing that [reading labels] and also myself. I start to do that, since I know. Before I just picked, po po po, whatever delicious, for our kids, no matter what, just eat because we thought that the food that you produce … 'they make it, why not?'.*
>
> – Settlement Worker

> *Learned to look at labels; before I never looked, like at the expiry date. Now I look at the label to see if it is good for my kids*
>
> – Filipina Participant

> *Before we went shopping and whenever we went we didn't know how to look at, but now we know to look at how much iron. We also look at sugar, fibre, fat. The most important part that we did learn, is how to call trans fat. That's it, she never knew that before, that was not good, but now this kind of trans fat have a lot I did not buy it.*
>
> – Female Karen Participant

Theme 3: Food security

Changes in food security status were analyzed qualitatively based on the four dimensions of food security: availability (the presence of food), access (physical, economic and social), utilization (the knowledge and skills to use the food that is available) and stability (of the other three dimensions) (Gross et al. 2000).

Participants reported varying impacts on two of the four food security dimensions: access and utilization.

Sub-theme 3.1: Economic access

Some participants reported that the program affected the amount of money they were spending on food – some reported improved economic access to food, some felt they were spending more on groceries, whereas others found it difficult to say, due to a rise in food prices since completing the program.

The participants who were spending less on groceries reported that they had either changed their grocery shopping practices and/or were making more food from scratch. Participants changed their grocery shopping practices by planning food purchases differently – either by planning ahead, buying more food in bulk and shopping less often; or by buying staple foods ahead of time and grocery shopping more often for fresh foods.

> *The other things that I learn is I try, I feel like I spend a little bit less money because I just a big packet, and I did not do before, I usually, so much a little bit cheaper …*
> – Female Karen Participant

Some participants reported shopping primarily at specialty halal stores since arriving in Canada. During the program they began shopping at more affordable stores and this helped them to stretch out their limited food budgets. As stated earlier, some participants reported buying less convenience food, which also saved them money.

> *Before she was here [at the program], she used ready-made foods most of the times. Now she started to prepare most of things at home so she spend less money. Same time she feels happy, as she feels she gives her kids healthier food.*
> – Female Syrian Participant

Lastly, two Filipina participants began buying food based on nutritional quality (determined by reading packages/labels) rather than brand name, as they had done prior to attending the program. They reported that this has helped them to save money as well.

> *I think yeah a little because before I used to look at the brand but usually the more popular brand is like more expensive even if just the cents it counts a lot if you will buy a lot so even if its not like familiar, the brand, and when you look at the nutrition facts I would go for the less familiar brand so it saves like a little, a little by little.*
> - Filipina Participant

The participants who reported spending more money on food after the program either referred to fruits and vegetables as being expensive, or to the fact that they were eating more Canadian food (recipes from the program) and that this food was more expensive when compared to their familiar food.

Sub-theme 3.2: Utilization of common foods

In order to be food secure, one must be able to make use of the foods that are found in the food supply (Gross et al. 2000). For many newcomers, not knowing how to prepare the foods commonly found in Canada can make finding healthy, affordable food that much more difficult.

Knowledge and utilization of staple foods in the Canadian food environment increased for 100% of participants. For some, this resulted in buying and using more commonly available whole foods, rather than spending more money buying processed alternatives, like baby food.

> *"She started prepare for the young one, food, before she buy food, ready made baby food for him. She learn how to use fruits with yogurt and to make for him something which is similar so she was happy with that."*
>
> – Female Syrian Participant

Theme 4: Other impacts

Apart from the more foreseeable impacts described above, many other benefits of the program were noted, including cross-cultural connections and enhanced social networks.

Sub-theme 4.1: Cross-cultural connections

The program provided a platform for participants to interact with both Canadian-born community members (facilitator, volunteers), as well as other newcomers from various backgrounds. It was observed and noted by others that this was an opportunity to learn about Canadian culture, helping people to feel more comfortable in their new surroundings.

> *For me I enjoy the program, especially I met more friends, knowing each other, you as our teacher in cooking, you are very patient to us and then meet other country too, people, even though we have different language but still happy during that time.*
>
> – Filipina Participant

Learning about Canadian foods and recipes also gave participants a tool for building cross-cultural connections outside of the program, both with classmates as well as new Canadian friends. One participant had described being invited to the house of their new Canadian friends and not knowing what type of food to prepare, feeling that their traditional food had not suited the occasion.

Because I observe that people really bring fruits in their packed meals like that and the way that we prepare fruit salad is different and I didn't realize that you could mix the citrus like the orange things and actually I made that one with our potluck [at school]. *I made like a big fruit salad, and it's empty, they like it.*

– Filipina Participant

I thought that this kind of program, it would benefit a lot because sometimes we also have a thanksgiving also with our Canadian friends we we come here so if we know how to make all those things we prepare some for them but because we didn't know so we just prepare our traditional foods

– Female Karen Participant

It was also observed that newcomers who had been in Canada longer than others took it upon themselves to make the newer arrivals feel welcome and that their food traditions and skills were valued. On multiple occasions participants from different backgrounds compared 'food words' in mother tongues and when newly-arrived Syrian women began attending the program, other participants were teaching them the English words for the foods being prepared.

Sometimes it's not only just the language. Sometimes I have a hard time understanding right, some, something but it's not about that. Communication can be in a different way. That's why the food is an important way to communicate with different people.

– Settlement Worker

Sub-theme 4.2: Enhanced social networks

Some participants reported feeling isolated when they first arrived in Canada, so for them, one of the greatest benefits of the program was that it gave them an opportunity to meet other community members, and develop friendships that would last after the program was over.

Not only the program for food but other concern … connect … If you meet friends, not only for that session but you become friends until now and forever. That's it.

– Filipina Participant

The program also provided a platform for participants to learn about other programs and services in the city, such as prenatal classes, cooking programs and community gardens.

Sub-theme 4.3: Negative impacts

Despite the program's focus on encouraging maintenance of food traditions, for some newly-arrived participants, it did provide an introduction to store-bought foods that they would normally make themselves (e.g. pita bread used for pita pizzas), which could lead to purchasing more of these convenience foods. Discussion regarding the benefits of homemade foods should occur often. Other unintended results of this program for some participants included: perception that vegetables are more expensive than animal products, and, for at least one participant (but likely others as

well), when recalling information learned in the program, it was difficult to distinguish this information from other nutrition-related information that had been learned elsewhere. For example, one participant recalled learning about monosodium glutamate in the program, but, in fact, it was never discussed.

Discussion

Evidence-based, culturally-sensitive newcomer nutrition programs have the potential to mitigate the negative effects of food insecurity and dietary acculturation for newcomer participants. In the *Growing Roots* program, participants were able to build upon their existing food and nutrition knowledge and skills and apply these to new ways of shopping for food and cooking for their families in Canada.

Studies often describe the valuable food knowledge and skills that many newcomers bring with them, including their ability to cook from "scratch" or using basic, familiar foods (Blanchet et al. 2018; Moffat, Mohammed, and Bruce Newbold 2017; Rodriguez et al. 2016). Most participants in this study described making the majority of their food from scratch. For some it may have been more because of cultural norms, than an appreciation for the health benefits, potentially making it easy to succumb to the convenience of processed and fast foods in Canada. As Blanchet has stated, using familiar or traditional food knowledge to evaluate food in Canada can be ineffective, especially with the prevalence of well-marketed ultra-processed foods, whose package claims may be misleading (Blanchet et al. 2018). Many participants had begun to eat more processed food in Canada, but during the program, developed a new appreciation for the nutritional value of home-cooked meals, leading them to purchase fewer processed and packaged foods. This emphasizes the important role that nutrition programs can play in bridging the nutrition knowledge gap for recently-arrived newcomers in order to mitigate unhealthy acculturation to the typical Canadian diet, as well as encourage preservation of valuable food traditions.

Food insecurity has been shown to accelerate the process of dietary acculturation for newcomers (Blanchet et al. 2018). Food bank usage, unavailability and high cost of familiar foods, and the availability of cheap, ultra-processed foods are among the reasons for this (Blanchet et al. 2018; Moffat, Mohammed, and Bruce Newbold 2017; Rodriguez et al. 2016; Sanou et al. 2014). The ability to obtain high-quality familiar foods has repeatedly been cited as an important component of newcomer food security, and a mediating factor for dietary acculturation across Canada (Adekunle, Cidro, and Filson 2015; Henderson, Epp-Koop, and Slater 2017; Moffat, Mohammed, and Bruce Newbold 2017; NEEDS 2009; Sanou et al. 2014). This can be a major issue in Canada, due to the cold

climate and, often, the long transport times of world foods from abroad. For this reason, strategies to help newcomers adapt to the new environment are important, as are initiatives to increase local production of world foods, raise incomes, and reduce exposure to ultra-processed foods – especially for newcomer children. A recent study in Ottawa, Ontario with immigrant children of African and Caribbean decent, confirmed that dietary acculturation in children results in mostly negative effects to their diet, including consumption of more highly-processed foods (Blanchet et al. 2017). With the rising rates of childhood obesity and type 2 diabetes in Canada (Kimberly Elmslie 2012), future programs should include newcomer children so that they can learn about the value of their traditional foods, as well as learn the food skills necessary to eat healthily in the Canadian food landscape

The sociocultural benefits of *Growing Roots* were among the important benefits to participants and their families – newcomer food program benefits that have also been documented in other Canadian cities (Rodriguez et al. 2016). As Moffat, Mohammed, and Bruce Newbold (2017) have stated, upon moving the Canada, the loss of social connection and cultural norms are other less-obvious factors that affect food security for many newcomers (2017). Often, coping strategies such as sharing food between family members and neighbours, as well as grocery shopping every day, helped to mediate food insecurity in their home countries (Moffat, Mohammed, and Bruce Newbold 2017). Therefore, these sociocultural benefits should not be overlooked as important program outcomes, due to their potential longer-term impacts on the health and wellness of participants, as well as the community.

This research has implications for the organizations and health professionals aiming to provide more supports for newcomers arriving in Canada, by providing an evidence-base for the benefits of food and nutrition programs, as well as an effective model for newcomer program development. In order to provide further guidance on newcomer food and nutrition program development, some key program features are highlighted below.

Key program features

Growing Roots was successful for several reasons: 1) the action research approach; 2) incorporation of key program features as found in the newcomer health promotion literature; and 3) a unique approach to nutrition education.

The action research approach facilitated the development of a flexible program model that met participants' needs through ongoing community consultation and program modification. Through this model, strong partnerships with immigrant settlement organizations were built, which facilitated

participant recruitment and program attendance, and provided support with language translation.

The newcomer health promotion literature emphasized the importance of certain program features, such as cultural considerations, accessibility and support, empowerment and self-efficacy, and community consultation (Anderson, Mah, and Sellen 2015; Hyman and Guruge 2002). One of the most important features of *Growing Roots* was accessibility, regardless of English-language ability. Recent newcomers are at greatest risk for food insecurity (Tarasuk et al. 2016) and have the most difficulty shopping for and choosing healthy foods in Canada (Moffat, Mohammed, and Bruce Newbold 2017), but are also excluded from most programs due to language barriers. Therefore, accessibility considerations must be front and centre for nutrition programs, using translators and plain language program materials. This will help build food resiliency before the negative effects of food insecurity and dietary acculturation take hold, and cultural food traditions are lost.

Building upon the newcomer health promotion literature, this study also highlights some unique nutrition program features relevant to the Manitoba newcomer population. As mentioned, the literature emphasized the importance of cultural considerations in program development. In the context of a nutrition program, this means a focus on maintaining cultural food traditions and ways of thinking about food (Moffat, Mohammed, and Bruce Newbold 2017). *Growing Roots* focused on teaching participants about the importance of eating whole foods, rather than highly-processed ones. Discussions of the '4 food groups', serving sizes, and caloric intake were minimized to keep the focus on food, rather than nutrients. This is an atypical approach for nutrition programs in Canada and other Western countries, where 'nutritionism' predominates food and nutrition discourse (Scrinis 2008).

The use of appropriate health promotion and nutrition strategies facilitated an empowering context, focusing on self-efficacy and encouraging preservation of healthy food traditions, rather than generating negative feelings towards them. Increasing participants' food and nutrition knowledge and skills, relevant to their new food environment, increased their confidence in choosing and preparing healthy foods in Canada, and helped them find a healthy balance between familiar/traditional and new foods. These approaches likely contributed to the maintenance of healthy food traditions that the participants reported, which is contrary to what has been found in other programs (Anderson, Mah, and Sellen 2015). Finding a balance between one's own culture and that of the host country has been shown in other research to be most conducive to successful resettlement (Beiser 2009).

Study limitations

This study had several limitations that should be considered when interpreting the findings. As with other action research studies, the results of this study are context-specific and cannot necessarily be generalized to other populations or programs. Rather, it is the hope that some of the findings may be deemed transferable to similar settings, and the initiatives may be adapted for relevance with other groups. Oral questionnaire and interview data were self-reported, therefore it is possible that some negative comments may have been withheld by participants. Also, there was no comparator group, and long-term follow-up was not conducted. Nonetheless, the action research approach provided rich data, and the study provides important findings that can be used to plan and implement similar programs in the future.

Conclusion

The findings presented here indicate that newcomers to Canada seek a form of food sovereignty, or "the right to healthy and culturally appropriate food" (Wittman and Desmarais 2012) as defined by them. This resonates with the growing food sovereignty movement of Indigenous people's in Canada and elsewhere, and represents a critical form of social justice that must be recognized and acted upon (Martens et al. 2016; Thompson et al. 2012). The development of appropriate food and nutrition programs for the rapidly growing newcomer population in Canada can contribute to newcomers' food sovereignty. Evidence-based health promotion strategies are essential to ensure that newcomers have the healthiest transition possible, preserving traditions in the context of their new home and mitigating development of chronic diseases, such as diabetes, and the associated costs on our already over-burdened health care system (Kimberly Elmslie 2012). Further research is needed to evaluate the long-term health and social impacts of newcomer food and nutrition programming, and to determine the cost-benefit of such programs to promote government investment.

Further research should also be conducted to examine the effects of other initiatives on newcomer food security, such as strategies to increase local production of world foods, better employment and language supports to increase economic opportunities and reduce poverty rates, as well as government policy that prioritizes health promotion and social support programs for newcomers.

Notes

1. There is no accepted definiton of 'Canadian' food; it is presented here in contrast to foods/diets from newcomers' home countries and represents foods most commonly found in Canadian stores and restaurants, and projected through marketing and advertising.
2. Female from the Philippines.

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