Exploring experiences of the food environment among immigrants living in the Region of Waterloo, Ontario

Paulina I. Rodriguez, MA,¹ Jennifer Dean, PhD,¹ Sharon Kirkpatrick, PhD,² Lisbeth Barbary, PhD,³ Steffanie Scott, PhD⁴

ABSTRACT

OBJECTIVES: This exploratory study aimed to shed light on the role of the food environment in shaping food access among immigrants living in the Region of Waterloo, Ontario.

METHODS: In this qualitative case study, in-depth interviews aided by photovoice were conducted with nine immigrants, and key informant (KI) interviews were conducted with nine community stakeholders (e.g., settlement workers, planners) who held expert knowledge of the local context with respect to both the food system and experiences of immigrants in interacting with this system. In this paper, we focus specifically on insights related to the food environment, applying the Analysis Grid for Environments Linked to Obesity Framework to assess economic, physical, socio-cultural and political aspects.

RESULTS: Economic features of the food environment, including food prices and differential costs of different types of food, emerged as factors related to food access. However, interactions with the food environment were shaped by broader economic factors, such as limited employment opportunities and low income. Most immigrants felt that they had good geographic access to food, though KIs expressed concerns about the types of outlet and food that were most accessible. Immigrants discussed social networks and cultural food practices, whereas KIs discussed political issues related to supporting food security in the Region.

CONCLUSION: This exploratory case study is consistent with prior research in highlighting the economic constraints within which food access exists but suggests that there may be a need to further dissect food environments.

KEY WORDS: Food supply; emigrants and immigrants; food intake; environment; refugees; immigrant

La traduction du résumé se trouve à la fin de l'article.

Can J Public Health 2016;107(Suppl. 1):eS53–eS59
doi: 10.17269/CJPH.107.5310

Immigrants currently account for just over 20% of the total population in Canada and are a major contributor to population growth, with projections suggesting that this population will be the nation's sole source of growth by 2030.¹ Recent evidence demonstrates that over time the health of immigrants declines with respect to chronic diseases,² self-reported health³ and depression,⁴ among others. Several explanations for this decline in health have been hypothesized, including poor access to the health care system, increased stress from migration and early settlement experiences, and acculturation (adoption of an unhealthy Canadian lifestyle).² The latter explanation includes the uptake of an unhealthy diet, which studies have acknowledged can be attributed to both individual (e.g., cultural food preferences, individual income) and environmental (e.g., food accessibility and availability) factors.^{5–7}

A growing body of research has focused on the role of diet in the health inequalities of immigrants.⁷ Recent immigrants are two times more likely to be food insecure than the general population,⁸ and are at risk of inadequate nutritional intakes.⁹ Food insecurity contributes to an increased burden on the health care system¹⁰ and may interfere with the integration of immigrants into their new environment in Canada, because it limits their opportunities to engage in an active and healthy life.^{11–13} Furthermore, addressing diet-related health inequalities is a moral imperative, as access to high-quality food is a fundamental human right.¹⁴

The importance of environmental factors that shape individual eating habits is recognized by the Public Health Agency of Canada¹⁵ and has been central to recent major health promotion frameworks.¹⁶ Similarly, Health Canada has explicitly emphasized the importance of food environments, including “retail food outlets (RFOs)...where people can purchase foods, such as grocery stores and restaurants, as well as environments where people acquire food in traditional ways, such as hunting and fishing.”¹⁷

Much of this research on food environments in Canada has focused on the geographic location of RFOs and the cost of high-quality, nutrient-dense food.¹⁷ Results in this field offer mixed evidence for the existence of food deserts in Canada, those areas where nutritious food is absent, but supports the presence of food

Author Affiliations

1. School of Planning, University of Waterloo, Waterloo, ON
2. School of Public Health and Health Systems, University of Waterloo, Waterloo, ON
3. Recreation and Leisure Studies, University of Waterloo, Waterloo, ON
4. Geography and Environmental Management, University of Waterloo, Waterloo, ON

Correspondence: Jennifer Dean, PhD, School of Planning, University of Waterloo, 200 University Avenue W, Room EV3 3221, Waterloo, ON N2L 3G1, Tel: 519-888-4567, ext. 39107, E-mail: jennifer.dean@uwaterloo.ca

Acknowledgements: This study was made possible through financial contributions from a SEED Grant through the University of Waterloo's Chronic Disease Prevention Initiative at the Propel Centre for Population Health Impact. We also thank the participants who kindly contributed their time and insights to this study.

Conflict of Interest: None to declare.

swamps, where access to fast food and low-nutritional food is high.¹⁷ This is problematic since neighbourhoods with inadequate food environments appear to exacerbate the hardships faced by families living in poverty and struggling to afford adequate food.¹⁸

Recent work in Canada and elsewhere attempts to understand how individuals navigate their food environment.^{17,19–23} Beyond examining environmental factors related to geographic and economic access, there is an absence of research investigating additional factors, such as those within the socio-cultural and political realm, which are also related to diet and obesity.^{17,22} Further, there is a scarcity of Canadian research on the food environment and its impact on the lifestyle of immigrants. Given the potential role of diet in the decline of immigrants' health status over time, this is an important area for exploration.¹⁷ Thus, this study aims to better understand how the food environment is experienced by this growing segment of the population.

METHODS

This multi-method qualitative case study examines individual and environmental factors influencing immigrant food security in a mid-sized Ontario municipality.

The Region of Waterloo is a mid-sized urban municipality located in south-western Ontario and includes the three cities of Cambridge, Kitchener and Waterloo and four surrounding townships. Immigration has contributed to approximately 20% of the population growth in the Region in recent years, and currently immigrants account for 22.3% of the total population.²⁴ These rates, combined with the ethno-cultural diversity of the immigrant population in the Region (over 190 different ethnic origins are represented), make it a typical Canadian municipality and a suitable case from which to glean insights into immigrant experiences of food environments.

We used multiple methods in order to triangulate the data and gain a comprehensive understanding of immigrants' experiences of the local food environment. This involved interviewing nine immigrants directly and purposefully sampling nine key informants (KIs) who a) worked directly with the immigrant population in either a settlement or social services capacity and thus had expert knowledge of collective issues related to food access for this population; or b) worked within the food access sector (e.g., food bank employees, public health planners, urban planners) and had knowledge of the food environment. The study received ethical clearance from the University of Waterloo.

Data collection took place between July and December 2014. The research team created a list of KIs in the Region who held expertise in one of the two areas noted above. The KIs were contacted by the first author directly by e-mail, and this was followed by a phone call. In total 11 KIs were contacted, 2 were in contact with the research team and 9 agreed to take part in the study. All interviews were conducted in person at a time and place convenient for the participants. They were audio recorded and the recording was later transcribed verbatim.

Immigrant participants (see Table 1) were recruited from local community organizations using the gatekeeping method common in community-based health studies, whereby a representative in an organization acts as an access point to disseminate information about the study to members of the organization.²⁵ These semi-structured interviews were conducted in English by the first

author with translation assistance from a community gatekeeper for two interviews. Interviews lasted approximately 60 minutes on average and took place within community settings (e.g., coffee shops, community centres). Questions focused on broader issues of health and food security before narrowing in on the food environment. Participants were provided with a broad definition of the food environment (i.e., anything in their environment that influenced their eating habits).

Participants were given a disposable camera to complete a photovoice exercise requiring them to take photographs of their food environment. In this way, photographs helped to clarify ideas that emerged during the initial in-depth interview by having participants gather concrete examples of assets and obstacles in their food environment, thus allowing for more direct questions about their perspectives in a follow-up interview. This method has successfully been used in previous environment and health research^{26,27} and with immigrant populations.²⁷ The method was selected to better engage participants who may not be proficient in the English language and as an empowerment tool for participants to express their own perspectives through an accessible means.

Approximately two weeks later, a second photo-elicited interview took place that focused on the photos. The SHOWeD method²⁸ facilitates in-depth discussion of photos by asking exploratory

Table 1. Socio-demographic characteristics of immigrant participants

	Total	Percentage of total
Population		
Total	9	100
Female	6	67
Male	3	33
Age (years)		
29–39	3	33
40–49	2	22
50–59	1	11
59–69	3	33
Marital status		
Married/living with a partner	5	56
Separated or divorced	2	22
Widowed	2	22
Country of birth		
Haiti	1	11
Iraq	4	44
India	2	22
Lebanon	1	11
South Korea	1	11
Years living in Canada		
0 to 3	4	44
3 to 10	4	44
10+	1	11
Highest level of education		
Middle school	1	11
High school	2	22
University degree	4	44
Postgraduate degree	1	11
Immigrant class		
Family class	2	22
Refugee/humanitarian class	4	44
Skilled worker class	3	33
Income		
Under \$5,000	4	44
\$10,000 to \$14,999	3	33
N/A	2	22

questions such as “What do you see here?” and “What’s really happening here?”²⁸ After the second interview, participants received a \$25 gift card to a local grocery store as a token of appreciation.

While we did not attempt to secure a representative sample, because generalizations were not the objective, we did seek heterogeneity in terms of cultural background and time since migration to explore a diversity of experiences. Further, the combination of KIs and immigrant interviews paired with photovoice served to triangulate the data, and a point of saturation was met.²⁹ This exploratory study gleaned important insights into experiences of local food environments among immigrant populations, although additional research is necessary to examine specific food access issues in depth and among specific ethno-cultural groups of immigrants.

Analysis

All interviews were conducted, audio recorded and transcribed by the first author (PR). Thematic analysis was conducted by developing codes in the form of words or phrases to represent themes identified in the data following a six-step process.³⁰ We framed the analysis using the Analysis Grid for Environments Linked to Obesity (ANGELO) Framework, which dissects environments by type and scale.³¹ This framework was selected because of its usefulness in identifying the myriad environmental factors potentially relevant to diet while assessing which factors are most influential and which are overlooked.

ANGELO identifies four environmental types: a) physical: resources available for obtaining a healthy diet; b) economic: the costs associated with a healthy diet; c) political: the formal and informal policies that influence eating habits; and d) socio-cultural: societal attitudes, beliefs and values that affect eating habits. ANGELO also takes a scalar approach to examining environments, in which the microenvironment consists of those settings that influence diet (e.g., home, neighbourhood) and the macroenvironment relates to sectors such as food-related industries, services or supporting infrastructure.³¹ While the ANGELO framework was designed to examine the influence of the environment on obesity through both dietary behaviour and physical activity, it is also useful in thoroughly analyzing the food

environment and has been used in the past to examine factors of the food environment that potentially influence eating habits.²²

RESULTS

During analysis of the data, three main themes emerged and will be discussed individually below. Throughout this section, quotes from participants will be used to highlight important findings; identification of the relevant factors in the food environment is included in Table 2.

Affordability and economic stability

The most prominent theme was related to food affordability: participants’ concerns focused on a) the high cost of nutritious food and b) participants’ ability to earn an adequate income. These individual barriers were exacerbated by economic barriers to accessing the food environment. For instance, recent immigrants in this study perceived food in Canada to be more expensive than “back home”:

First impression, [food] is very expensive.... all my money is going to food. Especially the vegetables and fruit ... a small package [of fruit] is \$2.50 and I have to use at least four, every week. (IP5)

This was directly related to the affordability of food in RFOs, most immigrants discussing how healthy foods (e.g., fresh produce) are costly in comparison with less healthy foods (e.g., pre-packaged food), which often went on sale in local stores (see Figure 1). Four of the nine participants reported cost as the main determinant, and in this group the high-quality food presumed to be healthier, such as organic fruits and vegetables, was often deemed to be unobtainable because of the cost. The other participants tried to balance the quality of food with their limited income. For instance, many immigrants practised coping strategies by being selective in where they shopped:

[Store A] has good quality [food], it's not excellent quality like [Store B] but [at Store A] I can afford to buy as much as I want to eat. [I can afford] 90 or 85 per cent of what I want to buy in [Store A]. For this reason usually I go to [Store A], because it's not a bad quality and I can afford the price (IP7)

Table 2. Determinants of the food environment by type and size

Environmental size/type	Physical	Economic	Political	Socio-cultural
Microenvironments (settings)	Adequate geographic access to food stores	Affordability of food in food stores (regular stores and ethnic stores)	Rules in the home around eating	Strong attachment to culturally specific food practices
	Adequate geographic access to alternative sources of food (farmers’ markets, community gardens, temporary markets)	Household socio-economic status (income, employment)	Zoning bylaws governing land use	Availability of social networks
	Accessibility to unhealthy food retail (fast food, convenience stores)	Employment circumstances that diminish time available for food purchasing/preparation	Availability of community services for immigrants	Acceptability of food available in food stores (restaurants, superstores)
	Accessibility to transit			Adapting to Canadian food environment
Macroenvironments (sectors)	Transportation system	Housing affordability	Food labelling	Societal values of food in Canadian context
	Accessibility to farmland	Affordability of transportation	Government support for immigrants	Food advertising

Figure 1. Pre-packaged food sold in local grocery store (Interview Participant 1)

Other immigrants coped by accessing alternative sources of food in the physical environment, such as food banks and community cooking classes, and these often became important places for socializing and resource sharing.

A second key issue was participants' ability to earn enough income to afford the high-quality foods they preferred. While most recent immigrants arrive in the country with significant savings, a requirement of the immigration process, seven participants discussed the depletion of financial resources arising from inability to secure employment. These participants shared their reluctance to spend money on the high-quality foods they preferred because of the precarious nature of their employment situation:

You're always thinking... you don't know when they tell you "no more job for you". You have to have some money saved... you can't throw money and buy what you want, make sure you can save for your rent. (IP1)

As the above participant implies, high food costs and low income were exacerbated by the high cost of housing in the Region. Most immigrants shared a discourse of negotiation in terms of whether to spend on high-quality food, housing or other crucial payments, as one KI articulates:

Average apartment in Kitchener-Waterloo is \$900, two bedroom. And a family of four, a family of five will receive \$800, so they need \$100 more, from where, from food of course, they will take money from food to put towards the rent. (KI6)

In addition, KIs indicated that although recent immigrants receive financial support, it is not enough to meet their basic living expenses. Immigrant participants indicated that they adopt a variety of strategies to cope with their low income, including frequenting discount RFOs, buying items only when on sale, paying attention to weekly flyers, budgeting and, when necessary, using food banks.

Geographic access to culturally appropriate and high-quality food

The majority of immigrants reported having adequate geographic access to stores within their immediate community, demonstrating a strong physical food environment. In most cases this was within

participants' residential neighbourhood, but in others it was near the location of employment or the homes of people in their social network. RFO access was most often to mainstream and discount grocery stores as well as conveniences stores, all of which sold culturally appropriate food:

... there are a lot of shops like [convenience store], they have Mediterranean food. We don't eat something that contains ingredients that are difficult to find. Everything is provided here. It's good. (IP7)

Despite proximity to RFOs, the majority of immigrants stated that geographic access to healthy foods (i.e., organic, fresh produce) and some specialty foods was poor. Five participants stated that their preference was to shop at local farmers' markets (see Figure 2), which they believed offered the highest quality foods, a larger diversity of fruits and vegetables, and better taste: *"I will never eat a food from a can. They say it's healthy, but it's not, I want everything fresh."* (IP3) Many also indicated that they had grown their own food in private or community gardens. However, these preferred places were less accessible to participants, and KIs stated that they were in short supply in the Region. Accordingly, participants stated that they often negotiated by selecting the closest RFO while sacrificing food quality:

[Store]... is better for organic food. Farmer stores use organic soil so the food is healthier... but what can we do? We can't go every time to the market, so we buy from [store]. It's here and it's close so we have to buy here. (IP5)

Geographic proximity was less important when it came to accessing ethnic grocery stores. The participants who were part of the ethno-cultural majority in the Region felt that ethno-cultural food was often available in nearby grocery stores, but those who were in the ethnic minority stated that access to ethnic stores (and in some cases specific foods) was poor, some participants reporting that they travelled to other cities to access specific foods at specialty grocery stores. To compensate, some immigrants used temporary markets and "pop-up shops" to fill the void, even though these were not regulated. As one KI highlighted:

...in Cambridge, a man sells vegetables for the ethnic community [out of his car]. They come to the parking lot and

Figure 2. Food from the farmers' market (Interview Participant 4)

they grab all their vegetables and they leave and he leaves before a bylaw [officer] catches them. (KI5)

KIs discussed how the existence of food deserts and food swamps¹⁷ in the Region of Waterloo might be undermining the food security of immigrants. They highlighted the inconsistency of bylaws that regulate land use in the Region, which differ across all of the lower tier municipalities and make it difficult to present a regional strategy to create healthy food environments. Further, they indicated that the current land use policies in those municipalities hinder the establishment of the food spaces preferred by immigrants, such as community gardens and temporary markets.

Keeping traditional food practices

For participants in this study, food played a central role not just in health and well-being but also in cultural identity: "...everything that is considered part of culture, we have our own literature, our own language, dance music, of course the food. Food is the biggest part." (IP8). KIs acknowledge pressures for immigrants to adopt the unhealthy eating patterns of the general population, including acculturating to the current social environment in which fast and prepared foods predominate. The responses of most immigrant participants, however, highlighted strong attachment to culturally specific food practices, such as cooking from scratch despite pressure to do otherwise, especially pressure from younger children.

The importance of these practices was also emphasized through photovoice, when participants were asked to select a meaningful photo; their selection was food that they liked eating, considered to be healthy and was traditional to them (see Figure 3). This appeared to influence food purchasing and preparation habits that for some participants resulted in prohibition of outside food in the home, especially for children:

I cook my meals... I want to [teach] my kids that it's not good to eat out all the time: "We can eat [at the restaurant] once per month, because your health, I don't want you to be fat" They understand. (IP7)

The parents shape the political environment for their children's food access, and in this respect participants discussed additional strategies they use to maintain their traditional ethnic diets, including purchasing fresh food from the market when accessible, travelling to ethnic grocery stores or even using informal channels like "pop-up shops".

Often recent immigrants arrived with little knowledge of Canadian food practices or the local food environment but relied on other immigrants for information. Strong social networks, an element of the social environment, both within their cultural group and outside (often with other immigrants) was important for sharing information (e.g., local programs, food bank locations) and other resources (e.g., food, transportation, time).

People I know from the same country, they told us which place has good quality [food]... Now we know where to go, to buy lower [priced food]. But for new people, it's hard for them, they don't know the places here. Especially the first year it will be difficult for them. (IP4)

Figure 3. This is my routine food (Interview Participant 3)

This study highlighted the importance of various environmental factors – physical, social, economic and political – that shape experiences of the food environment in Canada. In addition, the findings showed that immigrants are unique populations in the way that they interact with the food environment. This interaction is often guided by their food-related needs, such as having access to high-quality and culturally appropriate food, and by being able to maintain their traditional food practices.

DISCUSSION

This research sought to explore experiences of the food environment among immigrants living in the Region of Waterloo, ON. Perceptions of the food environments were captured through KI interviews and in-depth interviews with immigrants along with a photovoice exercise, and they were assessed using thematic analysis guided by the ANGELO Framework to dissect various environmental factors. Using the ANGELO Framework as an analytic tool for the data collected from the three sources, we found that all four types of environment were relevant to participants. Economic and physical environments were most widely and explicitly discussed, while socio-cultural environments were relevant particularly in the context of culturally appropriate food. Political environments were discussed least often but comments in this realm were important for understanding broader legal issues (e.g., municipal bylaws) or informal policies (e.g., familial rules about eating outside the home during the month). Given the focus of this study on local food environments, the majority of the findings were discussed in relation to the microenvironment (See Table 2).

A few limitations need to be addressed. We sought to find commonalities in the experiences of the food environment in a diverse group of immigrants in the Region of Waterloo. However, our small sample represents the perspectives of a heterogeneous group of immigrants. The high number of female participants in this study very likely reflects a selection bias, in that most of the food purchasers are, in fact, women and likely have the most interaction with the food environment. Future studies should seek to explain homogeneous experiences of the food environment in immigrant populations.

Limitations aside, the results indicate that economic environmental factors, such as household income (micro scale) and food affordability (macro scale), were most relevant to participants, a finding that supports the results of previous research.^{18,32} For instance, as in the findings of a study of Latin American immigrants in Toronto, ON, our participants utilized several coping strategies to deal with their low income status coupled with the high cost of food, including comparing prices, cooking from scratch and purchasing items on sale.³³ In this study we found that participants balanced the quality of food with affordability, and prioritized healthy and culturally appropriate food. This suggests that economic circumstances are a crucial component of how immigrants navigate the food environment.^{18,32}

In the Canadian context, it is widely recognized that to address issues of food access, strategies are needed to promote adequate incomes.^{8,18} The role of food price has been previously examined, a prior study suggesting that price can outweigh other considerations such as health in a low-income population.³² In this study, immigrants suggested that the high cost of food in the Region restricted their access to RFOs. However, the issue of most concern for the immigrants studied is having the economic means to purchase what they perceived to be high-quality food.

Furthermore, this study showed that the geographic access or physical factors related to the food environment directly influence the kind of food that immigrants can access, which echoes past research.^{19,23} Such findings align with previous studies suggesting that areas in the Region of Waterloo are indeed food swamps on the basis of the high access to poor-quality food in RFOs.^{17,34} Yet, participants in this study consistently expressed their preference for organic and high-quality fruit and vegetables and ethno-cultural food, and there is very little research examining whether food deserts or swamps do exist in the context of RFOs that cater to the specific food preferences of immigrants and other cultural minorities. From a policy perspective, modification of existing municipal bylaws that relate to community gardens, pop-up shops and temporary markets is required to improve access to the high-quality food that is preferred by the population.

Last, the study suggests that immigrants preferred to consume ethnic food, which they perceived to be healthier than “Canadian food”. Past research identifies an acculturation process by which immigrants adopt the cultural practices and norms of the host country as their length of residence increases.⁷ Similar to Latin-American immigrant women in a US study,²³ participants in this study resisted acculturation by being the “gatekeepers” of food access and monitoring their children’s eating habits. In fact, some participants indicated that they go to great lengths to obtain their ethnic food, including driving outside the Region and obtaining food from informal food stores like unregulated temporary markets. As this was a small and diverse group of immigrants with an average time in Canada of three years, future research could help address whether these habits change over time and through subsequent generations of immigrants. An important avenue for future research would be to explore the role that time since migration might play in diet-related practices as immigrants transition into their new life in the Canadian food environment.

CONCLUSION

The results of this study support prior calls for action on the upstream determinants of health for food access, such as gainful employment opportunities, affordable housing and adequate public transportation.^{8,18,32–34} Strides made in any of these factors will have positive impacts on the health inequalities faced by immigrant populations. Further, challenges in accessing nutritious and culturally appropriate foods may exacerbate financial challenges among immigrants. There is a need to continue to develop local RFOs that are desirable to the immigrant population, such as food markets, community gardens and even “temporary markets” that offer fresh food. Funding, zoning and regulating these non-traditional RFOs are crucial to moving forward. Last, there is an urgent need for further research to better understand how immigrants to Canada navigate the food environment and how the role of the food environment changes over time as immigrants become settled.

REFERENCES

1. Canadian Demographics at a Glance. Ottawa, ON: Statistics Canada. 2008. Available at: <http://www.statcan.gc.ca/pub/91-003-x/2007001/4129907-eng.htm> (Accessed August 21, 2015).
2. Newbold KB. Chronic conditions and the healthy immigrant effect: Evidence from Canadian immigrants. *J Ethn Migr Stud* 2006;32(5):765–84. doi: 10.1080/13691830600704149.
3. Ng E, Russell W, François G, Berthelot J. Dynamics of immigrants’ health in Canada: Evidence from the National Population Health Survey. In *Healthy Today, Healthy Tomorrow? Findings From the National Population Health Survey (82-618-MWE)*. Ottawa, ON: Statistics Canada, 2005;2:1–11. Available at: <http://www.statcan.gc.ca/pub/82-618-m/2005002/pdf/4193621-eng.pdf> (Accessed April 17, 2016).
4. Ali J. Mental health of Canada’s immigrants. Ottawa, ON: Statistics Canada. Available at: <http://www.statcan.gc.ca/pub/82-003-s/2002001/pdf/82-003-s2002006-eng.pdf> (Accessed June, 2015).
5. Dean JA, Wilson K. “My health has improved because I always have everything I need here...”: A qualitative exploration of health improvement and decline among immigrants. *Soc Sci Med* 2010;70(8):1219–28. PMID: 20167409. doi: 10.1016/j.socscimed.2010.01.009.
6. Newbold B. The short-term health of Canada’s new immigrant arrivals: Evidence from LSIC. *Ethn Health* 2009;14(3):315–36. PMID: 19263262. doi: 10.1080/13557850802609956.
7. Sanou D, O’Reilly E, Ngnie-Teta I, Batal M, Mondain N, Andrew C, et al. Acculturation and nutritional health of immigrants in Canada: A scoping review. *J Immigr Minor Health* 2014;16(1):24–34. PMID: 23595263. doi: 10.1007/s10903-013-9823-7.
8. Tarasuk V, Dachner N. Household Food Insecurity in Canada, 2012. Toronto, ON: Research to Identify Policy Options to Reduce Food Insecurity (PROOF). 2014. Available at: http://nutritionalsciences.lamp.utoronto.ca/wp-content/uploads/2014/05/Household_Food_Insecurity_in_Canada-2012_ENG.pdf (Accessed June 15, 2015).
9. Kirkpatrick SI, Dodd KW, Parsons R, Ng C, Garriguet D. Household food insecurity is a stronger marker of adequacy of nutrient intakes among Canadian compared to American youth and adults. *J Nutr* 2015;145(7):1596–603. PMID: 25995277. doi: 10.3945/jn.114.208579.1.
10. Tarasuk V, Cheng J, de Oliveira C, Dachner N, Gundersen C, Kurdyak P. Association between household food insecurity and annual health care costs. *CMJA* 2005;187(14):E429–36. PMID: 26261199. doi: 10.1503/cmaj.150234.
11. Lindsay AC, Sussner KM, Greaney ML, Peterson KE. Influence of social context on eating, physical activity, and sedentary behaviors of Latina mothers and their preschool-age children. *Health Educ Behav* 2009;36(1):81–96. PMID: 18689491. doi: 10.1177/1090198107308375.
12. Chaufan C, Davis M, Constantino S. The twin epidemics of poverty and diabetes: Understanding diabetes disparities in a low-income Latino and immigrant neighborhood. *J Community Health* 2011;36(6):1032–43. PMID: 21533887. doi: 10.1007/s10900-011-9406-2.
13. Hamelin A-M, Beaudry M, Habicht J-P. Characterization of household food insecurity in Quebec: Food and feelings. *Soc Sci Med* 2002;54(1):119–32. PMID: 11820676. doi: 10.1016/S0277-9536(01)00013-2.
14. Special Rapporteur on the Right to Food. United Nations Human Rights, Geneva, Switzerland, 2015. Available at: <http://www.ohchr.org/EN/Issues/Food/Pages/FoodIndex.aspx> (Accessed June 10, 2015).

15. Food Security. Ottawa, ON: Public Health Agency of Canada, 2014. Available at: <http://cbpp-pcpe.phac-aspc.gc.ca/public-health-topics/food-security/> (Accessed September 25, 2015).
16. Curbing Childhood Obesity. Ottawa, ON: Public Health Agency of Canada, 2010. Available at: <http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/framework-cadre/pdf/ccofw-eng.pdf> (Accessed March 10, 2015).
17. Measuring the Food Environment in Canada. Ottawa, ON: Health Canada, 2013, p. 7. Available at: http://www.foodsecuritynews.com/resource-documents/MeasureFoodEnvironm_EN.pdf (Accessed April 21, 2015).
18. Kirkpatrick SI, Tarasuk V. Assessing the relevance of neighbourhood characteristics to the household food security of low-income Toronto families. *Public Health Nutr* 2010;13(7):1139–48. PMID: 20196916. doi: 10.1017/S1368980010000339.
19. Park Y, Quinn J, Florez K, Jacobson J, Rundle A. Hispanic immigrant women's perspective on healthy foods and the New York City retail food environment: A mixed-method study. *Soc Sci Med* 2011;73(1):13–21. PMID: 21658831. doi: 10.1016/j.socscimed.2011.04.012.
20. Lake A, Townshend T. Obesogenic environments: Exploring the built and food environments. *J R Soc Promot Health* 2006;126(6):262–67. PMID: 17152319. doi: 10.1177/1466424006070487.
21. Raine K, Church J, Boulé N, Slater L, Marko J, Gibbons K, et al. *State of the Evidence Review on Urban Health and Healthy Weights*. Ottawa, ON: Canadian Institute for Health Information, 2008.
22. Dean JA, Elliot SJ. Prioritizing obesity in the city. *J Urban Health* 2011; 89(1):196–213. PMID: 22042539. doi: 10.1007/s11524-011-9620-3.
23. Greder K, De Slowing FR, Doudna K. Latina immigrant mothers: Negotiating new food environments to preserve cultural food practices and healthy child eating. *Fam Consum Sci Res J* 2012;41(2):145–60. doi: 10.1111/fcsr.12004.
24. Region of Waterloo Public Health. Waterloo Region Immigration Fact Sheet, 2015. Available at: http://www.immigrationwaterlooregion.ca/Immigrant_Arrivals.pdf (Accessed September 28, 2015).
25. Johnson BH, Hayes SC, Ekundayo OT, Wheeler P, Ford DM. Health literacy of an urban business community. *J Health Care Poor Underserved* 2012; 23(1):242–53. PMID: 22643474. doi: 10.1353/hpu.2012.0028.
26. Heidelberger L, Smith C. The food environment through the camera lenses of 9- to 13-year-olds living in urban, low-income, midwestern households: A photovoice project. *J Nutr Educ Behav* 2015;47(5):437–45.e1. PMID: 26142725. doi: 10.1016/j.jneb.2015.05.005.
27. Wang CC, Yi WK, Tao ZW, Carovano K. Photovoice as a participatory health promotion strategy. *Health Promot Int* 1998;13(1):75–86. doi: 10.1093/heapro/13.1.75.
28. Wang C, Burris MA. Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Educ Behav* 1997;24(3):369–87. PMID: 9158980. doi: 10.1177/109019819702400309.
29. Patton MQ. *Qualitative Research and Evaluation Methods*. Thousand Oaks, CA: Sage Publications, 2002.
30. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101. doi: 10.1191/1478088706qp0630a.
31. Swinburn B, Egger G, Raza F. Dissecting obesogenic environments: The development and application of a framework for indentifying and prioritizing environmental interventions for obesity. *Prev Med* 1999;29:563–70. PMID: 10600438. doi: 10.1006/pmed.1999.0585.
32. Dachner N, Ricciuto L, Kirkpatrick SI, Tarasuk V. Food purchasing and food insecurity among low-income families in Toronto. *Can J Diet Pract Res* 2010; 71(3):e50–56. PMID: 20825694. doi: 10.3148/71.3.2010.e50.
33. Vahabi M, Damba C. Perceived barriers in accessing food among recent Latin American immigrants in Toronto. *Int J Equity Health* 2013;12(1):1. PMID: 23286318. doi: 10.1186/1475-9276-12-1.
34. Minaker LM, Raine KD, Wild TC, Nykiforuk CIJ, Thompson ME, Frank LD. Objective food environments and health outcomes. *Am J Prev Med* 2013; 45(3):289–96. PMID: 23953355. doi: 10.1016/j.amepre.2013.05.008.

RÉSUMÉ

OBJECTIFS : Cette étude préliminaire visait à faire la lumière sur le rôle de l'environnement alimentaire dans l'accès aux aliments des immigrants vivant dans la Région de Waterloo, Ontario.

MÉTHODE : Dans cette étude de cas qualitative, des entretiens en profondeur aidés par Photovoice ont été menés auprès de neuf immigrants; des entretiens avec des informateurs ont aussi été menés auprès de neuf acteurs communautaires (p. ex., travailleurs en services d'établissement, planificateurs) possédant une connaissance approfondie du contexte local en ce qui a trait à la fois au système alimentaire et aux expériences des immigrants par rapport à ce système. Dans cet article, nous traitons spécifiquement des idées liées à l'environnement alimentaire en appliquant le cadre ANGELO (Analysis Grid for Environments Linked to Obesity) pour évaluer les aspects économiques, physiques, socioculturels et politiques.

RÉSULTATS : Les caractéristiques économiques de l'environnement alimentaire, dont le prix des aliments et les coûts différentiels de divers types d'aliments, se sont avérés être des facteurs liés à l'accès aux aliments. Toutefois, les interactions avec l'environnement alimentaire étaient influencées par des facteurs économiques plus généraux, comme les occasions d'emploi limitées et les faibles revenus. La plupart des immigrants considéraient qu'ils avaient un bon accès géographique aux aliments, mais les informateurs ont exprimé des préoccupations quant aux types d'établissements et aux aliments qui étaient les plus accessibles. Les immigrants ont discuté de réseaux sociaux et de pratiques alimentaires culturelles, tandis que les informateurs ont discuté des enjeux politiques liés au soutien de la sécurité alimentaire dans la Région.

CONCLUSION : Comme la recherche antérieure, cette étude de cas exploratoire souligne les contraintes économiques dans lesquelles l'accès aux aliments existe, mais elle suggère aussi qu'il pourrait être nécessaire de disséquer davantage les environnements alimentaires.

MOTS CLÉS : approvisionnement en nourriture; émigrants et immigrants; ration alimentaire; environnement; réfugiés; immigrant