An examination of the roles played by early adolescent children in interactions with their local food environment

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ABSTRACT

OBJECTIVES: The purpose of this study was to examine how pre- and early adolescent (10–14 years old) children from a wide range of neighbourhoods interact with their local food environment (FE), with a focus on the foods and food sources they access and their locations. Children in this age group are developing independence and mobility within (and beyond) their home neighbourhoods but are somewhat geographically bound as they cannot yet drive.

METHODS: This research consists of qualitative interviews with 31 children (15 males, 16 females) aged 10–14 years living in socio-economically diverse neighbourhoods across Saskatoon, SK. A thematic analysis was conducted.

RESULTS: Children’s descriptions of what constitutes their neighbourhood FE were varied, ranging from a couple of city blocks to several kilometres from home. Children were familiar with the types of establishment that sell food within their perceived neighbourhood. When children purchased their own food they most frequently cited buying snacks such as ice cream, candy and slushes, and the majority of these purchases were made in convenience stores, gas stations and grocery stores. Few children reported frequenting fast-food or other restaurants without adults, and when they did it was usually to buy snacks such as French fries and ice cream rather than meals.

CONCLUSIONS: Our results highlight the importance of interventions targeted to this age group, in which personal food choices were reported almost exclusively as being energy- but not nutrient-dense snack foods.

KEY WORDS: Children; environment; diet; food and nutrition; eating

Increasing international evidence suggests that the environments in which people live, work and play have an important role in determining their health,12 including obesity and dietary patterns.1,4,14 Built environments in North America generally promote energy-dense food and offer little incentive for living active lifestyles, particularly in low-income neighbourhoods.6 Food environments (FEs) specifically, are increasingly being recognized as a critical determinant of community and population health.4,7,8

“The food environment can be broadly conceptualized to include any opportunity to obtain food. This definition of the food environment can include physical, socio-cultural, economic and policy factors at both micro- and macro-levels.”7 Examination of the impact of the FE on families’ and children’s health will help determine how changes in the FE may result in successful prevention of obesity and its associated health problems. The FE literature is particularly lacking when it comes to qualitative research. Studies have used primarily cross-sectional designs and geographic information systems to measure the community FE, specifically the accessibility and availability of different types of food sources.9,10 These studies typically characterize healthy food sources at the neighbourhood level as full-service grocery stores, whereas fast-food restaurants and convenience stores are considered to be unhealthy food sources.11

Up until quite recently few studies have taken their analyses beyond these simple characterizations. There are a few studies using qualitative methods to better understand adults’ perceptions of and interactions with the FE,12–15 but children and the FE continues to be a major gap. Previous studies have found that children frequently purchase and consume energy-dense snack foods and sugar-sweetened beverages from stores near their school and home, and when they are guests in others’ homes; however, there is limited qualitative research on the local FE of early adolescent children and their food purchasing decisions.16–19

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**METHODS**

Data collection consisted of in-depth qualitative interviews with children aged 10–14 years living in socio-economically diverse neighbourhoods across Saskatoon, a mid-sized Canadian city. The interviews were the final phase of a four-phase study characterizing the FE in Saskatoon for families with children. The detailed study design and some results from the first three phases of the study have been reported on previously. The study received approval from the Behavioural Research Ethics Board at the University of Saskatchewan.

Letters inviting participation in the qualitative interviews were sent to 900 families who had consented to further contact for research purposes after the third phase of the research. When parents responded, their neighbourhood of residence was confirmed and they were asked whether or not they owned a vehicle. A total of 43 families responded, and a final sample of 28 families was chosen using maximum variation purposeful sampling. The 28 reflect a wide range of neighbourhoods across the city that were based on median income level, geographic characteristics and neighbourhood types and included households that did not own a vehicle. After interviews had been conducted with the 28 families we found that data saturation had been reached.

In three of the 28 families there were two children in the 10–14 year age group, and so both children were interviewed. In-depth semi-structured interviews were conducted with parents and children separately (interviews with the parent and the child were conducted at the same time in two different parts of the family home). This research reports only on the interviews with the children, while the results of the interviews with the parents are in publication. The purpose of these interviews was to investigate how pre-adolescent children understand and interact with their local FE. Questions included whether, where, when and how children access the food they eat on their own and with others, and the types of food they purchase on their own as compared with their stated food preferences.

Interviews were 20 to 60 minutes in length. All child interviews were conducted by the third author, tape-recorded and transcribed verbatim, then returned for child participants and their parents to review along with a transcript release form to be signed.

Data analysis was done using QSR NVivo 10 qualitative analysis software (QSR International (Americas) Inc., Burlington, MA). For the purposes of this publication, transcripts were reviewed and data categories were created on an emergent basis from the data, with a focus on participants’ descriptions of their local FE, the food outlets they access on their own and with others, their food choices within these establishments as compared with their stated food preferences, and their explanations of how and why they interact with their FE in the ways that they do. All data within each category were then analyzed for nuanced meanings and compared with other categories. This was done so that the themes that emerged could be incorporated into theories of the topic.

**RESULTS**

Of the 31 participants, 15 were male and 16 were female; 7 were 13 and 14 years of age, 21 were 11 and 12 years of age, and 3 were 10 years of age. The income level of participants’ neighbourhoods of residence were categorized as low (n = 10), mid (n = 13) and high (n = 8). Neighbourhood of residence was used as the socio-economic indicator for each family. There was one family without a vehicle and one in which the mother could not drive because of health reasons (both lived in low-income neighbourhoods). All high-income neighbourhood participants lived in suburbs where the most high-income neighbourhoods in Saskatoon are located.

One child participant had moved to Canada in the previous five years, and five self-identified as Aboriginal. The child who was a newcomer and three of the Aboriginal children lived in low-income neighbourhoods.

While the children’s interviews focused on various aspects of their FE, the results reported on here focus primarily on the local FE as described by the children, the food types purchased by children in these outlets and their stated food preferences. The main themes that emerged on these topics included 1) knowledge and meaning of the local FE, 2) preferred food sources and choices made, 3) favourite foods and cooking, and 4) safety concerns.

Overall, regardless of neighbourhood of residence the children had similar responses, and the results are first presented showing common patterns among all participants, followed by the few results that were divergent according to neighbourhood of residence.

**Theme 1 – Knowledge and meaning of local FE**

The child participants’ sense of distance was not consistent, but they were almost all very aware of places near their homes where food could be purchased. Some children (less than a third) thought their neighbourhood included just a few blocks around their home, whereas others named places several kilometres away as being within their neighbourhood. Most could name a long list of outlets and were familiar with grocery stores, fast food restaurants, convenience stores, gas stations and pharmacies located in what they considered their neighbourhood. Only a few participants mentioned other types of restaurants. Some participants listed places that were as far as 2–3 km away from their homes:

**Child:** Yeah, restaurants, there is lots of fast food, it’s Dairy Queen, McDonald’s, Tim Horton’s, there’s a KFC, a Wendy’s, a Wok Box, lots of places like that. Convenience stores there’s Macs, that’s all I can think of.

**Interviewer:** Okay and grocery stores?

**Child:** Yeah, there is Extra Foods, Shoppers if that counts… From my house, if I was walking, for sure an hour.

The shopping area that she was referring to was just under 2.5 km from her home and was indeed the closest shopping area. Overall, the high-income neighbourhood residents described their neighbourhoods as being slightly larger in terms of geographic size, which is consistent with those neighbourhoods being suburban, with larger houses more distant from each other.

**Theme 2 – Preferred food sources and choices made**

When asked which grocery stores were their favourites to frequent, almost all of the children reported liking big box stores (Superstore, Walmart, Costco), where there were non-food items to be examined or purchased (specifically toys):
They have books and PlayStations, movies place. So I think it's maybe Walmart … because I can get a lot of electronics there like cameras and stuff. I can get videogames, movies.

Participants also reported liking what they perceived as a wider variety of food choices available but, overall their reasons for liking these stores appeared to have little to do with the food available but, rather, with what they could look at and ask their parents to buy.

About three quarters of participants reported making food purchases without an adult somewhat regularly. While participants were almost all aware of the fast food restaurants within their local FE, these were not the primary source of their food purchases. Restaurants were rarely reported as places frequented without parents. Children reported that when they bought food within their neighbourhood, it was most often at stand-alone convenience stores, gas stations, pharmacies and places where ice cream was sold. Less often participants mentioned fast food establishments (particularly those that sell primarily ice cream or donuts) as places where they went to purchase food. The specific foods purchased without an adult were most often reported to be candy, slushes and ice cream.

Even when children reported living within walking distance of a full-service grocery store, candy and snack foods continued to be the foods they purchased when on their own (the only exception was when they were sent to the store by a parent to buy something in particular for a meal). Children did not use these food sources for healthy food purchasing but, instead, for the same types of purchases they made in convenience stores and, to a lesser degree, fast-food restaurants.

There were no clear differences in food sources accessed or food choices made as reported by children living in different income-level neighbourhoods. We did not ask participants if they had their own money, which would have helped contextualize some of the purchasing responses. On the basis of responses to various questions, though, the only children for whom access to money may have limited their ability to make purchases were some of the low-income neighbourhood residents. The others talked about buying various things for themselves at least once or twice, leading us to assume that they had some access.

**Theme 3 – Favourite foods and cooking**

When asked to report their favourite foods the vast majority of child participants did not report the same foods they reported buying on their own. Instead, the top five reported foods were various meats (steak and bacon in particular), pasta dishes (macaroni and cheese was common), vegetables (carrots often), fruit (berries often) and pizza. When asked which foods they specifically requested their parents to buy for them, children most often reported snack foods such as granola bars and cookies; breakfast foods such as cereals, yogurt and waffles; and some fruit, especially berries. When asked to name their favourite foods, fewer than five participants began by listing the same foods they reported purchasing on their own (ice cream in two cases and candy in two cases). A few children specifically asked if they could include any food they wanted in their response and separated out what they called “healthy” or “real” food from “junk” food:

**Interviewer:** So what are your favourite foods then?
**Child:** Favourite foods? … There’s a lot of them.

When asked why these were their favourite foods, most said that the foods they had listed “taste good”, but some children appeared to have more complex reasons for reporting particular foods, related to their role in creating a family meal:

**Child:** I really like home made macaroni and cheese and all kinds of pastas. I like grilled cheese sandwiches. I like almost all fruits. I actually like shepherd’s pie a lot and that’s honestly what I really, really like. Perogies.

**Interviewer:** … Why do you like those kinds of foods the best?
**Child:** Because for one thing I know that they’re not bad for me and that they’re just tasty in general, that they are some things that my parents can cook for the whole family and not just me and my parents have a separate meal, I like having that and that’s all I can think of.

The vast majority of the child participants reported their favourite foods as being different from their food choices when making their own purchases. Favourite foods did not appear to differ according to neighbourhood income level, although more high- and mid-income neighbourhood residents mentioned vegetables and fruit among their favourite foods.

When asked about their own roles in food preparation and grocery shopping, very few participants (only four) reported cooking meals for their family, and another five described preparing sandwiches and other simple foods for themselves on occasion. On the other hand, about a third of participants reported a desire to cook for themselves and their family, either listing specific foods or food in general. Overall, the majority of participants did not have major roles in food acquisition or preparation other than asking for certain foods when their parents shopped.

**Theme 4 – Safety concerns**

About a quarter of participants did not report going to any stores or restaurants without adults, on a regular basis, to buy food. This response was given most often by girls living in high-income neighbourhoods and boys and girls living in low-income neighbourhoods. When probed as to why they did not purchase food on their own, participants said that it was because of their parents’ concern for their safety. A 12-year-old girl who lived in a high-income neighbourhood said:

Sometimes I go by myself to the Macs, I’ll just bike there in ten minutes and because I want to get something for my sister or … for me and my friends. But usually I’ll go with someone because my parents don’t allow me really to go anywhere without a friend in case anything happens.
The children who most often reported buying food on their own were those who lived in mid-income neighbourhoods. They reported being allowed to go to gas stations and convenience stores on their own or with their friends to buy snacks: “Well, usually I get a small, like slurpee this big [showing with hands] and then we just go sit on a bench, we go to our school and drink it.” Consistent with this, the mid-income neighbourhood participants almost all walked to and from school, whereas those living in high-income neighbourhoods more often reported being driven to and from school.

Despite not specifically mentioning safety concerns, participants who did go to stores or restaurants without adults typically went with other children, both friends and older siblings. The social aspect of these trips to buy food was emphasized as they spoke about going with friends to convenience stores to buy “treats”.

**DISCUSSION AND CONCLUSIONS**

Consistent with other research on this topic, there was wide variation in what children considered to be their neighbourhood FE, but they were very aware of the places near their homes where food could be purchased. Consistent with Pearce et al. most of the children reported a preference for big box stores, but this appeared to have nothing to do with food and, rather, with being able to look at other items of interest. We argue that this preference for large format stores may, in part, be due to our participants’ alienation from food acquisition and preparation, as indicated by their reporting of minimal roles in these household tasks. These stores may have been preferred because within them the children could find items specifically intended for their use (toys for example) rather than only food, which they may have perceived as the domain of their caregivers.

Children appeared to have minimal roles in planning meals or in choosing what the family might eat and were relegated to the role of pestering their parents to buy certain foods or to looking at toys while their parents shopped. Children’s food choices are a way in which their independence is expressed, and when our participants made food purchases they most often purchased snack foods. Brembeck et al. state that children’s foodscape is dependent on adults’ foodscape, and the healthy-unhealthy discourse often means that children are viewed as victims and protected by adults regarding healthy-unhealthy food. Brembeck et al. state that this perception of vulnerability and required protection disregards children’s own agency.

Overall, we found that children living in mid-income neighbourhoods most often reported being allowed to go to stores on their own (or with others). This is consistent with research on the built environment for children and their physical activity levels also conducted in Saskatoon. In that study, families with children perceived mid-income neighbourhoods to be the safest, and children living in those neighbourhoods travelled on their own more often. Overall, we found that going to buy foods was a social activity and that children who went to buy food did so with other children. This social aspect is consistent with literature stating that social relations are an important concept in the FE as identified by children. A focus on the importance of the social aspects of eating may be a potential point of intervention in the food choices of children, whereby food preparation and tasting interventions may improve children’s choices when accessing food on their own.

While FE literature typically characterizes grocery stores as being sources of healthy food, when children in the current study accessed them they most frequently cited purchasing unhealthy snack foods. Few of the participants in the current study reported frequenting fast-food restaurants without adults (and if they did it was for pop and snacks rather than for meals). Similarly, a study of food purchases among children during the school day found that children frequented fast-food restaurants their purchases were most often snack items such as ice cream, canned drinks and chips. In that study, older children (14 years of age) were found to be purchasing more meal-based items in comparison with younger students. This highlights a key characteristic of how children in the pre-adolescent age group interact with their FE and the importance of research and interventions targeted specifically to this age group.

In a study of eighth grade girls, meals such as burgers, pizza and chicken nuggets were purchased and consumed away from home an average of almost four times per week. The next most frequently purchased items were sweet and salty snacks and beverages, similar to the snack items purchased by children in the current study. One of the differences between the cited and the current study is that, in Saskatoon, children in the eighth grade go to elementary school rather than middle school or high school, as is typical in other jurisdictions. Typically, elementary school children are not allowed to leave the schoolyard during the lunch hour; therefore, this difference may influence the freedom of the children in our study to purchase food. As children grow older they transition to a greater level of independence regarding meals and have access to more spending money.

It appears as if what are considered positive characteristics of the local FE for adults are not necessarily so for children. Regardless of the options available, the children in our study used all food sources that were available to them for unhealthy food purchasing. Interestingly, though, when participants were asked what their favourite foods were, very few listed the unhealthy snacks they chose to purchase when on their own. Instead, most chose foods that would be prepared as part of a family meal. The choice of unhealthy food when purchasing on their own could be a result of taste preference for sugary and fatty foods or an opportunity for children to exert power and control over their own food consumption, given their minimal described roles in food acquisition and consumption.

This is consistent with Curtis et al. who argue that children’s food practices can be understood as a part of their own conceptualized role and related responsibilities within a family unit. Hierarchical adult–child relations result in distinct statuses within a family, with children’s snack food practices being marginalized. Therefore, a child–adult relation in which children’s independence is fostered through active participation in family food decisions may positively influence the food choices made by the child.

Future research should focus on different age groups of children, based upon their differing levels of independence and mobility. For example, younger children (under the age of 10) are generally limited by their parents’ food choices. Older children, between 10 and 15 years, on the other hand, are developing some
independence and mobility and may be more limited by what is available in their home and school neighbourhoods as they travel on foot. Children in this age group may also have less freedom to leave their school grounds during the lunch hour and may have access to smaller amounts of money with which to buy food, resulting in only snack purchases. Once adolescents reach driving age, their FE changes once again. Each of these age groups should be studied separately in order to understand how they may interact with the FE differently. While there is some qualitative10 and quantitative research in this area,16–18 there is a need for more of both to better understand how children interact with their community and consumer nutrition environments.

**REFERENCES**


**RÉSUMÉ**

**OBJECTIFS** : Nous avons cherché à examiner comment les préadolescents et les jeunes adolescents (10–14 ans) vivant dans toutes sortes de quartiers interagissent avec leur environnement alimentaire (EA) local, en insistant sur les aliments et les sources de nourriture auxquels ils ont accès et sur leur emplacement. Les enfants de ce groupe d’âge développent leur indépendance et leur mobilité à l’intérieur (et au-delà) de leur quartier d’attache, mais ils sont un peu circonscrits géographiquement, car ils n’ont pas encore l’âge de conduire.

**MÉTHODE** : L’étude a comporté des entretiens qualitatifs avec 31 enfants (15 garçons, 16 filles) de 10–14 ans vivant à Saskatoon (Saskatchewan) dans des quartiers diversifiés sur le plan socioéconomique. Nous avons fait l’analyse thématique des entretiens.

**RÉSULTATS** : Les descriptions par les enfants de ce qui constitue l’EA de leur quartier variaient beaucoup, de quelques pâtés de maisons à plusieurs kilomètres de distance de leur domicile. Les enfants connaissaient bien les types d’établissements qui vendent des aliments dans leur quartier subjectif. Quand les enfants achetaient leurs propres aliments, ils disaient le plus souvent acheter des collations (crème glacée, bonbons, barbotines), et la majorité de ces achats étaient faits dans les dépanneurs, les stations-services et les épiceries. Peu d’enfants disaient fréquenter des rapidos-restaurants ou d’autres restaurants sans la présence d’adultes ; quand ils le faisaient, c’était habituellement pour acheter des collations comme des frites et de la crème glacée plutôt que des repas.

**CONCLUSIONS** : Nos résultats soulignent l’importance des interventions qui ciblent ce groupe d’âge, où les choix alimentaires personnels déclarés sont presque exclusivement des grignotines riches en calories, mais peu nutritives.

**MOTS CLÉS** : enfant; environnement; régime alimentaire; aliments et nutrition; consommation d’aliment