



Life stories of food agency, health, and resilience in a rapidly gentrifying urban centre: Building a multidimensional concept of food access

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ABSTRACT

Few studies examine how geographic and non-geographic elements of food access intersect. The purpose of this qualitative study is to explore the relationship between food access, food security, health, and gentrification in the rapidly gentrifying urban centre of Kitchener, Ontario, Canada. Semi-structured interviews were conducted with 20 low-income, longtime residents of Kitchener-Waterloo, and five key informants in the region. This study complicates concepts of food access that focus on density or proximity of (un)healthy food outlets and illustrates the complex decision-making processes of residents in procuring healthy, affordable, and appropriate foods. Race, equity, and food justice-based analysis also illuminate the disproportionate effects of gentrification on racialized residents, who face barriers to obtaining culturally-appropriate foods. These findings expand food access research by showing how individuals creatively cope with and adapt to changes within their food environments. To achieve a multidimensional concept of food access under conditions of gentrification, it is important to build an understanding of individuals' diverse priorities, adaptation strategies, motivations, and behaviours related to food procurement within the context of structural barriers to food security (including urban development practices and social assistance benefit levels). By supporting residents' food agency and food justice in gentrifying cities, it might be possible to develop more effective interventions to support food security and health.

1. Introduction

The world is urbanizing more rapidly than ever before, with important implications for food systems (Seto and Ramankutty, 2016). In addition, poor quality diets (which are related to food insecurity) are the leading global cause of death (Afshin et al., 2019), making the urbanization-food systems-health link important for both research and policy interventions. Gentrification, the design of urban space for wealthier in-movers, renders the needs and rights of existing residents less important or invisible (August, 2016; Hartman, 1984; Newman and Wily, 2006), and co-occurs with urbanization. Scholars and activists are beginning to examine ways in which gentrification and food systems outcomes are related (Anguelovski, 2015, 2016a; Howard, 2014; Kendall, n.d.; Ross and McAdon, 2018; Sbicca, 2018; Tam, 2015), but to date, the majority of public health research has focused on the extent to which disparities in *geographic access* (rather than economic or cultural access) exist between higher and lower-income areas (Lytle and Sokol, 2017).

The purpose of this qualitative study is to explore the relationship between food access, food security, health, and gentrification, using a case study in Canada. We ask, how do low-income residents cope with changes to food access under conditions of gentrification? To achieve a multidimensional understanding of food access under these conditions, it is critical to understand individuals' diverse priorities, adaptation strategies, motivations, and behaviours related to food procurement within the context of structural barriers to food security.

1.1. Food environments, food security, and health: an equity lens

Research on dietary determinants seeks to understand how individual and contextual determinants of food choices affect population-level dietary intake. For example, the food environment, which is "any opportunity to obtain food, such as accessibility to and availability of food stores, as well as marketing and advertising of food and food products", may constrain individual dietary behaviours (Minaker et al., 2016; Le et al., 2016, p. eS42). The most common method for describing food

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environments is the use of Geographical Information Systems (GIS) to map out “healthy” and “unhealthy” food destinations in a given spatial context (Lytle, 2017; McInerney et al., 2016; Minaker et al., 2016). In urban Canada, deprived areas exhibit higher geographic access to “unhealthy” food outlets compared to less deprived areas: a phenomenon known as a “food swamp” (Minaker et al., 2016).

Food insecurity is another major food-health issue. Structural issues of poverty, racism, and community divestment are among the root causes of food insecurity (Anguelovski, 2015; Siegner et al., 2018; Tarasuk et al., 2019). In Canada, the probability and severity of household food insecurity is closely tied to place of residence, household income, income source, housing tenure, education, Aboriginal status, and household structure (Tarasuk et al., 2019). Household ownership and income are key predictors for household food insecurity status, and largely determine one’s capacity to handle negative income shocks (Tarasuk et al., 2019). Moreover, higher vulnerability to food insecurity has been disproportionately felt by Indigenous populations and households dependent on social assistance (Agyeman et al., 2016; Skinner, 2014; Tarasuk et al., 2019; Willows et al., 2009).

While poor nutrition and food insecurity are experienced at an individual or household level, spatial considerations are also important. For example, a common environmental policy solution aimed at ‘fixing’ poor diets is the opening of healthier food retail in underserved neighbourhoods (Engler-Stringer et al., 2019). Paradoxically, this process might indicate that other signs of neighbourhood gentrification are on their way, urging reflection from the lens of environmental justice. Critical urban scholars have noted that opening supermarkets in deprived areas can actually exacerbate gentrification, social exclusion, and displacement (Anguelovski, 2016a, 2016b; Bunce, 2017; Hubbard, 2017; Sullivan, 2014).

As noted above, food access is not merely geographical in nature, even though measures of geographic food access (e.g., density of or proximity to various retail food sources) have dominated the field of food environment research to date (Lytle and Sokol, 2017). The prominent *food desert* metaphor (regions with poor or non-existent geographic access to food retailers that provide affordable and nutritious foods) has been critiqued as problematic, given its overemphasis on the spatial dimension of access and a lack of consideration given to social and economic dimensions of food access (Widener, 2018). A more nuanced understanding of food access includes multiple material and social dimensions, including availability, accessibility, affordability, acceptability, and accommodation (Charreire et al., 2010; Widener, 2018). In light of these considerations, the term *food mirage* has been coined to describe a scenario in which healthy foods are geographically available but inaccessible due to socioeconomic barriers (Breyer and Voss-Andreae, 2013; Sullivan, 2014). Food mirages can thus obscure the exclusion of low-income or otherwise marginalized residents from procuring healthy foods by invisibilizing the non-geographic dimensions of food access (Sullivan, 2014). Moreover, the emergence and existence of food mirages is linked to gentrification: as urban amenities (including higher-cost supermarkets) cluster to serve increasingly affluent populations in gentrifying areas, nutritious food becomes increasingly out of reach for the lower-income people left behind (Breyer and Voss-Andreae, 2013).

1.2. Gentrification, food justice, and food gentrification

While theories on gentrification are numerous, they share the perspective that gentrification is a complex and deliberate phenomenon intended to change the urban environment, and typically results in the in-moving of wealthier populations who displace existing vulnerable residents (Anguelovski, 2016; Ding et al., 2016; Takahashi, 2017). In this study, we draw on work by Alkon and Cadji (2018), and Kern (2016), given our interest in the place-altering effects of larger redevelopment activities as well as seemingly mundane processes that foster symbolic change within a city. Alkon and Cadji (2018) offer a concept of

gentrification that unites environmental justice with critical race theory, describing it as a racialized process, which predicated on previous divestment from an urban core, the devastation of segregated neighbourhoods, and the displacement of people of colour (POC) by more affluent white residents. The loss of neighbourhood organizations and retailers that serve marginalized communities is also typical (Alkon and Cadji, 2018; Hackworth, 2002).

Kern (2016) describes gentrification as the “restructuring of neighbourhood rhythms around consumption-oriented and place-making events”, which involves recreating the social and symbolic boundaries of lived spaces (p. 442). Powerful people and systems imprint new rhythms through branded events, such as street festivals and fresh food events, which progressively reshape a neighbourhood’s identity. Through policy, surveillance, social exclusion, racism, and displacement, certain lives are potentially rendered *arrhythmic* (Kern, 2016). This arrhythmia (rhythms suppressed or made discordant) is problematic in that the erasure of people and their livelihoods can play out incrementally and seemingly uneventfully. Without critical reflection, the “slow violence” of gentrification might not appear to be violence at all, the result being the masking of chronic urban inequality (Kern, 2016; Massey, 2019). Gentrification is thus a highly unequal process that discriminates across gendered, racial, and other socioeconomic lines.

Food justice is a widely-used term in food movement scholarship and activism (Cadieux and Slocum, 2015). Food justice work tends to organize around: *trauma/inequity* (including the explicit recognition of 1) structural relations of power to confront race, class, and gender privilege, and 2) historical and collective traumas), *exchange* (fostering new mechanisms to build communal reliance and control), *land* (innovation in land use, ownership and management to promote equity), and *labour* (fair compensation and protection for all labour), and has been described as a feminist, anti-racist, and anti-colonial approach (Cadieux and Slocum, 2015). While Alkon and Cadji (2018) have criticized food justice movements for being spokes in the wheel of green gentrification, the presented concept of gentrification (as having roots in environmental justice and critical race theory) aligns well with food justice as conceived by Cadieux and Slocum (2015).

There is also a growing body of research that aims to address the adverse effects of community change in relation to food. The term *food gentrification* was coined by Chicago-based scholar and activist Mikki Kendall, to describe a process of “elevating” previously affordable foods or staple ingredients to a condition of higher symbolic or aesthetic value and cost, especially for racialized communities (Howard, 2014; Ross and McAdon, 2018). A number of racialized writers in the US have noted that foodies treat “ethnic” foods like a form of “discounted tourism”, while immigrants have experienced shame for their food choices and Black communities have specifically been villainized for causing the country’s health woes (Anguelovski, 2015, 2016a; Howard, 2014; Kendall, n.d.; Ross and McAdon, 2018; Tam, 2015).

This study therefore employs a malleable concept of food gentrification, which is inclusive of multi-directional relationships between food access, food justice, and gentrification. As Sbicca (2018) describes, low-income communities “can experience the deleterious effects of food driving gentrification” when alternative food initiatives (AFIs) increase property prices and attract new residents to a neighbourhood (p. 1). On the other hand, cultural foods can themselves be gentrified, when once-affordable foods become upscaled and made out of reach for racial and ethnic minorities (Howard, 2018; Ross and McAdon, 2018; Sbicca, 2018). This relationship is ultimately dependent on a neighbourhood’s class and ethnoracial characteristics, foodscapes, housing conditions, policy, and broader economic factors (Sbicca, 2018).

This qualitative study explores the relationship between food access, food security, health, and gentrification, using a case study in Canada. It extends the primarily US literature showing that green amenities can create the conditions for feelings of erasure, aggravated inner city conflicts, and socioeconomic changes (Agyeman et al., 2016; Anguelovski,

2016b; Braswell, 2018; Kern, 2015; Dooling, 2012). Interviews address how individuals cope and adapt within their consumer nutrition environments, in the context of rapid gentrification and low incomes. By supporting food justice for low-income, longtime residents, it may be possible to explore culturally-appropriate interventions in relation to food security.

Setting. Waterloo Region is a midsized, upper-tier municipality, comprised of three urban and four rural municipalities, located in southern Ontario, Canada, and is within 200 miles (320 km) of Toronto, Buffalo, and Detroit. The City of Kitchener is the largest urban municipality in Waterloo Region. Kitchener has experienced rapid urban change due to a local planning mandate for a post-industrial economy, with an increased focus on high-tech and knowledge industries, transit redevelopment, growing sustainability efforts and other broad political forces affecting in-migration (City of Kitchener, 2014). In addition, Regional Council approved plans for a light rail transit (LRT) system in 2011, which caused massive urban development and investment (e.g., construction of apartment buildings and condo towers) around proposed transit stops throughout Kitchener. The LRT, which has been criticized for causing gentrification in the Region (Thompson, 2020), began running in 2019. A recent qualitative study conducted in Kitchener found evidence of existing and ongoing gentrification processes at work in these cities, in part due to the LRT and associated infrastructure and housing investments (Ellis-Young and Doucet, 2021). Kitchener is currently home to over 240,000 residents, and the Downtown is forecasted to grow by 18,400 people and jobs by 2031 (Allen and Campsie, 2013). Given both the projected population growth and the ongoing gentrification, the socioeconomic and ethno-racial composition of Waterloo Region is also relevant. As one of nine designated refugee resettlement communities in Ontario, the number of permanent resident landings has grown significantly over the years (Folkema and Vandebelt, 2019). The most recent census indicates that 60,425 residents (26%) identify as immigrants, 17,150 residents (7%) have refugee status, and 50,200 (22%) individuals identify as visible minorities (Statistics Canada, 2017). Based on common measures of low-income in the most recent census, 14% (31,450) of the population in private households are classified as low-income in the City of Kitchener based on the LIM-AT (50% of median-adjusted after-tax income of private households) (Statistics Canada, 2017). Approximately 10% of households in Waterloo Region are considered food insecure (Region of Waterloo, 2019). Finally, in terms of local food policy and promotion, Waterloo Region was one of the first municipalities in Canada to produce a “Buy Local! Buy Fresh!” map showing residents where local food can be found (Contini, 2011), and was also one of the first municipalities in Canada to include language related to healthy, local food access for residents in its Regional Official Plan (comparable to the “comprehensive plan” in the United States) (Minaker et al., 2011).

2. Methodology

2.1. Positionality statement

The lead researcher and author was responsible for the development and implementation of the research. Their research is inevitably influenced by their identity as a queer Teochew-Chinese-Vietnamese-Canadian woman. They are a second-generation immigrant and settler, living and working in Kitchener, Ontario, on the traditional territories of the Attawandaron, Anishnaabeg, and Haudenosaunee peoples. They live on a low income, working in the field of social services and have also founded a small not-for-profit focused on food justice. They recognize that there are deep complexities in conducting food justice work on stolen lands, and are constantly learning to be self-reflexive in their activism.

2.2. Research strategies and data collection

This study is grounded in theories of critical consciousness, environmental justice, and food justice, to facilitate an understanding of reflective action, sociospatial equity concerns, and personal stories related to food. Data were collected using in-depth interviews with low-income longtime residents of Kitchener, the primary population, and with key informants in the Region, the secondary population. Non-governmental organizations and public government offices were contacted in person to assist in recruiting low-income, long-time residents of Kitchener for this study. The chosen organizations play a role in food provision, community-building, employment, supportive housing, and provision of key social services in Kitchener. A recruitment strategy was developed to target a diverse set of organizations that fall under these categories. Primary participants were required to be adults (age 18+), who self-identify as low-income, and have resided in Kitchener for a minimum of five years. Participants were recruited primarily through posters displayed at food outlets, social services, and community organizations, and through snowball sampling. Snowball sampling is a method to identify new participants through current participant networks (Heckathorn, 2011; Noy, 2008; Kirchner and Charles, 2018).

Semi-structured interviews were an appropriate method for collecting data from this traditionally marginalized population, as trust could be built through face-to-face interactions and the exchange of stories (Harrison et al., 2001). An interview guide was developed to gather participant characteristics and to allow participants to venture into various relevant topics. Participants were invited to select their own pseudonym, then responded to a sociodemographic survey and the widely-used 18-item CCHS Household Food Security Survey Module (HFSSM) to determine household food security status (Government of Canada, 2012). Open-ended questions encouraged discussion around food environments, health, food places, community change, and other reflections. The interview concluded by remunerating the participant with \$20 and asking whether they would like to receive the study results.

Based on the data collected from the resident interviews, key informants from various organizations in Kitchener were also contacted to provide input on the study. Key informants were included in this study as “gatekeepers” of social or economic goods and services for people on low incomes because we wanted to explore their perspectives on how urban changes had affected their clients. We aimed to use these experiences and views to suggest workable strategies for addressing issues related to food insecurity and gentrification in Downtown Kitchener. We were also interested in comparing and contrasting key informant interview findings with views of the primary population (who has experience with low income and food insecurity) as a way to address institutional gaps in local food security approaches and policies. A six-question interview was conducted with two social service providers, an urban agriculture manager, an owner of a local food store, and an executive director of a planning/advocacy organization. The studies were approved by a research ethics board at the University of Waterloo, ORE#40480.

2.3. Data analysis

During interviews, audio recordings were transcribed automatically using *Otter* software (Otter, version 2.0; Los Altos, CA: Otter.ai, 2019). Text files were uploaded to a computer for manual revisions, preparing the data for a constructionist narrative analysis. This analysis involved an incremental coding process, both by hand and using *Dovetail* software (Dovetail, version 1.0; Dovetail Research Pty. Ltd., 2017). Through open coding, the first step was to collect similar ideas across the interview data. Each transcript was read fully, and concepts of importance were highlighted in one colour. As more transcripts were read and highlighted, high-level themes were developed based on observed commonalities (Haselden, 2003; Howse, 2018; Mohamedally and Zaphiris,

2009). Themes were then refined through a method called axial coding, allowing for further theme development and creation of more specific sub-themes. Definitions were given to the themes to roughly establish how a theme might be applied to the twenty transcripts. A colour coding exercise was then conducted by hand, using different colours to assign phrases or paragraph sections to one or more themes (Skinner, 2013). Data and codes were imported into *Dovetail* for focused coding, which involved revising the code assignment and finalizing codes prior to an interrater reliability exercise.

To test the validity of the codes developed, the first and senior author conducted an interrater reliability exercise. Reliability was measured as percent agreement among the raters, utilizing a matrix for measuring scores across the different variables. Percent agreement was the percentage of coding decisions made by pairs of coders on which the coders agree (Lombard et al., 2002). This exercise specifically looks at words/phrases that have been highlighted mutualistically, applying a value of one for using one or more common codes (perfect agreement) or zero for no agreement. After the senior author analyzed four (25%) of the transcripts through hand-coding, an average percent agreement of 83% was established. Any points of disagreement were assessed to further refine the transcript codes via consensus.

3. Results

3.1. Participant sample

Interviews took place from March to May 2019 at various locations requested by participants, including coffee shops, public libraries, community centres, or participants' homes. The study invited 25 respondents (n = 20 primary population and n = 5 key informants) to speak on the research topic, with characteristics of the primary population shown in Table 1. According to participant responses to the Canadian HFSSM, 85% (n = 17) of residents were food insecure, with 35% (n = 7) of adults being classified as "moderately" food insecure and 50% (n = 10) facing severe food insecurity. Three residents were classified as

food secure. In the two households with children, the children were classified as moderately food insecure in both cases.

3.2. Interview data

For each quote presented below, the participant's pseudonym, visible minority status, age, gender, and food security status are presented. We begin by presenting findings related to food access and how participants selected food sources. We then describe participant experiences with gentrification (and food gentrification in particular) in Kitchener. This section concludes with participants' experiences with coping strategies, and identifies additional barriers that make coping exceptionally difficult and may reflect structural damages associated with current development practice.

1. Food Access and Selection of Food Sources

Price. Almost all (90%) participants in this study stated that price was a primary factor affecting their food destination selection (which included a mixture of supermarkets, discount stores, meal programs, food banks, charitable programs, and community kitchens). In some cases, residents compromised food quality and personal morals, in order to procure affordable food:

In the summer I go up to the farmers' market to get stuff because it's really fresh, but the winter unfortunately I go to [corporate grocer] because it's really cheap. But I hate [corporate grocer], they destroyed a lot of small businesses ... And now I feed this multi-billionaire monster with my income, I hate it. — Iván, white male, age 51–64, severely food insecure

Beyond a simplistic understanding of food cost, six participants commented on the importance of shopping at locations with a reasonable "price-to-quality ratio" and would actively seek out what they perceived to be the best quality food at a fair price (or for free). Participants reported purchasing the "best-value" food that is suited to their needs by reading labels at unconventional food outlets (e.g. dollar stores) and strategizing within social service environments.

Location. Touching on the geographic aspects of food accessibility, nine participants (45%) included accessibility by active transit (bike, walking, bus) as a secondary factor for place selection. For six participants (30%), location was a primary factor for choosing their most regular food destinations, in addition to price, and for two participants (10%), geography was a key factor due to physical disabilities. For example, Charlene, who depended on a personal vehicle for mobility, said:

Usually I get food from [charitable food provider], and if there's nothing there, then ... I come here to eat. And sometimes their meals are very poor ... I cannot always go where I would like to go, like the soup kitchen, it'd be further downtown and it would cost me too much gas money to go there, since I cannot take buses. — Charlene, white female in her 40s, severely food insecure

Three residents (15%) also prioritized factors of locational convenience more broadly, including proximity to other essential services and travel routes that match up with their regular daily activities.

Social Environment. Five residents (25%) reported being attentive to the social environment in their chosen food stores. Residents noted that they appreciate the level of care and attention received at certain independent grocers, connecting with vendors at food markets, and even maintaining anonymity at discount stores. Quotes from some participants revealed an overlap between a store's food prices and the social environment, where discount supermarkets or dollar stores felt more welcoming because of the type of clientele they attracted:

Where I'm shopping, most other people are ... in a lower socioeconomic group, so ... I don't feel out of place ... it's just ... anonymous

Table 1

Descriptive statistics of the primary population: low-income, long-time residents of Kitchener, Ontario, 2019 (N = 20).

Characteristic	N (%)
Gender	
Female	8 (40)
Male	12 (60)
Age	
18–28	0 (0)
29–39	2 (10)
40–50	7 (35)
51–64	9 (45)
65+	2 (10)
Education	
Elementary school	0 (0)
High school diploma or equivalent	6 (30)
Post-secondary degree	13 (65)
Graduate degree	1 (5)
Household size	
One person	10 (50)
Two people	7 (35)
Three or more people	3 (15)
Visible minority status	
Visible minority	6 (30)
Not a visible minority	14 (70)
Years residing in Kitchener-Waterloo	
Five to nine years	6 (30)
10–14 years	0 (0)
15–19 years	2 (10)
20 or more years	12 (60)
Household Food Security Status	
Severely food insecure	10 (50)
Moderately food insecure	7 (35)
Food secure	3 (15)

in there as opposed to, like, I would never shop at a [higher-end supermarket] because their prices are way higher. — John, white male, senior citizen, moderately food insecure

Cultural Food Availability. Five of six participants who were visible minorities discussed sacrificing some of their traditional foods and ways of cooking due to food insecurity. Three of the six further commented on the higher cost of culturally-appropriate foods. For these three residents, the availability of specific cultural ingredients was the number one factor for place selection. For example, Samuel shared that while he tried to maintain a traditional diet, he and his family must supplement with Western foods, which are more affordable and widely available:

Most of the time [we] eat African food, but ... North African food, they are so expensive. You cannot rely on African food, sometimes supplement with normal stuff from the store ... It's like every year prices they are goes up ... but I cannot do without this so you have to buy. — Samuel, visible minority: African, male, age 51–64, severely food insecure

2. Gentrification and Food Gentrification in Kitchener

Most participants (85%) recognized a noticeable increase in food prices in the region. Several residents perceived that increases in food costs were pronounced in this region specifically, and made connections to how the influx of higher income in-movers (i.e. gentrification) might affect the food environment. The primary experiences of food gentrification were related to: redevelopment, housing pressures, a loss of food charity, and “authentic foods” becoming increasingly out of reach.

Redevelopment. When asked to reflect on any changes to food places within the community, nine residents (45%) discussed notable price changes after a local supermarket changed ownership. The construction of new buildings and transit systems (both of which can lead to gentrification) were also seen as increasing food costs:

[The independent grocery store has] been battered because of all the LRT construction. The prices have definitely gone up in certain areas, however, they're still staying true to their roots ... There had to be changes because they're fighting for survival, you know, through all this distress. — Diane, white female, age 51–64, food secure

Redevelopment, food insecurity, and food safety were also intricately but indirectly woven together, as demonstrated in the following quote.

I've seen like when you go into pizza places, and you eat some of the pizza that you dumpster dive for, and you get sick because there is rat poison on it. They just don't tell you that ... So what are you supposed to do because the city's overrun with rats because of all the construction that has been happening. Soon as you disturb the ground, rats come out. It's like having an earthquake. — Charlene, white female in her 40s, severely food insecure.

In this case, redevelopment (in particular, construction related to the LRT and associated urban development) affected rat habitats, which led to the infestation of restaurant dumpsters and restaurateurs using rat poison on foods that people might try to procure due to food insecurity.

Housing Pressure. As noted above, one of the key features of gentrification is housing pressure and displacement faced by lower-income populations. Due to housing pressures, including a shared housing situation, Charlene had to find low-cost appliances and simple cooking preparation methods to nourish herself. She sometimes sought out a public location where she might be able to prepare foods for herself:

I just have a rice cooker ... but I've been cut off that too because of the cost of electricity ... A rice cooker goes very fast, like by the time you start a meal on a stove I'm already done making it and it's still

not good enough ... [it] only takes about four amps compared to what a stove takes, so it's much cheaper and faster. — Charlene, white female in her 40s, severely food insecure

Food Charity Loss. Robert expressed concerns about how gentrification might affect traditional food charity locations, and how the displacement of affordable food opportunities is not being adequately addressed:

As the gentrification of the Downtown is occurring, we're losing churches which is one of the primary sources of food ... [Social service program] is a collection of churches ... A couple have dropped out ... The Downtown Kitchener ones were very heavily utilized ... As the food opportunities locate further ... it's becoming more of a burden to have your food security ... If you're an individual who's dealing with addiction and mental health issues, and you're pulling everything in a two wheel cart ... do you have the capability to secure the food even if it's available? — Robert, white male in his 40s, moderately food insecure

With changes to food prices, the closure of affordable food outlets, and relocation of food charities to outside of the downtown core, some participants reported buying certain groceries at regular price, and also suggested that food bank usage might be on the rise in turn. For example, because Thomas witnessed a notable increase in food prices of the traditional African foods that comprised a substantial part of his diet, he began to rely more heavily on a charitable food program in the region.

Authentic Foods. A number of participants also reflected on memories of their childhood food environments and how foods have changed during their time in this region. For six residents (30%), there had been a notable shift in the marketing of previously affordable foods. Residents shared how stewing beef, oxtail, lard, canned bully beef, local milk, and cheeses were once “cheap” foods or at least within financial reach. Johnston and Baumann (2009) describe these as “authentic foods” that can be used to create distinctions and reinforce social boundaries. For example, Jane discussed the dramatic shift in the aesthetic and meaning attached to localism in her lifetime:

Peter Etril Snyder, [a well-known local painter] used to take care of the horses there that pulled the wagons that delivered the milk ... So it wasn't a choice ... you bought it from the local dairies because there wasn't anything else. We used to go to my grandmother's and there were creameries all along the way where you bought cheese ... [but] they were just people making a living. And now it's artisanal. — Jane, white female, age 51–64, moderately food insecure

3. Coping strategies

Participants met their food needs by actively navigating their environments, and were highly knowledgeable about their community and consumer food environments, understanding when and how often they could get food from charitable resources, available healthy options within unconventional food outlets, pricing structures of stores, and promotions. Reported coping strategies reveal the complex and multi-dimensional ways in which participants understood food access. Participants seemed to carry rapidly changing place-based knowledge, demonstrating resourcefulness through researching flyers, using rain check (a voucher provided to purchase an out of stock item at the current sale price, at a later date), price matching, asking for healthy food options at charitable programs, and even physically moving between stores during a single grocery trip to find the best prices. Rain checking was cited as an important tool because low prices on groceries could be secured without paying upfront. Through price matching, residents could use flyers and phone applications to seek out low prices while still going to geographically accessible stores. Although participants must

dedicate significant mental and time resources to procure food, they demonstrated skill in seeking out low-cost food and accommodating transient income resources.

For 15 residents (75%) it was also necessary to participate in stigmatized and potentially dangerous behaviours to procure foods, such as selecting seconds (e.g. discounted, donated, or end-of-market produce) or even food waste within the neighbourhood, at grocery stores, and within charitable programs. These experiences were wide ranging and included a participant getting sick from “dumpster diving” as well as using seconds to prepare healthy foods affordably. Of particular importance in a mid-sized city context, and challenging the traditional geography of a “personal food environment”, Thomas discussed his commute to Toronto to procure a greater variety of affordable African foods:

Even those who are working and are able to buy, we don't have all the variety around. Might want to go to like Toronto, they have more variety ... it's like the kind of meat we eat, you have cow skin, you have cow legs, and all this is shipped in from Toronto ... The [local African food store] ... they get it they sell it at almost double what they buy in Toronto. — Thomas, visible minority: African, male, age 51–64, severely food insecure

Participants' resourcefulness was also demonstrated through practices of food sharing and exchange to supplement their food needs. In addition, half (50%) of participants procured food at least two times per week in ways that often aligned with available promotions or charitable resources:

It's a little hard because I bus. I no longer own a car ... You can find ways to get really good food that doesn't cost you know a whole lot ... That's why I'll go like, you know, sometimes two times a week to get a tiny bit. — Veronica, white female in her 40s, moderately food insecure

Finally, 17 participants (85%) shared stories that demonstrated their knowledge, skills, and creativity in preparing and cooking foods for themselves and their families. Notable barriers to acquiring and preparing healthy foods included insufficient or unstable income, food storage challenges, and eating healthily while maintaining a busy lifestyle. In the face of housing affordability concerns and rising food costs, residents reported adapting their cooking and food preparation through methods like bulk meal preparation, aiming for simplicity in meals with affordable and reliable supplies, and even reinventing cultural foods creatively and affordably:

I used to work on the burger line, it's ground meat ... not processed ... If it's frozen, let it be ... soft and then you could do your own cooking. So from that burger, you're making ground meat ... Then you can use it with rice, you can use it with potatoes ... I reinvented my cooking here with the option that [the food bank] gave. — Josie, visible minority: Latin American, female in her 40s, moderately food insecure

Of note, the resourcefulness demonstrated by participants in procuring nourishing foods stood in stark contrast to the perception of a local meal program director, Kim, as to why low-income people might have poorer diets:

There's been a loss ... of how to cook foods for yourself versus getting access to convenient food and then turning on your microwave or oven ... I think that one of the things that would be really helpful is to make accessible some basic cooking classes for people that are low-income ... to just educate people in those ways. — Kim, key informant: meal program director

Inadequate Income to Support Healthy Diets. Despite the creative and complex ways in which participants reported coping with low income, food access challenges, and the gentrifying food landscape, they

also reported additional structural barriers that make coping exceptionally difficult. Participants in this study had varying experiences with procuring food to meet their personal preferences and health needs. Eight food insecure residents noted that in spite of best efforts to accommodate food quality and personal food preferences, they would at times sacrifice nutritional quality to procure free food or food at a discount. Six of these residents commented on the sacrifices made to their diet quality in utilizing social services such as food banks and meal programs:

I'm on the autism spectrum and the specialist in that area recommended that I eliminate pasta, bread, a whole bunch of things ... If I were to get what she was suggesting I get, it would quadruple my budget and require so much work for me. — John, white male, senior citizen, moderately food insecure

You know what happened if you rely on food bank ... it's not balanced diet ... Processed food actually puts you more weight ... and I decided to eat that instead of giving to my child. I use the money to buy fruit and veggies for him ... People with low income ... they're going to get sick, and they don't have the money for the medication ... it's gonna be a cycle of problem in there. — Josie, visible minority: Latin American, female in her 40s, moderately food insecure.

Regular charitable meal program attendee, Charlene, also shared how she learned to strategize around procuring food in the program, in spite of potential health hazards:

I do a nasty thing here too is like somebody else leaves a plate of food behind, I ask 'em for it ... It might be contaminated. And I don't care if it's contaminated because I'm used to eating that already. — Charlene, white female in her 40s, severely food insecure

Food Insecurity and Mental Health. Inadequate income, employment, or housing affordability was explicitly discussed as a source of concern for seven residents (35%), which for some placed stress on their food budget and increased their reliance on charitable food programs. Participants also discussed a reciprocal relationship between mental health and food, as illustrated in the following two quotes. Karen noted how her mental health influenced her diet:

I get depressed ... And then I go and start eating like not healthy. And also when you're stressed, you're not looking after yourself properly. So ... even if you're knowledgeable [of healthy food sources] it doesn't always help. — Karen, white female in her 40s, severely food insecure

For Thomas, eating well and eating culturally appropriate foods was explicitly linked to his subjective concept of health:

Once you cook ... to your taste, you are psychologically satisfied you are eating well ... Is that not part of health? So you get satisfaction from it, and that is what is called good living. — Thomas, visible minority: African, male, age 51–64, severely food insecure

3.3. Discussion and future directions

This study explored relationships between food access, food security, health and gentrification in a rapidly changing urban centre in Canada. To our knowledge, it is one of the first Canadian studies to provide evidence of food gentrification. Our study captured experiences *both* of residents who have experienced displacement due to gentrification as well as those who have been left behind in gentrifying areas. One key objective was to describe life stories of individuals who had been navigating a rapidly changing food environment, to demonstrate patterns in their experiences and the power of their food agency within the structural contexts of low incomes and gentrification. Major findings are discussed in detail below.

First, taken together, longtime residents' reflections suggest that

food gentrification is happening in Downtown Kitchener, and is happening (at least in part) in response to gentrification processes. In particular, redevelopment, housing pressures, and a loss of food charities were identified as avenues for food gentrification that were directly related to gentrification. While residents recognized that food costs rise over time, many perceived that costs are pronounced in this region specifically. As noted in prior research, the arrival of high-cost grocers can signal a region's "readiness" of traditionally disinvested neighbourhoods for further redevelopment (Anguelovski, 2016; Cohen, 2018). In this study, participants made connections to how higher-income in-movers are influencing the food environment, expressing worry that ongoing changes to essential goods and amenities will lead to the erasure of their personal needs and livelihoods. Moreover, participants reported that with gentrification came the displacement of not only lower-income people, but also of their key services and food charities. This was particularly problematic for participants who were still living in gentrifying areas, as illustrated in a quote by Robert, who reflected on the relocation of food charities outside of the geographically accessible downtown area. These findings align with other research indicating that high-cost food retailers in marginalized neighbourhoods can also out-compete existing food businesses, force retailers to adjust amenities and products to accommodate wealthier customers, or prompt economic burdens for small-business owners through soaring rental prices (Cohen, 2018; Meltzer, 2016; Sbicca, 2018; Takahashi, 2017).

In line with Kendall's discussion of "food being gentrified", multiple participants also problematized the symbolic elevation of once-affordable foods (Howard, 2014; Ross and McAdon, 2018). Many of these once-affordable foods could be considered "authentic foods" – simple foods with geographic and historical roots (now "artisanal" foods, according to one participant), the consumption of which can serve to create distinctions and reinforce social boundaries and inequities (Johnston and Baumann, 2009). These findings suggest that further action on food justice and equitable food systems planning is needed, by enhancing recognition, capabilities, and participation of different groups. In the midst of rapid city change, it is important to address how social and built environments might support cultural continuity and healthy community functioning in an inclusive and equitable way (American Planning Association, 2019).

Second, all participants felt the pressure of rapid urban change in relation to managing their food needs and health. Within the structural context of gentrification, participants showed extraordinary resourcefulness in procuring and cooking food for themselves and their families, even to the point of participating in stigmatized (and sometimes dangerous) behaviours (relying on food charity or dumpster diving) to procure food. Participants carried valuable and rapidly-changing (due to gentrification) place-based knowledge and navigated their food environments to support their food needs through deal hunting, frequent shopping, and social networks. Participants reported strategizing within diverse food venues in order to get suitable foods. In terms of selecting suitable food sources, participants reported the importance of considering price in addition to perceived "value", geographic accessibility, and the social environment of the food source (e.g., would they feel safe and respected?). These experiences of resourcefulness, resilience, and complex food procurement and preparation patterns stood in stark contrast to one key informant's perception that low-income people need basic cooking classes and more education. Given that poverty, racism, and community divestment are among the root causes of food insecurity (Anguelovski, 2015; Siegner et al., 2018; Tarasuk et al., 2019), education and food skills training will not adequately ameliorate detrimental impacts of food insecurity. These findings contribute to both research and practice. Specifically, in line with other research criticizing the *food desert* concept (Charreire, 2010; Widener, 2018), the complex and multi-dimensional relationships between food gentrification, food access, and food insecurity suggest that the common practice of only measuring geographic food access in food environment research (Lytle

and Sokol, 2017) does not adequately characterize people's access to food, particularly for residents living on low-incomes. Second, in terms of urban planning practice, these findings also complicate municipal actions to address equity through the geographic distribution of food stores, such as Kitchener's Official Plan policy (15.D.1.5) to ensure residents have access to a food store within 1 km of their residence (City of Kitchener, 2014).

Finally, despite participants' demonstrated creativity and resourcefulness in procuring food, structural barriers due to both gentrification processes and insufficient social safety nets made procuring acceptable, sufficient, and nutritious food impossible for most participants. Acknowledging the high level of person-to-person variation in experiences of food insecurity, food access, and food gentrification, structural interventions to improve food access and food security could be undertaken immediately, given that food insecurity among households receiving social assistance in Canada is largely a function of benefit levels (Tarasuk et al., 2019) and planning policies to mitigate negative impacts associated with gentrification have been published (American Planning Association, 2019).

Data from this study were exploratory, in-depth, and subjective in nature; accordingly, these findings are not necessarily transferable to other populations. For example, definitions of health, cooking ability, and diet quality were all based on participant perceptions. In the future, more sensitive tools to provide a dietary assessment of specific population groups might be valuable, to more precisely identify dietary responses to changing social services and food retail options (Desjardins, 2010). Further, gentrification is a racialized process (Alkon and Cadji, 2018). Unfortunately, only six participants in the current study identified as visible minorities, and there is thus room for future research on how food gentrification is experienced by racialized people in Canada. Despite these limitations, this study has shown the importance of recognizing how gentrification affects food behaviours. These life stories should indicate to public health practitioners, planners, and policy-makers that complex interventions addressing basic income, affordable housing, and the built environment are needed to address food access more holistically. Future studies might consider developing a conceptual framework around food gentrification, which can serve as a critical lens on urban food security. By uniting a range of issues related to environmental justice, cultural resilience, urban health equity, and food justice, food gentrification can help to assess how people are responding to changes in other urban food environments, and to tailor solutions to local needs.

Author contributions

Vanessa Ong: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft, Project administration. Kelly Skinner: Methodology, Writing – review & editing. Leia M. Minaker: Conceptualization, Methodology, Formal analysis, Writing – review & editing, Supervision.

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