Supporting food security for Indigenous families through the restoration of Indigenous foodways

Chantelle Richmond 🅳
Department of Geography and Environment, Western University

Rachel Bezner Kerr 🅳
Department of Global Development, Cornell University

Hannah Neufeld 🅳
Family Relations and Applied Nutrition, University of Waterloo

Marylynn Steckley
Arthur Kroeger College, Carleton University

Kathi Wilson 🅳
Department of Geography, University of Toronto (Mississauga)

Brian Dokis
The Southwest Ontario Aboriginal Health Access Centre

Key Messages

- This community-based research examined determinants of Indigenous food security with First Nation mothers from urban and reserve-based contexts.
- While income formed the most significant determinant of food security, mothers identified culturally and geographically unique food security challenges.
- Resolving Indigenous food insecurity will require a range of economic *and* culturally specific interventions, particularly those focused on revitalizing Indigenous foodways.

Indigenous families are overrepresented among those within Canada who experience food insecurity. Studies have largely focused on northern populations, with less attention paid to southern and urban communities, including the social, cultural, and geographic processes that challenge food security. In this study, we present findings from a decade-long community-based study with the Southwest Ontario Aboriginal Health Access Centre (London, Ontario) to examine family perspectives related to the social determinants of food security. These topics were explored through qualitative interviews (n = 25) and focus groups (n = 2) with First Nation mothers with young children from the city of London, and a nearby reserve community. Interviewees from both

Correspondence to / Adresse de correspondance: Chantelle Richmond, Department of Geography and Environment, Western University, 1151 Richmond Street, London, ON N6A 3K7. Email/Courriel: chantelle.richmond@uwo.ca

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geographies identified a number of socio-economic challenges including household income and transportation. However, some interviewees also shed light on barriers to healthy eating unique to these Indigenous contexts including access issues such as a lack of grocery stores on-reserve; loss of knowledge related to the utilization of traditional foods; and the erosion of community, familial, and social supports. Resolving these unique determinants of food security for urban and reserve-based First Nation families will require a range of economic and culturally specific interventions, particularly those that support development and uptake of Indigenous foodways.

Keywords: Indigenous foodways, food security, determinants of Indigenous health, community-based research, geographies of Indigenous health

Appuyer la sécurité alimentaire des familles autochtones à travers l'alimentation traditionnelle autochtone

Les familles autochtones sont surreprésentées parmi celles qui, au sein du Canada, connaissent l'insécurité alimentaire. Les études sur le sujet se sont largement concentrées sur les populations nordiques, portant ainsi moins attention aux communautés méridionales et urbaines, notamment en matière de processus sociaux, culturels et géographiques remettant en question la sécurité alimentaire. À l'intérieur de cette étude, nous présentons les conclusions d'une recherche communautaire s'étendant sur une décennie qui a été réalisée en collaboration avec le Centre autochtone d'accès aux soins de santé du sud-ouest de l'Ontario (London, Ontario). Cette recherche visait à examiner les points de vue des familles reliés aux déterminants sociaux de la sécurité alimentaire. Ces déterminants ont été analysés au moyen d'entrevues qualitatives (n=25) et de groupes de discussion (n=2) avec des mères de Premières Nations ayant de jeunes enfants à London et dans une réserve avoisinante. Les entrevues ont permis de recenser un certain nombre de problèmes socio-économiques, y compris le revenu des ménages et le transport. Toutefois, certaines personnes interrogées ont également mis en lumière les obstacles à la saine alimentation qui sont propres aux contextes autochtones, c'est-à-dire les problèmes d'accès tels que le manque d'épiceries dans la réserve, le manque de connaissances reliées à l'utilisation des aliments traditionnels et l'érosion des soutiens communautaires, familiaux et sociaux. Ces défis particuliers pour la sécurité alimentaire des familles des Premières Nations urbaines et vivant dans des réserves nécessitent un éventail d'interventions de nature économique ou propres à la culture, particulièrement celles qui appuient le développement et l'adoption du mode d'alimentation traditionnelle autochtone.

Mots clés : mode d'alimentation autochtone, sécurité alimentaire, déterminants de la santé des Autochtones, recherche communautaire, géographie de la santé chez les Autochtones

Introduction

Canadian researchers have been at the forefront of an exciting and quickly growing base of research on the social, economic, and structural determinants of Indigenous health and well-being (Greenwood et al. 2018; Henry et al. 2018). This work draws from critical perspectives to explore the ways in which processes of environmental dispossession and colonialism have shaped contemporary patterns of Indigenous health and well-being (Richmond and Ross 2009; Reading 2018). Applied to the context of food research with Indigenous people, this critical lens has revealed three important calls for researchers: the necessity for more research to examine the unique determinants of Indigenous food security; the need to identify how these determinants are shaped by histories and experiences unique to Indigenous people (Willows 2005; Beaumier and Ford 2010; Daigle 2019; Neufeld et al. 2020); and the need for meaningful engagement of Indigenous people and communities in research processes (Delormier et al. 2017; Hanemaayer et al. 2020).

Writing from our disciplinary home in the geographies of Indigenous health, our paper responds to those three calls: we share findings of a community-based study conducted with First Nation mothers with young children about the social, cultural, and geographic processes that uniquely challenge their food security. Drawing from qualitative interviews (n = 25) and focus groups (n = 2), our research addresses three objectives: first, mothers identify the key challenges

they face in achieving familial food security, including access to traditional foods; second, mothers describe larger historical, economic, and sociocultural processes that have contributed to their food security challenges; third, mothers offer strategies for restoring Indigenous *foodways*. Indeed, the obstacles to food security in the Canadian Indigenous context are concerning, but our paper also offers strategies for improving and supporting Indigenous food systems. Meeting the food security needs of Indigenous families will require holistic approaches that simultaneously work to restore cultural knowledge and practices inherent to Indigenous foodways.

The geographies of Indigenous health

The geographies of Indigenous health is a relatively new subdiscipline of critical human geography (Richmond and Big-Canoe 2018). Researchers in this area grapple with understanding how the health and well-being of Indigenous people is shaped by their relationship with their local environments, recognizing that these environments are varied in scale—e.g., mother earth, a classroom, a hospital environment (Wilson 2003; Richmond et al. 2005)—and that environmental systems that affect Indigenous health are uniquely shaped by experiences of colonialism and processes of environmental dispossession. Through engagement of Indigenous people and communities in this area of scholarship, the geographies of Indigenous health scholarship aims to support an improved understanding of the pathways between historic (and ongoing) processes of environmental change and contemporary experiences of health among affected Indigenous people and communities (Richmond and Big-Canoe 2018).

Methodologically, the geographies of Indigenous health is guided by a hopeful approach that seeks to empower Indigenous communities to engage in and use research both to improve local conditions, and as a form of self-determination (Tobias et al. 2013; Richmond 2016; Castleden et al. 2017). As such, emphasis is placed on working *in relationship* with Indigenous communities to identify research needs and community visions. These relationships build over time and trust is developed as researchers create safe and welcoming opportunities for communities to share their ideas and concerns, and to articulate relevant ways of acting on these ideas. This approach runs counter to the former "imperial geography" where research was done "on communities," as it brings Indigenous ideas, concerns, and experiences to the forefront. The study described in this paper is grounded in a relational approach, and is a result of a community-based project developed between the Southwest Ontario Aboriginal Health Access Centre (SOAHAC) and researchers from Western University and the University of Toronto (Mississauga) from 2009 to 2017. Our study was designed to learn more about the determinants of food security among First Nation families; we drew from a social determinants of health framing with the intention to co-develop a base of data and knowledge from which SOAHAC could develop social programming to address the unique health needs of its clientele.

Understanding Indigenous food security within the social determinants of health

To examine the evolving concept of Indigenous food security, we borrow from Reading (2018) who conceptualizes the determinants of health across three levels including the proximal, intermediate, and distal. The proximal determinants of health refer to those factors that are *closest to the individual*, and include things like food security, income, social supports, and gender. In a broad sense, food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO 1996), and food security is determined by four components: availability, access, utilization, and stability. When any one of these components is stressed or unmet, food insecurity arises.

Within Canada, Indigenous populations experience disproportionate levels of both severe (acute) and chronic food insecurity (Chan et al. 2019), and the negative health impacts include stress, chronic disease, and early mortality (Willows et al. 2011). Among Canadian researchers, the bulk of food research has focused on the proximal determinants of Indigenous food insecurity, such as individual dietary choices, calorie intake, and access to grocery stores. These studies have most commonly taken the form of large community surveys in northern regions, and the Inuit Health Survey

(2007–2008) is one such example. This important body of research has described unparalleled patterns of Indigenous food insecurity, and has shed light on the links between food insecurity and shifting lifestyles, dietary transitions towards low-quality foods, food contaminants, and Indigenous experiences of poverty and food insecurity (Kuhnlein et al. 2003; Egeland et al. 2011; Council of Canadian Academies 2014).

Still, in addition to proximal determinants, it is important to consider how intermediate and distal determinants impact Indigenous food security. For Reading (2018), the intermediate determinants of health include the systems that connect proximal and distal determinants and are broadly understood as the systems within which individuals and communities carry out their everyday lives, including food choices and practices. These can include traditional food systems, education systems, labour markets, transportation systems, and food supply systems. Reading (2018) argues that these intermediate determinants can profoundly influence proximal determinants. The differential food prices between northern and southern regions in Canada is an illustrative case. In the north, prices are extremely high because all market food must be shipped in by airplane, train, or vehicle, sometimes only during the winter months (Skinner et al. 2013; Burnett et al. 2017). Even with food subsidy programs, northern community demand for market foods far outweighs the supply. High food spoilage rates, long shipping times, and difficult terrain ultimately increase the price of fresh, market foods like fruits, vegetables, meats, and dairy (Burnett et al. 2017), while canned and processed items have longer shelf lives, are easier to ship, and ultimately cost less in northern grocery stores (Skinner et al. 2013; Burnett et al. 2017).

Among reserve communities in southern Canada, food supply and transportation systems also play important roles in local food security. Across the north, the "Northern" and "Northmart" stores are hallmark institutions, providing the bulk of communities' market food needs. But, in southern Canada, most rural Indigenous communities do not have a grocery store. Instead, local gas stations and convenience stores serve as central food-getting places, and since these tend to sell canned, processed, non-perishable, and "junk" foods, Indigenous diets disproportionately rely on these

items, and tend to lack fresh fruits, vegetables, meat, and dairy.

But, this has not always been the case. In the past century, the erosion of Traditional Food Systems (TFS) has led to significant interruptions in healthy Indigenous diets and foodways. TFS are culturally important, based on the lands, resources, and knowledge of Indigenous peoples. Traditional foods, in particular, refer to foods that come from the natural environment, either from hunting, farming, fishing, or harvesting (Kuhnlein and Receveur 1996). These foods are nutritious, local, and centrally important for the physical health and wellness of Indigenous people and communities. In fact, TFS hold importance that extends well beyond individual nutrition; TFS are supported by and embedded within Indigenous knowledge systems, which refer to the social and cultural ways that Indigenous people relate to ecosystems and with one another (LaDuke 1994). Indeed, many aspects of the human-food relationship hold deep sociocultural significance (Delormier et al. 2017). For example, Indigenous communities have unique values associated with food acquisition methods, food processing and preparation techniques, food use and composition, and food consumption (Kuhnlein and Receveur 1996). The social relations that underlie the knowledge and skills needed to procure and process traditional food, and the sharing of food within households, extended families, and communities, are a primary means of reinforcing social networks and bonds. These relationships strengthen cultural identity, belonging, and the affirmation of roles and responsibilities to and with the land and wider community. TFS, when supported, can be considered intermediate determinants that improve food security and health.

In addition to the important role of the proximal and intermediate determinants of Indigenous food security, as shared above, distal determinants of Indigenous food security are important for conceptualizing how *historic processes* of environmental dispossession, including colonization, has shaped both the systems Indigenous people live in and their consequent health realities. Environmental dispossession refers to the physical and political processes by which Indigenous peoples have been dislocated from their lands and traditional territories, and all of the bountiful health, knowledge, and relationships contained therein

(Richmond and Ross 2009). In the context of healthy eating and the distal determinants of Indigenous food security, Reading's (2018) theoretical framing provides a critical lens to examine how contemporary Indigenous diets and food insecurity operate within a wider structure of inequality that is rooted fundamentally in colonialism and dispossession. To date, there are few examples of community-based research that qualitatively illustrate the complex relationship between contemporary Indigenous food insecurity processes and dispossession (Neufeld et al. 2017; Ray et al. 2019; Neufeld et al. 2020). Our research helps to fill this epistemological gap, and contributes methodologically to community-engaged research by giving voice to Indigenous women from urban and reserve-based contexts who share about their family's challenges with food security, including critical insights about their interrupted access to TFS.

Community engagement in Indigenous food research

Food was not only the central topic of our research, it also played a critical role in our community-based methodology, and was central to our research relationships with our community partner, SOAHAC, and our study participants (Tobias et al. 2013). To support the ability of SOAHAC staff to participate as fully as they wished in this research project, we purposely held all meetings at SOAHAC during lunch hours, when the office was closed, and when we could meet in a friendly environment, around food-sharing. In the early days of our collaboration, the food and snacks for our collaborative meetings were purchased and prepared by the university researchers. Over time, as our research relationship evolved from a collection of individuals into a research team, our lunches shifted to potluck style, where everyone enjoyed contributing. Our meetings often opened and closed with prayers from Elders or traditional knowledge holders. During our team meetings, we brainstormed a series of research questions and developed appropriate focus group and survey questions that would enable the measurement of concepts such as food security, health and wellness, and factors that can limit or challenge families from realizing these concepts. Over a six-month period, we developed a two-phase mixed methods study called "The SOAHAC Food Choice Study."

Our formal data collection was initiated with two large community feasts, which were important for various reasons: food served a culturally important role in our research relationship-building process; feasting is a culturally and socially important activity among Indigenous people; serving food to the Indigenous community demonstrated reciprocity; and we knew that many of our potential study participants would be food-insecure families. Feasts were held late spring over the dinner hour, one at the Friendship Centre in London, Ontario and the other in the community centre at Chippewa's of the Thames First Nation. By engaging with the community in familiar places (e.g., community centres), these events were successful in recruiting participants and making the project visible to the two communities. During the feast events, we worked hard to establish research relationships based on honesty, local relevance, and a commitment to improving Indigenous people's health.

At the level of our institutions, this project received ethical clearance both from Western University's Non-Medical Research Ethics Board, and from SOAHAC's Board of Directors. Data for the larger study was collected in two phases. In Phase I, information on food security, diet, and food sources was collected through a survey administered to 228 First Nation respondents living in London, and at a nearby First Nation reserve. Findings from this survey revealed high levels of food insecurity among both urban and reserve-based participants, with levels of food insecurity higher among those living in the city (Richmond et al. 2020). Survey respondents also reported concerning experiences of hunger, and tendencies to purchase a majority of their foods from convenience stores. Those living in the city also reported lower monthly consumption of traditional foods than those living on-reserve, and 75% of those living in urban areas reported a desire to eat more traditional foods (Richmond et al. 2020).

These findings led our team to initiate a second phase of the research, reported in this paper. The second phase of the project involved in-depth interviews and focus groups with women with young children. We selected this demographic as our community partner identified First Nation mothers to be vulnerable in terms of health risks associated with poverty, poor nutrition, and food insecurity. Methodologically, interviews and focus

groups were chosen as these enable in-depth responses, which can contribute to rich descriptions of personal experiences of food security, culturally informed perspectives on the processes that impact food choices, and contextual barriers to food security and health.

Consistent with our community-based methodology, an experienced local First Nation researcher was hired to conduct the in-depth interviews, with the goal of helping participants feel at ease during the interview process. The interview guide was developed by our full research team to investigate the social, economic, and geographic factors that both challenge and support family food security. Questions were largely shaped by the results of initial survey, and were geared to dig deeper to understand personal experiences and perceptions of food insecurity, and possibilities for healthier and culturally appropriate food systems. Respondents provided informed consent prior to the interviews, which were tape-recorded with permission; interviewees received a $50 food voucher for their participation. Interview sessions varied in length but typically ran from 30 to 60 minutes.

The interview data were analyzed using a general inductive approach (Thomas 2006). The first step of our analytical approach involved extensive readings of the transcripts, which enabled the team to identify initial meta-themes. Meta-themes were then presented to and refined by the research team. This stage involved the full team, including the interviewer, who was a key support in bridging themes and narrative across the different stages of data collection and analysis. At this stage, we invited all interviewees to participate in two focus groups (one in London, the other at the reserve community centre). Hosted by the interviewer and lead author, the focus groups offered an opportunity to present the preliminary results and seek feedback from interviewees about the findings, including anything we missed or misinterpreted from the interviews. Both focus groups were well attended; 75% of participants attended these workshops. The interviewees expressed a high level of agreement with the preliminary results, and the remaining time in the focus group discussion centred on strategies for improving food access for First Nation mothers with young children. Together, the interview and focus group data supported the basis of the main thematic findings, which were pieced together to develop our understanding of family food security challenges (Wiles et al. 2005). As a means of establishing rigour in our research findings, the wider team engaged in a dialogic process of analysis, which included various conversations and reviews, making data analysis an iterative process. This process of co-analysis supported our commitment to a collaborative framework and methodology. In the sections that follow, we present data from the interviews and focus groups. Pseudonyms have been used to protect the identity of participants.

Key findings: Indigenous mothers' perceptions of food security and health

Although all of the women interviewed were mothers of young children, there was considerable variation in their circumstances: half of the women interviewed were single mothers; 11 lived on a fixed income; 10 were employed; one mother had recently returned to school; and three did not disclose their employment status. On average, the women interviewed in this study had three children, at least two of whom were less than 12 years of age. Geographically, 13 mothers lived in the city of London and 12 lived on-reserve. While we recognize that the binary of "reserve-urban" is simplistic, since there is movement between the two groups (Snyder and Wilson 2015), our previous study (Richmond et al. 2020) identified some important key spatial differences in terms of the reserve-based and urban-based participants' access to food, food security, and to cultural and social supports. These findings motivated our efforts to interview both reserve-based and urban-based mothers.

Proximal challenges impacting food access and availability

As Reading (2018) suggests, the determinants of Indigenous health, including food security, are best understood across proximal, intermediate, and distal framings, and this understanding has been useful in the context of our study. In terms of proximal determinants, our study participants identified limited income as the most significant challenge to achieving food security. Half of the respondents in our study identified as single mothers, and most were receiving government assistance, both of which are indicators of low income. As one participant

expressed, "If you're on [government] assistance, you get just enough to survive on and no extra. As soon as somebody heads to Bingo or buys one case of beer or buys anything 'extra,' they're taking that food out of their kids' mouths because there's no extra for stuff like that" (Holly, urban). A number of participants explained that many First Nation families suffer from poor diets because of low incomes, with one participant describing this reality in stark terms:

> The cost of food … Like a lot of our [Indigenous] families, if they're not working and if they're only set on an income every month, that's a lot harder. I've been there. I have two children and it was hard for me to make those healthy choices and try and stretch that out throughout the month. (Sue, reserve)

Interviewees expressed that food for their children is always their top budgetary priority, but that competing demands on limited resources sometimes entails food needs dropping in priority throughout the month. In practical terms, when women budget each month, participants indicated that all fixed expenses are paid first (e.g., car, rent, telephone), and the remaining funds are spent on groceries:

> Sometimes we'd have other expenses or something, and the money that you're going to spend on food is very low. So sometimes, you'd have to buy the big bulk packs of chicken nuggets or fries and stuff like that. And that's not very healthy choices, but they last. So sometimes your choices ain't always "the best." (Leona, reserve)

From month to month, respondents acknowledge that their food budget can vary. During the winter months, for example, the high cost of heating can burden the monthly budget:

> Well… last month. I couldn't buy no groceries at all because the bills had to be paid. But we still had—we still had stuff in the house, but it was your everyday things that you use for—like their milk, their bread, stuff like that. But they make a sandwich or whatever … I had to make sure the bills were paid as well. So then we just made do until the next time I got money, then I went out and bought groceries. (Delores, reserve)

Interviewees also explained that in addition to seasonal changes in utility costs, there are also monthly variations in food costs. During the school year, the cost of children's school lunches increases, which limits the types of healthy foods that mothers can purchase for their families. One participant expressed this plainly, "To cut costs I try to keep within a budget obviously because we go [shopping] biweekly. So, yeah, there's things that, you know, instead of getting my kids apples and oranges and stuff like that, I might go and get them some of the granola bar type things instead" (Diane, urban). The effect of both wavering utility and food cost circumstances means a family's food and non-food resources tend to be overstretched, which creates barriers to what activities families can enjoy. For example, children may not be able to play sports, get new toys, or other items:

> He [Son, 6–11 years old] gets very angry sometimes because he can't have what he needs. And he wants to go like hockey, baseball, something. And he's a good athlete right? But sometimes I can't afford to send him. And he gets very upset at it and I have to sit down, talk to him in order for him not to go and start going around and getting into trouble. (Steph, reserve)

Especially in the toughest economic times, the strict budget is hard for everyone in the household. Tight resources can create stressful family environments, and it means that hard decisions are necessary to make ends meet:

> We were actually borrowing money off of family members just to get by—It was a matter of "Well, should we buy groceries, or put gas in the car? Well, how we gonna get to work?" We're just trying to balance that out. Okay—I said, "Well, the kids need stuff for their lunches," so we didn't put gas in the car, and we bought groceries—$40 worth of groceries for their lunches. (Angelica, reserve)

Alongside the challenge of minimal financial resources, another significant barrier to food security is access to transportation. The consequence of being unable to physically get to the grocery store, where fresh foods are reasonably priced, means that mothers are compelled to shop at local convenience stores, where foods are more expensive and consist mainly of canned, processed, non-perishable, and junk foods. Two reserve-based respondents describe the issue from their perspectives in this way: "If you do not have a car, you may have to pay someone gas money to get to grocery

stores. Sometimes people charge a lot and you either take it or leave it. Usually you have to take it" (Corrine, reserve).

> Transportation is a big issue. If you don't have the transportation to go into London [which is about 20 kms from reserve]—to get to a decent grocery store whereas to going to a variety store and buying chips or like boxes of Kraft dinner. If you can get into London and buy something much healthier than that for the same amount of money, I would like that. (Sue, reserve)

Since participants often lacked access to private transportation, many explained that they are highly dependent on public transit, help from family and friends, and that they will often hire someone to drive them to do their grocery shopping. The consequence of not having a personal vehicle often entails that when participants get to the store, they are limited in terms of what they can buy. Among the urban respondents who rely on public transit, for example, participants expressed that they can only buy what they can carry. So, while some interviewees described a desire to buy foods in bulk, which often comes with a lower price, their lack of access to transportation means that they must buy smaller quantities at a higher price point.

Some mother-participants described realizing, after they considered the transportation and childcare costs associated with a visit to a grocery store, that a trip to the store does not make financial sense. One participant expressed this clearly:

> Getting a babysitter or getting them [children] ready to go makes everything more difficult. So, you go to the convenient places, but that's even more money. And people on low income don't have much money as it is, so they just go to the store that's closest, which is more convenient, rather than packing up all the kids or going far away, or bus fare or whatever. (Dana, urban)

For reserve-based women who do not own a vehicle, and for whom public transit is not an option, accessing the grocery store means relying on the help of friends and family, or hiring someone to drive them into the city. At $20 to $40 per ride, the cost is prohibitive, and can severely limit their purchasing power at the grocery store:

> We live on a reserve. We are not remotely located by any means, but we are far enough from a grocery store that getting there is difficult for a person that doesn't have a vehicle. To find a person that's willing to take them into town and do the shopping still means handing over extra money. (Leona, reserve)

While lack of access to transportation is a challenge that affects both urban and reserve-based respondents in similar ways, the food access context for on-reserve families is uniquely challenging. Reserves do not have grocery stores, and are characterized as food deserts (Larsen and Gilliland 2009). The inability for reserve-based families to access a local grocer intensifies the challenges of accessing healthy foods. Among families without reliable transportation, for example, food must be bought at convenience stores, where prices are high, and fresh fruits and vegetables rarely available. One woman described the context of her limited access to healthy foods in this way: "We have very limited resources on-reserve, like food wise. You could go to the local variety store and a lot of it's just non-perishable items; stuff in a can or in a box. There's no fresh fruit or fresh vegetables. And their prices are higher" (Florence, reserve). An added challenge for reserve-based participants is that convenience stores on-reserve tend to close early and they are not easy to walk to. Taken together, the lack of access to fresh, affordable, healthy foods on-reserve is a key barrier for mothers in providing healthy food for their families.

Intermediate challenges in utilizing traditional foods

According to Reading (2018), intermediate determinants are those which connect proximal and distal determinants, and in the context of healthy food provisioning, these can include things like cultural resources, social services, and local environments. In the context of our research, women living in both urban and reserve settings identified traditional foods as a culturally and socially significant part of Indigenous foodways:

> For us traditional foods are a celebration. We all enjoy it, my extended family. But it's like a delicacy because we can't always have it. So I think it's important. It's part of who I am. I grew up eating corn soup and having it at my grandma's and we always had fish. And so it's just part of who I am. (Wendy, urban)

Although participants expressed the importance of TFS to cultural preservation, there was a recurring theme that TFS are eroding. In interviews, participants emphasized the significance of restoring traditional foodways, the cultural significance of traditional foods, and the meaning that TFS had in their families. For example, participants talked about the important health and cultural benefits of eating traditional foods, including meat and fish:

> It brings back a comfort because that's the way our people used to eat a long time ago and they were really strong and healthy … it's a natural meat and it's lean and they're strong and they walk and they exercise those animals. I think about that and if I'm eating that, that's how I'm gonna be. That's how my body will feel. That's the way I'm gonna feel. (Leona, reserve)

Additionally, almost a quarter of study participants reported that they do not have the knowledge or access to resources required to prepare traditional foods:

> I don't know how to make corn soup by myself. I would have to have my mom show me or tell me how to do it. I don't know how to—I can make fry bread from a recipe but—yeah. There's nowhere to really go. You have to go and get certain beans and get salt pork and you can—you have to get it in a certain place and you have to get the corn. So it's only available certain places, too. (Ellie, urban)

Although the erosion of Indigenous knowledge and TFS was a recurrent theme in interviews, many interviewees emphasized that their social networks—notably their extended families, and most often their own mothers—played a central role in improving their access to traditional foods. Among women living on-reserve, access to family and social networks was perceived as "easier" than for urban mothers. For example, one participant describes, "It's easier on the reserve because … here we are surrounded by people that are always making it! Whether it's your own immediate family, or if you have extended family that makes it … they usually call you and invite you over. It is harder for the women who live off reserve" (Diane, reserve). In the urban context, the ability to connect with family around traditional foods is complicated by geographic distance to the reserve, and by lack of transportation. Over time, urban mothers expressed concern that these factors contribute to shifting family dietary preferences away from traditional foods:

> Yep like my youngest daughter, she just loves corn soup. She could eat that probably every day if she could. And the same with the oven bread or fry bread but I guess I don't make it as good as my mom does. But we can't have it too often because I don't have what I need to make it. And it also takes a lot of time. So that's the thing I worry about is losing that knowledge and that my kids will lose it too. (Tanya, urban)

Another set of factors contributing to the decline in traditional food consumption relates to declining environmental quality, and a growing perception that some traditional foods are unhealthy. Particular reference was made to those foods that were not historically part of TFS, but have become understood as "traditional" foods, such as bannock, fried bread, or Indian tacos:

> I don't consider fry bread to be traditional. I just consider it's, it's a tradition. It's not a traditional meal. I know there's a lot of sodium … And if I'm gonna have it [fry bread] it's going to have butter on it. Or Indian tacos, sure the lettuce and tomatoes are good, but then you put the chili on your big bread and everything. And then you have sour cream. And the amount you have, usually, is a bigger portion. So that's what I see it as. Is this healthy? No I can't say it is. (Corrine, reserve)

The distal determinants of traditional foods security

The focus group discussions were important for revealing how challenges to food security, especially those pertaining to social and cultural marginalization and/or declining access to TFS, are related to distal processes of environmental dispossession and its impact for both Indigenous food security and Indigenous foodways. Reserve-based respondents spoke with concern about pollution in the Thames River (e.g., described as "too dirty to eat fish from"), and the Green Lane Landfill, owned and operated by the City of Toronto and located adjacent to both Oneida Nation of the Thames First Nation and Chippewas of the Thames First Nation. Related to the landfill,

reserve-based women talked about its odour, the massive and growing geographic area it covers, and their worries about its impact on local water sources, including groundwater. Indeed, the impacts of environmental change, industrial development, and the displacement of waste onto Indigenous communities signal important matters of justice, and the ways in which environmental protections are failing to meet the needs of Indigenous communities and their inherent rights, including their right to food.

Beyond the threats of environmental change, a critically important connection was made between intergenerational knowledge transfer, residential school attendance, and traditional food consumption. Many of the grandparents and Elder relatives of study participants attended residential schools, wherein they were forbidden from speaking their languages, were unable to eat their traditional foods, and spent only the summer months with their families. As adults returning to their communities, and as subsequent parents, residential school survivors were—in large measure—unable to meaningfully share the Indigenous knowledge, language, and other social and cultural practices they had about traditional foods because it had been repressed, forgotten, or because they chose not to share it. Thus, the intergenerational impacts of this interruption led to decreased knowledge transfer to succeeding generations. Among urban women who participated in this study, considerable attention was given to their decreased Indigenous knowledge and declining access to traditional foods, including a powerful yearning for opportunities to learn and practice the important cultural teachings contained therein.

Addressing Indigenous food insecurity will require both economic and cultural solutions

In this paper, we have presented results from a community-based study that was designed to examine the determinants of food security among First Nation mothers living in both urban and reserve-based communities in southwestern Ontario. Theoretically informed by the geographies of Indigenous health, we drew from Reading's (2018) critical framing of the determinants of health—including a framing of the proximal,

intermediate, and distal determinants—to explore mothers' interpretations about their unique food security challenges.

Our results reveal that the proximal determinants of food security were described to include income, transportation, and childcare. These challenges align similarly with mothers from other social and geographic backgrounds, including a description of the trade-off between food, other household costs, and child welfare (Baskin et al. 2009). The most prominent of these resources related to income. Half of our interviewees were single mothers; the financial burden they bear is sometimes so great that the only possible solution is to limit their family's food budget, or at times, go without. Finances vary from month to month, causing stress in households. Other studies have also observed a significant reduction in lower-income Canadian women's consumption in order to meet their children's food needs, which is linked to high levels of anxiety and stress as well as difficult child-parent interactions (Tarasuk et al. 2007). Studies of Indigenous mothers in particular have tended to focus on the urban setting (Baskin et al. 2009; Cidro et al. 2015) or northern Canada (Willows 2005); our study has identified a common experience of food insecurity and reduced consumption for lower-income urban and on-reserve First Nation mothers (Richmond et al. 2020).

At the intermediate level, a finding unique among reserve-based women relates to the food security challenges posed by the lack of grocery stores on-reserve. The idea of the "reserve as a food desert" is not one that has been taken up broadly in Indigenous health or food scholarship (Cidro et al. 2015), yet there is compelling evidence that lacking access to fresh and affordable foods is a problem unique to Indigenous communities (Behjat et al. 2017), especially those in northern areas (Food Secure Canada 2016). The importance of a local grocer, independent of the convenience-store/gas-station model which is prevalent on most reserves, is critical not only for supporting access and availability of fresh foods, but also for addressing local economic development needs.

It was in our discussions with urban and reserve-based women about their challenges in accessing traditional foods that the important distinction between proximal, intermediate, and distal (or structural) determinants began to disentangle.

Specific to the reserve-based women, for example, lacking access to grocery stores on-reserve, combined with concerns about environmental change and reduced cultural knowledge, are leading to culturally specific forms of food insecurity. Among urban women who participated in this study, considerable attention was given to their decreased Indigenous knowledge about traditional foods, and about how this is intensified by their cultural and social marginalization from their home communities. At one time, TFS importantly buffered the high costs of market foods. Among urban people, particularly those of lower income, access to traditional foods is relatively non-existent except for circumstances where one can purchase or trade for traditional foods in the city (e.g., berries, meat from the market), or in instances when those who live on-reserve share traditional food with their family members in the city.

Based on these results, we argue that improving food security for First Nation families in southern Canada will require an approach that acknowledges and supports both economic and cultural dimensions of food security. Improving access to economic and/or material investments through financial incentives or targeted programs for First Nation mothers will reduce many of the proximal determinants of food insecurity—for example, in the regulation of a liveable minimum wage, improved access to childcare, and education programs that can support the culturally relevant needs of single First Nation mothers. In both urban and reserve-based contexts, the significant supports provided by social services and Indigenous focused health care—including those offered by our research partner SOAHAC—cannot be overstated, nor overfunded through provincial funding. For many in the First Nation population, poverty is the most prevalent challenge to food security, and its detrimental health impacts extend far beyond the physical (Skinner et al. 2014).

In meeting the cultural dimensions of food security, we turn to the growing literature on Indigenous foodways (Mihesuah and Hoover 2019; Shukla and Settee 2020). In general, foodways encompass the cultural practices, beliefs, origins, and lifeways that connect people to their food, including the meanings it brings to their lives (Counihan 1999; Gordon et al. 2018). Guided by a relational ontology that both acknowledges and celebrates the interconnection between Indigenous people and the land, Indigenous foodways build on the concept of food security by considering how Indigenous relationships to food are supported by local cultural imperatives that reflect Indigenous knowledge systems. Over time and practice, these understandings instill lessons about how to "live in a good way" with others, and to respect the earth and its resources for use today and in the future. These values are upheld and maintained through practices that support sharing, reciprocity, and sustainability, among many others. Applied in the context of food, these cultural values are critical for meeting food security needs, but also in supporting Indigenous foodways.

In both reserve and urban contexts, mothers expressed a keen desire for improved access to the knowledge required to engage in Indigenous foodways. To improve access to both TFS and the cultural knowledge required to harvest and prepare these foods, both urban and reserve-based women raised several exciting ideas that could be supported through community-based social programs, including: targeted land-based programs that bring together Elders and youth, such as hunting, fishing, and/or gathering; culturally relevant cooking classes; the development and invitation into community gardens; and, improved access to traditional teachings and other Indigenous knowledge programs. These ideas align in important ways with a growing body of research that demonstrates the important benefit of cultural resurgence for food (Skinner et al. 2013), language (McIvor and Anisman 2018), and health (Richmond 2016). Addressing Indigenous foodways means being attentive to the social, cultural, and environmental contexts which have reduced access to healthy eating, and finding culturally appropriate ways to rebuild and sustain these foodways. Especially among the urban mothers, who expressed strong perceptions that their dislocation from their families is leading to decline in culturally important knowledge, foods, and practices, the creation of culturally relevant Indigenous foodways programming will foster health impacts that extend beyond physical health and food security, by also strengthening cultural identity, social support, and belonging.

Our community-engaged research shares rich descriptions of First Nation mothers' challenges in meeting food security. While many proximal determinants of food security align with mothers

from similar social or economic backgrounds (e.g., low-income, transportation, and childcare), participants offered culturally and geographically relevant insights into the intermediate and distal determinants of food security. Lacking access to grocery stores, combined with reduced access to TFS, form significant barriers to food security for families living on-reserve. Urban mothers described the geographic distance to their families as a key limitation to their participation in TFS and other elements of Indigenous foodways. Based on the results of this research, we argue that simply improving access to income or other material investments will not meaningfully address the long-standing economic and geographic structures that fundamentally underlie the food insecurity problems prevalent in so many Indigenous community contexts. Considerable attention is warranted to improve understandings of the distinct cultural mechanisms linking food security with historic and ongoing experiences of colonialism and dispossession. In support of broader development and uptake of Indigenous foodways across disciplines, we challenge food security researchers and policymakers to actively consider culturally significant concepts such as Indigenous knowledge, relationality, holism, and connection to the land (Hovey et al. 2014; Richmond 2018). Furthermore, we echo calls for continued uptake of community-led Indigenous scholarship and a paradigmatic reorientation towards models of Indigenous wellness (Henry et al. 2018; Sylvestre et al. 2018).

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