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Original Research Article

Barriers and supports to traditional food access in Mi'kma'ki (Nova Scotia)

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Abstract

Canada is a signatory nation on international covenants, conventions, and declarations supporting the human right to food, but has not granted constitutional protection thereof. Failure to uphold the right to food contributes to unacceptably high levels of food insecurity that vary geographically and demographically, undermines health, and creates structural obstacles to food system sustainability. It is well recognized that Indigenous populations in Canada face disproportionately high rates of food insecurity compared to non-Indigenous people, and little attention is paid to the Indigenous conceptions of food security, including access to traditional food systems. The purpose of this research was to better understand the importance of, as well as barriers and supports that exist in accessing traditional food for Indigenous Peoples in Nova Scotia. Two focus groups were held with individuals who identify as Indigenous (n=16), one for those who live within a First Nations community and one for those who live outside of a First Nations community, in Nova Scotia. Focus groups were held in a talking circle format to facilitate discussion on traditional food access. Focus groups were transcribed and analyzed using the Medicine Wheel Evaluation Framework to understand in a culturally relevant way, how traditional foods impact Indigenous Nova Scotians' health. Bronfenbrenner's Social Ecological Model was used to locate barriers and supports to traditional food. Supports identified were community engagement, consultations and partnerships, and strength of cultural values. Barriers included knowledge transmission, lack of community, land access, cost, programs and policies, and identity loss. Nuances specific to each community are discussed. Both supports and challenges exist for traditional food access in Nova Scotia; however, barriers outweighed supports in both number and magnitude. Stronger community and

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political partnerships, as well as consultations with Indigenous Peoples by public and private sector developers are necessary to develop upstream solutions to traditional food access.

Keywords: Traditional food; access; community; nutrition

Résumé

Le Canada est un des pays signataires des conventions, déclarations et accords internationaux qui promeuvent le droit humain à l'alimentation, mais il n'en a pas fait un droit protégé par sa constitution. L'échec à respecter le droit à l'alimentation contribue à causer des niveaux inacceptables d'insécurité alimentaire qui varient géographiquement et démographiquement, cela mine la santé et crée des obstacles structurels à la souveraineté des systèmes alimentaires. Il est bien reconnu que les populations autochtones du Canada font face à des niveaux disproportionnés d'insécurité alimentaire par rapport à la population non autochtone; peu d'attention est accordée aux conceptions de la sécurité alimentaire chez les Autochtones, cela inclut l'accès aux systèmes alimentaires traditionnels. L'intention de cette recherche était de mieux comprendre l'importance des obstacles et des appuis qui existent lorsque les peuples autochtones de Nouvelle-Écosse cherchent à accéder à leur nourriture traditionnelle. Deux groupes témoins ont été formés avec des individus s'identifiant comme Autochtones (n=16) : un avec ceux vivant dans une communauté des Premières Nations et un avec ceux vivant en dehors d'une telle communauté, en Nouvelle-Écosse. Les groupes ont pris la forme de cercles de parole pour faciliter la discussion sur l'accès à l'alimentation traditionnelle. Ces discussions ont été transcrites puis analysées au moyen du Cadre d'évaluation de la roue de médecine afin de comprendre d'une manière culturellement pertinente la manière dont les aliments traditionnels influencent la santé des Autochtones de Nouvelle-Écosse. Le modèle écosystémique de Bronfenbrenner a été utilisé pour identifier les obstacles et les appuis à l'alimentation traditionnelle. Les appuis identifiés étaient l'engagement, les consultations et les partenariats dans la communauté ainsi que la force des valeurs culturelles. Les obstacles incluaient la transmission du savoir, l'absence de la communauté, l'accès à des terres, les coûts, les programmes et les politiques et la perte identitaire. Des nuances propres à chaque communauté sont discutées. Ainsi, il y a à la fois des appuis et des défis pour accéder à l'alimentation traditionnelle en Nouvelle-Écosse; cependant, les obstacles surpassent les appuis par leur nombre et leur ampleur. Des communautés plus fortes et des partenariats politiques, de même que des consultations auprès des peuples autochtones de la part des promoteurs des secteurs privés et publics s'avèrent nécessaires pour concevoir des solutions en amont qui ouvriraient l'accès à l'alimentation traditionnelle.

Land Acknowledgement

The authors acknowledge that we live, work and study in the unceded territory of Mi'kma'ki. Unceded means that treaties were signed between the British and Mi'kmaq, Maliseet and Passamaquoddy nations between 1725 and 1752, known as the Peace and Friendship treaties. These were not a surrendering of lands or resources. For Indigenous Peoples there is no separation between people and land. It is not an ownership; it is a relationship. This relationship is guided by *Netukulimk*, which guides sustainable practices for the next seven generations, never taking more than needed and wasting nothing. Netukulimk is critical to sustainable food security.

Despite this, settlers and governments have, over 400 years, and continue to breach treaty responsibilities and accountability. As a result, there are thirteen Indigenous communities across Nova Scotia that make up only 0.02 percent of the entire land mass in Nova Scotia, and a large population of urban, off-reserve, and/or non-status Indigenous People. This acknowledgement is to recognize how historical and current injustices are inseparable from the issues studied and shared in this article. We are all treaty people. On this land, we all have accountability in upholding natural laws and understanding our rights and responsibilities. Land acknowledgements are not just something we say, it's something we do. Pjalasi—come in and take your place.

Introduction

The purpose of this article is to share results which explore the importance of traditional food for Indigenous Peoples living in the part of Mi'kma'ki that is Nova Scotia, and to discuss barriers and supports to accessing traditional food in the context of human rights and sustainability.

Traditional Food Access, Food Security, and Human Rights

Canada is a party to many international covenants and conventions which expressly recognize the right to food (United Nations [UN], 1948, 1966a, 1966b, 1979, 1990). Canada also endorsed the United Nations Declaration on the Rights of Indigenous Peoples, which provides for protection of Indigenous rights (United Nations Indigenous Peoples, 2017). Domestically, Canada protects Indigenous rights under section 35 of the *Constitution Act, 1982*. Canada's public facing image is one of a nation that supports rights of Indigenous Peoples, including the right to food.

Despite these commitments and recommendations, Indigenous Peoples experience disproportionately high rates of household food insecurity compared to non-Indigenous people (Tarasuk et al., 2014); however, current data may underestimate the magnitude of inequity because Indigenous Peoples living off-reserve are underrepresented in food security studies (Elliott et

al., 2012), despite the growth of the Indigenous population (Statistics Canada, 2015), and because of increasing incidences of Indigenous Peoples living off-reserve (Statistics Canada, 2010).

Furthermore, little attention is paid to traditional food or concepts which reflect a conceptualization of food security from an Indigenous perspective, such as ability to access and participate in traditional food systems (Elliott et al., 2012; Power, 2008). This lack of attention in research could reflect the past practices of colonialism that supported the integration of Indigenous Peoples through assimilation of culture. As a result of historic practices of assimilation, Indigenous populations experience both limited service provision and services that fail to account for Indigenous perspectives of health and wellbeing (Adelson, 2005). In 2015, the Truth and Reconciliation Commission released a report that documents historical injustices and suggests an Indigenous-led pathway to achieving some of these national commitments (Truth and Reconciliation Commission of Canada, 2015).

An understanding of the importance of traditional food is crucial due the connection between culture and health (Bodirsky & Johnson, 2008). Traditional food is recognized for its importance to indigenous cultures and physical, emotional, spiritual, and psychological wellbeing (Mundel, 2008), and has been in policy realms for some time. As far back as 1998, *Canada's Action Plan for Food Security: In Response to the World Food Summit Plan of Action*, expressly recognized the importance of hunting, fishing and gathering in traditional food access and the associated knowledge of natural resources and sustainable harvesting practices, as being important to achieving food security within Canada (Agriculture and Agri-Food Canada, 1998). Today, Food Secure Canada advocates for the continued exposure of youth to the symbolic and spiritual value of traditional food (Food Secure Canada, 2012).

Nova Scotia has the highest provincial rate of household food insecurity: 15.3 percent compared to a national average of 12.7 percent (Tarasuk & Mitchell, 2017). Recent estimates by the First Nations Food, Nutrition, and Environment Survey put the prevalence of food insecurity among First Nations communities at 48 percent in Canada and 39 percent in Atlantic Canada (Chan et al., 2019). The experience of food insecurity is likely to be amplified in Nova Scotia's Indigenous population, from the documented rate, at the very least due to lower employment rates (Statistics Canada, 2015) and social disparities well documented by Chan et al. (2019). Equally important is the lack of inclusion of traditional food practices in the tools and definitions used to determine food security. There is currently a lack of information, published in the academic literature, describing traditional food access in Nova Scotia, though similar data are published elsewhere in Canada (Elliott et al., 2012; Skinner et al., 2013; Socha et al., 2012).

Work has begun to include the cost of traditional food in food costing (Food Secure Canada, 2015), but it is still in early stages. This suggests that, like Canadian statistics, food security statistics in Nova Scotia may give an inaccurate representation of the true state of food security, in particular from a cultural perspective. The state of food insecurity provides an indicator of the realization of the right to food. A richer understanding of traditional food in Indigenous communities in Nova Scotia is needed in order to address food insecurity and contribute to a food system in Canada where the right to food is upheld.

Traditional Food Access and Sustainability

Traditional food access is also inextricably linked to sustainable food systems, and therefore an issue to *all* Nova Scotians, as it has ripple effects across our shared social and ecological systems. The term sustainability means different things to different people across disciplines and worldviews, and most often includes concepts of sustaining ecological, sociocultural, and economic systems in perpetuity. One approach to understanding sustainability, which is useful in supporting diverse articulations of a sustainable society, is the principled definition used in the Framework for Strategic Sustainable Development (FSSD) (Broman & Robèrt, 2017). According to FSSD theory, eight principles of sustainability set out concrete boundary conditions, or limits, of the ecological and social systems which support human existence as we know it. The principles delimit what is not sustainable, leaving creative freedom to express myriad sustainable societies within those boundaries. These principles are expressed intentionally as *negations* of violations to what biophysical and social sciences set out as the needs of ecological and social systems.

There are three principles governing ecological system sustainability, which state that in a sustainable society, nature is not subject to systematically increasing: 1) concentrations of substances extracted from the Earth's crust (e.g., fossil carbon and metals); 2) concentrations of substances produced by society (e.g., CFCs and plastics); and 3) degradation by physical means (e.g. the Indigenous concept of Netukulimk, applied to sustainable harvesting, means take what is needed and waste nothing, to ensure access for future generations).

There are five principles governing social system sustainability, which state that in a sustainable society, people are not subject to structural obstacles to: 4) health (e.g., by dangerous working conditions or insufficient rest from work); 5) influence (e.g., by suppression of free speech or neglect of opinions); 6) competence (e.g., by obstacles to education or insufficient possibilities for personal development); 7) impartiality (e.g., by discrimination or unfair selection to job positions); and 8) meaning-making (e.g., by suppression of cultural expression or obstacles to co-creation of purposeful conditions).

It is important to note that there are complex interactions between the social and ecological systems. For example, a violation of one principle often has dual or secondary effects on other principles; despite Canada's public-facing image as committed to international covenants that support the right to food (including traditional food), it is clear that social structures present barriers, or obstacles, to *impartial* realization of this *right*. In a sustainable society, people are not subject to structural obstacles to impartiality. These structural obstacles have spillover effects on health (by affecting food security), competence (by affecting development of traditional food skills) and meaning making (by impeding the expression of identity and culture through food).

In this article we first focus our attention on findings related to traditional food access, and then discuss them in the context of individual and community health (as defined by the Medicine Wheel Framework), the right to food (as per Canada's international commitments) and sustainability (as per FSSD principled approach).

Methods

Informed by comparable Canadian research (Elliott et al., 2012; Socha et al., 2012), we used a qualitative technique with two semi-structured focus groups consistent with Krueger's approach of designing and conducting focus groups (Kreuger, 2002) that was based in the principles of ownership, control, access, and possession (OCAP). These principles are supportive of self-determination, as outlined by The National Indigenous Health Organization (NAHO]) (2004).

One focus group was held with members of a First Nations community (n=12) and another with self-identified Indigenous Peoples living off-reserve in the Annapolis Valley area (n=4). All participants in the Annapolis Valley focus group were female over the age of eighteen, while the First Nations community focus group contained both female and male participants over the age of eighteen.

Each focus group was co-facilitated by a leader within the identified community. The inclusion of a community-based co-facilitator served to share control over the development of questions, and the focus group process, ensuring self-determination in the research process. Self-determination is identified by NAHO (2004) as an important aspect of research as partnering communities have control over the research process and use of the research outcomes in ways best suited to the needs of the community.

Participants were asked, using a semi-structured interview guide, to describe the importance of traditional foods in their lives, the barriers they face in accessing it, and supports they can identify for accessing traditional foods. The focus groups were audio recorded and transcribed by the researcher. After transcription, participants had the opportunity to review the transcripts to ensure the focus group dialogue was captured accurately. Requests for omissions of statements were also accepted. Researchers applied open coding processes to the transcripts. In a second round of analysis, Bronfenbrenner's ecological systems theory (1994) and the Medicine Wheel Evaluation Framework (Atlantic Council for International Cooperation, 2018) were used to theme and contextualize the codes.

The Medicine Wheel Evaluation Framework (Atlantic Council for International Cooperation, 2018) was applied to better understand how traditional food is important to its four interconnected quadrants: spiritual, mental, physical, and emotional health. This framework was used to root the research in a holistic, Indigenous health paradigm.

Bronfenbrenner's ecological systems model (Bronfenbrenner, 1989, 1977) was used to understand and locate where in participants' socioecological system barriers and supports lie. This model theorizes that an individual is part of a system that includes: the microsystem (interactions with family, peers, etc., in a setting), the mesosystem (interaction of factors and people from an individual's different microsystems), the exosystem (systems that indirectly impact an individual, through media, community, local services, policy etc.), and the macrosystem (norms, values, beliefs, social structures, culture etc.). Levels of the theory served as a priori categories for locating barriers and supports, while recognizing that they have important interactive effects between levels.

Discussions regarding supports and barriers were identified. These discussions were then individually assigned to a system, based on whether the support or

barrier was one that was tied to either the microsystem, mesosystem, exosystem, and macrosystem. Bronfenbrenner's model (1989) was used to consider the results of the focus groups in a way that helps locates where in system (at what level) supports or barriers lie, and therefore points of leverage. Furthermore, and like the Medicine Wheel Framework, Bronfenbrenner's model has an explicitly relational focus, helping to highlight how each level of the system interact and influence one another.

Trustworthiness was increased using member-checking and inter-coder reliability checks. Transcripts were returned to all participants for feedback. Inter-coder reliability was verified between two authors. Ethics approval for the research methods was granted by Acadia University's Research Ethics Board 15-41.

Results

Exploring the Importance of Traditional Food

Both groups identified traditional food as being important to physical health, encouraging and supporting traditional food practices for younger generations, spiritual practices, and stewardship of the land.

Participants noted the effects of a decreased inclusion of traditional food to illustrate the role that traditional food played in health. For example, participants connected decreased incorporation of traditional food to increased diabetes rates within communities. Comparing traditional to market food, one on-reserve participant pointed to the overall perceived healthfulness of traditional moose meat due to its lower fat content.

When looking towards younger generations, an off-reserve participant noted the importance of having "children…practice some of those traditions in [the] household," (OR5) and similarly on-reserve that "[participation in traditional food gathering] is important, especially for our younger generations, to pass on that knowledge to our younger generation" (GN9).

Traditional food was also strongly associated with spiritual practices such as ceremonial offerings of thanks. As expressed by a participant on-reserve: "And…ceremony too, you know, thanking the creator for the offerings to Mother Earth, for your moose or whatever it is that you got; that's very important to Mi'kmaq culture" (GN9).

Further to this, an on-reserve participant emphasized the role Indigenous Peoples played within the environmental context, as being "the stewards of the land and of the animals, and of the air and the water" (GN2). Stewardship and giving offerings of thanks played a role in the understanding that Earth's resources are to be respected and not over-extended, expressed by an off-reserve participant: "We would traditionally offer a tobacco pouch or some sort of sacred medicine to ask the spirit of the animal to leave the body before we chose to kill it for our family, and then it was only you would take what you need and every piece of the animal was used" (OR6).

The comparison of a traditional food system and a western food system was summarized by an on-reserve

participant as: "culture and tradition versus supply and demand" (GN2).

In summary, the importance of traditional food lies within the macrosystem of Bronfenbrenner's social ecological model (1994), as participants emphasized the connection between traditional food and building cultural knowledge bases within communities. This has a cascading and interactive effects at all system levels, such as passing on traditional food knowledge to children across family units (exosystem) and influencing individual health (microsystem).

When set in the context of the Medicine Wheel Evaluation Framework, the importance of traditional food has clear links to all four quadrants. Values associated with traditional food promote stewardship of land and cultural teachings (spiritual), environmental awareness and hands-on skills of harvesting (physical), education of youth and leadership within adults (mental) and relationship building and knowledge sharing between families and within communities (emotional). This importance of the interrelatedness to all four aspects of the Medicine Wheel Evaluation Framework was found to permeate the results of this research, a finding which is supported by studies elsewhere (Elliott et al., 2012).

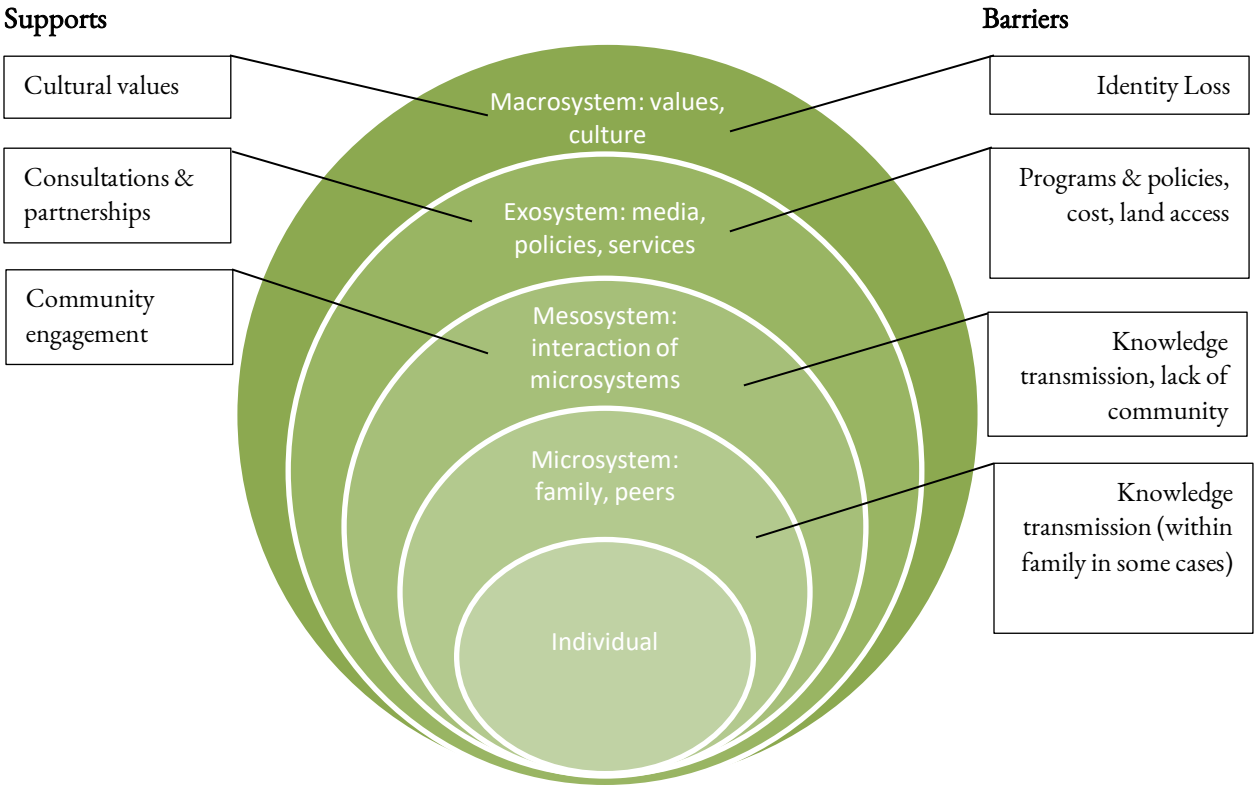
Summary of Barriers and Supports

The barriers to accessing traditional food, and existing supports, are summarized in Table 1. In Figure 1, they are presented as they relate to their location in the socioecological system that surrounds an individual. Following, they are described and explained, where possible using the language of the participants.

Table 1: Summary of Barriers and Supports for Indigenous Accesses to Traditional Foods

	Common Barrers to Both Communities	First Nations Community Dwellers	Those Dwelling Outside of First Nations Communities
Barriers	• historical identity loss • loss of traditional food knowledge and skills • education • private land ownership • land degradation in absence of accountability • federal resource policies	• development/construction • costs of accessing traditional foods	• limited knowledge circulation, resources and teachers • cost of accessing knowledge • limited community support • lack of programs
Supports	• strength of cultural values around the importance of traditional food • community engagement and activism in traditional food through, for example, events • consultations and partnerships		

Figure 1: Socioecological Barriers and Supports for Accessing Traditional Food



Barriers to Accessing Traditional Food

Barriers to accessing traditional food arose in both focus groups, with six central themes: knowledge transmission, lack of community, land access, cost, programs and policies, and identity loss. These are shown as per Bronfenbrenner's ecological systems theory levels of the socioecological system influencing the individual, in Figure 1.

Those living off-reserve highlighted knowledge-based barriers. A lack of educational resources and traditional teachers made it difficult to access needed traditional knowledge related to traditional food: "If we had more papers that people could read...some people can't afford books, so it would have to be things that are accessible through libraries and free things" (OR5).

This barrier of cost to accessing knowledge was mirrored by participants in both groups, preventing transmission of traditional knowledge, systematically reducing access to traditional food. A participant off-reserve stated there is a "cost in general" because "a lot of people who hold the knowledge...will charge you to...learn that" (OR5). Those on-reserve focused on the costs associated with hunting like ammunition and gun safety courses, licensing, and the increasing costs of transportation and accommodations which has become a required expense due the departure of moose from the area of the community.

Both groups identified a lack of self-identity and being ashamed of identifying as Indigenous in previous

generations as factors influencing the sharing of traditional knowledge around food and food practices, as captured in this quote from the off-reserve group: "There's also the thing where through the like 70s, 80s, and 90s where people did not self-identify as First Nations, they didn't pass along the information which therefore means probably the last twenty years or thirty years, people do not carry that information on how to access traditional foods which is a big barrier" (OR2).

Specific to those living off-reserve, lack of community was brought up as one barrier to food sharing and other solutions used to address traditional food access. While one off-reserve participant described the use of community freezers in more northerly communities as a successful example of food sharing, the group agreed that it would not be successful locally due to the Indigenous community being "too spread out" and "not close enough" (OR2) to support such a system.

The lack of programs available, in comparison to those on-reserve, which support community connections and traditional food access, were also highlighted as barriers. For example, teaching opportunities for youth were highlighted: "On reserve, they have the harvest. They take their youth on moose harvests and the elders always get together for the harvest.... So, there are supports...but that's on reserve" (OR5). The decreased availability of teaching and mentoring creates a barrier for current and future generations, the relevance of which was summarized by an off-reserve participant: "it does all come back to...affecting food because it comes back to...that knowledge being lost...and trying to access it now" (OR2).

The barriers for those off-reserve was related back to the importance of traditional food: "The importance for me lies within. I wish I could have it, but it's not accessible" (OR3).

Those both off- and on-reserve voiced concern over the trend towards diminishing areas of accessible hunting land due to government-occupied land and increasing privatization of land. Private development projects in the area directly affect access to traditional foods. Development efforts cause significant changes to the natural environment, through clear cutting and resulting pollution. An on-reserve participant remarked at the destruction and lack of accountability that these projects bring to the area: "we've got these big industries that are coming in and tearing the land apart whatever it is, destroying it. And once they've got their resources, where are they? Gone" (GN6).

In addition to the destruction, or lack of stewardship, which is valued as an important role, limited accountability was perceived to exist on the part of construction companies, to which one on-reserve participant offered this solution: "Maybe what they should do, like they did in South America—in one place they deemed a river a being and it had every right in the court of law, that if you did something up here and you were hurting the river, the river had its own identity. And everyone says 'oh, well, that's kind of sorta stupid,' but yet companies have their own identity. I mean a company lives and dies, but if a river lives and dies, then yeah, things are going live and die around it" (GN8).

This quote further strengthens the already described cultural value of stewardship of the land and depicts a fundamentally different relationship with the land compared to the culture that currently governs concepts of "development."

More locally, developments in the area negatively affect the availability of traditional species. For example, moose are segregated to one location in Nova Scotia.

This is in part perceived as a result of the hydro-dams that negatively impact marshlands which are important moose habitats. This segregation to remote areas also led to increased expenditure on "fuel, accommodations, [and] lodging" (GN1, GN10) in addition to equipment, permits, and licensing. The inability to access moose specifically impacted cultural activities: "Feasts, that's a cultural thing for our people…so where do you get the food for feasts…you gotta get that meat from somewhere and try to get…traditional moose…so that's an impact on our [culture]; trying to keep the cultural feasts going…" (GN5).

Both groups noted that federal policies worked against their ability to access traditional food and detracted from environmental conservation. The structure of fishing licenses prevented access to local fish for those temporarily living in Nova Scotia, but who would otherwise have exclusive fishing rights in their home province. One off-reserve participant remarked: "I don't eat traditionally at all because I just don't have access.… I can only fish for seven days in the entire year" (OR3).

Further licensing issues, such as open-game hunting along with the restrictions on access attached to licensing schemes, through imposition of limits on catch or seasons, detracted from the spiritual element of hunting.

Ineffective conservation measures by the federal government were noted as influencing accessibility of natural resources in the area, and thus food stability and availability: as mentioned by a member, in reference to *Bill C-38*: "the bill there that Harper put through…if you had natural resources or whatever, then the company could go into all of these places.… So that was our federal government against us" (GN6).

Supports for Accessing Traditional Food

Despite significant barriers, supports that promote access to traditional food were noted and grouped into three categories: strength of cultural values, community engagement, and consultations and partnerships. These are shown as per Bronfenbrenner's ecological systems theory levels of the socioecological system influencing the individual, in Figure 1.

Cultural values supported access to traditional food for those living both off- and on-reserve in that the strength of values around traditional food motivated participants to try to overcome some barriers to access. The value of intergenerational knowledge sharing was noted both off- and on-reserve, with a participant on-reserve stating that it is important "to pass on [traditional] knowledge to [the] younger generation" (GN9).

Despite previous generations of identity loss (or more active identity shielding), resultant cultural knowledge gaps, and a weakening community fabric off-reserve, there is a trend towards living within communities to "bring back the culture" (GN6). Cost was identified as a barrier to access through commodification of traditional knowledge and fees associated with, for example, fishing licenses. But in our current economic system, cost is generally associated with value, and for some the cost was worth "the experience of having a nice hunt" (GN10) and the health benefits.

As with the trend to revitalize traditional knowledge, participants described a trend towards increased community-held events. The creation of community events were highlighted as creating the opportunity for connections and celebrations. A yearly Mawio'mi held in the area, was noted by participants living off-reserve as a support to promote community connections and celebrations of traditional food. Programs such as this, that assist those living off-reserve

and included food preparation and traditions workshops, provide support for some barriers identified above.

On-reserve, community garden plots and traditional food gatherings, such as moose meat feasts supported access to traditional food. It was noted by a participant that the community tries "to implement as much [of] a cultural component of foods…in our gatherings as we have them" (GN1). The barrier of land development and resulting pollution was reduced through an initiative by community members which aimed to clean and restock a near-by river, acting as a support to improve environmental conditions and facilitate species resurgence.

All of these examples show that while a sense of community might have been historically destabilized in some respects, both on and off-reserve, there are renewed efforts to revitalize and strengthen community: some directly through traditional food, some indirectly.

On-reserve, consultations of companies with the Chiefs of Nova Scotia were seen as beneficial for Indigenous and non-Indigenous people through the opportunity to raise concerns over the environmental effects of proposed developments on traditional lands and how that, in turn, will affect food resources. The importance of partnership between Indigenous and non-Indigenous peoples was further emphasized in progression towards legal protection of natural resources. A local salmon conservation group that does not identify as being Indigenous was acknowledged by community members for making important steps towards a shared goal of protection of salmon through the proposal of a by-law. The importance of Indigenous and non-Indigenous communities working together to protect land and resources from over-development was expressed by one participant on-reserve: "these big companies are pitting us against the non-Native community and then they're taking all of our resources and just leaving the land bare. And what the Natives and the non-Natives have to get together and say [is] 'hey, look, you're not only hurting the Natives, but you're hurting us, 'cause they drink the same water as we do'" (GN8).

Both supports and challenges exist for traditional food access in Nova Scotia; however, barriers outweighed supports in both number and magnitude.

Discussion

The results presented in this article demonstrate that the relationship between the participants in this research and traditional food, in Nova Scotia, is rich and complex. Overall, traditional food holds a place of high importance for Indigenous persons living in Nova Scotia, with clear impacts on the health (broadly defined by the Medicine Wheel Evaluation Framework) of individuals and communities. The barriers identified in this research highlight and locate obstacles to traditional food access. Supports identified present potential leverage points for strengthening access to traditional foods, worthy of community and policy-level consideration. These are each discussed here in the context of the literature, and in relationship to health and sustainability.

Traditional Foods are Important to Health and Sustainability

The healthfulness of traditional food, across all four quadrants of the Medicine Wheel Evaluation Framework, as perceived by participants in the current study, corroborates other research findings that there are health benefits associated with traditional food over market food (Guyot et al., 2006; Lambden et al., 2007). The results of this research identify traditional food as a valuable source of sustenance and medicine, improving perceived levels of physical health. Declining access to traditional foods, and increased reliance on market foods is described as a "nutrition transition," a well-recognized phenomenon to which other studies in Canada have attributed disproportionately high rates of diabetes and ill-health in Indigenous populations (Brooks et al., 2013; Young et al., 2000). The results also reflect findings in the literature that traditional food is an important means of expressing and reinforcing cultural identity and values (Damman et al., 2008), relationship building within and between families, and spirituality. As such, it is a vehicle for meaning making.

That traditional food is important to all four quadrants of the Medicine Wheel Evaluation Framework highlights its central role in contributing to a healthy individuals and communities. Applying FSSD sustainability theory, health and meaning making are two principles necessary in a sustainable society, and structural obstacles to these undermine sustainability (Broman & Robèrt, 2017).

Locating the Barriers and Supports

The barriers and supports to traditional foods have impacts on individuals on multiple levels, from the microsystem (individual interactions in settings with family, peers, etc.) outwards toward broader systems levels, including the mesosystem (community interactions), the exosystem (programs and policies), and macrosystem (culture, values and social structures). Using this theoretical model to locate the barriers and supports described by the community highlights that they lie almost exclusively at or beyond the mesosystem level. This indicates strongly that overarching social and cultural supports, not limited to individual and household-level action, are critical to supporting access to traditional food.

As per Bronfenbrenner's Ecological Systems theory, there are important interactions between levels that can be mutually reinforcing or opposing. The barriers that exist on broader level (most of them in this research) have further impacts on an individual and community level. For example, change on a policy and legal level, as recognized and suggested by participants, is needed to address even barriers at the micro- and meso-system level (Bronfenbrenner, 1989). Conversely, and as discussed below, supports that exist (mainly) on a community, family, and peer level, can help to mitigate the effects of barriers that exist at a broader level.

Because of this, effectively addressing the barriers identified, starting with the supports found, will be most effective to support traditional food access in a systemic way. And in the spirit of Truth and Reconciliation (Truth and Reconciliation Commission of Canada, 2015), the need for this to be led and shaped by the voices of Nova Scotia's Indigenous community is paramount.

Lack of Community and Systemic Barriers Decrease Access for Indigenous Canadians Living Off-Reserve

For Indigenous Nova Scotians off-reserve, the lack of self-identified community created a difficulty of

maintaining cultural connections and food sharing networks. This is exacerbated by the costs associated with accessing knowledge holders and the inability to connect with communities which can off-set some of the difficulties in accessing traditional food through food sharing networks (Council of Canadian Academies, 2014). Indicative of the importance placed on the role of community, this shows how communities offer necessary supports to accessing food, from valuable teaching experiences to food sharing networks.

The generational quieting of knowledge was a significant barrier to those living off-reserve. Limited exposure to teaching during childhood greatly reduced circulating traditional knowledge, which is now difficult to find. While educational materials on traditional food and practices has found success in other related fields, for example cook books that can share and renew traditional knowledge (Bodirsky & Johnson, 2008), more systemic approaches can have farther reach. Participants linked limited availability of teachings to previous practices of assimilation which caused a connection to form between Indigenous identity and feelings of shame. Embedded (and often invisible) structures, policies and underlying cultural assumptions still perpetuate cultural disadvantage by limiting exposure of Canadian children, including Indigenous, off-reserve dwelling children, to such traditional food knowledge. This undermines the sustainability of our social systems; as identified in this research, it has compounding effects on health and meaning making.

Inadequately Shared Decision Making, Indigenous Health and Social Sustainability for All

Federal natural resource policies, and reserve boundaries geographically limits access to traditional species. Government owned land in Nova Scotia acted as a barrier not only because of the regulations prohibiting removal of natural resources, but more simply, prohibiting access to lands where traditional plants and animals could be found. Similarly, hunting and fishing permits with associated costs, can exacerbate barriers and inequities experienced by Indigenous populations.

Licensing and permits, provincial land access regulations, and species disappearance or dislocation as a result of poorly managed private and commercial development result in increased expenses relating to traditional food access (e.g., travel and accommodations). Indigenous populations within Canada are economically disadvantaged. Research has supported the provision of income and financial support for fuel and community events involving traditional food to support access (Booth & Skelton, 2011; Guyot et al., 2006; Hopping et al., 2010; Socha et al., 2012). Though participants in this study did not call for governmental support to offset the costs associated with traditional food activities (such as hunting and fishing), this provides a good example of potential "downstream" policy options. More upstream solutions would address land access and species disappearance and dislocation directly, rather than providing a temporary solution.

Results highlighted the lack of Indigenous-Non-Indigenous consultations and partnerships that value equal influence in decision making over shared resources, and support this as one step to removing structural obstacles to Indigenous influence over shaping a society that supports health and meaning making. For example, when examining why species could no longer be found in the area, a problem which created difficulties for ensuring traditional foods were a

focus of community events, participants clearly pointed to nearby developments that destroyed habitats. A lack of consultation with the community on developments in the area, and lack of accountability on the part of developers to surrounding communities, were highlighted as being fundamental barriers to understanding how developments affect the existing, local social and ecological systems (e.g., species habitat, migration, and Indigenous food access). This is relevant particularly within Canada, as the federal government has an obligation to consult with, and if needed accommodate, Indigenous populations who have rights or land claims within an area that the government wants to develop (Government of Canada, 2011). This duty to consult is, however, lacking for private sector developments. This means that most development that impacts land use, do not require consultation.

This disregard for inclusion of Indigenous knowledge undervalues the potential it has for benefiting society as a whole. This was expressed by participants in emphasizing that partnership is an essential way forward, as the effects of environmental pollution and degradation does not discriminate—our natural resources are shared.

Furthermore, assessing food insecurity in a way that captures traditional food access in a nuanced way is arguably more helpful to guide meaningful system change for Indigenous food security and more socially sustainable food systems. In the case of food insecurity, partnerships will be most appropriate to assessing and addressing the issue if Indigenous led. Sovereign decision making over how to address food insecurity is essential, and recognition that multiple pathways and forms of knowledge are equally valuable is long overdue. In line with FSSD-informed sustainability decision making, there are many potential pathways toward a more sustainable future, so long as not violating basic principles—in this case creating or perpetuating systemic obstacles to the attainment of health.

The barriers to traditional food access identified by participants undermine sustainability in complex ways. Results highlighted the important role traditional food itself can play as a vehicle to health and meaning making. Supporting connections within the off-reserve community, removing structural barriers to knowledge and land access, and strengthening the requirements for consultative processes and partnerships with Indigenous groups on decisions affecting natural resources (whether government or private sector led), are examples of solutions to traditional food access. These play a direct role in removing some of the structural obstacles to health, influence, competence, and meaning making, and as such contribute to a more sustainable system (Broman & Robèrt, 2017; Missimer et al., 2017a, 2017b). The barriers described also impact other principles of sustainability, including physical ecosystem degradation.

Supports for Traditional Food & Sustainability

While the barriers identified represent significant challenges to be overcome, the identified supports highlight what is currently working well and indicative of promising future practices.

Daily activities that express cultural values, such as food sharing, were highlighted as supporting access to traditional food, knowledge, and reinforcing identity. Though the costs associated with traditional food was a barrier, the fact that it is done, and described as being "worth the expense" demonstrates the importance attributed to the experience of hunting, and access to traditional food, as expressions of cultural values.

The sustained emphasis on capacity building by participants with regards to development of traditional food skills in youth echoes the call for strengthening of Indigenous knowledge and empowerment found elsewhere (Elliott et al., 2012) and can support awareness, rather than assimilation, which has created great barriers to not only traditional food, but culture. This study suggests that, at a community level, some obstacles to traditional food access can be overcome by supporting community knowledge and resource sharing, and financial supports to individual and community level costs associated with traditional food access; however, a focus on self-supported traditional food access minimizes the failings of the wider system and can reframe the responsibility for change as owned by communities for whom socioecological system is failing. Community efforts combined with removing structural obstacles identified above would have much greater leverage for addressing traditional food access.

As discussed above, consultation and partnership between Indigenous and non-Indigenous voices on decision making over shared resources, done in a way that honours genuinely equal partnership is one approach to address issues upstream, in a systemic way, and to identify obstacles that may otherwise be invisible to non-Indigenous decision makers. For example, consultations with the Assembly of Nova Scotia Mi'kmaw Chiefs on resource use issues are powerful examples of partnerships that support traditional food access, through the ability to raise concerns over environmental effects of developments and protect culturally relevant land. Consultation and engagement in policy development, in principle, ensure rights are respected and protected (Assembly of First Nations, 2016; Brooks et al., 2013; Damman et al., 2008) and empower Indigenous Peoples (National Indigenous Health Organization, 2004; Skinner et al., 2006; Smylie et al., 2006). In practice, these consultations and partnerships are only effective if the process has protections in place to ensure equal decision-making power.

Limitations

The research outcomes are generalizable to the Nova Scotia context, and should not be interpreted as universal values, barriers or needed supports. As stressed in the discussion, leadership from, and continued consultation and partnership with, Indigenous communities is necessary for application of the results in other jurisdictions to ensure cultural, geographic and temporal nuances are accounted for.

Conclusions and recommendations

This research suggests that access to traditional food plays an important role in supporting health and meaning making and is inextricably linked to a sustainable food system. It is therefore to our collective advantage to support it. What this research adds to the literature is that, in Nova Scotia, although communities can develop programs, such as cleaning of waterways to create hospitable environments for fish, and holding traditional feasts, when faced with land access restrictions and destructive developments in neighboring areas, community efforts are not enough

to off-set the damage caused. Further, Indigenous Peoples living off-reserve, or outside of their Indigenous territory may not have access to such community-building efforts.

Dismantling structural obstacles, in particular those in the macrosystem and exosystem, and actively leveraging existing successes show promise. For example, identifying and dismantling policies that limit the universal inclusion of Indigenous cultural food ways into social systems (school curriculum, institutional menus, etc.) could help facilitate a resurgence of knowledge-sharing within and between communities. Legislating meaningful consultation and partnership development in decision making over shared resources, ensuring equal decision-making weight, and tracking progress through inclusion of traditional food access as a metric in food security data collection, would also help protect traditional food access.

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Appendix

Glossary of Terms:

For the purpose of this research, the following terms are defined:

Indigenous Peoples are all people who inhabited what is now called North America in advance of European colonization. In this paper, at times the term Indigenous First Nations is used to describe Indigenous communities.

Mi'kma'ki is the ancestral, unceded land of the First peoples, Mi'kmaq, Wolastoqiyik (Maliseet) and Pasimaquaty nations. Mi'kma'ki includes NS, NB, PEI, NFLD and the Gaspe area of Quebec. Mikmaq traveled throughout these areas, known traditionally as the 7 districts, which later became 8. Current day Nova Scotia, where data for this study were collected, lies within Mi'kma'ki.

Traditional food refers to local plants and animals that are acquired through gathering or harvesting methods that contain cultural meaning; traditional foods vary depending on culture, local availability and geography (Earle, 2011). In this research, participants described traditional foods as "what our ancestors used to eat." Examples from participants included: wild caught fish and seafood, deer, partridge, moose, wolves, coyote, eels, bear, rabbit, beaver, muskrat, geese, porcupine, whale, maple syrup, herbs and berries. Some also referred to "what I ate, when I was a child" and this included foods like molasses, flour, tea (both herbal and imported "black" tea), coffee, apples. Traditional foods were discussed interchangeably as a source of nourishment (nutrition/sustenance) and medicine (health promotion/healing).

An **Indigenous food system** "consist[s] of a multitude of natural communities…includ[ing] all of the land, air, water, soil and culturally important plant, animal and fungi species that have sustained Indigenous Peoples over thousands of years. All parts of Indigenous food systems are inseparable and ideally function in healthy interdependent relationships…" (Working Group on Indigenous Food Sovereignty, n.d.).

Household food insecurity refers to limited or inadequate access to safe, nutritious foods in order to support healthy and productive lives within a household due to financial constraints (Tarasuk, 2002).

Cultural food security refers to hunting and harvesting practices, sharing and consumption patterns associated with traditional food, which act as vehicles for cultural teachings (Power, 2008).