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Review

"Part of Who We Are. . .": A Review of the Literature Addressing the Sociocultural Role of Traditional Foods in Food Security for Indigenous People in Northern Canada

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Abstract: Indigenous people in northern Canada have relied on sustained and safe access to traditional foods for millennia. Today, however, they experience higher rates of food insecurity than non-Indigenous people or Indigenous people living in urban settings. Changing socioeconomic and environmental conditions in the Canadian north have altered traditional food acquisition and consumption patterns, with implications for health and wellbeing, and cultural continuity. To assess the breadth and depth of scholarship on the sociocultural role of traditional foods in northern Indigenous food security, we conducted a scoping review of online peer-reviewed articles. The 22 articles selected and screened for comprehensive review affirmed that traditional foods remain vital and central to food security for northern Indigenous populations. However, our review brings to light a recurring tendency in these studies to disregard or inadequately consider the complex sociocultural dimensions of traditional foods, such as the critical role of food processing, cooking, and sharing in supporting Indigenous food security. To address this gap and ensure food security is aligned with Indigenous-defined needs and priorities, community-led research is needed, grounded in Indigenous knowledge that promotes access to traditional foods and affirms Indigenous food sovereignty.

Keywords: traditional food; cultural food security; Indigenous people; northern Canada; health; wellbeing; cultural continuity

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1. Introduction

Indigenous food systems are unique in constituting a mixed diet of both store-bought market food and land-based traditional foods acquired through place-based practices [1]. The contribution of traditional foods to northern Indigenous food security has come into focus in the last couple of decades. Traditional foods have been shown to represent a significant and nutritious part of Indigenous diets [2–4]. They also carry sociocultural significance as a medium to reflect and reproduce Indigenous cultural values, customs, and knowledge. Harvesting, processing, and sharing of traditional foods are recognized for their roles in supporting intergenerational knowledge transmission, promoting cultural continuity, and fostering wellbeing [5–8]. In the Canadian north, the ongoing displacement of traditional foods in favor of more expensive and less healthy market foods, known as the "nutrient transition" [2], contributes to inequitable adverse health outcomes for Indigenous populations, as well as high rates of food insecurity. This phenomenon is evident in Arctic and subarctic communities alike [4,9]. According to Loring and Gerlach [10], access to traditional foods represents the most significant challenge to addressing food insecurity in northern Indigenous contexts.

The United Nations' Food and Agriculture Organization (FAO) introduced a widely accepted definition of food security in 1996. According to this definition, food security exists "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and

healthy life" [11]. Four nested and interrelated pillars of availability, access, utilization, and stability underpin the definition [11]. However, Power [12] argues that the definition fails to adequately capture the realities of food (in)security for Indigenous food systems. Traditional foods, in addition to providing sustenance, are critical to the fostering of cultural identity, wellbeing, and connections to land [8,13,14]. Skinner et al. [15] underscore the need for food security to "incorporate race, ethnicity, and culture" (p. 2). In Indigenous contexts, this requires recognizing traditional foods and related place-based food practices as key components and determinants of food security [15]. Previous scoping reviews have either provided a broad assessment of the issue of Indigenous food insecurity in northern Canada, or have focused on specific aspects, such as health implications [16] and the retail food sector [17]. However, no systematic scan of the literature has been conducted on the sociocultural role of traditional foods in northern Indigenous food security.

Following the approach adopted by Skinner et al. [15] in their review of urban Indigenous food security, this article presents the results of a scoping study of the literature addressing traditional foods in the context of food insecurity for Indigenous people living in northern Canada. To address the limitations of conventional definitions of food security for Indigenous contexts, our focus is specifically directed toward the sociocultural dimensions of traditional food(s). In line with the rationale put forward by Skinner et al. [15], our focus on northern environments acknowledges the diverse and particular factors inherent in place-based food systems, which significantly influence both food security and health outcomes.

We begin with a brief overview of northern Indigenous food insecurity in Canada, highlighting the increasing rates of food insecurity linked to declining levels of traditional food harvesting and consumption. We also discuss the implications of these trends in order to provide context for the scoping review. A description of the methods and the results of the scoping review follows, organized under five major themes revealed in the literature selected for review: (1) availability of and access to traditional foods; (2) health and wellbeing; (3) cultural identity and continuity; (4) food sharing; and (5) strategies to improve traditional food security. The paper concludes with a discussion of gaps and trends in the research and suggestions for future avenues of inquiry.

Northern Indigenous Food Insecurity and Food Systems

In a prominent report released in 2014, the Council of Canadian Academies (CCA) defines "northern Indigenous peoples" as First Nations, Metis, and Inuit living in "the land and ocean-based territory that lies north of the southern limit of discontinuous permafrost" [1] (p. xxvi). Despite significant place-based distinctions among northern Indigenous populations, they face many common challenges, threats, and opportunities related to their food systems that allow for comparison across their experiences.

Northern and remote Indigenous households are consistently reported to be more at risk than their non-Indigenous or southern counterparts [18,19]. Rates of Indigenous and northern food insecurity are measured at national (e.g., CCHS), regional (e.g., First Nations Regional Health Survey; *Qanuilirpitaa*? Nunavik Inuit Health Survey; International Polar Year Inuit Health Survey), and community level scales. However, inconsistencies in distinguishing on-/off-reserve and urban Indigenous populations have made it difficult to capture the full extent of food insecurity across Indigenous populations. Despite this, recent reports from the First Nations Food, Nutrition, and Environment Study (FNFNES) show that nearly half of on-reserve First Nations households surveyed experience food insecurity and are at greater risk of adverse health effects than their non-indigenous counterparts [20]. Results from the 2017–18 Canadian Community Health Survey indicate that food insecurity is most prevalent across the northern Territories [18]. In Nunavut, for example, 57% of households reported some level of food security, of which nearly 24% were severely food insecure, more than double the rate found within southern provinces [18]. Further, 70% of households in Fort Albany First Nation in northern Ontario were food insecure [21], indicating a variation across northern communities. Moreover, studies suggest levels of

northern Indigenous food insecurity are worsening. Comparative data from the 2004 and 2017 *Qanuilirpitaa?* Health Survey revealed that household food insecurity among Inuit in Nunavik increased by 12.5% [22].

At the same time, participation in harvesting activities and consumption of traditional foods has declined across northern Indigenous populations [2,20,23–25]. Declining consumption of traditional foods in favor of market foods has been linked to adverse health impacts, such as diabetes, obesity, and cardiovascular diseases [2,26,27], and a reduction of essential vitamins and nutrients [28–30]. The displacement of traditional food systems has been attributed to colonial processes, which have undermined Indigenous ways of life. The relocation of traditionally nomadic groups to permanent settlements, the legacy of the residential school system, and the imposition of Western governance systems have altered the ways in which Indigenous food systems have been sustained for millennia [31–33]. Additional factors further compound challenges in accessing traditional foods, such as income level [26,34], gender [24,25], the high cost of harvesting [4,35], and environmental changes [36]. Importantly, northern regions are especially vulnerable to the impacts of climate change, which, in turn, impact access to and availability of local foods. Increased industrial and economic activities in the north contribute to further environmental changes and contamination and pollution of land and water territories on which Indigenous peoples rely for safe, locally harvested foods [37,38]. Despite these challenges, traditional foods remain a critical pathway to support Indigenous food security. They represent a preferred and central component of Indigenous diets [26], contributing to holistic wellbeing [34] and fulfilling an important function in supporting and maintaining the continuity of Indigenous knowledge and cultural identity [7,14,39].

2. Methods

A scoping review (as defined by the Canadian Institute of Health Research—CIHR) was conducted following the approach used by Skinner et al. [15] (p. 3–4) in their review of urban Indigenous food security in settler states (Canada, United States, Australia). Our review is similarly limited to online peer-reviewed journal articles and, therefore, excluded grey literature and other sources of evidence. Employing a parallel approach to our study of traditional foods in relation to northern Indigenous populations in Canada enables us to refine and extend current understandings of Indigenous food security. This approach also aids in identifying biases, emphases, and trends within the literature while generating comparative and reproducible results. As described by Munn et al. [40], a scoping review is an appropriate approach to "determine the scope or coverage of a body of literature on a given topic and give clear indication of the volume of literature and studies available as well as an overview (broad or detailed) of its focus" (p. 2). As outlined by Skinner et al. [15], the methods used "were adapted from the first five stages of the framework outlined by Arksey and O'Malley [41] and refined by Levac et al. [42], omitting the sixth optional stage" (p. 3). Briefly, these stages include: (1) identifying the purpose of the study and research question, (2) identifying relevant studies, (3) iteratively selecting and analyzing studies, (4) charting the data, and (5) summarizing and reporting the implications of results [41] (p. 22–34), [42] (p. 4–8).

A search of peer-reviewed journal articles was conducted in response to the following research question: What is the breadth and depth of knowledge on the role of traditional food(s) in relation to remote/northern Indigenous cultural food security? The selection of articles was limited to those published between January 1997 (chosen because it marks the enshrining of FAO's definition of food security as mentioned above) and December 2021, conforming with Skinner et al. [15]. For feasibility, this scoping review was limited to articles indexed in Scopus and Web of Science published in English. The list of search terms is detailed in Table 1. Keywords and a combination of keywords related to four topics were employed: (1) food security, (2) traditional food, (3) Indigenous, and (4) northern. Keywords under the topics "food security" and "traditional foods" are adapted from those used by Skinner et al. [15], though delineated as two separate topics. Keywords

associated with "Indigenous" similarly draw from the terms used by Skinner et al. [15], though adapted to apply exclusively to northern Canadian contexts (e.g., "Inuit"). The initial search resulted in a total of 248 articles from Web of Science and 227 from Scopus. A hand search was conducted for reference lists of articles selected for review to include relevant studies that were not captured in the search. This resulted in the inclusion of two articles (Stroink and Nelson, 2012 and Wesche et al., 2016), which are not indexed in Scopus or Web of Science. All articles were initially screened by title and abstract. Those not excluded in the initial screening were selected for a full article read and review, where they were examined for adherence to the specific inclusion and exclusion criteria.

Table 1. Search protocol and inclusion and exclusion criteria.

Food Security	Traditional Food	Indigenous	Northern	Inclusion Criteria	Exclusion Criteria
"food security" "food insecurity" hunger	"traditional food *" "traditional diet" "country food" food	Aborigin * Indigen * "First Nation *" Inuit Metis Dene Cree "Indigenous people *"	North * Arctic Subarctic remote	Location was northern Canada Minimum one paragraph on northern Indigenous food security Minimum one paragraph on traditional food	Only statistical information Studies on *: - diabetes - health promotion - diet - nutrition/nutrition security - pollutants, pathogens and/or contaminants - climate change * unless there was a focus on traditional food and food security as it relates to these topics Two articles from the same study (most relevant one was chosen) National and regional level studies that have not been published in peer-reviewed journals Studies that did not distinguish northern/remote within data sources

* indicates use as Boolean operator for truncation.

2.1. Inclusion/Exclusion Criteria

A full list of inclusion and exclusion criteria is provided in Table 1. These were adapted from the criteria used by Skinner et al. [15]. Only articles that focused on northern remote Indigenous populations in Canada were included in the search. Indigenous peoples in rural and remote areas often experience common challenges to accessing traditional food and food security distinct from those of Indigenous people living in urban areas. Limiting our search to rural and remote areas supported comparison across the selected articles. The article had to have a minimum of one paragraph that discussed an aspect of northern Indigenous food security, one paragraph that discussed traditional food, and include some primary research. Any study that took place in northern Canada (or Arctic or subarctic) was included.

Articles that focused on off-reserve or urban locations were excluded. Studies that took a regional (at times, international) or national level approach to northern Indigenous food security were excluded, unless there was at least one paragraph addressing the northern context in Canada exclusively. In line with Skinner et al. [15], articles that presented only broad statistical information (such as graphs and charts) were excluded unless they included a paragraph specific to traditional foods and food security. Articles that focused on urban centers in northern regions (e.g., Iqaluit) were also excluded. Studies that were focused exclusively on health (including diabetes, nutrient intake, diet quality, obesity),

pollutants/contaminants, and climate change were also excluded unless they included a discussion of these topics in relation to traditional foods and food security.

2.2. Content Analysis and Synthesis

Qualitative content analysis was conducted for articles that met the inclusion criteria. Similar to Skinner et al. [15], given the range of methodologies identified in the review, including ethnographic, mixed methods, and quantitative surveys/questionnaires, we adopted their approach of conducting a narrative synthesis. This involved an iterative process (p. 5). Each of the 22 selected articles was read in its entirety, and topics relevant to traditional foods (including harvesting, sharing, and food programs) and cultural food security were identified in each article and coded. A second reading of each article was conducted to extract additional data and group topics into inductively generated major themes. Topics were then synthesized in relation to one another, highlighting commonalities and differences across selected articles and identifying emphases and gaps in the articles.

3. Results

The literature search resulted in the selection of 22 articles. Given the extent of academic literature relevant to traditional foods or food security in northern Indigenous contexts in Canada, this number was lower than expected. These articles represent studies conducted across northern Canada, half (n = 11) in the territories, six in Ontario, two in Manitoba, and two in Labrador. The earliest published article was in 2006; however, ten of the studies have been published since 2016, and seven of those in the past two years (2020 and 2021), suggesting an increase in attention to the role and significance of traditional foods with respect to northern Indigenous food security. Table 2 outlines, for each article, the authors, location of study, methodology, and main purpose of the study. Of the articles selected, all but three applied qualitative methods consisting of interviews, observations/ethnography, focus groups, photovoice, and community mapping. Three articles employed surveys or questionnaires for quantitative analysis to complement qualitative findings.

Table 2. Summary of articles included in the review.

Author/Date	Place	Purpose	Methods
Beaumier et al., 2015 [43]	Arviat, Nunavut	"...examines the role played by climate-related risks and change in affecting the food security of Inuit women" (p. 550)	Photovoice, semi-structured interviews, focus groups, key informant interviews, participant observation
Chan et al., 2006 [44]	Kugluktit; Cambridge Bay; Rankin Inlet; Chesterfield Inlet; Pond Inlet; Clyde River, Nunavut	"...understand community perceptions about the factors associated with the availability and accessibility of traditional foods and nutritious market foods" (p. 417)	Focus groups
Douglas et al., 2014 [45]	Old Crow, Yukon	"...address community concerns regarding food security and supply in Old Crow and develop adaptation strategies to ameliorate their impact on the community" (p. 21)	Focus group/workshop

Table 2. *Cont.*

Author/Date	Place	Purpose	Methods
Ford and Beaumier, 2011 [46]	Igloolik, Nunavut	"...characteris[es] the nature and experience of food insecurity among Inuit community members and examining the conditions and processes that limit the access, availability, and quality of food" (p. 45)	Semi-structured interviews, focus groups
Gilbert et al., 2021 [47]	Cambridge Bay, Pond Inlet, Nunavut	"...(1) describe the meaning or significance of country food to Nunavummiut, (2) define and characterize common determinants of a low-yield harvest for country food as compared to a typical period, (3) examine impacts of a low-yield period on health and wellbeing, (4) identify coping strategies, and (5) gather suggestions for enhanced community and harvester support during these times (p. 158)	Semi-structured interviews
Guyot et al., 2006 [48]	Deh Gah Got'ie First Nation, NWT Beaver Creek First Nation, Yukon	"...document local traditional knowledge and observations of change in the local environment and traditional food harvest...record current adaptive strategies...and, finally, to explore what affects the observed changes in climate may have on the diet of the people living in these communities" (p. 404)	Focus groups
Harder and Wenzel, 2012 [49]	Clyde River, Nunavut	"...extend the analyses that already exist on Inuit resource sharing by adding further depth regarding the structural intricacies of contemporary resource sharing" (p. 306)	Participant observation, recall interviews
Islam and Berkes, 2016 [50]	Norway House Cree Nation, Manitoba	"...address food security as related to fish and local fisheries of an Indigenous community, and to develop an integrated approach to analyze the role of these fisheries" (p. 817)	Surveys, semi-structured interviews, focus groups

Table 2. *Cont.*

Author/Date	Place	Purpose	Methods
Lambden et al., 2007 [51]	Yukon First Nations, Dene/Metis, Inuit	"...to gain insight into these Arctic food security issues that largely remain undocumented: local observations about changes in traditional food systems, perceived advantages and health benefits and traditional food preferences" (p. 310)	Interviews, surveys
Loukes et al., 2021 [52]	Kasabonika Lake First Nation; Moose Cree First Nation; Wunnunim Lake First Nation; Wapekeka First Nation, Ontario	"...explor[e] insights around the barriers hunters and community members face in accessing traditional food, the initiatives that are working to improve access, and the potential development of a traditional food market model in this region" (p. 159)	Semi-structured interviews
Newell et al., 2020 [53]	Chesterfield Inlet, Nunavut	"...seeks to address the mechanism that links food security, cultural continuity and health and well-being at the community level in Chesterfield Inlet" (p. 3)	Semi-structured interviews, community meeting consultations
Organ et al., 2014 [54]	Nain, Nunatsiavut, Labrador	"...explore how a community freezer in one Inuit community in northern Canada influenced contemporary wild food access in the context of Indigenous food security (and more broadly, food sovereignty) in the Arctic" (p. 252)	Interviews, focus groups, participant observation, document analyses
Pal et al., 2013 [55]	Wapekeka First Nation; Kasabonika First Nation, Ontario	"...analyze the extent to which traditional dietary practices persist in two remote First Nations in northwestern Ontario, and the costs associated with maintaining such a lifestyle" (p. 133)	Participant observation, semi-structured interviews
Randazzo and Robidoux, 2019 [56]	Wapekeka First Nation, Ontario	"...documents what is involved in land-based food procurement in the Wapekeka First Nation, and the costs incurred getting food from the land"	Participant observation, semi-structured interviews

Table 2. *Cont.*

Author/Date	Place	Purpose	Methods
Robidoux et al., 2021 [57]	Wapekeka First Nation, Ontario	"estimate [Wapekeka First Nation's] total food requirement and the amount of food needed to sustain yearly food intake. . .for policy makers to put into perspective the amount of wild food needed to have an impact on food security rates and ultimately improve dietary related disease" (p. 1171)	Participant observation, formal and informal interviewing, description
Ross and Mason, 2020 [58]	Fort Providence, Dehcho Region, NWT	". . .identifies the multiple barriers to engaging in local food procurement and recognizes how they are related to current food insecurity challenges" (p. 369)	Participant observation, semi-structured interviews
Rudolph and McLachlan, 2013 [59]	Grand Rapids Crew Nation; Misipawistik Cree Nation, Manitoba	". . .describe and explore the implications of northern Indigenous community conceptualisations of the northern food crisis as they relate to environmental and food justice" (p. 1082)	Semi-structured interviews
Skinner et al., 2013 [60]	Fort Albany First Nation, Ontario	". . .determine participants' perceptions of food security and the range of adaptive strategies they use at an individual and household level" (p. 2)	Survey (HFSSM), semi-structured interviews
Snook et al., 2020 [61]	Rigolet, Nunatsiavut, Labrador	". . .documents Inuit knowledge to: (1) characterize Rigolet Inuit relationships with Mealy Mountain Caribou; (2) understand Inuit perspectives on how these caribou have been managed; and (3) identify opportunities for sustaining the Mealy Mountain Caribou population, while at the same time promoting Inuit wellbeing" (p. 3)	Interviews, participatory mapping, community open houses
Stroink and Nelson, 2012 [62]	Ginoogaming First Nation; Aroland First Nation; Eabametoong First Nation, Ontario	". . .better understand food behaviour, including the acquisition of both market-based and local food, from the perspective of First Nation community members" (p. 68)	Survey

Table 2. *Cont.*

Author/Date	Place	Purpose	Methods
Tsuji et al., 2020 [63]	Mushkegowuk Territory, Ontario	"...examine the food sharing networks of the Sharing-the-Harvest Programs; and [...] to explore other benefits associated with the harvest program" (p. 4)	Semi-directed interviews
Wesche et al., 2016 [64]	Fort Resolution; Fort Providence, NWT	"...(a) highlight the links between observed environmental changes and wild food procurement in two Indigenous communities in the southern Northwest Territories, (b) compare and discuss the implications of two collaboratively developed, community-based programs to improve capacity for wild food procurement, and (c) identify lessons learned and productive ways forward for communities" (p. 25)	Semi-structured interviews; participant observation

4. Findings from the Literature

The selected articles were reviewed in relation to five major themes derived from analysis of the reviewed studies: (1) availability of and access to traditional foods; (2) health and wellbeing; (3) cultural identity and continuity; (4) food sharing; and (5) strategies to improve traditional food security. A summary of the articles that address each of these themes, as well as key considerations, is presented in Table 3.

Table 3. Articles cited by theme.

Theme	Articles Cited	Summary of Key Topics and Considerations
Availability of and Access to Traditional Foods	Beaumier et al., 2015 [43] Chan et al., 2006 [44] Douglas et al., 2014 [45] Ford and Beaumier, 2011 [46] Gilbert et al., 2021 [47] Guyot et al., 2006 [48] Islam and Berkes, 2016 [50] Loukes et al., 2021 [52] Newell et al., 2020 [53] Organ et al., 2014 [54] Pal et al., 2013 [55] Randazzo and Robidoux, 2019 [56] Robidoux et al., 2021 [57] Ross and Mason, 2020 [58] Rudolph and McLachlan, 2013 [59] Skinner et al., 2013 [60] Stroink and Nelson, 2012 [62] Wesche et al., 2016 [64]	A perceived decline in availability of and access to traditional foods has been linked to several challenges and interrelated factors: - Colonial histories and policies - Climate change - Large scale development and infrastructure projects - Changing abundance and migration patterns of species - Introduction of contamination/pollutants - High costs of harvesting activities - Presence of non-local harvesters - Changing food preferences - Interpersonal and community relationships

Table 3. *Cont.*

Theme	Articles Cited	Summary of Key Topics and Considerations
Health and Wellbeing	Gilbert et al., 2021 [47] Lambden et al., 2007 [51] Newell et al., 2020 [53] Organ et al., 2014 [54] Robidoux et al., 2021 [57] Ross and Mason, 2020 [58] Snook et al., 2020 [61] Stroink and Nelson, 2012 [62] Tsuji et al., 2020 [63] Wesche et al., 2016 [64]	Traditional foods are found to contribute positively to holistic health and wellbeing in various ways. 1. Physical Wellbeing - Reliable and nutritious food 2. Mental/Emotional Wellbeing - Satisfies cravings - Improve feelings of purpose and satisfaction - Supports a balanced self - Supports intergenerational relationships 3. Spiritual Wellbeing - Upholds spiritual connections - Maintains relationships with land and others
Cultural Identity and Continuity	Gilbert et al., 2021 [47] Lambden et al., 2007 [51] Newell et al., 2020 [53] Pal et al., 2013 [55] Ross and Mason, 2020 [58] Snook et al., 2020 [61] Tsuji et al., 2020 [63] Wesche et al., 2016 [64]	Traditional foods and related practices are described as central to identity, and participation in practices can foster cultural continuity by: - Facilitating intergenerational knowledge and language transmission - Providing opportunities for experiential learning - Strengthening interpersonal relationships - Strengthening community cohesion Conversely, declining access to traditional foods is linked with erosion of culture.
Food Sharing	Beaumier et al., 2015 [43] Chan et al., 2006 [44] Ford and Beaumier, 2011 [46] Gilbert et al., 2021 [47] Harder and Wenzel, 2012 [49] Islam and Berkes, 2016 [50] Loukes et al., 2021 [52] Newell et al., 2020 [53] Organ et al., 2014 [54] Skinner et al., 2013 [60] Snook et al., 2020 [61] Tsuji et al., 2020 [63]	- Traditional food sharing between friends, families, kin, and communities supports availability of food and is a critical coping strategy to alleviate food insecurity - Access to traditional foods through sharing varies and is shaped by individual, interpersonal, households, and community factors - Some concern about changes and a perceived decline in sharing practices and implications for access to traditional foods and shifting cultural values

Table 3. *Cont.*

Theme	Articles Cited	Summary of Key Topics and Considerations
Strategies to Improve Traditional Food Security	Chan et al., 2006 [44] Douglas et al., 2014 [45] Gilbert et al., 2021 [47] Loukes et al., 2021 [52] Organ et al., 2014 [54] Randazzo and Robidoux, 2019 [56] Ross and Mason, 2020 [58] Rudolph and McLachlan, 2013 [59] Skinner et al., 2013 [60] Snook et al., 2020 [61] Wesche et al., 2016 [64]	- Preference for community-based and led initiatives to promote and uphold traditional food systems - Expressed need for these initiatives to be informed by Indigenous knowledge and values, prioritizing youth engagement - Initiatives are described to legitimize and affirm Indigenous food sovereignty and self-determination over local food systems

4.1. Availability of and Access to Traditional Foods

A major focus of most (n = 18) of the papers was the availability of traditional food and the challenges and determinants facilitating or undermining access to traditional foods. Many Indigenous people express concerns about a decline in the availability of country foods [45,47,58]. Elders, in particular, claim they eat less traditional food than they did when they were younger [53]. Much of this decline is attributed to the impacts of climate change or other environmental changes [44,46–48,52,53,58]. Of particular concern in northern environments is the changing ice conditions and changes in the timing of spring melt. For example, Inuit in Cambridge Bay and Pond Inlet describe the impact of climate change on the reduced accessibility of traditional foods. This is manifested in a contraction of hunting activities to more limited periods due to safety concerns on the ice [47]. Indigenous knowledge holders also observe the impacts of climate change on wildlife, including changes in migration patterns, habitats, behavior, and abundance of some species and the introduction of new species, often with significant implications for the availability of traditional food harvests [48,52,53,58]. Rudolph and McLachlan [59] noted access to traditional foods has been altered for the Misipawistik Cree Nation and Grand Rapids Metis since the construction of a hydroelectric dam and generation station and other extractive industries in northern Manitoba. Potential contamination exposure from mining activity in Fort Resolution has led to concerns among community members related to the safety of fish consumption [64]. Similarly, Stroink and Nelson [62] found that perceived contamination of land and waterways resulted in shifts in where and how often community members of the Ginoogaming First Nation harvested and consumed local foods. Robidoux et al. [57] also attribute the declining availability of traditional foods in Wapekeka First Nation in northwestern Ontario to more sedentary lifestyles, which has led to more intensive harvesting activities in habitats immediately adjacent to the community.

A common barrier impacting access to traditional foods is the costs associated with hunting and harvesting activities [44–47,52,60]. For example, Gilbert et al. [47] identified the cost of transportation equipment (e.g., snowmobiles) as a concern. During times when traditional foods are not readily available, Douglas et al. [45] observed that hunters in Old Crow, Yukon, travelled further from the community at greater cost and with no guarantee of success. Pal et al. [55] and Randazzo and Robidoux [56] calculated total hunting costs for First Nations in northern Ontario and determined that local food procurement can be more expensive than purchasing market foods due to the significant economic, time, and physical demands involved in traditional harvesting activities. They suggested that promoting local food procurement, along with additional supports and initiatives, could help alleviate some of these costs and encourage the harvest and consumption of traditional foods [56].

Some studies identified other social, economic, and cultural factors related to issues of access. An increased presence of non-local harvesters, for instance, can add pressure to

already stressed species populations [58]. Differential access can also be experienced within communities. For example, receiving traditional foods provided by an open-access community freezer in Nain inadvertently privileged the friends and family of those organizing or contributing to the freezer, who were able to take advantage of food sharing before other community members [54]. Food choice and preference can also impact access and the extent to which traditional foods contribute to alleviating food insecurity [57]. For example, Inuit youth in Chesterfield Inlet, Nunavut, were found to have a greater preference for store-bought food [53].

Loukes et al. [52] connected challenges in accessing traditional food systems among First Nations in northern Ontario to colonial histories and structures, particularly the impact of residential schools. This connection was attributed to disruptions in intergenerational knowledge transmission, leading to a loss of food knowledge and skills. A particular concern noted in several studies is the lack of food knowledge, skills, and language related to hunting and preserving traditional foods among youth [43,45,53,58]. According to Inuit women, reported in Beaumier et al. [43], the training of young hunters is challenging due to rapid population growth and the numbers of youth outnumbering those of elders and experienced harvesters.

4.2. Health and Wellbeing

The perceived benefits of traditional foods are addressed in several studies from the perspective of physical health and nutrition, as well as holistic notions of wellbeing encompassing mental, spiritual, and community health. Northern communities identified the significance of traditional foods in terms of a staple and stable food source [53,57]. For Wapekeka First Nation in northern Ontario, Robidoux et al. [57] noted that sustaining access to and consumption of traditional foods is critically important to meet individual and community energy requirements through a healthy and nutritious diet. Likewise, Newell et al. [53] reported that Inuit in Chesterfield Inlet consumed traditional foods in at least 50% of their meals.

Northern Indigenous communities included in the selected studies often perceived traditional foods as healthy [47,51,57,58,61]. Beyond subsistence, Inuit in Cambridge Bay and Pond Inlet express a "craving" for country foods and feeling "sick", "weak", or "sad" when going without them [47] (p. 164). Articles also linked access to traditional foods to spiritual and emotional wellbeing. Members of the Ginoogaming First Nation and Aroland First Nation in Northern Ontario correlated participation in hunting and fishing activities with improved "life satisfaction" and "sense of purpose" [62] (p. 71). Inuit in Chesterfield Inlet reported traditional foods as contributing to a balanced "mind, body and soul" [53] (p. 7). Similarly, Inuit in Nain also reported that traditional foods were "good for the soul" [54] (p. 256). Indigenous people noted that they were able to satisfy their personal food preferences by consuming these foods [47,51,58,61]. Beyond consumption, activities like harvesting and processing traditional foods were also seen as beneficial to emotional, mental, and community wellbeing. Ross and Mason [58] noted that traditional food harvesting fosters spiritual connection and relationship with land. Opportunities to be on the land are associated with feelings of wellness through the fostering of social relationships [63]. Moreover, food programs in Fort Resolution and Fort Providence, Northwest Territories, facilitated relationship-building across generations and between harvesters and youth [64]. The positive aspects of these practices are frequently emphasized, regardless of whether a harvest is successful or not [53,63].

4.3. Cultural Identity and Continuity

Many studies explored the connections between harvesting and other practices associated with traditional foods and the maintenance of Indigenous identity and cultural continuity. Traditional foods are described as being an essential part of northern Indigenous culture [51]. Inuit refer to hunting food as "part of who we are" [61] (p. 7) and "core to [our] lifestyle" [47]. Newell et al. [53] similarly explained how sharing traditional foods is

the "mechanism" that connects food security, wellbeing, and cultural continuity among Inuit. According to Ross and Mason [58], the ability to maintain and pass on knowledge supports cultural and linguistic continuity and is a source of cultural resiliency. Conversely, Inuit reported in Snook et al. [61] that a hunting moratorium on caribou inhibited their ability to pass on traditional knowledge and thereby contributed to cultural erosion.

Indigenous perspectives, as highlighted in several studies, underscore the significance of traditional food systems as pathways for knowledge transmission to younger generations [53,55,58,61,63,64]. According to Wesche et al. [64], local food programs create "linkages between Elders and youth" and are "an effective way to bridge the existing knowledge transmission gap" (p. 41). Harvesting practices, for example, allow youth access to land for experiential learning [53]. Sharing practices are also associated with cultural benefits, such as strengthening interpersonal relationships and community cohesion [53,63]. Pal et al. [55] identify the preparation of traditional foods as a particularly "important time for older women to share their [...] skills with younger generations of women" (p. 140). First Nations women take pride in their knowledge and skills related to preparing, processing, and cooking traditional foods to share with their community [55].

4.4. Food Sharing

Most of the studies (n = 12) highlight cultural practices and values related to food sharing. Sharing of traditional foods is identified as a critical adaptive and coping strategy to alleviate food insecurity and support access to traditional foods [44,47,49,50,52,60,63]. Indeed, with respect to Norway House First Nation in Manitoba, Islam and Berkes [50] partly attribute the unusually high level of food security reported in the community to the extensive fish-sharing practices in place for subsistence and commercial fisheries. In assessing the impact of a Sharing-the-Harvest program in Mushkegowuk Territory in northern Ontario, Tsuji et al. [63] reported that 76% of households received geese from the initiative, both individually and through community gatherings or events. Inuit women rely on family connections, especially for food provision, when needed [43]. Sharing has been found to be common in both inter- and intra-community [46,47], highlighting the extent of connectedness between northern communities. In addition to serving as a means of access to traditional foods, Newell et al. [53] identified food sharing as a mechanism connecting "community health and well-being, food security and cultural continuity" (p. 10). Similarly, Loukes et al. [52] reported that First Nations in Ontario regard food sharing as a source of community "pride" and "signified a resurgence in cultural practices and community unity" (p. 167).

Sharing practices are not uniform within or between communities. Harder and Wenzel [49] described how traditional food sharing is organized and structured through social dynamics and capital. For example, sharing among Inuit living in Clyde River, Nunavut, is related to *ilagiit* (kin) units, with implications for individual and household food security [49]. Differences in individual or household needs further characterized the distribution of traditional foods. Those who are not able to harvest traditional foods themselves, such as some elders, single-parent households (especially those headed by women), low-income individuals, and widows are often prioritized within Indigenous communities when sharing food resources [47,50,54]. However, users of a community freezer in Nain noted that limited availability can lead to the exclusion of some priority groups [54].

Some northern Indigenous communities have raised concerns about a decline and/or changes in food-sharing practices [43,46,50,61]. Inuit women have noted a shift in sharing customs from a foundation of reciprocity to an expectation of "free" country food [43]. As sharing is dependent on wildlife availability [46], a decline in sharing is also associated with the decreasing abundance of certain species, such as walrus [46] or caribou [61]. As a result, hunters and harvesters may be less inclined to share with those outside their immediate family [61]. Ford and Beaumier [46] also attribute declines in traditional food sharing among Inuit in Igloolik to sociocultural and lifestyle changes. Rapid population growth has diluted traditional sharing networks, while increased hunting costs make it

challenging for hunters to provide food without seeking monetary compensation [46]. Despite this, Skinner et al. [60] documented the prevalence and persistence of food sharing in Fort Albany First Nation, affirming its enduring role as a critical adaptation strategy to address food shortages, contrary to trends observed elsewhere.

4.5. Strategies to Improve Traditional Food Security

Several articles reviewed community-based strategies to address food insecurity. Among these, many focused on efforts that support access to traditional foods. Community members and participants repeatedly suggested increasing the support available to local hunters and hunting organizations to enhance the availability of traditional foods within the community [44,47,56,60]. In addition to facilitating direct access to food, communities also expressed a desire to sustain hunting practices because they offer opportunities for youth to acquire traditional knowledge and skills, thereby upholding cultural continuity [61,64].

Other studies address land-based local initiatives to improve food security, such as community gardens and agriculture (i.e., greenhouses) [45,59,60]. However, there are challenges to these alternatives, such as the limited growing season in northern regions and the need to preserve land as a habitat for wild game and plants [59].

Another prevalent concern was the need to develop and implement approaches to address food security in collaboration with communities, aligning with Indigenous values and knowledge [45,47,52,54,60,61]. First Nations in northern Ontario and Old Crow, Yukon, and Inuit in Cambridge Bay, Nunavut, expressed the need for local food initiatives to include and engage with youth [45,47,52]. Several other studies underscored the importance of these efforts being community-driven and led, prioritizing Indigenous knowledge and practices [54,60,61,64]. According to Wesche et al. [64], "the community-directed nature of local food procurement programs [in Fort Providence and Fort Resolution] provide a foundation for the successes achieved in each community" (p. 41).

Rudolph and McLachlan [59] described how the northern food crisis and displacement of traditional food systems are deeply political and rooted in Canada's colonial history of purposeful attempts aimed at eradicating Indigenous ways of being. As a counter to this, and in accordance with the principles of Indigenous food sovereignty, Indigenous people tend to favor initiatives that are community-based, and that legitimize and prioritize their ownership, control, and decision-making concerning local food systems [59]. Similarly, Loukes et al. [52] proposed that Country Food Markets could be "explored and piloted within Indigenous food sovereignty perspective[s]" to meet the needs and priorities of northern First Nations. Skinner et al. [60] also observed that perspectives on food security shared by members of the Fisher River Cree Nation resonated with the principles of Indigenous food sovereignty. They recognized the correlation between enhanced community and individual food security and the importance of fostering community capacity, engagement, and ownership in local food systems.

5. Discussion

Extensive research has been conducted on food insecurity among northern Indigenous populations in Canada, leading to a growing recognition of the critical role of traditional foods in addressing food security. The connection between traditional foods, food security, and health has received particular attention in Canada since the 1990s. Framed as a public health issue, numerous studies have explored the contribution of traditional foods to the physical health and nutritional security (i.e., access to sufficient nutrients) of northern Indigenous communities [4,65,66]. More recent research efforts have attempted to illuminate the relationships between traditional foods, cultural identity, and cultural continuity [14,67,68]. At the same time, efforts have been made within and across disciplinary fields to extend notions of health and food security to better align with Indigenous knowledge and worldviews and the needs of Indigenous communities. While this has resulted in more attention to relationships between food security, culture, and wellbeing, as Newell [53] notes, "very few studies have explored the connection between all

three concepts" (p. 3). Indeed, only 22 articles published over 15 years met the selection criteria for review. This suggests that prevailing Western perspectives on health and food security—which often overlook the significance of traditional foods in Indigenous food security and wellbeing—continue to dominate Indigenous food security research in Canada. While focusing solely on traditional food or health as distinct components of food security may facilitate the collection of valuable data, such an approach is incongruent with the holistic nature and interconnectedness of Indigenous food systems, nor does it resonate with Indigenous concepts of community and individual wellbeing.

It is significant that the majority of studies reviewed focused on a single northern community or region and employed qualitative methods. These studies were explicitly designed to meaningfully engage with and foreground Indigenous perspectives and voices. Several authors noted how their choice of qualitative research methods aligns with principles central to community participatory research and/or Indigenous methodologies [52–55,58,60,61,64]. These methods also tend to produce research outcomes that are more responsive to and respectful of local communities. Many studies were conducted as formal research partnerships with Indigenous community organizations, governments, and/or individuals [47,48,52,53,55–57,59,64]. The Council of Canadian Academies [1] calls for deeper engagement with Indigenous knowledge in order to better understand experiences of northern food insecurity and implement effective responses. The community-level research approach adopted in many of the reviewed studies amplifies Indigenous voices, illustrating the intimate and interdependent connections between food systems and traditional foods with the local environment. However, relying exclusively on small-scale qualitative research risks overlooking larger trends and patterns across communities and regions. For instance, of the selected studies, 11 involve Inuit (n = 8) and/or First Nations (n = 3) communities in Nunavut, Nunatsiavut, Yukon, or the Northwest Territories. The other eleven articles involve First Nations in northern Ontario and Manitoba, four of which [52,55–58] focus on partnered research with Wapekeka First Nation, Ontario. While this attention to Indigenous groups residing in the Arctic reflects the prevalence of food insecurity in these regions, engagement with other northern Indigenous communities is needed to fully capture the extent and particularities of food insecurity across the Canadian north.

Previous research has identified Indigenous women as more vulnerable to food insecurity [18,34] and less likely to participate in traditional food harvesting and consumption [24,25,66,69] despite traditional food being a preferred food choice for many women [51]. In this review, only two studies focused exclusively on Indigenous women participants, and only one [43] explicitly positioned itself as presenting a gendered analysis of traditional food security. The limited presence of Indigenous women in food security research, despite experiencing higher rates of food insecurity and poorer health outcomes than their male counterparts, has been identified and explored elsewhere [33,70]. While other subgroups, notably children and youth, have drawn scholarly attention in Indigenous contexts [71,72], less attention has been given to the relationships between Indigenous women, traditional foods, and food security. In the case of this review, this gap was attributed to women being less likely to participate in the direct harvest of traditional foods. However, as evidenced by Pal et al. [55], women are integral to the preparation, processing, and sharing of traditional foods. These practices also support knowledge transmission, food security, and wellbeing among Indigenous communities and are fundamental elements of Indigenous food systems.

An overemphasis in current research on traditional food harvesting and consumption as the primary point of inquiry limits a comprehensive understanding of the significance of practices at other stages within Indigenous food systems. This approach overlooks challenges and opportunities that these other stages may present for Indigenous food security. Furthermore, doing so perpetuates the exclusion of Indigenous women's knowledge and perspectives on matters related to their food systems, security, and health. Focusing on the knowledge and experiences of Indigenous women identifies and validates particular vulnerabilities. For example, in their exceptional gender-specific study, Beaumier et al. [43] found

that socioeconomic and historical factors were stronger determinants of Inuit women's food insecurity despite "the rapid changes observed in Arviat and indeed the Canadian Arctic more generally" (p. 556), and in contrast to other studies in the region [44]. Centering Indigenous women in research on these topics offers an opportunity for a more thorough and nuanced understanding of the importance of traditional foods for Indigenous food security and wellbeing.

Colonial, historical, and political processes have displaced and dispossessed northern Indigenous peoples from their traditional lands and foods and continue to shape the production, distribution, and consumption of local food systems. According to Loukes et al. [52], food sovereignty can offer "a more appropriate framework to challenge the structural inequities that lead to limited access to food" (p. 160). Restoring, revitalizing, and reclaiming Indigenous food sovereignty (IFS) is fundamental to fostering healthy relationships amongst people and all living things [73]. It is also vital to broader movements in support of Indigenous self-determination by reclaiming decision-making power [74]. Secwepemc scholar and founder of the British Columbia Food Systems Network, Dawn Morrison, eloquently captures the relationship between traditional foods and Indigenous food sovereignty, defining IFS as encompassing any place-based "present-day strategies that enable and support the ability of Indigenous communities to sustain traditional hunting, fishing, gathering, farming, and distribution practices" [74] (p. 97). Indeed, numerous community-level initiatives, as documented in the reviewed articles, have emerged to address their food needs in a way that reclaims power and ownership over their food systems. These responses range from traditional coping mechanisms for food shortages (i.e., sharing) to newly established programs like gardens and freezers. For Rigolet Inuit, the act of harvesting caribou is understood as an assertion of food sovereignty by reclaiming cultural food practices [61].

A recurring theme is the acknowledgement of community-level strategies aimed at enhancing access to local foods and reinforcing cultural connections to food, land, and learning. Despite this, the transformation of northern environments, livelihoods, and food systems has given rise to a mixed economy, where market foods will continue to play a crucial and indispensable role in obtaining healthy food and supporting food security. As suggested by Islam and Berkes [50], this context requires integrated approaches to food distribution and acquisition that account for sharing networks and store-bought foods. While market foods cannot replace the cultural and nutritional significance of traditional foods [61], both need to be pursued to ensure food security. Local food initiatives need to be coupled with efforts to make available market foods that are more affordable and nutritious [45]. The increasing reality of climate change and unpredictable environmental conditions underscores the need for diverse and resilient adaptation measures that also respond to community needs. This includes both upholding ways in which Indigenous communities have and continue to sustain access to traditional foods and exploring a range of integrated alternatives.

The articles reviewed affirm the multiple ways in which access to traditional foods supports northern Indigenous food security. However, future research projects need to adopt a more holistic and interdisciplinary approach to gain a more comprehensive understanding of the role of traditional food systems. The limited number of studies that address the relationship between Indigenous food security, culture, and wellbeing indicates that research is skewed towards the biophysical and nutritional benefits derived from traditional food harvesting and consumption. This can lead to the development and implementation of responses to food insecurity that are not culturally relevant or informed. Research approaches must be grounded in and build upon Indigenous knowledge and understanding of traditional foods and holistic health. Doing so foregrounds the deep entanglements and interconnections that traditional food systems reflect and reinforce between holistic wellbeing, land-based practices, and cultural identity. Moreover, centering these relationships and sociocultural elements of traditional food systems will support

more meaningful research and policy that address community-defined food security needs and priorities.

Specifically, more research is needed focusing on the sociocultural contributions of place-based practices related to the processing, preparing, cooking, and sharing of traditional foods. These practices, as well as the knowledge they embody, tend to be overlooked in existing studies. Recognizing and understanding these practices is essential to support ongoing access to and consumption of traditional foods, thereby contributing to food security. This shift would also provide an opportunity to highlight the roles, responsibilities, knowledge, and experiences held by Indigenous women related to these practices. This should include intersectional research, focusing on the overlapping factors that shape experiences and identities, such as the intersection of low income, gender, housing status, and parenthood. This could include the exploration of shared challenges, opportunities, and experiences to revitalize and sustain traditional food systems, including a focus on processes of food preparation and distribution as a way of including subgroups that tend to be excluded in conventional harvest studies. Studies published beyond the timeframe of the scoping review have begun doing this, focusing, for example, on female Haudenosaunee youth [8] and urban Indigenous women [75].

Several articles examined in this review attributed the displacement of traditional food systems to colonialism. They also underscored how community-led initiatives aimed at supporting access to traditional foods contribute to reclaiming Indigenous food sovereignty and (re)asserting self-determination over local food systems. Indigenous-led research has the potential to facilitate the development of culturally relevant and community-based initiatives by acknowledging community actions and priorities, and by affirming community decision-making and autonomy. Nonetheless, further research efforts are needed to advocate for strengthening access to traditional food practices and promoting Indigenous food sovereignty through support for community-based initiatives.

As highlighted in this review, researchers are increasingly availing of participatory and community-based methodologies to amplify and center Indigenous knowledge, in accordance with a broader shift toward Indigenous-led research. Future research must continue to seek the establishment of meaningful relationships and partnerships, which are crucial for foregrounding community perspectives and knowledge in research on traditional food systems. While this review was limited to peer-reviewed articles, future research should take account of grey literature and other forms of evidence that tend to be more inclusive of Indigenous perspectives and voices. The use of mixed methods and alternative approaches to gather evidence, such as mapping, photovoice, and video, can serve as effective tools to foreground Indigenous knowledge. These methods also enable the braiding of Indigenous and Western knowledge, thus strengthening our response to food insecurity.

6. Conclusions

Numerous studies acknowledge that supporting and improving access to traditional foods is essential for enhancing diet quality and nutritional security within northern Indigenous communities. It is also widely recognized that beyond providing a healthy and reliable food source, traditional food practices play a crucial role in preserving and revitalizing Indigenous knowledge, culture, and identity. However, this scoping review reveals a lack of scholarly attention to the contribution of traditional foods to Indigenous food security research, particularly regarding their sociocultural significance. As a result, the sociocultural considerations that influence the challenges and opportunities related to traditional food access remain inadequately explored. To ensure that research and responses to food insecurity are better aligned with the needs and priorities of Indigenous communities, we advocate for research that is community-based and grounded in Indigenous knowledge and understanding of traditional food and holistic wellbeing. In particular, we call for intersectional analysis centered on practices such as traditional food processing, preparation, and distribution, as well as the experiences of Indigenous women

and the implementation of participatory Indigenous-led methodologies. We contend that such an approach would yield a more comprehensive and nuanced understanding of food security in northern Indigenous contexts and would facilitate more meaningful, effective, and culturally relevant policy interventions.

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