

Planting Seeds of Change: Voices of Indigenous Youth on Wholistic Health

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Volume 13, numéro 2, 2022

URI : <https://id.erudit.org/iderudit/1093016ar>

DOI : <https://doi.org/10.18584/iipj.2022.13.2.10977>

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Éditeur(s)

Scholarship@Western (Western University)

ISSN

1916-5781 (numérique)

[Découvrir la revue](#)

Citer cet article

Moscou, K. (2022). Planting Seeds of Change: Voices of Indigenous Youth on Wholistic Health. *The International Indigenous Policy Journal*, 13(2), 1–24. <https://doi.org/10.18584/iipj.2022.13.2.10977>

Résumé de l'article

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September 2022

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Recommended Citation

Moscou, K. (2021). Planting seeds of change: Voices of Indigenous youth. *The International Indigenous Policy Journal*, 12(4).
<https://doi.org/10.18584/iipj.2022.13.2.10977>

Planting Seeds of Change: Voices of Indigenous Youth

Abstract

Indigenous youth are key partners in improving our understanding of holistic health and identifying solutions to address health-related issues. The Urban Gardens Project was a community-based research partnership involving Indigenous youth co-researchers, Brandon University, Indigenous Knowledge Users, Elders, and Indigenous organizations in Winnipeg and Brandon, Manitoba. Using the Medicine Wheel as an analytic framework, the study identified key indicators of spiritual, mental, physical, and emotional wellbeing that Indigenous youth attributed to gardening. Findings illuminate the need for policies to foster Indigenous youth engagement, leadership, and urban gardening programs that advance Indigenous cultural practices to contribute to Indigenous health and wellbeing. The research was funded by the Canadian Institutes for Health Research (CIHR).

Keywords

Indigenous, Indigenous youth, urban gardening, photovoice, community-based participatory research

Acknowledgments

I would like to thank the Elder Knowledge Keepers involved in the Urban Garden Project: Frank Tacan (Brandon, MB), Verna DeMontigny (Brandon, MB), Clarence Nepinak (Winnipeg, MB) and Barbara Nepinak (Winnipeg, MB) for sharing their stories, cultural knowledge and wisdom with the youth co-researchers and university researchers. I would also like to acknowledge the project collaborative partners: the Brandon Friendship Centre, Manitoba Métis Federation Southwest Region, Four Arrows Regional Health Authority and the Brandon University Indigenous People Centre without whose support and advice this project would not have been possible. In addition, I would like to acknowledge the Indigenous youth co-researchers and community partners that reviewed this manuscript and provided feedback. I would also like to recognize Brandon University Urban Garden project co-investigators Serena Petrella, Kim Lemky, Balfour Spence and Karen Rempel for their participation in the research project and thank Dion Wiseman for his assistance in preparing the GIS map.

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Planting Seeds of Change: Voices of Indigenous Youth on Wholistic Health

Indigenous youth are key partners in improving understanding of wholistic health and identifying solutions to address health-related issues such as food insecurity in urban centres. Demographic data from Statistics Canada reveal that the number of Indigenous people living in urban Census Metropolitan Areas is rapidly growing. Indigenous youth are the fastest growing population in Canada, increasing 39% since 2006 (Statistics Canada, 2018a). Approximately 57% Indigenous males and 52% Indigenous females living off reserve in Manitoba are under the age of 29 years (Statistics Canada, 2020). The median age of the Indigenous population in Manitoba is 22 years with 36% of the population under the age of 15 years and 18% between the age of 18-24 (Statistics Canada, 2020). The median age for the Indigenous population in Winnipeg is 27 years as compared with the 38.8 years in the overall Winnipeg population (Statistics Canada, 2018b). This demographic data suggests that the perspectives of urban Indigenous youth pertaining to health and wellbeing must be acknowledged. The Truth and Reconciliation Commission (TRC) Call to Action # 20, which demands that the distinct health needs of Métis, Inuit, and off reserve Indigenous peoples be recognized, further demonstrates that the specific health needs of Indigenous youth should be addressed. Projects that involve Indigenous youth as co-researchers empower youth to analyze conditions affecting their health and enable them to exercise leadership in order to contribute to positive change. Few studies pertaining to health or food security have involved urban Indigenous youth (Cidro et al., 2015; Companion, 2013; Johnson-Jennings et al., 2020; Martin & Hanson, 2019). The urban Indigenous population is culturally diverse and consists of individuals new to the urban environment as well as those whose only experience is in living in urban areas. Connection to traditional foods and cultural practices such as food sharing vary widely (Skinner et al., 2016). Research and programming for urban Indigenous youth therefore must reflect their unique and diverse experiences. To work towards decolonizing health, researchers must respect that there is no monolithic Indigenous experience. The distinct health needs of urban Indigenous Peoples must be understood and addressed, as called for by TRC #20.

The Urban Gardens: Towards Holistic Health and Food Security for Urban Indigenous Peoples project was a community-based research partnership involving Indigenous youth, Brandon University researchers, Indigenous Knowledge Users, Elders, and Indigenous organizations in Winnipeg and Brandon, Manitoba. The objective of this project was to investigate how gardening contributed to urban Indigenous youth's wholistic health and wellbeing. The study identified indicators of spiritual, mental, physical, and emotional wellbeing that urban Indigenous youth derived from gardening. The study also examined the role of urban gardening in contributing to social and community cohesion in support of neighbourhood health. Urban community gardens have the potential to be health promotive by improving food security, access to healthy food, and supporting overall wellbeing. Findings aid in implementing TRC Call to Action #22, to recognize and value Indigenous healing practices within the Canadian healthcare system (TRC, 2015 p. 3) by identifying the unique perspectives of Indigenous youth pertaining to health and wellbeing. Findings will also provide support for policies that foster Indigenous youth empowerment and community engagement. The research was funded by the Canadian Institutes for Health Research (CIHR).

Literature Review

Structural racism and colonization have resulted in a lack of Indigenous representation in governance and contributed to economic, political, social, health, and access to healthy food inequities in Indigenous Peoples in North America, Latin America, Africa, Australia, and the Pacific Islands. Government land expansionist policies

by European settlers disrupted access to traditional food sources (Baskin, 2008; Davy, 2016). Extractive industries have similarly disrupted access to or polluted traditional food sources (Whyte, 2016). Assimilation policies have led to loss of Traditional Knowledge and influenced food preferences toward preferring Western foods (Davy, 2016; Ngcoya & Kumarakulasingam, 2017; Whyte, 2016). Prior to colonization, Indigenous food systems and practices were health promotive (Browne, et al., 2020). Systemic racism continues to increase the prevalence of poverty affecting health and access to nutritious, healthy foods globally (Browne, 2017; Canadian Centre for Policy Alternatives Manitoba Office, 2018; Cidro et al., 2015; Rotenberg, 2016). A Toronto Public Health report on racialization and health inequities in Toronto found that racism, poverty, and health were interconnected (Toronto Public Health, 2013). Although the report did not include Indigenous people in the study, because “the historical and contemporary injustices they have experienced as a result of racism and colonization make their situation unique” (Toronto Public Health, 2013), it is reasonable to conclude that given the history of residential schools and assimilation policies globally (Smith, 2009), health inequities faced by Indigenous Peoples are also influenced by institutional racism. In Canada, government policies pertaining to residential schools, assimilation, and confiscation of Indigenous Lands have negatively shaped traditional food practices and preferences that have affected food security and health (Cidro et al., 2015; Cidro et al., 2014; Howell et al., 2016; Skinner et al., 2016). Indigenous people in Canada face food security challenges whether living on-reserve or in urban communities (Statistics Canada, 2018a). Food insecurity is a risk factor for poor health outcomes (Browne et al., 2020; Cidro et al., 2014; Skinner et al., 2016). As such, food insecurity is a risk factor for poor health outcomes, and these are exacerbated within “food deserts.” “Food deserts” refers to “socially-distressed neighbourhoods with relatively low average household incomes and poor access to healthy food” (Larsen & Gilliland, 2008, p. 1). Food deserts limit access to nutritious food in low-income areas of Brandon, Winnipeg, other Canadian inner-cities, and in neighbourhoods where Indigenous people reside (Cidro et al., 2014; Cidro et al., 2015).

Winnipeg North End has been the centre of a vibrant movement to address food insecurity, create food sovereignty, and build political action for positive change. In Winnipeg, youth-led grassroots movements, such as Meet Me At the Bell Tower, have empowered Indigenous youth to engage in social activism to benefit their community (Abusaleh, 2017). Prior to closing in 2018, Neechi Commons, an Indigenous run store in the North End, contributed to the wholistic health of the community by offering wholesome, traditional foods, Indigenous arts, and community meeting space (Hirschfield, 2018). The Four Arrows Regional Health Authority Kimeechimanan (Our Food)—Food Security program co-designs community-based gardening and backyard poultry projects employing traditional practices, and programs like “Got Bannock?” have provided meals to North End residents (Golby, 2018). Urban community gardens have the potential to further improve food security and therefore improve health as well. Studies suggest that community gardening may produce wholistic health benefits for Indigenous people living in urban neighbourhoods (Cidro et al., 2015; Companion, 2013; Lavallée, 2009). The limited research available on urban community gardens has suggested that gardening may produce positive mental health and physical exercise benefits (Lombard et al., 2006; Skinner et al., 2016; Stroink et al., 2010); provide a connection to nature and cultural roots (Companion, 2013); and improve food security in affected households (Cidro, Adekunle et al., 2015; Cidro, Peters et al., 2014; Skinner et al., 2016). Gardening programs that link nutrition and food to revitalization of cultural knowledge and practices result in additional health benefits. Companion (2013) suggests that community gardens benefit Indigenous individuals and communities especially when they are designed to build capacity and social empowerment. Social empowerment, self-determination, and community cohesion are intertwined and interconnected with resilience, which positively affects wellbeing. Resilience is characterized by positive self-esteem that enables individuals to

overcome challenges and is linked to strong, positive connections to one's Indigenous community (Donatuto et al., 2016). Resilience is also an indicator of Indigenous community health (Donatuto et al., 2016). Resilience is the intertwining of physiological and psychological processes that positively affect wellbeing and self-determination (Kirmayer et al., 2009).

Recently, a groundswell of community-based collaborative research has begun to emerge that engages Indigenous youth as equal co-researchers in a process of documenting community strengths and challenges (Centre for Rural and Aboriginal Studies, 2018; Flicker, et al., 2014; Gabel et al., 2016; Genuis et al., 2015; Moscou, Lemky et al., 2018; Moscou, Rempel, et al., 2018; Petrucka, et al., 2016; Victor, et al., 2016). Co-researcher projects respect the diversity of Indigenous knowledge and culture—a critical step in the decolonization of research. That is why the First Nations Information Governance Centre (FNIGC) created guidelines and principles for research with First Nations communities that require Indigenous Ownership, Control, Access, and Possession (OCAP) of all research undertaken that involves Indigenous Peoples and Indigenous knowledge (First Nations Information Governance Centre, 2014). Specifically, the FNIGC recognizes that research, and how it is used, is political. Historically, research about Indigenous people in Canada and around the globe in the Americas, Africa, and Asia has been used to portray Indigenous people in the context of deficits. In doing this, the research has been used to marginalize Indigenous people and justify colonialization and settler policies. The First Nations Information Governance Centre guidelines therefore aim to overcome these potential research pitfalls by ensuring Indigenous control over all phases of the research.

In the Urban Garden Project, Indigenous youth co-researchers collaborated on community-driven research to identify characteristics of gardening that supported the wholistic health of Indigenous youth and urban Indigenous neighbourhoods. A strength-based approach was used in this research to highlight resilience of Indigenous youth. To further decolonize the research, the Indigenous youth participating in the project were credited as co-authors of the photovoice book and curators photovoice exhibition stemming from the project research.

Theoretical Framework

TRC Call to Action #22 (TRC, 2015, p. 3) states that “Aboriginal healing practices must be recognized and valued within the Canadian healthcare system.” As such, respecting that each Indigenous community is unique, a paradigm shift towards wholistic health that integrates Indigenous knowledge and culture is essential to decolonization of healthcare and research. Indigenous knowledge, values and pedagogy were fundamental to this research project. The theoretical framework guiding the research was *Indigenous Wholistic Theory*, a concept which emerges from Indigenous epistemologies grounded in culture, language, and tradition in which there is a balance between the physical, emotional, mental, and spiritual (Absolon, 2010; Lavallée, 2009). Indigenous Wholistic Theory explains health and wellness from Indigenous perspectives. In the Medicine Wheel, this is represented as balance with others (family, community), the environment, and Mother Earth. Health and wellbeing, as depicted by the Medicine Wheel, are interconnected and interdependent with community and the socio-political environment. Although the spiritual, emotional, physical, and mental directions may vary, the Medicine Wheel's symbolism, common to many First Nations peoples, embodies metaphors for the life cycle and the harvest cycle (Department of Canadian Heritage & National Indigenous Literary Association, 2006-2015). The Medicine Wheel used by the Brandon Friendship Centre Aboriginal Healing and Wellness Program which

guided this project comes from Indigenous knowledge, history, and cultural identity. Spiritual Health (Spring), is the domain of the eastern direction of the wheel and is interconnected and interdependent with each of the sacred directions (Absolon, 2010). The southern direction of the Medicine Wheel (Summer) characterizes emotional health. Emotional wellbeing is interconnected with community relationships. The collaboration amongst youth co-researchers and university researchers in this study fostered trust and strengthened the bonds to create a supportive community. Fostering quality relationships is important to “living the good way.” Absolon (2010) suggests that the Summer is the time when a “critical understanding of the social contexts” for issues that affect Indigenous people is formed. Elders play a key role in imparting the historical context, culture, and wisdom during this period. The western direction of the Medicine Wheel (Fall, the time of harvesting) represents physical health, which is advanced through collective work and is interconnected with socioeconomic health. Fall is a time to listen to and take care of your body. Mental health is represented by the Medicine Wheel’s northern direction (Winter) and is a time for self-reflection and preparation for a new season. The centre of the Medicine Wheel is the fire of life and represents the “self.” Wholistic health is conditioned on being in balance with spiritual health, emotional health, mental health, and physical health (Absolon, 2010; Lavallée, 2009). Indigenous knowledge is an integrative, dynamic guide; thus, the Medicine Wheel has become central to the empowerment of Indigenous youth irrespective of whether they reside in rural or urban communities.

Method

Qualitative research methods that include photovoice and focus group interviews were employed in this research. Photovoice is a documentary community-based participatory action research method that gives voice to individuals (e.g., youth) often unrepresented in conversations about policies that will affect their lives (Strack et al., 2004; Wang & Burris, 1997). Photovoice makes the invisible visible by creating a platform for Indigenous youth to tell their stories—stories that have historically been unheard or erased (Flicker et al., 2014). The data derived from photovoice methods included youth co-researchers’ photographs, their descriptions of the photographs and why they photographed the image(s), and their stories about the meaning of the photos and why the image was meaningful to their lived experience. One 90-minute focus group session was held with Winnipeg and Brandon groups in their respective cities to gather additional perspectives about the wholistic health effects that they attributed to urban gardening. Twelve out of the 14 youth co-researchers completing all phases of the project participated in the focus group sessions (Brandon-4, Winnipeg-8). Focus group sessions were recorded and data transcribed. The data were collected between June 2017 and March 2018.

Data were read iteratively and coded using Atlas ti v8.3 qualitative research software and analyzed for themes pertaining to factors contributing to wholistic health by the project’s principal investigator. Data were analyzed to identify characteristics of urban gardening that contributed to mental, physical, spiritual, emotional, and community health. The youth co-researchers contributed to the analysis by categorizing their photos and stories according to the Medicine Wheel framework, individually and as a group. A semantic analysis of the data was conducted by the principal investigator to examine how words were used in context and their relationship to one another in the descriptions of the photographs and accompanying stories written by the youth co-researchers (Bernard & Ryan, 2010).

The authenticity of the data analysis was established by having the Indigenous youth co-researchers determine the meaning of the photographs that they took. Quotes are verbatim, taken from the photovoice stories told in “Planting Seeds of Change: Voices of Indigenous Youth” (Moscou, Lemky et al., 2018). Additionally, each youth

co-researcher and each Indigenous community partner was provided a draft copy of the journal manuscript prior to submission for publication and asked to affirm the integrity of the analysis. Their comments were integrated into the final analysis of the project.

Project Planning

The Urban Garden Project followed Tri-Council policy (TCP2) guidelines for ethical research with First Nations, Inuit, and Métis Peoples in Canada. In this study, research protocols were co-designed with area urban Indigenous community research partners (Brandon Friendship Centre, Manitoba Metis Federation Southwest Region, Brandon University Indigenous Peoples Centre), Brandon University Centre for Aboriginal and Rural Education Studies, Four Arrows Regional Health Authority (Knowledge User), and Brandon University researchers. An advisory committee comprised of representatives from Brandon University, and each of the community research partners developed research protocols that adhered to the principles of Ownership, Control, Access, and Possession (OCAP) advocated by First Nations Information and Governance Centre in Canada and established terms of reference for managing, collecting, preserving, and sharing photographic data derived from the project. Community-recognized First Nations and Métis Elders in Brandon and Winnipeg provided advice and counsel to ensure that Cultural Protocols were followed as recommended by TCP2 guidelines (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council, and Social Sciences and Humanities Research Council, 2014). The two Ojibway Elders in Winnipeg and a Dakota and Métis Elder in Brandon also shared traditional teachings and provided guidance to the youth co-researchers and the Brandon University research team.

Recruitment

Indigenous youth (18-29 years) were recruited to participate in the Urban Garden Project with the aid of our community research partners in Brandon and Winnipeg, Manitoba, following ethics approval from Brandon University (#22082). Participants represented a convenience sample of youth that responded to the call for participants posters placed at each of the Indigenous partners' sites. To be eligible to participate, youth had to be between the ages of 18–29 years, reside in Winnipeg or Brandon, and self-identify as First Nations, Métis, or Inuit. In addition to meeting the eligibility requirements, youth co-researchers were required to complete photovoice, photojournalism, and ethics training relevant to taking images and protecting anonymity. Eighteen youth met all requirements for participation.

Project Phases

The Urban Gardens: Towards Holistic Health and Food Security for Urban Indigenous Peoples project was undertaken in four phases.

Phase 1.

In the first phase, youth co-researchers conducted a survey of community gardens in Winnipeg and Brandon, Manitoba, then mapped the location of neighbouring grocery stores and convenience stores. They participated in a workshop on Geographic Information System (GIS) mapping to enable them to map the location of the First Nations, Métis, or Inuit-run community gardens and community garden projects managed by non-Indigenous

groups in Brandon and Winnipeg. The GIS workshop was held in Brandon. Winnipeg participants were provided transportation and housing to attend the GIS workshop. A GIS map of grocery stores and convenience stores was overlaid on the community garden map then analyzed to identify neighbourhoods where there were food deserts (Figure 1). GIS-based techniques have been used successfully to evaluate accessibility to grocery stores by foot and public transit in an urban setting (Larsen & Gilliland, 2008). The results of the analyses were used to establish six garden beds in Brandon and 10 community garden beds in four Winnipeg North End neighbourhoods. The North End, a historically Indigenous neighbourhood, has a disproportionate number of food deserts (Cidro et al., 2015). An inventory of urban garden programs that provided culturally relevant services for Indigenous youth was planned but not completed.

Sharing Circles about the Medicine Wheel were also held in Winnipeg and Brandon for youth co-researchers in Phase 1. The Sharing Circles were facilitated by Brandon and Winnipeg Elder Knowledge Keepers who shared their knowledge of the Medicine Wheel and Indigenous perspectives of health and wellbeing. Sixteen youth co-researchers participated in the Medicine Wheel Sharing Circles. They included all of the Brandon youth co-researchers (seven youth) and nearly all of the Winnipeg youth co-researchers (nine youth). Phase 1 activities laid the groundwork for the next phases of the Urban Gardens Project study.



THE URBAN GARDEN PROJECT

Brandon Community Food and Indigenous Medicine Gardens

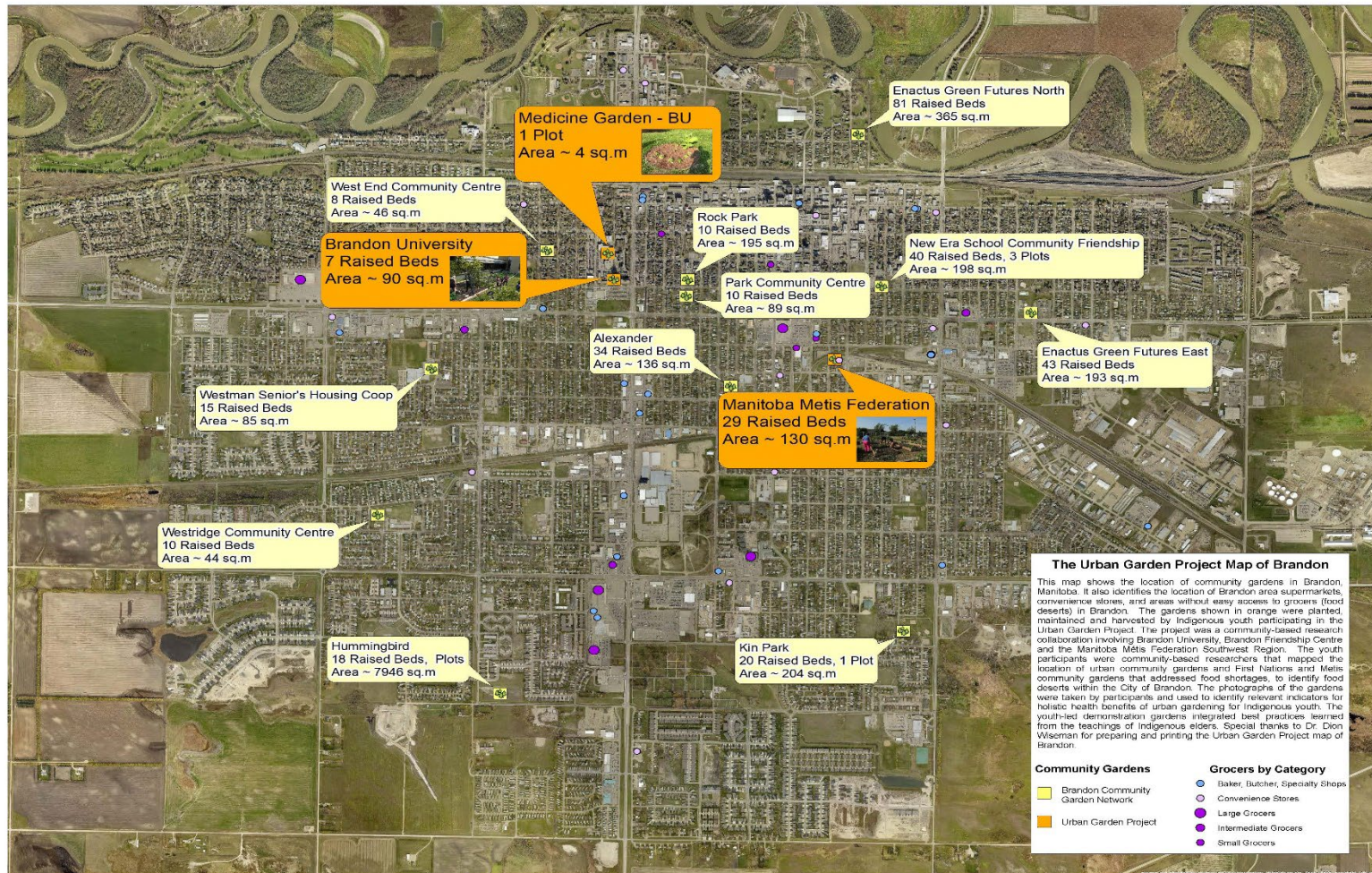


Figure 1. Map of Community Gardens and Grocers in Brandon, Manitoba

Phase 2.

In the second phase of the project, youth co-researchers were equipped with cameras and taught how to document their experiences of urban gardening through photojournalism. All 18 youth co-researchers participated in this phase of the project. The Indigenous youth co-researchers received training in photovoice research methodology, photojournalism, and research ethics pertaining to consent prior to beginning photovoice activities. Photovoice is a community-based participatory research method that has been used to effectively engage youth in a process of documenting community strengths and challenges (Strack et al., 2004; Warne et al., 2012). Photovoice uses participant employed photography and analyses to minimize the power differentials between researchers and subjects of research (Christensen, 2012; Lavallée, 2009; Strack et al., 2004; Warne et al., 2012). Indigenous youth participating in photovoice and other visual research methods are researchers into their own lives in addition to the subject of the research (Victor et al., 2016).

Phase 3.

The urban community gardens in Brandon and Winnipeg were installed, managed, and harvested by the youth co-researchers in Phase 3 of the Urban Gardens Project. Six garden beds were planted at three Brandon locations (Manitoba Métis Federation Southwest Region, Flora residence at Brandon University, and the Brandon University Indigenous Peoples Centre). Ten garden beds were planted at four Winnipeg North End locations. In each of the gardens, youth planted traditional foods using traditional planting methods under the guidance of an Elder participating in the project and the co-researcher from Four Arrows Regional Health Authority. As an example, the youth planted the three sisters (corn, beans, and squash) in each garden. An Indigenous medicine garden was planted at the Indigenous Peoples Centre at Brandon University that contained tobacco, blueberries, strawberries, and sage. The garden was planted next to a cedar tree. The soil would not support sweetgrass, so it was not planted. The gardens were cultivated by the project youth over a two-month period and then harvested. Planting, weeding, watering, and harvesting at the Manitoba Métis Federation Southwest Region, Brandon, was guided by the project's Métis Elder Knowledge Keeper who shared cultural knowledge with the participants. Participation in gardening activities varied with some youth participating in all activities and others only some. Group participation rate ranged from 50% to 86% in each city. During Phase 3, each youth co-researcher photographically documented their gardening experience and any effects on spiritual, mental, physical, and emotional wellbeing that they attributed to gardening.

Phase 4.

In Phase 4 of the Urban Garden Project, participants engaged in photovoice storytelling to document their experiences with urban community gardening. Youth co-researchers were asked to write stories about their photographs that would shed light on their lived experience and experience with urban gardening in the context of the Medicine Wheel. Eight facilitated writing workshops were held so that youth co-researchers could reflect on the meaning of their photographs and gain insight from their peers about their photographs and stories. The writing workshops were guided by an adapted SHOWeD structure developed by Wang and Burris (1997). Using the SHOWeD process, photovoice participants were invited to describe their photographs and consider the following questions: 1) What do you **See** here?; 2) What's really **Happening** here?; 3) How does this relate to **Our** lives?; 4) **Why** does this problem or strength exist?; 5) What can we **Do** about it? (Wang & Burris, 1997). Self-reflection writing templates aided the writing process. Youth co-researchers were asked to select the writing

template that they thought was most relevant to the photograph they wanted to describe. Youth co-researchers were asked to reflect on and write about what their photograph depicted and why they chose to take it (i.e., why it was meaningful to their lived experience). Youth co-researchers chose from five templates according to which they reflected on and described how their photograph related their experiences of urban gardening: 1) How their photograph demonstrated the relationship between mental, physical, social, and/or emotional wellbeing and urban gardening. 2) How their photo showed culturally relevant indicators of the wholistic health benefits for Indigenous youth. 3) How their photo showed food security or lack of access to food. 4) How their photo showed gardening projects, activities or programs that supported spiritual, emotional, mental, or physical health and food needs of First Nations, Métis, and Inuit youth. 5) How their photo showed Indigenous youth engaging in activities to improve neighbourhood health.

Results

Of the 18 youth that were recruited and trained to engage in photovoice and mapping research activities, 14 youth completed all phases of the research project. Three youth from Winnipeg and one youth from Brandon left the project before the project end-date. One youth left due to employment and the others for personal reasons. The greater participation rate by Brandon Youth co-researchers may be due to their prior participation with the university research team in another youth co-researcher project. See Table 1 below:

Table 1. Youth Co-researcher Characteristics

Winnipeg	Brandon	Gender			Youth Co-researchers completing all project phases*	
		M	F	LGBTQ2+	Winnipeg	Brandon
11	7	7	10	1	8	6

*Fourteen Youth Co-researchers completed all phases of the research project. Four youth co-researchers left the project at various stages for work or personal reasons.

Indicators of wholistic health benefits of urban gardening as reported by Indigenous youth co-researchers are shown in Table 2. In this paper, quotes are derived from the stories written by the youth co-researchers and focus groups. When names are attributed to one of the youth co-researchers, the quote was derived from the photovoice booklet "Planting Seeds of Change: Voices of Indigenous Youth" that was created and distributed to the general public as part of the research project knowledge sharing plan. Each youth consented to include their name, photos, and stories in the photovoice booklet as well as the photovoice exhibitions that were held as part of the knowledge sharing protocol. When a quote was derived from a youth co-researcher who participated in one of the focus group sessions, names were omitted and replaced by the youth's participation group (Winnipeg or Brandon, MB) in order to maintain anonymity as per the research ethics protocol.

Table 2. Indicators of Wholistic Health: Benefits Derived from Gardening Using the Medicine Wheel Framework

Medicine Wheel	Indicator of Spiritual, Emotional, Mental, and Physical Wellbeing
Spiritual Health (East, spring, planting season)	<ul style="list-style-type: none"> • Greater self-reflection • Positive feeling about contributing to something growing • Feeling a connection with Mother Earth • A sense of calmness
Emotional Health (South, summer, growing season)	<ul style="list-style-type: none"> • Feeling good about oneself • Feeling a sense of connection to community • Feeling a sense of connection to culture • Feeling connection to family • Social connections and healthy relationships • A feeling of self-sufficiency • A feeling of being inspired or inspiring others • A feeling of being motivated or motivating others • Support and knowledge from Elders • Feeling good about helping others • Feeling connected to a supportive network • Pride • Overcoming fear • Dedication and patience
Mental Health (West, Fall harvest)	<ul style="list-style-type: none"> • A sense of connectedness • Feeling nurtured • Feeling balanced • Inclusion and acceptance • Feeling connected to culture • Feeling connected to the broader community • Feeling connected to a support network • Feeling vibrant, determined, strong and/or hearty • Feeling a sense of accomplishment • A sense of purpose or meaning
Physical Health (North, Winter)	<ul style="list-style-type: none"> • Development of healthy habits and a healthy lifestyle • Access to nutritious food and healthy food options • Increased exercise such as walking • Increased stamina • Feeling connected to a supportive network that encouraged physical effort

The preliminary findings are organized according the directions of the Medicine Wheel (i.e., mental, physical, emotional, and spiritual health). Preliminary findings reveal that the Indigenous youth co-researchers identified strong parallels between the iconography of the Medicine Wheel (birth, adolescence, adulthood, eldership) and the cycles of gardening (planting, growth, harvesting, wintering over). Using the Medicine Wheel analytic framework, they identified indicators of mental, emotional, physical, and spiritual health as related to their experience gardening. As summarized by a Winnipeg youth co-researcher:

The Medicine Wheel has four quadrants. We are stuck in one part of it, we haven't been trying to heal or replenish it, or cycle through it. To be healthy we need to return to the centre of the Medicine Wheel and begin the cycle again. Nature, however, will adapt and change life. It will continue to flow. Urban gardening groups like this, help . . . youth realize the state we are in. By gardening we are contributing to our physical and mental health. Being a part of this project has helped me connect with people from different walks of life in my community. (Alycia, Winnipeg)

The Indigenous youth co-researchers also reported that participation in the Urban Gardens: Towards Holistic Health and Food Security for Urban Indigenous Peoples project benefited their mental health, emotional health, physical health, and spiritual wellbeing.

Mental Health

The Indigenous youth participating in the Urban Garden Project reported that gardening positively benefited their mental health. They used words like “calming,” “soothing,” and “balanced” to describe the effects of gardening. Gardening nurtured them much like they nurtured the plants, which enhanced one participant's interest in doing more with the group.

Gardening can contribute to mental wellbeing ... because you feel genuinely good to be a part of something bigger than yourself. (Alanna, Winnipeg)

I have minor anxiety and depression and gardening took the focus off myself and made it more about the plant and hoping it will thrive and helping it thrive helps me. (Daylynn, Brandon)

Emotional Health

The Indigenous youth participating in the Urban Garden Project reported that gardening contributed to their emotional wellbeing because it provided a sense of accomplishment, self-sufficiency, and pride. Working as part of a gardening group provided a support network and a feeling of inclusion that contributed to participants' emotional wellbeing. Working with the Elders participating in the project provided an opportunity for intergenerational learning that connected them with their Indigenous culture.

Seeing this plant mature and bloom into something rather beautiful had an emotional impact on myself. This emotion made me realize that being part of the community was important, being a part of something larger added meaning and purpose, which would benefit [w]holistic wellbeing. (Kelly, Brandon)

I took this photo because during the installation of the Medicine Wheel garden I felt at peace, even with the hard labour involved ... Being involved in the project made me feel emotionally, mentally, spiritually and physically healthy ... Gardening helps me to connect to my roots and my Métis grandfather. (Daylynn, Brandon)

I have learned honestly, like everyone is like pretty chilled, they are not here to judge you. Before I even first came, I was shy. Well [I] am still kind of shy but I didn't know how to say anything because I was afraid to be judged or not like listened to or something but now, I feel like I'm appreciated. In other words, that makes me feel good." (Winnipeg youth co-researcher 1, focus group)

Physical Health

The Indigenous youth participating in the Urban Garden Project reported that gardening contributed to a healthy lifestyle by providing physical and nutritional benefits—important because, “stuff like depression and diabetes run high especially in Métis and Aboriginal communities” (Brandon focus group, youth co-researcher 2).

Kids nowadays are not getting enough exercise caused from a lack of stimulation. Gardening brings people together to work with the same goal in mind. Gardening can be the solution to these problems. It brings community together, is less expensive than grocery stores, connects people with nature and the environment, and encourages kids to put in the physical effort gardening requires. (Alycia, Winnipeg)

Gardening has both positive and negative aspects as it can take up quite a bit of time especially in the beginning. Clearing the space for it was definitely the most physically demanding and took the most time, however it is extremely rewarding for your body. I definitely felt it the next day in my muscles, but I also felt very proud; like I had accomplished something great. (Daylynn, Brandon)

Spiritual Health

The Indigenous youth participating in the Urban Garden Project commented that their gardening experience connected them to their traditional Indigenous beliefs necessary for spiritual healing. One youth reported that one of the moments they admired was burying tobacco by the garden beds to thank the earth for providing for us.

When you get to connect back with mother earth and focus on that and not focus on the distraction instead of modern society that gets in the way of a lot of things and stuff. Gardening is important cause we get to reflect and to be able to receive those oral traditions and stuff. (Winnipeg focus group, youth co-researcher 3)

The photo showcases why the SOUL Garden is also referred to as the healing garden. It is all leading back to the spiritual fire we need to feed in order to achieve harmony in life ... I took this photo after a long week of feeling emotionally, physically exhausted and with a sprained ankle sitting in the heart of healing garden. I wanted to recharge. (Alanna, Winnipeg)

Key findings emerging from the preliminary analyses of the data showed that Indigenous youth co-researchers recognized the interconnectedness among spiritual, emotional, mental, and physical health realms. For example, one participant reported that gardening was calming on the emotional and spiritual level. Another participant

reflected that the discipline, time commitment and need to be outdoors to maintain the garden helped to balance mental and emotional health and rejuvenate the mind. Gardening affected physical and emotional health by building relationships while encouraging youth to put in the physical effort gardening requires. Finally, the plants were described by one participant as a metaphor for their resilience and connection to the Creator and Mother Earth.

The patience and dedication that gardening requires can help balance emotional health by allowing a positive outlet to purge negative energies. (Toni, Brandon)

I took this photo because of the resilience and movement of the plant resembled us and how we are always connected to our Creator and Mother Earth. (Leo, Winnipeg)

The data also suggest that, for Indigenous youth co-researchers, urban gardening is associated with connectedness, leadership, motivation, and community health. They expressed the view that a healthy neighbourhood must be cultivated.

Connectedness

Feeling connected to culture, community, family, and Mother Earth was expressed by participants as an indicator of wholistic health across each of the Medicine Wheel quadrants. Connection to culture supported mental, emotional, and spiritual health. Connection to community affected mental, physical, and emotional health by providing a support network that encourages physical activity as well as motivates and inspires change. Being a part of a community created a sense of acceptance and inclusion that participants reported benefited their mental health.

As an urban Aboriginal Anishinaabe, feeling left out and seeking acceptance from the community is a challenge. The SOUL Garden helped our gardening team learn essential nurturing skills ... it nurtures our spirits and brought out our Anishinaabe connection to Mother Earth. (Wayne, Winnipeg)

Many of the youth co-researchers spoke of the symbiotic relationship they have to the land in terms of their identity and their place in the world. The youth co-researchers recognized the importance of transformative land-based and community integrative practices that they engaged in, grasping that urban gardening provided them much more than a simple food security solution, but also a way to connect to themselves, the land, their culture, and to others.

Leadership

Youth co-researchers found that their participation in the project and knowledge dissemination activities fostered leadership and empowerment to be change agents, and supported their emotional and mental health. They reported gardening contributed to mental and emotional wellbeing because it made them feel good to be a part of something bigger than themselves.

It made us feel like we were taking leadership for ourselves and was really empowering. Since being involved in the Project, I have gotten asked a lot from my younger friends, how to get involved. (Alanna, Winnipeg)

I found that leadership in learning more about these gardens . . . is vital for the community and its future. . . . [M]ore indigenous youth leadership . . . would provide others with the same opportunity that I was given, which would perhaps someday help create even more access to community gardens that provide to the neighbourhood. (Kelly, Brandon)

As a result of the urban gardening experience, one participant expressed that they saw themselves a positive role model and “being a positive influence on the community right now is really important” (Alanna, Winnipeg). Another youth co-researcher commented that, “taking a step toward betterment of others and yourself, when the odds are against you, shows leadership” (Alycia, Winnipeg). One participant stated that, “Nothing compares to the feeling you get from inspiring change in the smallest ways” (Alanna, Winnipeg).

Supportive Networks

In participating in the project, youth co-researchers built a network of individuals that motivated, inspired, and nurtured their personal growth. The positive attributes of nurturing were expressed by participants as an indicator of wholistic health across each of the Medicine Wheel quadrants. Participants revealed a symbiotic relationship between nurturing the plants, nurturing themselves, and nurturing others.

This project was a great way to nurture myself by bonding with other Indigenous youth in our area and of course learning how to make my own garden at home. (Daylynn, Brandon)

Before I joined this project, I didn’t have a say in anything, so I think the first step is to value the opinion. Opening that door to communication is really, really important. We get to share our fears and concerns and everything, which is nice, and I think the big thing is opening that communication. (Brandon focus group, youth co-research 2)

Nurturing the garden had a major impact on individual mental health and the group’s mental wellbeing. “This nurtured state led to consistent balance by communicating with each other, staying focused and lending a hand” (Wayne, Winnipeg), described one Winnipeg participant in their story for the photovoice project. Key words that they used to characterize the benefits of the supportive networks created by urban gardening were: “encouraging,” “sharing,” “helping each other,” and “working together.” All were important to the social cohesion derived from the Urban Gardens Project. Indigenous youth revealed that encouraging people to garden instead of putting them down, helping each other and working together instead of against each other, was both an indicator of their community health and their individual emotional and mental health. “Part of life is to build each other up not only in words but ... teaching that they need to be nurtured and taken care of too, like the plants in this garden” (Brittany, Winnipeg), wrote one youth participant in her story for the photovoice project.

Community Health

Indigenous youth co-researchers participating in the Urban Garden Project reported that urban gardens were important to communities to reduce food insecurity. Several Winnipeg participants commented that gardening could provide access to healthy food in areas where there were food deserts such as Winnipeg’s North End. And, the youth co-researchers demonstrated that gardens could be installed anywhere where there is soil, even indoor gardens!

The North end is food desert so that's a big thing and so gardening is I think would help people have more healthy options to healthy food and healthy lifestyle. (Winnipeg focus group, youth co-researcher 3)

Preliminary findings suggest that Indigenous youth understood that healthy neighbourhoods must be nurtured if they are to thrive, just like plants. Youth co-researchers saw themselves as advocates for their community reporting that, "I think it's on everybody to help who they can, when they can, because it's not just a single person living there, ... it's up to all of us to make sure that the area is healthy and we have a good foundation to support each other" (Brandon focus group, youth co-researcher 2).

Discussion

The study augments the literature on the relationship between urban gardening and health by employing an Indigenous framework to investigate Indigenous perspectives of health and wellness. For many Indigenous Peoples, health and wellbeing is wholistic and integrative (Absolon, 2010; Kirmayer et al., 2009), emphasizing the interconnectedness of self and the environment. This makes the Medicine Wheel an ideal framework for analysis and identification of indicators for spiritual, emotional, physical, and mental health that are attributed to the act of gardening. A wholistic and integrative worldview is important to understanding the complex interaction between individual health and community health as perceived by Indigenous youth in this project. Throughout the project, youth co-researchers spoke of the intersectionality between a healthy neighbourhood and wholistic health. The Indigenous youth co-researchers perceived that, just like plants, a healthy community must be cultivated and nurtured; they also saw themselves as agents of change. Many of their stories demonstrate their resilience. One Winnipeg youth co-researcher commented that "gardening may enhance resilience because it's a reminder of our overcoming obstacles and to continue growing regardless" (Leo, Winnipeg). Many of the indicators of emotional wellbeing and mental health that Indigenous youth co-researchers attributed to their physical and psychological experience gardening are characteristics of resilience, such as feeling determined and strong, feeling a sense of purpose and accomplishment, inspiring and motivating others and self-sufficiency.

In this study, photovoice provided an outlet for Indigenous youth co-researchers' creative expression and an alternate mechanism to articulate their ideas and share their perceptions of the world. Through the process of self-expression, youth co-researchers honed their communication and leadership skills. A study of positive leadership and Indigenous youth (Petrucka et al., 2016) found that that Indigenous youth sought to meaningfully contribute to creating solutions to improve community health. This study similarly showed that when provided an opportunity to demonstrate leadership, resources, and training, Indigenous youth co-researchers "stepped up" to expand current understanding of Indigenous perspectives of health and explore solutions to improve food security in Winnipeg and Brandon, Manitoba.

This study contributes to the literature on Indigenous youth participation as co-researchers. It highlights Indigenous youth as key partners in improving our understanding of wholistic health and identifying solutions to address health-related issues. It is one of only a few photovoice projects that positions youth as equal co-researchers with university investigators. The study highlights the powerful potential of Indigenous youth to meaningfully contribute to research processes and to co-create knowledge in an area that is important to them. "First Nations youth [are] stepping up and making sure their voices and concerns are being heard across Manitoba and Canada ... they are committed to using their vision, talent, education and experience for the good

of their community and/or family,” commented Manitoba Keewatinowi Okimakanak Grand Chief Sheila North Wilson (Centre for Rural and Aboriginal Studies, 2018, p. 61).

The Urban Gardens Project provided the opportunity, resources, and training to acquire research skills that empowered the Indigenous youth co-researchers to shed light on Indigenous youth perspectives of wholistic health and to investigate factors contributing to food insecurity, a health issue created by food deserts in Brandon and Winnipeg. The project further contributed to the youth co-researchers’ social cohesion by providing opportunities for youth leadership in all areas of the project, ranging from designing and managing the gardens to designing the photovoice exhibitions at the Art Gallery of Southwestern Manitoba (Brandon) and Urban Shaman Gallery in Winnipeg, Manitoba. Moreover, youth co-researchers gained understanding of their capacity to contribute to culturally based solutions to improve wholistic health.

Policy Recommendations

This study shows that Indigenous youth are key partners in improving understanding of wholistic health, identifying solutions to address health-related issues, and co-creating knowledge in areas that they deem important. Yet, spaces for Indigenous youth to voice their concerns and potential solutions are limited. Policies that foster Indigenous youth engagement would empower youth to analyze conditions affecting their health, exercise leadership, and contribute to positive change. A recent systematic review of food policy actions to improve nutritional health outcomes in Canada, USA, New Zealand, and Australia reported that although Indigenous Peoples were involved in the intervention design or evaluation, their participation was underutilized (Browne et al., 2020). The study results lend support for actions to advance active engagement of Indigenous youth in policy design and policy making spaces.

This study further suggests that policies are needed to foster urban gardening and connection to the land in conjunction with Indigenous cultural practices to contribute to Indigenous health and wellbeing. The research reinforces TRC Call to Action #20 that states that the distinct health needs of the Métis, Inuit, and off-reserve Aboriginal people must be recognized, respected, and addressed, as well as reinforcing and TRC Call to Action #22 which calls for Indigenous healing practices to be recognized and valued within the Canadian healthcare system (TRC, 2015, p. 3). TRC Call to Action #22 recommends policies be established that integrate culturally relevant indicators for wholistic health within the Canadian context. Assessments of Indigenous community health have typically failed to include “intangible” aspects of community health as defined by members of individual Indigenous communities (Donatuto et al., 2016). If they are integrated into healthcare practice, the culturally relevant indicators of mental, emotional, physical, and spiritual health that were identified by the Indigenous youth co-researchers in this study of urban gardening and health can aid in implementing TRC Call to Action #22.

Policy recommendations include:

- a. In implementing Truth and Reconciliation Commission Call to Action #20 and #22, the adoption of policy and protocols based on wholistic indicators that recognize the interconnectedness between community health and individual spiritual, mental, emotional, and physical health as defined by the urban Indigenous youth in this project is recommended. Policy adoption must assure that unique perspective of urban Indigenous communities and Indigenous youth are respected.

- b. Universities, colleges, and other academic institutions collaborate with Indigenous organizations and community to build capacity for Indigenous youth-led research. This would support youth empowerment and community engagement, as shown in this study.
- c. Municipal and provincial legislative bodies establish policies and resources to support urban community gardens in Indigenous communities, especially where food deserts are prevalent. The global reclaiming of Indigenous rights to self-determination of food systems and food sovereignty are interconnected (Indigenous Food Systems Network, 2010). Neighbourhood revitalization projects that reduce food deserts, such as Neechi Commons and urban community garden projects, have the potential to advance food sovereignty and can improve food security and nutrition in inner-city neighbourhoods. Community gardens offer a space to reclaim food sovereignty whereby Indigenous communities exert control over access, choice of foods available, quality of food, and affordability of food. Policy, changes to municipal bylaws, and the allocation of resources to create gardens in urban spaces, such as empty lots, would advance food security in areas where food deserts exist.
- d. Establish policy and resources at all levels of government to advance Indigenous cultural practices and land-based knowledge. The indicators of health and wellbeing identified by the Indigenous youth co-researchers in this study support the establishment of policies and resources that advance Indigenous cultural practices and land-based knowledge. In this study, youth co-researchers reported that participation in the gardening activities contributed to their wholistic health, which they attributed in part to the project's reinforcement of traditional culture and land-based practices. These findings are supported by the literature of Indigenous peoples, food, and health (Browne et al., 2020).
- e. Foster Elder Knowledge Keeper–youth engagement to build social capital and resilience. Prior to colonization, intergenerational knowledge of health promotive food systems, traditional land cultivation practices, and culture was transferred to Indigenous youth by Elder Knowledge Keepers. Expanding access to Knowledge Keepers would provide Indigenous youth access to important social capital. As shown in this study, reclamation of traditional knowledge was reported to support emotional, mental, and spiritual wellbeing.
- f. Integrate urban gardening into K–12 curricula on Indigenous culture and land-based education. Policy and resource allocation called for in recommendation (d.) would support the development of curricula and implementation of K–12 urban gardening programs employing Indigenous culture and land-based education in Winnipeg, Brandon, and other urban centres.
- g. Federal, Provincial, and Municipal governments collaborate with Indigenous organizations to create spaces for Indigenous youth representation in policy-making.¹ The right to Indigenous food sovereignty and the global reclaiming of Indigenous rights to self-determination over food systems

¹ Recommendation G. was advanced by Indigenous youth in the policy paper “Working Together to Support Indigenous Youth Success: A Policy Framework prepared by the Indigenous Youth Community Circle” (Murray et al., 2017).

was affirmed in the *Declaration of Indigenous Peoples for Food Sovereignty* at the Global Forum for Peoples Food Sovereignty in Rome, 2009 (Indigenous Food Systems Network, 2010).

Representatives of Indigenous Peoples from the continents of Asia, North America, Africa, South America, and Europe declared that Indigenous Peoples “should have the right to participate in the definition of specific policies that affect our right to food” (Indigenous Food Systems Network, 2010). This study shows that Indigenous youth can improve our understanding of wholistic health by identifying solutions to address health-related issues important to them, such as food security. As such, their voice should be represented in policy making decisions.

Conclusion

This research contributes to the literature on the role that community gardening can play in support of wholistic health and wellness of Indigenous youth, particularly when twinned with Indigenous knowledge and cultural practices. It builds on previous findings that community gardens contribute to health by specifically identifying indicators of wholistic health benefits derived from community gardening, as reported by the urban Indigenous youth co-researchers. The youth co-researchers’ characterization of urban community gardening as a transformative land-based, community integrative practice that supported community health by enhancing food security as well as social and community cohesion expands current understanding of the benefits of community gardening for urban Indigenous youth. It affirms that youth, when empowered, are essential partners in addressing food security and, in the process, derive wholistic health benefits including pride in reclaiming their traditional cultures (Baskin, 2008). The understanding of wholistic health and food sovereignty as connected to the land, community, and family has been expressed in the culturally diverse perspectives of urban Indigenous Peoples in North America, Latin America, Africa, Australia, and the Pacific Islands (Baskin, 2008; Gabel et al., 2016; Indigenous Food Systems Network, 2010; Mundel & Chapman, 2010; Skinner et al., 2016). Indigenous food sovereignty can be supported through urban gardening as gardening not only allows for participation in cultural practices, but also engagement in sustainable food production, distribution of nutritious traditional foods, and inter-community food sharing (Desmarais & Wittman, 2014; Whyte, 2016). This study suggests that food sovereignty may promote community and social cohesion, and is important to emotional wellbeing by the Indigenous youth co-researchers in this study.

The research shows that Indigenous youth welcome the opportunity to contribute to finding integrative community-based solutions to benefit wholistic health. However, few opportunities exist for Indigenous youth to exercise leadership. Photovoice is a powerful method for empowering Indigenous youth in a process of documenting community strengths and challenges. If policy recommendations advanced by this research are implemented, a space will be created for the voice of urban and rural Indigenous youth to be heard, especially regarding policies that affect them. The youth co-researchers in this study are ready to contribute.

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