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Exploring the Influence of Publicly Accessible Green and Growing Spaces on Health

Implications for Toronto During the COVID-19 Pandemic

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Executive Summary

The COVID-19 pandemic and stay-at-home orders have produced devastating effects on mental and physical health in Toronto, due in large part to the surge in pandemic-induced social isolation. Also during this time, there has been a noted increase in public interest in plants and nature. Extensive research has shown that interacting with plants, even through simple observation, produces positive health improvements both mentally and physically in a variety of sample populations. During the pandemic, and as we look towards a post-pandemic future, access to plants and nature has become a highly topical means through which to foster both community connections and mental well-being, particularly in urban settings.

Community gardens and parks are two methods of plant exposure that can be found in the city, though these highly desirable spaces are typically not always accessible to socially disadvantaged populations. The former has been highlighted through literature and informant testimony for its social community building capabilities, as well as being an opportunity for horticultural skill development and for community food security. Meanwhile, the latter fosters social connection passively, but has a major positive impact in regard to environmental benefits in urban spaces.

This report centres the experiences of different Torontonians with public green spaces during the COVID-19 pandemic, and aims to highlight both vulnerabilities and potential opportunities for increased connectedness with both other people within the community, and with the lands themselves. Starting with a literature review, this report first seeks to understand the research and data behind the importance of public green space in relation to both individual mental wellness and in relation to community. Following that, this report highlights the interviews conducted in collaboration with The Stop Community Food Centre of community members involved with The Stop's programming. This report serves, above all, to highlight the critical importance of public green spaces through a shared narrative of Toronto residents.

In the end, creating a stronger community is not the exclusive task of individual Torontonians, but rather, extends to various community stakeholders throughout Toronto. In response to such a catastrophic event of COVID-19, the City, community groups, and individuals, should all work together towards rebuilding a better Toronto. Nature acts as a force that appeals to a deeper biological calling within us. Not only can it provide tangible benefits from its presence, but it also serves as a fertile ground for social connectedness to grow.

Introduction

On March 23, 2020, Mayor John Tory declared a State of Emergency in the City of Toronto following the accelerating escalation of COVID-19 cases.¹ As a result, the city was placed under strict stay-at-home and business shut down orders, which still have not entirely concluded at the current time of this publication. Nearly three million Torontonians were instructed to remain at home if possible, which provided an opportunity for critical reflection on mental health, social connection, the value of nature and greenspaces, and the city's rapid gentrification and housing crisis. These four elements were particularly interlinked for residents living in the denser wards of the city, where tall buildings filled with small apartment units are the primary form of housing, compared to single detached homes. Being confined in these tiny spaces, deprived of physical human interaction, loss of work, cancelling of fun events, and overall disruption of routine all contributed towards a citywide trend of mental health decline that is still ongoing.²

Gardening soon became a popular pastime among Canadians. In a study conducted by Dalhousie University, 17.4% of respondents reported that they have started growing food at home during the COVID-19 pandemic in 2020.³ Reasons varied

¹ City of Toronto. "Mayor Tory Declares a State of Emergency in the City of Toronto." *City of Toronto*. March 23, 2020. Accessed August 04, 2021.

<https://www.toronto.ca/news/mayor-tory-declares-a-state-of-emergency-in-the-city-of-toronto/>.

² Yousif, Nadine. "Helpless and Hopeless: How a Year of COVID-19 Has Impacted Our Mental Health." *Toronto Star*. March 22, 2021. Accessed August 04, 2021.

<https://www.thestar.com/news/gta/2021/03/22/helpless-and-hopeless-how-a-year-of-covid-19-has-impacted-our-mental-health.html>.

³ Mullins, Lisa, Sylvain Charlebois, Janet, and Erica Finch. "Home Food Gardening in Response to the Covid-19 Pandemic." *Agri-Food Analytics Lab*. October 7, 2020. Accessed August 04, 2021.

<https://www.dal.ca/sites/agri-food/research/home-food-gardening-during-covid-19.html>.

from food safety concerns, worry of food shortages, and simply enjoying the activity for its calming benefits.⁴ Notably, however, the large majority of home gardeners lived in single detached houses, which is less common in Toronto. Nevertheless, balcony gardening was also on the rise, and there was similarly a major increase in demand for houseplants overall.⁵ Even among those who did not partake in home gardening, there was a similar uptake in using green spaces; many Torontonians rushed to parks when restrictions were loosened as a way to gather with others, in part due to isolation fatigue, and the belief that outdoor gatherings were safer than being together indoors.⁶

For local organizations like The Stop Community Food Centre, understanding the trends and behaviours of the community is vital for developing local supports where vulnerabilities are identified. With this framework being established, and the key elements identified, this paper aims to demonstrate how publicly accessible green and growing spaces can be utilized to improve health and social connectedness within Toronto.

Methodology

Data Collection

Data was collected in three different methods, beginning with six qualitative interviews with staff from The Stop Community Food Centre involved with the urban

⁴ Ibid.

⁵ Lasco, Gideon. "How COVID-19 Is Changing People's Relationships With Houseplants." *SAPIENS*. September 17, 2020. Accessed August 04, 2021. <https://www.sapiens.org/column/entanglements/covid-19-houseplants/>.

⁶ Ferreira, Jennifer. "Isolation Fatigue 'partly' to Blame for Mass Gathering at Toronto Park, Expert Says." *CTV News*. May 25, 2020. Accessed August 04, 2021. <https://www.ctvnews.ca/health/coronavirus/isolation-fatigue-partly-to-blame-for-mass-gathering-at-toronto-park-expert-says-1.4954168>.

agriculture programming conducted via Zoom web calling. Interviewees were asked questions about how participants of their respective programs experienced community belonging, how they were impacted by COVID19, and their recommendations for program improvements in order to better foster social connectedness for the community. 78 responses from The Stop's Annual General Survey, including 28 early childcare program participants and 50 volunteers, were collected, which included information about identity, behaviours, and beliefs of the community members. Finally, a variety of sources were considered for the literature review, such as journalistic, academic, and government published documents in order to cover the intersectionality of health, nature, social connection, city development, and local happenings within Toronto. For academic articles, Google Scholar was the primary database used. Keywords included but were not limited to: community gardens, plants and mental health, evidence based design, nature and health, and urban development.

Key Terms Defined

Green space: A publicly accessible area of any size that contains all manner of grass, plants, trees, and general fauna, (e.g. a park versus a beach).

Growing space: A community accessible area that allows for members to plant species of their choice, (e.g. a community garden or designated public plot within a park).

Community garden: A communal plant growing plot used by a variety of people, not for the explicit purpose of monetary gain but instead for reasons of learning a new skill, socializing, or producing food to be collected or shared--though

non-edible plants can be grown as well.⁷ Can be of any size, in rural or urban areas, and hosted by stakeholders such as a community center, school, or municipally-run.

Social connectedness and social belonging: Social connectedness refers to the state in which individuals are participating in and developing interpersonal relationships within societal organizations or social networks.⁸ Social belonging refers to the subjective and mutual feeling of being valued within some type of group, organization, or societal network.⁹ For the purpose of this article, both phrases will be used interchangeably to denote the subjective state of an individual being welcomed, able to actively participate in, and develop relationships within some type of larger group structure. As well as the individual being content by their relationship to the group relative to their involvement.

Social isolation and loneliness: Social isolation can be defined as the state of absence of social contact or being disconnected from existing social networks.¹⁰ This typically brings upon loneliness, the subjective feeling of dissatisfaction of one's social standings and relationships.¹¹ It is possible

⁷ Birky, Joshua. "The Modern Community Garden Movement in the United States: Its Roots, Its Current Condition and Its Prospects for the Future." *Master's thesis, University of South Florida*, 2009. Accessed August 3, 2021. <https://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=2859&context=etd>.

⁸ Crisp, Beth R. "Belonging, Connectedness and Social Exclusion." *Journal of Social Inclusion* 1, no. 2 (October 2010): 123-32. Accessed August 4, 2021. doi:10.36251/josi.14.

⁹ Ibid.

¹⁰ No Isolation. "What Is Social Isolation?" *No Isolation*. Accessed August 04, 2021. <https://www.noisolation.com/research/what-is-social-isolation/>.

¹¹ Pedersen, Pia Vivian, Pernille Tanggaard Andersen, and Tine Curtis. "Social Relations and Experiences of Social Isolation among Socially Marginalized People." *Journal of Social and Personal Relationships* 29, no. 6 (May 15, 2012): 839-58. Accessed August 4, 2021. doi:10.1177/0265407512444373.

for people to be alone and content, or conversely, have many relationships but feel lonely and unsatisfied.

Literature Review

Nature

There is extensive research documenting the positive relationship between human comfort and exposure to plants. Japanese studies have demonstrated that simply looking at plants can reduce feelings of stress, fear, anger, and sadness, while also physically reducing blood pressure, heart rate, and muscle tension.¹² In another study by the same researchers, participants who were made to look at a concrete wall instead of a green hedge exhibited higher levels of distress in comparison.¹³ In one study featuring seniors observing a money plant, physical impacts could be measured in as little as five minutes of exposure.¹⁴ Interestingly enough, pictures (photographic and artistic) of nature triggered similar results as well.¹⁵ Yet this phenomenon is not simply attributable to having visual stimuli. Hospitalized patients who were exposed to abstract art and sculptures reported negative feelings of stress and anxiety, and so, gardens and

¹² Nakamura, R., and E. Fujii. "Studies of the characteristics of the electroencephalogram when observing potted plants: *Pelargonium hortorum* "Sprinter Red" and *Begonia evansiana*." *Technical Bulletin of the Faculty of Horticulture of Chiba University* 43, no. 1 (1990): 177-183.

¹³ Nakamura, Ryuji, and Eijiro Fujii. "A Comparative Study on the Characteristics of Electroencephalogram Inspecting A Hedge and A Concrete Block Fence." *Journal of the Japanese Institute of Landscape Architects* 55, no. 5 (1991): 139-44. Accessed August 3, 2021. doi:10.5632/jila1934.55.5_139.

¹⁴ Hassan, Ahmad, Chen Qibing, Liu Yinggao, Jiang Tao, Guo Li, Mingyan Jiang, Li Nian, and Lv Bing-Yang. "Psychological and Physiological Effects of Viewing a Money Plant by Older Adults." *Brain and Behavior* 9, no. 8 (July 15, 2019). Accessed August 3, 2021. doi:10.1002/brb3.1359.

¹⁵ Ulrich, Roger S., Robert F. Simons, Barbara D. Losito, Evelyn Fiorito, Mark A. Miles, and Michael Zelson. "Stress Recovery during Exposure to Natural and Urban Environments." *Journal of Environmental Psychology* 11, no. 3 (October 29, 1990): 201-30. doi:10.1016/s0272-4944(05)80184-7.

plants were recommended as a positive substitution.¹⁶¹⁷ One theory behind this relationship surmises that plants and natural scenes act as distractions when the body's nervous system is overwhelmed in the presence of physical pain or stressful feelings.¹⁸ Therefore, when presented with natural stimuli, the brain will divert its conscious attention to the plants rather than focusing on the active discomfort.¹⁹

Community Gardens

Community gardens exhibit the positive qualities of gardening with the added benefit of socialization. As an action, gardening is an opportunity for physiological gains through physical activity and outdoor exposure. Sunlight can increase vitamin D levels and lower blood pressure.²⁰ More intensive activities like raking, hoeing, and shoveling are aerobic exercises that can build strength, while fine motor skills like using hand trowels or cultivators can improve dexterity.²¹ If edible plants are being grown, the introduction of produce can be contributive to improving diets by the addition of a variety of fresh and healthful foods. Learning a skill and witnessing growth progress can

¹⁶ Ulrich, Roger S., Outi Lundén, and JL Eltinge. "Effects of Exposure to Nature and Abstract Pictures on Patients Recovering from Heart Surgery." *Thirty-third Meeting of the Society of Psychophysiological Research*, Rottach-Egern, Germany 30, no. 7 (October 27, 1993). Accessed August 5, 2021. <https://scholar.google.com/scholar?cluster=7070376614264886678&hl=en&oi=scholar>.

¹⁷ Ulrich, Roger S. "Effects of interior design on wellness: theory and recent scientific research." In *Journal of Health Care Interior Design: Proceedings from the Symposium on Health Care Interior Design. Symposium on Health Care Interior Design*, vol. 3, pp. 97-109. 1991.

¹⁸ Ulrich, Roger S., Craig Zimring, Xiaobo Quan, and Anjali Joseph. "The Environment's Impact on Stress." In *Improving Healthcare with Better Building Design*, 37-61. 1st ed. Health Administration Press, 2006. Accessed August 3, 2021. https://www.researchgate.net/profile/Roger-Ulrich-2/publication/291177936_The_environment's_impact_on_stress/links/56b37aa908ae636a540d1079/The-environments-impact-on-stress.pdf

¹⁹ Ibid.

²⁰ Thompson, Richard. "Gardening for Health: A Regular Dose of Gardening." *Clinical Medicine* 18, no. 3 (2018): 201-05. Accessed August 6, 2021. doi:10.7861/clinmedicine.18-3-201.

²¹ Ibid.

improve one's self esteem, and motivate even amateur gardeners to potentially seek employment related to horticulture with this newfound skill.

Further advantages can be witnessed on a community level. One study of Toronto community gardens described how these settings were able to support social connectedness.²² Gardeners enjoyed sharing their harvests with their friends, families, and with fellow gardeners. They would discuss their cultures through the specialty crops they were growing, or ethnically derived foods they planned to prepare. Tips and techniques would be shared, or even favours of physical labour, just to help out their fellow gardeners. Some gardeners felt safer in their community by being able to interact with their community members, developing a sense of belonging within the space,²³ a feeling of safety validated by research, which has documented lower levels of crime in urban areas with greenspaces present. In another study, of Latino-run community gardens in New York City, the gardens became beloved venues for informal parties, holiday celebrations, and cultural showcases for Latin singing and dancing, which were attended by a variety of community members.²⁴ Community gardens also support broader community organizing efforts, with low-income community gardeners having been found to be four times more likely to lead community organizing around

²² Wakefield, Sarah, Fiona Yeudall, Carolin Taron, Jennifer Reynolds, and Ana Skinner. "Growing Urban Health: Community Gardening in South-East Toronto." *Health Promotion International* 22, no. 2 (February 26, 2007): 92-101. Accessed August 3, 2021. doi:10.1093/heapro/dam001.

²³ Ibid.

²⁴ Saldivar-Tanaka, Laura, and Marianne E. Krasny. "Culturing Community Development, Neighborhood Open Space, and Civic Agriculture: The Case of Latino Community Gardens in New York City." *Agriculture and Human Values* 21, no. 4 (January 2004): 399-412. Accessed August 3, 2021. doi:10.1023/b:ahum.0000047207.57128.a5.

non-gardening issues than those in non-low-income areas, primarily as a result of their sense of empowerment following garden participation.²⁵

Parks

Parks similarly play a substantial role within community wellbeing, especially in a high density urban city like Toronto. They act as an oasis amidst the urban infrastructure, and provide a connection back to the natural world. Large trees provide cool shade, whereas dense materials like concrete and pavement absorb and reflect heat.²⁶ Vegetation helps to absorb heavy rainfall, preventing the sewer systems from being overwhelmed. Plants improve air quality through the intake of carbon dioxide and pollutants while producing oxygen. Above all, plants and dirt host a number of pollinators, insects, birds, and other wildlife that would otherwise face displacement during urban development.

Parks also serve as free areas for activities, exercise, and gathering. While they are often paired with other community amenities, like playgrounds or sports fields, even smaller parkettes or bare parks are suitable locations for people to play or workout. Gardens are becoming increasingly rare in Toronto, so parks are an important extension of the home²⁷ in order to access nature. As community hubs, they are central places for

²⁵ Armstrong, Donna. "A Survey of Community Gardens in Upstate New York: Implications for Health Promotion and Community Development." *Health & Place* 6, no. 4 (October 6, 2000): 319-27. Accessed August 6, 2021. doi:10.1016/s1353-8292(00)00013-7.

²⁶ United States Environmental Protection Agency. EPA. Accessed August 06, 2021. <https://www.epa.gov/green-infrastructure/reduce-urban-heat-island-effect>.

²⁷ Parks, Forestry and Recreation. (2019, November). *Parkland Strategy* (Rep.). Retrieved July 5, 2021, from City of Toronto website: <https://www.toronto.ca/wp-content/uploads/2019/11/97fb-parkland-strategy-full-report-final.pdf>

people to gather. These free spaces can be accessed for numerous community purposes, like farmers' markets, fitness groups, live shows, art displays, celebrations, and more. Parks also bring forth a sense of local pride.²⁸ In fact, some parks are so prolific that they even become major tourist destinations for the city.²⁹ Parks have value to all community members, whether they are individuals, families, visitors, or locals.

Mental Health in Canada

While the pandemic is still ongoing, a major mental health decline for Canadians has already been documented. Throughout the pandemic, healthcare and frontline workers have experienced long standing exhaustion, depression, stress, anxiety, and post traumatic stress disorder.³⁰ Early findings from a pandemic-centered study by Toronto's Hospital for Sick Children shared that 70% of 520 surveyed youths between ages 13 to 18 reported having significant depressive symptoms.³¹ Across the nation, COVID-19 has resulted in significant acute and long term negative health disparities.³² At the same time, the pandemic resulted in a higher frequency of Canadians feeling

²⁸ Ibid.

²⁹ Ibid.

³⁰ Favaro, Avis, Elizabeth St. Philip, and Alexandra Mae Jones. "Health-care and Front-line Workers Describe Dealing with Anxiety, PTSD Due to COVID-19." *CTV News*. January 29, 2021. Accessed August 06, 2021.

<https://www.ctvnews.ca/health/health-care-and-front-line-workers-describe-dealing-with-anxiety-ptsd-due-to-covid-19-1.5287174>.

³¹ Bresge, Adina. "Most Ontario Youth Experienced Depression during Pandemic, Early Data Suggests." *CTV News*. July 08, 2021. Accessed August 06, 2021.

<https://toronto.ctvnews.ca/most-ontario-youth-experienced-depression-during-pandemic-early-data-suggests-1.5501275>.

³² Centre for Addiction and Mental Health. *Mental Health in Canada: Covid-19 and Beyond*. Report. June 2020. Accessed August 6, 2021.

<https://www.camh.ca/-/media/files/pdfs---public-policy-submissions/covid-and-mh-policy-paper-pdf.pdf>.

both lonely and socially isolated.³³ The Angus Reid Institute noted an increase from the aforementioned *desolate* status rising from 23% in 2019 to 33% in 2020.³⁴ Across the country, COVID-19 has worsened pre-existing social maladies and mental health problems, increasing the need for community-oriented solutions.

Toronto

The evolution of Toronto, and most notably, the increasing discrepancies between the affluent and struggling, has been especially scrutinized during the COVID-19 pandemic. An affordable housing crisis has been an ongoing problem for years. Poorer renters have been driven out of the core and sent out to the city's edges, social housing has stagnated in development, corporations and management groups continue to buy up lucrative rental units, and new housing developments seem to only cater towards higher income residents.³⁵ Holistically, many neighbourhoods have been experiencing a similar fate commercially, as smaller businesses have left, replaced by trendy and oftentimes more expensive bespoke goods, which attract outsiders but typically hold less value for locals.³⁶ As building developers continue to move swiftly and vertically, residents worry about how the injection of new households will impact already

³³ Angus Reid Institute. "Isolation, Loneliness, and COVID-19: Pandemic Leads to Sharp Increase in Mental Health Challenges, Social Woes." *Angus Reid Institute*. April 26, 2021. Accessed August 06, 2021. <https://angusreid.org/isolation-and-loneliness-covid19/>.

³⁴ *Ibid.*

³⁵ August, Martine, and Alan Walks. "Gentrification, Suburban Decline, and the Financialization of Multi-family Rental Housing: The Case of Toronto." *Geoforum* 89 (February 2018): 124-36. Accessed August 6, 2021. doi:10.1016/j.geoforum.2017.04.011.

³⁶ Laura, Dumbrell, Kenny, Lamizana, Steven, Pham, and Cecilia, Pye. *Davenport West Neighbourhood Change Report*. Report. Toronto, ON, 2018.

overextended services like schools, community services, and parks.³⁷ Encapsulating this issue has been an increase of homelessness as a result of the pandemic's effect on the existing state of financial and housing instability,³⁸ with a notable escalation leading to the ongoing evictions of homeless encampments within Toronto parks.³⁹ One of the targeted locations, Trinity Bellwoods Park, has been especially notorious for becoming a hotspot for thousands of people to gather during the summer of 2020,⁴⁰ when COVID-19 was still rampant and vaccines had not yet been released; however, there have been noted variances between the treatment of individuals experiencing homelessness within Trinity Bellwoods Park, versus the treatment of more privileged social groups congregating within the same space. For Toronto in particular, parks have served as a central ground for broader discourse on issues such as gentrification, public health, and more, making them an especially valuable arena to study within the context of social connectedness and public green spaces.

³⁷ Kalinowski, Tess. "'Ridiculously Massive' Development at Yonge and Eglinton to Get Added Public Scrutiny." May 07, 2021. Accessed May 26, 2021. <https://www.thestar.com/news/gta/2021/05/07/ridiculously-massive-development-at-yonge-and-eglinton-to-get-added-public-scrutiny.html>.

³⁸ CBC. "Pandemic Is Creating a New Type of Homelessness, Says Outreach Worker." *CBC News*. October 13, 2020. Accessed May 28, 2021. <https://www.cbc.ca/radio/thecurrent/the-current-for-oct-12-2020-1.5757769/pandemic-is-creating-a-new-type-of-homelessness-says-outreach-worker-1.5757770>.

³⁹ CBC. "Fallout from Toronto's Homeless Encampment Removals Continues." *CBC News*. July 25, 2021. Accessed August 06, 2021. <https://www.cbc.ca/news/canada/toronto/fallout-from-toronto-s-homeless-encampment-removals-continue-s-1.6116021>.

⁴⁰ Global News. "'Selfish and Dangerous': Officials Disappointed after Thousands Crowd Toronto Park." May 26, 2020. Accessed August 06, 2021. <https://globalnews.ca/news/6979884/coronavirus-trinity-belwoods-park/>.

Collected Data

Survey data results

Surveys were sent out to volunteers and program participants of The Stop as a part of their Annual General Survey, a yearly evaluation with the intent to collect data on community demographics, health, behaviours, program satisfaction, and interests. The surveys are mostly similar, though with some added specific questions relating to the participants role/program. A total of 78 responses were collected, 28 from a child development program, and 50 from volunteers. The sample groups were chosen due to the timeliness of their completed responses (as the AGS is still ongoing), and to illustrate the similarities and differences between the two dichotomous groups as volunteer service assistants and program service recipients, but also as members of the same community.

Beginning with the perinatal program participants, an overwhelming majority (85.71%) self-reported as a racialized ethnicity, predominantly speaking Spanish or Portuguese as their primary language at home.⁴¹ 60.72% were unemployed, 39.29% of which were actively looking for a job. Many of the respondents (39.29%) relied on their partner's income as their primary source of income, while Ontario Works social assistance and worker compensation were tied as the next two major income sources (14.29%). When asked about what types of new programming they would be interested in, 51.72% requested gardening, and 57.14% requested additional food resources. However, being pregnant or needing childcare (78.57%), lacking time (28.57%), and

⁴¹ The Stop Community Food Centre. *Healthy Beginnings - Annual General Survey - 2021*. 2021. Produced by SurveyMonkey.

language barriers (25%) were the most commonly cited barriers for participation in further programs and volunteering at The Stop.⁴²

Conversely, the volunteer sample exhibited several key differences in their demographics. The group was composed of 92% English speakers, with 69.38% identifying as European.⁴³ They were commonly retired (28%) or working either full time (18%) or part time (14%). Employment was the most common source of primary income (36.17%), followed by partner income (12%), and pension (10.64%). Some of the volunteers already had experience volunteering at the community gardens (18.75%) and the greenhouse (6.25%). Yet for the group holistically, the aforementioned gardens and greenhouses were still some of the most popular sites that volunteers would like to participate in, with 46.43% wishing to volunteer at the community gardens and 39.29% at the greenhouse. Finally, the three most commonly cited barriers for volunteering were employment/school obligations (12%), distance of commuting (10%), and mental health (10%).⁴⁴

Key informant interviews

Six staff members of The Stop were selected for interviews based on availability and involvement with the urban agriculture programs, whether they were direct workers, program overseers, or administrative support. Interviews were recorded over the digital calling software Zoom, following a question log with opportunity for improvised follow up questions. Prompts for existing community building opportunities within the program,

⁴² Ibid.

⁴³ The Stop Community Food Centre. *The Stop's Volunteer Program Survey 2021*. 2021. Produced by SurveyMonkey.

⁴⁴ Ibid.

COVID-19 program responses, inclusive program design, participant engagement, external stakeholder partnerships, and future recommendations for program development were discussed. Live notes were taken by the researcher, and the subsequent audio recordings were transcribed using Otter.ai speech-to-text transcription and reviewed once more to collect summarized interview notes.

Despite the different programs or positions held by the interviewees, several recurring themes were identified. When interviewees were asked to describe how community building occurs with their program, they all described⁴⁵⁴⁶⁴⁷⁴⁸⁴⁹⁵⁰ how their programs were able to attract a diverse range of participants, and were thereby fecund in their ability to create new relationships in the community. While gardening is typically the central attraction, the social interaction that comes with being in a group setting produces a ripe opportunity to share knowledge, resources, and develop relationships. Despite gaps in knowledge and experience, or a lack of a common language, gardeners were able to make efforts in conversing or teaching each other for no reason other than goodwill.⁵¹ Newcomers, seniors, LGBTQ2S+ folks, and racialized people have all been involved with these programs.⁵² However, youth were unanimously identified as a segment that The Stop should be targeting for their general programs, whether it be to “keep them out of trouble,” develop skills for the workforce, or for simple enjoyment.

⁴⁵ Lee, Rossen. “Interview A.” 29 June 2021.

⁴⁶ Lee, Rossen. “Interview B.” 25 June 2021.

⁴⁷ Lee, Rossen. “Interview C.” 28 June 2021.

⁴⁸ Lee, Rossen. “Interview D.” 29 June 2021.

⁴⁹ Lee, Rossen. “Interview E.” 21 June 2021.

⁵⁰ Lee, Rossen. “Interview F.” 24 June 2021.

⁵¹ Ibid

⁵² Lee. “Interview E.”

Similarly, the group also suggested that people with mental health challenges should be included specifically within their gardening programs as well, believing that the soothing effects of gardening would be beneficial. In reflection of the COVID-19 shutdowns, the value of the garden in its physicality was highly esteemed by the informants, and allegedly by the participants as well, though some informants noted the increased accessibility of resources after being moved to digital spaces.⁵³ As a whole, participants noted that the acts of routinely gathering with others, being outside, developing a personal connection to nature, and watching their plants grow, are all precious interactions.⁵⁴⁵⁵ For some program participants, the suspension of in-person programming was particularly devastating, since such programming acted as their primary form of social connection to others.⁵⁶⁵⁷ Informants would also describe how some participants viewed the gardens as being more akin to an ethereal portal; a safe and calming space that provided respite from the otherwise hectic and overwhelming city.^{58 59 60}

Interviewees were also asked to describe the types of partnerships and external organizational relationships they would like to develop. Unsurprisingly, many had listed other local and socially adjacent food and agricultural organizations in the city. A few suggested the creation of a network for thematically relevant groups (network for

⁵³ Lee. "Interview C."

⁵⁴ Lee. "Interview B."

⁵⁵ Lee. "Interview E."

⁵⁶ Ibid.

⁵⁷ Lee. "Interview D."

⁵⁸ Ibid.

⁵⁹ Lee. "Interview A."

⁶⁰ Lee. "Interview B."

community gardens, network for nonprofits, network for newcomer organizations, etc), for both communication purposes and to act as a coalition in response to potential political or emergency responses. When asked why these networks had not existed yet, lack of capacity or resources to maintain ongoing organizing proved to be barriers.⁶¹⁶² Again, partnering with youth and mental health-oriented organizations was emphasized in this section, as well as a strong overall request for more partnerships with Indigenous and BIPOC-led businesses/organizations. To conclude, some interviewees stated that they hoped that the gardens will be protected as a special space for gathering,⁶³⁶⁴ and that they can continue to foster attitudes of sharing and helping others.⁶⁵

Discussion

The literature demonstrates several dimensions of positive wellness outcomes related to gardening and exposure to nature. While the more internal, subjective measures of satisfaction may be harder to measure, they should be recognized nonetheless as an element of social connectedness and wellbeing. Feeling calmer, more connected to ancestors through the growing of cultural or sentimental plants, or accomplished through learning a skill, are all factors that help to increase self-esteem. That, paired with the physical, and tangible benefits of gardening, can produce an overall positive experience for individual gardeners. Also notable is that the personal resiliency that can be cultivated by gardening is an important stepping stone towards

⁶¹ Lee. "Interview C."

⁶² Lee. "Interview F."

⁶³ Lee. "Interview A."

⁶⁴ Lee. "Interview B."

⁶⁵ Lee. "Interview D."

the progression of building community resilience, especially following the catastrophic effects of COVID-19 on personal health.

Conversely, private ownership of greenspace is simply not obtainable, common, or even a manageable priority for some Torontonians. While the community benefits of parks are easier to witness on a daily basis, the environmental necessity of such spaces must also be acknowledged. Human-induced climate change manifests itself through frequent and amplified weather extremes, particularly with heatwaves in Toronto⁶⁶. Within urban environments, human activity such as the increasing developments of urban built infrastructure and energy consumption all contribute to heat emissions.⁶⁷ One Toronto study found that the implementation of more urban vegetation, green roofs and green walls affixed to large buildings, contributed to the reduction of near-surface temperature by 0.3°C - 1.3°C.⁶⁸ The study also recognized how different applications of vegetation can provide different levels of heat relief, highlighting how urban trees have a greater capability of reducing outdoor temperatures than green walls and green roofs.⁶⁹ In one study, Pascal et al. (2020) surmise that while urban greening cannot eliminate heat-related mortality and health disparities, it can help to reduce rates.⁷⁰ Critically, both studies agree that heat-related health ailments and mortalities are more likely to occur

⁶⁶ CBC. "Nighttime Temperatures Are Getting Hotter, and That Poses a Danger for All of Us." *CBC News*. July 26, 2021. Accessed August 09, 2021.

<https://www.cbc.ca/news/science/nighttime-temperatures-climate-change-1.6112778>.

⁶⁷ Anderson, Vidya, and William A. Gough. "Nature-based Cooling Potential: A Multi-type Green Infrastructure Evaluation in Toronto, Ontario, Canada." *International Journal of Biometeorology*, March 30, 2021. Accessed August 9, 2021. doi:10.1007/s00484-021-02100-5.

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Pascal, Mathilde, Sarah Gorla, Vèrène Wagner, Marine Sabastia, Agnès Guillet, Erwan Cordeau, Cécile Mauclair, and Sabine Host. "Greening Is a Promising but Likely Insufficient Adaptation Strategy to Limit the Health Impacts of Extreme Heat." *Environment International* 151 (November 6, 2021): 106441. Accessed August 9, 2021. doi:10.1016/j.envint.2021.106441

for socially disadvantaged populations living in lower-income neighbourhoods, where public greenspaces and vegetation are less prevalent.⁷¹⁷²

Meanwhile, the City of Toronto has encountered a major setback over the loss of development rights around the Rail Deck Park. The 21-acre project was intended to be the introductory major project for the Toronto Parkland Strategy,⁷³ provide greenspace for downtown residents, create a community hub above the otherwise uninhabited train railyards, and become a major tourist attraction. However, the project was deemed to be developing too slowly, and the City did not hold the proper air rights for building (the granted permissions to build upwards from specific property area or land). Instead, a multi-use building with both commercial and private residential units will be built in its place.⁷⁴ Despite knowledge of the benefits for developing public greenspaces, community benefiting projects such as the Rail Deck Park are still being suspended due to private interest, technicalities, and bureaucracy.

Through review of research data, the testimonies of survey participants, and findings of local developments, it is apparent that there is a physiological and social need for more accessible greenery in urban spaces. This can be said and seen through all types of lenses: mental and physical health, social connection, community development, local economic and commercial growth, and environmental wellbeing. Currently, access to interact and connect in green urban spaces is for those with power,

⁷¹ Ibid.

⁷² Anderson. *Nature-based Cooling Potential*, 11.

⁷³ Parks, Forestry and Recreation. *Parkland Strategy*. 2.

⁷⁴ Boisvert, Nick. "With Rail Deck Park Probably Dead, Here's Where Toronto Could Look for Other New Green Spaces." *CBC News*. May 14, 2021. Accessed August 09, 2021. <https://www.cbc.ca/news/canada/toronto/toronto-green-space-rail-deck-park-1.6025798>.

resources, and more affluent backgrounds, while those who may belong to socially disadvantaged groups bear both the lack of greenery and the consequences that come with it. Program recipients in the perinatal program identified language barriers and lack of childcare as reasons for non-participation in The Stop's community gardens. In contrast, for volunteer program participants, barriers to participation were related to lack of time, or inconvenience for meeting other life commitments, such as employment/school obligations and commute. With those two considerations, growing urban agriculture programs should work towards a blend of ancillary and supplementary supports to facilitate access to growing spaces when in development. Examples include multilanguage promotions or materials, child-incorporated programs or providing childcare, and providing public transportation fare for participants. For the other end of convenience, beneficial policies could look like creating program slots that run during evening hours outside of conventional working time or creating digitally accessible materials for those who cannot consistently attend in person to still feel involved. Though, these actions all depend on the capacity and budget allocations achievable by community organizers.

Recommendations

Community members

Call for more accessible greenspaces from community leaders

New parks and park growth has been established as one of the guiding principles for future Toronto's development.⁷⁵ The metrics for greenspace availability is measured through several methods, including walkability distance to greenspaces, greenspace area per person relative to ward density, and total park area relative to wards.⁷⁶ However, it is possible for additional social neighbourhood factors that can influence planning decisions, including low income or vulnerable population household rates.⁷⁷ If residents are able to contact their City councilor, or turn to a trusted community group to act as a proxy or to use their reach and/or platforms for their advocacy efforts, then it is possible for residents to draw further attention to their neighbourhood for the municipal government to consider for greenspace development.

Similarly, residents can mobilize to create their own community led projects. Existing community nonprofits or neighbourhood support organizations may be able to provide programs, counselling, referrals to local opportunities, or specialized community resources for residents if public demand is high. Even without external support, neighbourhood residents/community members can band together to pool resources, share information, and create their own hobby groups to learn about gardening if simple community word of mouth or neighbourhood postering outreach can be accomplished.

⁷⁵ Parks, Forestry and Recreation. *Parkland Strategy*. 8.

⁷⁶ Ibid.

⁷⁷ Ibid.

The Stop Community Food Centre

Diversify program outreach

Certain target demographics have been identified as particularly vulnerable during the course of the pandemic such as youths, refugees, people with chronic mental health difficulties, and low-income racialized folks. Given the pandemic's impact, The Stop could address the pandemic's impact on vulnerable communities' mental health and food insecurity by leveraging its green growing spaces, and positioning itself as a community hub for building social wellbeing and resilience. Programs focusing on therapeutic activities, like gardening or leisurely fun, should be prioritized, particularly for youths, low income racialized households, and those experiencing mental health difficulties. Barriers should be reduced where possible, such as extending service hours past conventional work/school times, offering public transportation reimbursement, or providing grocery certificates and eventually prepared meals once it is safe to eat again as a group. By prioritizing these groups, The Stop can continually improve its strategies to meet disadvantaged groups' needs, and increase participation of those who would experience the greatest positive impact from the programming. Additionally, participation of marginalized community members would help in creating cohesion and tolerance within the community where there is diversity in the program groups between members of different ages, sexual/gender identity, social status, income class, or race/ethnicity.

Partner with grassroots groups in developing new community gardens across the city

The reach of The Stop's programs is limited to the neighbourhoods they serve -- the Davenport and Wychwood wards; this is where their physical gathering points are located. Volunteers have noted the impact of the commute on their ability to participate, and those who are underserved within the community are often on the far edges of town compared to living in pricier, but often more convenient, downtown units. Therefore, The Stop should conduct ongoing community partnerships with local grassroots groups across Toronto to help groups establish their own community gardens, such as through grant assistance, resource connection, trusteeship, and other supervisory roles. Since those groups intimately know the needs and considerations for the community, The Stop can simply assist by making connections, sharing information, or even adopting trusteeship given their longstanding history of community serving experience.

Create community organization networks

The Stop is one of the oldest and most established community food groups in Toronto. With that reputation and power, (reach and digital platforms) there is an opportunity to take a leadership role in establishing community organizational networks with other major community stakeholders. These can be specific, such as a network for community gardens, or as broad as a general Toronto non-profit organization network. However, the objective of these stakeholder networks is to ensure that different actors are sharing their perspectives, knowledge products, evaluation strategies, best engagement and targeted outreach practices, and information about the City.

Establishing mutual allyship networks would increase resiliency for future crises. Additionally, this presents a great opportunity to include and support/collaborate with smaller, newer, or grassroots groups, with larger more resourceful organizations for networking as well.

City of Toronto

Prioritize the “Expand” objective from the Parkland Strategy.

The City should focus on expansion of the green space network in the city for both under-resourced neighbourhoods and for neighbourhoods of rapid growth. Land, and all other development rights that are associated with land ownership, is becoming more valuable for building developments. However, it is vital that Toronto’s municipal government makes strides to keep green spaces sized and available in proportion to the urban developments. Privately owned for-profit buildings, whether residential or commercial, only benefit an exclusive group of people, while parks are beneficial for all. Where possible, area acquisition for new parks should be prioritized, and alternatively, urban areas that are already fully established should prioritize implementation of vegetation, such as additional trees and foliage. Supplementary additions, while not as impactful as parks, can still provide advantages towards heat control, air quality, pollination, and aesthetics.

Further implications for social connectedness

Beyond the environmental benefits, the desired effect following these implementations is to create purposeful spaces for social connectedness to foster within the community at different levels. These sets of actions assist in not only creating networks of engagement but providing points of entry for all according to their capacities. The City, operating at the highest level of power and resources, has the highest capabilities of creating community development projects for everyone. Community organizers may have less power, but possess more field knowledge and trust of their communities, which may allow them to better nurture specific populations who may be alienated from broad community initiatives. Lastly, a key step in improving social connections is acknowledging individuals who are underserved through community resources but have the agency to initiate change on their own. The difference between growing and green spaces also highlights this capacity dichotomy, as there are some people who can actively engage in gardening, and others who can passively enjoy places like parks, but ultimately, all deserve the opportunity to enjoy such spaces. Providing these safe opportunities for gathering also gives people a reason to get outside of their routines, which is of particular relevance following the monotony and the stress of prolonged isolation under COVID lockdowns.

Ultimately, growing and green spaces are gateways to reduce feelings of isolation. It is the transference of sense of self from the barriers of seclusion to something greater beyond. The first of which being a social community, ideally, but if this is neither desired nor accomplished, then at least an outlet for connection to nature.

Conceptually, these spaces are intended to mimic the Distraction Theory previously mentioned, by pulling individuals out of their isolation where their mental pains can fester, and instead presenting a natural scene for relief.

Conclusion

The pandemic has brought forth a collective trauma, the full damage of which has still not fully been revealed. Its reach has penetrated deeply within the existing systemic social issues in Toronto. However, as we continue to collectively emerge from the pandemic, there exist new opportunities to rebuild and reconnect once more. While it may be difficult to reach out to all citizens who may be struggling, the City's best chance at producing the widest spreading impact will have to involve multiple community leaders and actors joining together. Social connection is not limited to individuals and indeed, it is crucial that the City, with all its resources, perspectives, and organizations, also come together towards achieving the Common Good. Green and growing spaces have been proven to be sites for tangible resources, community building, environmental protection, and valuable multipurpose assets to the city. In an era of what can feel like never-ending urban expansion, now is the time to return back to nature as a source of higher power to unify, ground, and connect city dwellers.

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