

Social resiliency in times of crisis: a case study of COVID-19 propensity in a Toronto community

Jenny Phan

University of Toronto Mississauga

Brett Caraway (✉ brett.caraway@utoronto.ca)

University of Toronto Mississauga <https://orcid.org/0000-0003-1750-7919>

Research Article

Keywords: public health, social resiliency, COVID-19, social determinants of health

Posted Date: July 14th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1716723/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Abstract

Background: This article is intended to advance our understanding of how the intricate planning, distribution, and governance systems and programs in the northwest communities of Toronto have impacted the risk of exposure to the SARS-CoV-2 virus among this population. The study is guided by the research question: *how does the conflation of social determinants such as race, healthcare access, housing, and household income impact the COVID-19 infection rate in the northwest neighbourhoods (with the Jane-Finch intersection as the focal point) of Toronto, Ontario?*

Methods: Using a political economy framework, we consider four social determinants of health—housing, healthcare access, income, and race—and their relationship to the incidence of COVID-19 in five northwest neighbourhoods in Toronto, Ontario with some of the highest COVID-19 case rates. Demographic census data was assessed and compared to social services provided in the city of Toronto's operating budget.

Results: The data analyzed in this study suggest that the lack of investment in social infrastructure exposed residents to an increased likelihood of COVID-19 infection. This inference echoes the work of other fields of research that have described a perpetuation of oppression in which economic growth is prioritized over public health and disease prevention.

Conclusion: We contend that when economic opportunities are not afforded to communities, social mobility is stagnant and social resiliency is difficult to achieve. We conclude that in light of the COVID-19 pandemic crisis, the city must rectify its current operating systems and better prepare itself for oncoming crises that may exacerbate further socioeconomic inequalities.

Background

Although COVID-19 was touted as “the great equalizer” in the nascent days of the crisis, some populations have been disproportionately impacted by the disease. Within Toronto, Ontario, no area in the city was more gravely impacted by COVID-19 than the northwest communities clustered around Jane Street and Finch Avenue West (Yang, Allen, Mendleson, & Bailey, 2020). Although in the early days of the pandemic there was a discourse of global solidarity, the myriad responses to the disease brought to light fissures in social and economic inequities. As many people cheered and banged on pots and pans from the windows and safety of their homes in a show of support for essential workers, those same workers had to leave their homes and go into the workplace. Many worked as long-term care nurses, personal support workers, hospital cleaning staff, grocery workers, meatpacking workers, or Amazon warehouse workers. Many were part of the growing class of the working poor. Although the lockdown foreclosed many avenues of COVID-19 exposure, its continued spread was made more likely because not everyone was able to make the necessary adjustments to their day-to-day lives to minimize the risk of exposure. No doubt many working-class individuals living in poorer communities such as Toronto’s northwest corner, had to weigh the options of commuting via public transit to a downtown Toronto hospital or a long-term care facility to earn a paycheque, or take a leave of absence without any provincially mandated hazard pay or paid-sick leave. This trade-off could be, and has been, life threatening (Wang et al., 2020).

In this paper we will: 1) build on the existing literature to develop a critical intersectional lens suitable to our analysis (Hankivsky & Christoffersen, 2008); 2) apply that lens in our examination of Toronto demographic data; and 3) offer support for progressive social assistance policy (Sod-Erdene, Vahid Shahidi, Ramraj, Hildebrand, & Siddiqi, 2019). Our analysis is guided by the following general consideration: *how can resilient social systems protect populations during times of crisis?* Our exploration of the Toronto case study is guided by the following research question: *how does the conflation of social determinants such as race, healthcare access, housing, and household income impact the COVID-19 infection rate in the northwest neighbourhoods (with the Jane-Finch intersection as the focal point) of Toronto?* Our analysis is intended to advance our understanding of how the intricate planning, distribution, and governance systems and programs in the northwest communities of Toronto have impacted the risk of exposure to the SARS-CoV-2 virus among this population.

Social Determinants of Health

Public health policy is an indispensable institution for the promotion of social justice (Maxwell et al., 2019). Some of its successes include the regulation of public smoking, mandated seatbelt laws, and the eradication of smallpox. Yet it is important to acknowledge the distinction between general healthcare and public healthcare. This distinction can be discerned when looking at the treatment of disease versus the intervention and prevention of disease. It is the role of public health officials to look beyond the clinical, to extrapolate from the available data, and to understand the drivers of disease and how best to prevent its spread. This type of applied science requires its practitioners to look for interdisciplinary and transdisciplinary connections to understand how all aspects of everyday life can influence individual health outcomes (Krieger, 2016). In doing so, public health policy can further the aims of social justice by taking into account the unevenness of public health services and the structural impediments to those services.

Research within the public health and global health disciplines has looked at the impacts of social systems on individual health outcomes. In a seminal contribution to the study of social determinants of health, Link and Phelan (1995) suggest that in addition to conventional individual risk factors like diet, cholesterol levels, and exercise, public health researchers must also consider social risk factors like socioeconomic status and public support as fundamental causes of disease. Their argument is that public policy must confront the basic social conditions of the population in order to craft meaningful health reform and to develop effective interventions (Link & Phalen, 1995). In addition to socioeconomic status and social support, other researchers have considered determinants like race and food security (Adler et al., 1994). Structural racism is a growing field of research that has picked up momentum during this COVID-19 pandemic (Egede & Walker, 2020). By turning the spotlight towards local politics this paper intends to inform the argument for greater progressive structural policies.

The current study draws on research on the social determinants of health and their relationship to marginalized populations but does so through the lens of the COVID-19 pandemic and its impact on vulnerable urban populations. In a related but separate field, Henricks (2015) has made the case that social disasters and public policy often interact to reproduce racial inequalities in housing. Lee et al. (2021) studied the relationship between social determinants of

health and racial disparities as embodied in residential segregation. Important to our own study, these authors found that racial minorities (African Americans) are more likely to experience higher rates of poverty and unemployment. Vilar-Compte et al. (2021) looked at the vulnerability of Mexican immigrants in New York City and Los Angeles, finding that these groups had increased vulnerability to COVID-19 at the individual, geographic, and systemic levels. Guedes et al. (2021) analyzed the relationship between health policy in Brazilian cities, social determinants of health, and vulnerability to COVID-19. The authors argue in favor of expanding social support to these communities as a means of mitigating the spread of COVID-19. McNeely & Schintler (2020) offered an early exploration of COVID-19 and its implications for the social determinants of health among disadvantaged and underserved populations around the globe. The authors noted that these populations are more likely to experience severe economic consequences as a result of the pandemic. They argue in favor of policy interventions to break the cycles of illness and poverty. Using the case study of Toronto, Mahamoud et al. (2013) argued that social determinants of health should be used to inform and shape Canadian health policy. Choi et al. (2021) make a similar argument regarding Canadian health policy, but in the context of the COVID-19 pandemic. These authors suggest that race and other demographic information should be used to determine why COVID-19 infections are higher in communities with higher shares of Black and lower-income residents.

This pivot away from managing individual behaviour towards managing systemic interventions aligns with a political economy framework for public health policy. Nancy Krieger (2016), a political economist and proponent of Ecosocial Theory, investigates the political economy of public health at the crossroads of society and ecology. She argues that public health as a discipline would benefit by engaging more deeply with critical theory. Krieger astutely observes that the primary drivers of a nation's health and its health inequalities are rooted in the body politic—not the body of the individual (Krieger, 2016). It is through this crossroads of theory and context that conclusions must be extrapolated, understood, and inferred.

Resiliency

There has been much discourse in the media about "building back better" as a response to COVID-19 (United Nations, 2020). Yet any recovery is dependent on the resiliency of social systems and the protection of individuals within a community. Social resiliency is the ability of a social entity to tolerate and adjust to critical disruptions without significantly deteriorating quality of life. These disruptions could include environmental, economic, or social crises. COVID-19 has exposed and exacerbated the inequities between groups already; should the world's governments intend to "build back better" after COVID-19, any plan of recovery must avoid repeating the mistakes of previous "recoveries." The orientation of capitalist responses to any number of recent crises has been described by Naomi Klein as "disaster capitalism" (Klein, 2007). This pattern of response is often encapsulated by the seizure of public infrastructure and services on the pretense of *building back better*, wherein the objective is to extend market relations and to stimulate further economic growth in private industry. Conversely, our investigation seeks an alternative to the economic, social, and biological forms of alienation that are the inevitable outcomes of disaster capitalism. Whereas disaster capitalism understands all crises as fundamentally economic, and offers remedies based in market liberalization, our research addresses the need for public health policy and epidemiological practice devoted to health equity in the service of improving the health of a population. Accordingly, we examine the social determinants of health and the resilience of social systems during periods of crisis. Using a political economy framework, we describe and apply four social determinants of health to explain the systemic effect they have on the propensity of COVID-19 incidence in the northwest region of Toronto.

There are numerous social determinants of health that can be analyzed to better understand the complexities of how politically governed systems impact health outcomes. A great breadth of systemic topics can be studied relating to health inequities such as: food security, credit/banking access, mobility/transportation, migration, healthcare access, housing, income/labour, and race. In this paper we focus on the latter four determinants, each of which intersect and influence one another. However, it may be the case that income and race are the over-arching determinants, having the greatest impact on healthcare access and housing.

Income

Income is a fundamental determinant of health (Link & Phalen, 1995). Foreshadowing the COVID-19 pandemic, Link and Phelan write that:

...when new diseases enter a population, they do so in the context of existing social conditions that are ripe environments for producing mechanisms that link fundamental social causes to new or re-emerging diseases....In sum, a fundamental social cause of disease involves resources that determine the extent to which people are able to avoid risks for morbidity and mortality. (88)

The general income level of a community is an important factor impacting the resiliency of a community. Lower income levels are related to a host of detrimental conditions like substandard housing, homelessness, poor nutrition, lack of access to healthcare, lack of access to education, unsafe communities, and lack of access to childcare. A community's economic capacity to provide for these needs inevitably impacts their capacity to protect themselves from the risk of disease.

Housing

A central recommendation from most—if not all—public health authorities at the onset of the COVID-19 pandemic was to stay home and practice social distancing. However, inadequate and substandard housing made this common-sense precaution difficult for some. The already-existing housing affordability crisis intensified the risks of exposure among marginalized populations once the pandemic got underway. Unhoused individuals were put at greater risk due to the lack of safe shelter. A growing population of low to low-middle class individuals are only able to afford housing by co-habiting with roommates or multiple generations of family (Wang et al., 2020). If an individual in a crowded home is an essential worker, does not have the option to work from home, or does not have access to sick pay or hazard pay—as is the case in Ontario (Government of Ontario, 2021)—the entire household is at greater risk. Income is a primary determinant of not just the individual's ability to attain safe housing; neighborhoods with particular income levels attract different types of developers which changes the type of zoning and structures built. Poorer neighborhoods tend to have more abandoned lots, less green space, and greater police presence. If the rate of home ownership in an area is low due to low incomes or a lack of credit options, there is less incentive for building maintenance and

construction (Bailey et al., 2017). The conflation of these factors not only increases the risk of communicable disease, but also the risk of chronic disease such as diabetes, stress, (Adler et al., 1994; Ingen, Khandor, & Fleiszer, 2015) or environmentally induced disease such as asthma (Krouse, 2020) or exposure to toxins (Bailey et al., 2017).

Healthcare Access

Housing is often a determinant to healthcare access because neighbourhood segregation impacts the spatial concentration of private healthcare facilities (Bailey et al., 2017). Additionally, economic barriers such as inadequate insurance or restrictions to nationalized healthcare (Adler et al., 1994; Bailey et al., 2017) can impact the efficacy of health interventions. Income levels and incidence of poverty have a profound impact on whether individuals seek out healthcare. With the continued rollout of the COVID-19 vaccine, it is important to consider the costs of healthcare and their policy implications. Social barriers such as language or perceived and/or realized racism in the healthcare system may also significantly impact public health outcomes (Hankivsky & Christoffersen, 2008). Trust in the healthcare system is often lower among marginalized communities due to a history of unethical treatment, experimentation, and neglect of racialized groups—particularly Black and Indigenous people (Egede & Walker, 2020). Language barriers among migrant communities may also be a significant challenge for public health policy (Murray et al., 2006). These limiting factors to healthcare access require healthcare providers to look beyond treatment and individual behavioural or biological risk factors to consider the systemic context in which individuals live.

Race

One of the most fundamental determinants of individual and public health is race. Determinants like income, housing, and healthcare access are all impacted one way or another by racial status. Krieger writes that “discrimination, as one form of societal injustice, becomes embodied inequality and is manifested as health inequities” (Krieger, 2012). COVID-19, like so many diseases before it, has impacted vulnerable communities most significantly. The individuals in these communities are made vulnerable by systemic discrimination, hateful rhetoric, and imbalances of power. Discrimination (typically rooted in differences of race, religion, or a variety of other social constructions) leads to inequality (typified by differences of income, education, access to credit, housing, healthcare, childcare, etc.) which results in health inequities (mortality and morbidity) (Wang et al., 2020). The study of health inequity and structural racism is deeply rooted in colonial history and the social organization of class hierarchy that conditions political agendas and social relations to this day (Krieger, 2020). It is important to note that race is not a biological or genetic marker but a social categorization that groups individuals into factions which then serves as the basis for creating and maintaining an asymmetrical socioeconomic hierarchy of access to resources.

Methods

Neighbourhoods in Toronto’s northwest area have some of the highest community transmission case rates of COVID-19 when compared to the rest of the city (Toronto Public Health, 2021). Using the Jane Street and Finch Avenue West intersection as a focal point, we collected COVID-19 case numbers for the following five neighbourhoods: Glenfield-Jane Heights, Black Creek, York University Heights, Downsview-Roding-CFB, and Humbermede. These Toronto neighbourhoods were selected due to their proximity to the Jane and Finch intersection—which is notoriously and anecdotally regarded among local Torontonians and residents of the Greater Toronto Area as an area that has yet to experience wide-scale gentrification. The focal intersection lies within the Glenfield-Jane Heights neighbourhood, and each of the other four neighbourhoods share a border with the Glenfield-Jane Heights neighbourhood. We collected COVID-19 case data using the City of Toronto’s COVID-19 data dashboard (Toronto Public Health, 2021) from January 21, 2020 until January 31, 2021. Numbers for “sporadic” cases were collected and “outbreak associated” data were omitted from this data collection. We did this in order to focus on community transmission to the exclusion of incidences of acute institutionalized outbreaks. Case rates per 100,000 people were used rather than absolute case count numbers in order to standardize the case counting and to compare infection rates as a proportion of the neighbourhood’s population.

At the time of our study, Toronto Public Health had released preliminary summary data on the social determinants of health and COVID-19 in Toronto (Toronto Public Health, 2021; Toronto Public Health & Canadian Census, 2020). The data depicts a disproportionate impact on racialized populations within the city. It also echoes a similar report conducted by Toronto Public Health in 2015 (Ingen et al., 2015) that provides context on the social inequities from a local perspective. To expand on this COVID-19 data, we collected demographic data on all five Toronto neighbourhoods. Although there are numerous potential social determinants of health, we focus on four: healthcare access, housing, income, and race. We chose these four social determinants in part because demographic data was readily available, and each determinant is relatively linear in connecting to a corresponding line item in the Toronto operating budget. These connections provide a window into how systemic funding of programs might have material outcomes for the health and wellbeing of constituents. The city of Toronto compiled and summarized the raw data from the 2016 Canadian Census for each neighbourhood and has made this data publicly available through its Open Data Portal (Statistics Canada, 2016). The data summaries include information on three of the four social determinants that we use in this paper: race, housing, and income. We extracted data on the remaining social determinant of healthcare access from the Dalla Lana School of Public Health’s Infection Disease Working Group’s mapping tool. This resource overlays the availability of COVID-19 testing facilities and healthcare services (among other community services) onto a map of Toronto (Infectious Disease Working Group, 2020). The statistical data from the 2016 Canadian Census were compared with the City of Toronto’s record of operating budgets for the years 2016–2021 to see how municipal spending was distributed across social programs (City of Toronto, 2020). We were limited in the analysis of the operating budgets because publicly available information on the city’s budgets only extend back to 2016. We collected budget data from the following agencies and services: Affordable Housing Office/Housing Secretariat as well as Shelter, Support & Housing Administration to assess housing; Toronto Public Health to assess healthcare access; Toronto Employment & Social Services to assess income; and Social Development, Finance & Administration to assess race. These data helped us assess which areas are exposed economically and how any vulnerabilities might impact health outcomes via the proxy of COVID-19 propensity in the northwest neighbourhoods of Toronto. We used a political economy lens to understand how the social determinants of health were impacted by the organization of social systems and services during the initial stages of the COVID-19 pandemic. We are concerned with how these organizational patterns either fortify or deter resiliency in times of crisis.

Background on Jane and Finch

Jane and Finch, as it is colloquially known, refers to the collective area surrounding the Jane Street and Finch Avenue West intersection in northwest Toronto. Jane and Finch has a reputation among Torontonians as an area high in poverty, crime, and gun violence. At the end of 2020, the Toronto Police Services' Shooting and Firearm Discharges dashboard reported that Division 31, which encompasses the northwest neighbourhoods of the city around Jane and Finch, accounted for 86 of the 462 gun-related incidents in Toronto. The area also had the highest deaths and injuries caused by gun violence—47 of the 217 cases in the city (Toronto Police Services, 2021). For contrast, the second highest is Division 43 (East Scarborough), with 48 incidents of gun-related violence, and 21 deaths or injuries (Toronto Police Services, 2021). To combat gun violence the city has increased police presence and police funding at a price of \$4.5M (CBC News, 2019). The annual budget of the Toronto Police Services increased \$40M in 2020, ballooning to \$1.1B (City of Toronto, 2020). For some context, The Social Development, Finance & Administration department, which oversees the development of inclusive and safe communities in Toronto, saw an increase of \$10M during the same period, bringing their total net expenditure to \$59M in 2020 (City of Toronto, 2020).

The high rate of gun violence and the constant police presence in the area creates a stigma for the community that deters visitors and economic opportunities. Driving through the Jane and Finch intersection, it may not appear too different than any other major intersection in Toronto's suburban corners. However, in casual conversations the intersection is discussed, oftentimes flippantly, as a corner that one must avoid at all costs unless they want to get "shot up." This type of dialogue circulates widely among outsiders and contributes to the stigmatization of the area. The discourse has material implications for the people of Jane and Finch as it discourages investment and the types of economic opportunities that would provide residents with social mobility. As we will demonstrate, much of the Jane and Finch community is made up of people of colour and households with a lower median income compared to the rest of the city. Reflecting on this data, we see that individuals in these neighbourhoods are socially and economically disadvantaged across various benchmarks which sheds light on the systemic vulnerabilities in Toronto which may help explain the disproportionate impact of COVID-19 on the Jane and Finch community.

Results

COVID-19 Case Rates

As of January 31st, 2021, the cumulative COVID-19 case rates for each of the five northwest Toronto neighbourhoods analyzed as part of this study are as follows: Humbermede had 6,574 cases per 100,000 people, Black Creek had 6,717 cases per 100,000 people, Glenfield-Jane Heights had 5,766 cases per 100,000 people, Downsview-Roding-CFB had 5,706 cases per 100,000 people, and York University Heights had 5,103 cases per 100,000 people. The heat map in Figure 1 displays the density of cases across the entire city of Toronto in comparison to these five neighbourhoods. As of January 31, 2021, the northwest corner of the city's map had been among the darkest.

Healthcare Access

To assess healthcare access, we used the University of Toronto's Dalla Lana School of Public Health's Infection Disease Working Group's mapping tool that maps the availability of COVID-19 testing facilities and healthcare services. We found that within the borders of the five northwest neighbourhoods, there were a cumulative seventeen healthcare services and one COVID-19 assessment centre (Figure 2). Among these seventeen healthcare services, ten of them provided direct walk-in medical care. The other seven services focused on more systemic and chronic issues of health, providing a mix of social and community services that incorporate healthcare such as mental health and addiction care, and food security support. Despite these neighbourhoods standing out as areas that have been disproportionately impacted by COVID-19, there was only one COVID-19 assessment centre, with the next closest assessment centre located in the neighbourhood of West Humber-Clairville, on the northwestern-most border of Toronto and neighboring city Mississauga. By comparison, there was a high concentration of COVID-19 assessment centres and healthcare services in Toronto's downtown core (Figure 3).

Housing

Census 2016 data shows that all five Toronto northwest neighbourhoods have higher average housing sizes compared to the city's overall average (Figure 4). All five northwest neighbourhoods rent at a higher proportion of their population compared to the city's average. Black Creek's population rented the most at 66.6% of its population. All five neighbourhoods also had a higher percentage of multi-family households compared to the city average. The Black Creek and York University Heights neighbourhoods were the two neighbourhoods with the smallest proportion of ground-related housing compared to the other three neighbourhoods within this study. The proportion of residents living in ground-related housing is also less than the city average. In other words, these neighbourhoods have less residents living in single and semi-detached houses, row/townhouses, apartment units in buildings with less than 5 storeys, and apartments or flats in duplexes and other dwellings such as mobile homes. Instead, these neighbourhoods have more residents living in high-rise buildings—which is verified further in the statistic for the proportion of residents living in 5+ storey apartments, with Black Creek and York University Heights leading the group and with a proportion higher than the city average. All five northwest neighbourhoods have a higher percentage of their population living in unsuitable housing compared to the city average. Unsuitable housing is defined as dwellings with insufficient bedrooms according to their size and composition. Three of the northwest neighbourhoods, Humbermede, Black Creek, and York University Heights, have a higher percentage of residents living in unaffordable housing compared to the city average. However, all five neighbourhoods hover around the city average of 36.6%. Unaffordable housing is categorized as private households spending more than 30 per cent of their total household income on shelter costs. Finally, all five northwest neighbourhoods are above the city average when it comes to the percentage of residents living in inadequate housing. Inadequate housing is defined as private households living in dwellings that are in need of major repairs. A summary of these statistics can be seen in Figure 5.

Income

Across the board, all five northwest neighbourhoods fall below the city's average when it comes to median household income, median family income, and median full year/full-time (FY/FT) work income (Figure 6). Income data is based on the 2015 tax year. All five neighbourhoods are far higher than the city average for the percentage of people without income as well as those that receive income from government transfers. With the exception of Downsview-Roding-CFB, the neighbourhoods also have a higher percentage of the population that fall under Canada's official poverty line and are in low-income status according to both the low-income measure after tax (LIM-AT), and the low-income cut-off after tax (LICO-AT) compared to the city's average. (Figure 7).

Toronto Public Health conducted a preliminary assessment of how COVID-19 impacted ethno-racial groups and various income levels. The data was collected between May 20, 2020 and December 31, 2020, and comes with a variety of limitations, including the lack of whole data (only 21% of those with confirmed or assumed COVID-19 infection provided socio-demographic data). However, as a snapshot of the pandemic, this data provides a timely analysis of the intersectionality of race and income and how these social determinants can impact infectious disease propensity. The agency's data found that COVID-19 case rates were higher than the overall COVID-19 rate among those that earned less than \$69,999 in household income (Figure 8). The data also demonstrate that COVID-19 was disproportionately represented in low-income households when looking at the population share in the city overall (Figure 9).

Race

Each of the five northwest neighbourhoods have a higher percentage of immigrants and populations of visible minorities compared to the city's average (Figure 10). Notably, approximately 80% of the populations of Humbermede, Black Creek, and Glenfield-Jane Heights consist of visible minorities, whereas the city's average is 51.5%. A visible minority population is defined as people in private households who belong to a visible minority group, i.e., persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.

Along with the income data collected by the city of Toronto for COVID-19 cases between May 20, 2020 and December 31, 2020, Toronto Public Health also collected and assessed ethno-racial data. As seen in Figure 11 and Figure 12, almost all ethno-racial groups besides White and East Asian have higher rates of COVID-19 cases compared to the overall COVID-19 rate for Toronto. This trend also continues when looking at the case data as a proportion of each ethno-racial group's share of the Toronto population.

Toronto Budgets

Five agencies and/or services within the city of Toronto's budget were assessed for this study (Figure 13). To analyze the funding activity for healthcare services, the budget for Toronto Public Health was analyzed. Between the approved budgets from 2016 to 2020, Toronto Public Health saw a steady increase in funding. Between 2020 and 2021, understandably, the funding for this agency increased significantly. The continued control and prevention of COVID-19 is an ongoing concern for the city and this is reflected in its public health budget. To assess funding for housing, we combined the budgets for the Affordable Housing Office (AHO)/Housing Secretariat and the Shelter and Support & Housing Administration (SSHA). As the AHO's funding is stable every year at ~\$1.17M, this number was added to SSHA's much larger budget to capture how much money the city spends on housing support in total. Housing services in the city receive the most funding, by a considerable amount, compared to the other three services and agencies assessed in this study. This funding has been trending upward year to year. We looked at the Toronto Employment & Social Services (TESS) budget to assess support for income. TESS has seen a decrease in funding every year in the data publicly available. Finally, we used the Social Development, Finance & Administration (SDFA) funding as a proxy for race because the budget for this administration is highly focused on community safety. The SDFA introduced an anti-Black racism program in its 2019 budget and has seen an increase in funding year to year.

Discussion

Looking at the demographic data for the neighbourhoods of Humbermede, Black Creek, Glenfield-Jane Heights, Downsview-Roding-CFB, and York University Heights provides a useful lens into the dynamics of the area. Before contemplating the results of the COVID-19 case rates or Toronto's budgeting activities, the data from the latest 2016 Canadian Census paints a picture of a cluster of neighbourhoods in Toronto's northwest that live below the median income for Canada's largest city, are predominately made up of visible minorities, and are more likely to live in unsuitable housing and with larger household sizes compared to the city's average. From our analysis of historic trends in public health and the information we know about social determinants of health, we find that the neighbourhoods in northwest Toronto are home to a population that is vulnerable to significant disruption from any number of potential crises, let alone a global pandemic.

Looking first at housing data, the average household size for all five neighbourhoods was greater than the city's average. Additionally, all five neighbourhoods had a higher percentage of multiple families living within one household, ranging from 4% to 7%, compared to the city's average of 3% (Statistics Canada, 2016). These larger-than-average household sizes, as well as the greater likelihood of multi-family or multigenerational households, leads one to infer that the residents in these northwest neighbourhoods are more likely to live in crowded settings. Given that all five neighbourhoods have a higher percentage of residents living in unsuitable or inadequate housing compared to the city's average, it is reasonable to conclude that housing may be a critical factor in the spread of the infectious respiratory disease of COVID-19. The blanket mandate and public health precaution prescribed to everyone during the pandemic was to stay home, avoid crowds, and social distance from others. This prescription becomes increasingly difficult to adhere to when one's home is crowded, unsuitable, or inadequate. Although the funding for the Shelter, Support & Housing Administration had steadily been increasing year over year between 2016 and 2020, there was an accelerated spike of 53% between 2020 and 2021. There are myriad reasons why this may have increased; however, Toronto has seen average rent costs increase every year since at least 2012 (which is the furthest back the data goes on the city's website) (City of Toronto, 2021b). This increase in rental costs and the unaffordability of home ownership in the city pushes more and more people to find cheaper housing outside of the desirable downtown core and into the outskirts of the city. This could explain why new Canadians and low-income households settle in the northwest neighbourhoods of Toronto where housing is more affordable compared to the condos that dominate downtown. Rental costs for condo units which are common to downtown Toronto are considerably higher than the average rent for all rental apartments in the city. For example, the average rental cost of a two bedroom condo unit in

2020 was \$2,440 versus \$1,635 for an average apartment rental (Canada Mortgage and Housing Corporation, 2021). As Toronto's housing market is characterized by a supply which generally fails to keep pace with demand, low-income populations will likely continue to settle in outlying areas of the city that unfortunately have a higher-than-average percentage of unsuitable and inadequate housing.

The dispersal of general healthcare services across the city of Toronto are geographically uneven and it is unclear to us how the locations of healthcare services are determined. However, despite the greater COVID-19 case numbers in the northwest region of Toronto, there are only two COVID-19 assessment centres within the northwest corner of the city, and only one within the borders of the five neighbourhoods discussed here. In comparison, there are four COVID-19 assessment centres within the city's downtown core, all within walking distance (<3km) of each other (Infectious Disease Working Group, 2020). It is notable that each of these COVID-19 assessment centres is within a major Toronto hospital. Hospitals, of course, require substantial investment and planning. However, mobile testing centres can be procured relatively quickly and dispatched to the areas that require testing services the most. According to reporting in the *Toronto Star* in late June 2020, months after the initial cases of COVID-19 were detected in the city, mobile testing centres had yet to materialize in the city's northwest neighbourhoods, despite public awareness that this corner of the city was hard hit by the virus (Yang et al., 2020). This delay may be a matter of resources and the nature of bureaucracy, issues perhaps city officials attempted to rectify in proposing their 2021 budget. COVID-19 is still very much a material issue in 2021 and Toronto Public Health will require a boost in resources to help steer the city towards recovery. However, after seeing the stratification of healthcare services across neighbourhoods, one issue that Toronto Public Health will need to address in planning for the future is how best to dispatch preventative care so that resiliency is built into neighbourhoods at greatest risk of disease.

Median household incomes across the five neighbourhoods are all lower than the median Toronto household income. Poverty and low-income proportions across four of the five studied neighbourhoods are also higher than city average. These metrics suggest a trend of lower earning potential and economic opportunities in the area. As income is one of the fundamental drivers of disease (Link & Phalen, 1995), this difference in income levels across the area compared to the rest of the city could contribute to COVID-19 propensity in the area. Toronto Public Health's data on income groups and COVID-19 case rates revealed a clear division between the wealthiest Torontonians and the lower-income households in Toronto. The COVID-19 rate was disproportionate among households that earned less than \$69,999 (Toronto Public Health, 2021). This data combined with the COVID-19 case rate map as well as the census data for the northwest neighbourhoods all tell the same story.

It is challenging to determine exactly what types of jobs residents in Toronto's northwest hold and how that may impact their exposure to the SARS CoV-2 virus. However, it may be reasonable to assume that lower-income households are less likely to enjoy the option of working from home, and instead are required to be physically present at their place of work, as is the case with grocery store staff, long-term care providers, and personal support workers. Working from home, much like social distancing, is a public health guideline that is prescribed to the public—as long as it is feasible for one's job. As essential workers leave the house, they increase potential touch points of COVID-19 exposure. This exposure accelerates if the job requires a commute, and the individual does not own a personal vehicle and must take public transit. The movement of individuals between work and home is one of the likely modes of transmission of COVID-19, despite the government-mandated lockdown of non-essential services (Shaw et al., 2021).

Public health experts have long recommended that individuals sick with an infectious disease should stay home to reduce the spread of the infection. However, with rising economic inequality and 27% of all 193 UN member states not providing guaranteed paid sick leave from the first day of illness (Heymann et al., 2020), it is difficult to choose between preventing further disease spread and making ends meet. Without a guaranteed paid sick leave policy, workers—especially those working in low-wage labour markets and part-time or self-employed/gig economy workers, are less likely to take time off compared to those with stable employment (DeRigne, Stoddard-Dare, & Quinn, 2016). In Ontario, there is no provincially mandated paid sick leave (Government of Ontario, 2021). The province mandates employers provide employees with three days of unpaid sick leave; however, this trade-off places the burden on an individual to decide if the opportunity cost of lost wages is less than the cost of contracting an infectious disease. The federal government of Canada passed the Canada Recovery Sickness Benefit (CRSB) and the Canada Recovery Caregiving Benefit (CRCB) at the end of September 2020 (CBC News, 2020). These benefits extended a national paid sick leave benefit to all working Canadians that may contract COVID-19 or those who must care for others, such as young children, and thus cannot work. Although these benefits are welcomed, they only provide \$500 (before tax) per week and do not replace full wages. They also require individuals to reapply every week they require the assistance, up to a total of four weeks (Government of Canada, 2021).

The CRSB is likely to be effective in helping to mitigate the spread of COVID-19. However, the CRSB should be implemented in concert with several other government interventions that incentivize Canadians to stay home, such as expanded employment insurance and a reconsideration of a Canada Emergency Response Benefit (CERB) extension. It is critical that the conversation regarding the necessity of paid sick leave continues and should lead to greater scrutiny of economic inequality. In the long term, paid sick leave should be paired with genuine policy considerations for basic income, targeted minimum wage standards, and a general economic analysis on the rising cost of living. The COVID-19 pandemic will eventually begin to dissipate, but the socioeconomic inequalities that were exposed during this time of crisis will remain. Considering that the demographics that are most likely to not have access to paid sick leave intersect with the demographics that are more likely to work in low-wage jobs in hospitality, retail, and healthcare, that are now widely celebrated as "essential work," it is integral for the sustainability of our social and economic systems that these workers receive the support they need.

Despite the high percentage of individuals living in poverty or designated as low-income in Toronto's northwest, the city budget has consecutively decreased funding to the Toronto Employment & Social Services (TESS) since at least 2016. TESS is focused on providing employment services, financial assistance, and social supports to Toronto residents with the goal of strengthening socioeconomic wellbeing in communities (City of Toronto, 2020). Although Toronto's employment and social services is touted as the third largest social assistance delivery system in Canada, it is notable that the SSHS budget is nearly ten times that of TESS. This begs the question if Toronto is truly targeting the root causes of inequality. Funding to provide socioeconomic wellbeing and opportunity has the potential to assist individuals seeking access to adequate housing. Toronto certainly must address the immediate needs of its unsheltered population; however, this should not come at the (albeit, likely indirect) expense of services that have the potential to create a multiplying effect through economic opportunity.

Systemic racism is the perpetuation of discrimination through a confluence of intersecting systems of housing, education, income, credit, media, the criminal justice system, among many others (Bailey et al., 2017). Although this form of discrimination is often not explicitly racist, the impact of marginalization through the tools of the system often falls upon the shoulders of people of colour. Nevertheless, marginalized populations are made vulnerable through systemic actions, placing social mobility beyond their reach. Although the COVID-19 virus does not distinguish or discriminate against borders, races, or classes, it does, however, infect those that are most susceptible to exposure. Housing costs are an important factor in deciding where to live. These costs are paramount to an individual or family that has recently migrated to Toronto. As seen through the census data, the proportion of immigrants and visible minorities in all five northwest neighbourhoods is greater than the city's average. When you break down the neighbourhoods' population based on residents' native language, the languages (excluding English) that are predominant in these neighbourhoods are: Vietnamese, Italian, Spanish, Tagalog, Urdu, and Assyrian Neo-Aramaic (Statistics Canada, 2016). Using language as an indicator of diversity within the neighbourhoods and then comparing them to the disproportionate rates of COVID-19 among Arab, Middle Eastern, or West Asian; Latin American; South Asian; and Southeast Asian, the connections between systemic racism and health inequities become clear. Language barriers are often an obstacle between individuals and the healthcare system. The high percentage of immigrants in Toronto's northwest neighbourhoods should signal to Toronto Public Health the need to strengthen their communications with these neighbourhoods through a variety of multi-language tools.

Across all five neighbourhoods, the highest represented group among visible minorities is the Black population. For example, in the neighbourhood of Black Creek, the neighbourhood with the highest visible minority population at 81%, 29% of the total population are Black. Black Creek also has the highest percentage of renters across the five neighbourhoods and the highest percentage of unsuitable and inadequate housing. Black Creek also has the lowest median income—across all modes of measurement—among the five neighbourhoods. Black Creek also has the highest percentage of residents that fall below the poverty line, have low-incomes, and receive transfer payments from the government. Black Creek has three healthcare services within its borders, but none of them are walk-in clinics—they are all related to community or social services that also provide healthcare services. Black Creek is an example of a neighbourhood that may not always be explicitly discriminated against by the city or the systems that operate within and beyond the city, yet still sees its residents marginalized via the absence of opportunity for social mobility—and thus, social resiliency.

In addition to the implicit perpetuation of systemic racism, the Ontario Human Rights Commission released a report in August 2020 indicating that there is systemic racism in Toronto policing. It should be noted that among the pervasive cases of racial profiling in the report, 32.2% of cases involving a police firearm involve a Black individual (Wortley, 2020). One particular material case that the City of Toronto should immediately advocate for, considering the overwhelming evidence of gun violence, neighbourhood data, and suggested interventions, is the recently abandoned plan by Metrolinx to build a community hub for youth in the Jane and Finch neighbourhood (Westoll, 2020). Although Metrolinx has scrapped their plan to donate the land to the community, worth millions of dollars, the Ontario government and Toronto City Council should consider redirecting their \$4.5M of increased police spending to curb gun violence (CBC News, 2019) and put it towards securing the land for construction of the community hub, and direct the operations of the facility to non-profit community organizations. A community hub at the centre of Jane and Finch has the potential to bring people together, dissolve conflict between groups, and provide a central location to distribute educational tools and opportunities for youth in the area to thrive and flourish.

The city of Toronto has increased the Social Development, Finance & Administration budget year over year, a department that is focused on cultivating inclusive and safe communities. In the 2019 budget, the department established the Confronting Anti-Black Racism Unit with a budget of \$1.2M (City of Toronto, 2020). The action plan developed by the unit prioritizes culture change within the city, community capacity building, community safety, wellbeing, and alternatives to policing, as well as Black community resiliency (City of Toronto, 2021). This represents a promising start to addressing systemic racism within the city's operations. Should the city of Toronto seek to engage in meaningful action, this program, along with any other program, existing or proposed, that is working to dismantle white supremacy and provide opportunities for disadvantaged and disenfranchised communities, should be prioritized in the budget.

Limitations

There are a number of limitations to the present study, foremost of which is the lack of complete data. Demographic data used in this study is five years old and does not perfectly capture the current environment in which the COVID-19 pandemic continues to transpire. Additionally, the rapid rate in which the COVID-19 pandemic has entered and spread throughout the city (and of course, the world) means that data, inevitably, is incomplete and lagging. The case numbers are based on the information and testing that Toronto Public Health make available. However, it is likely that many cases from early in the pandemic were not captured. And as mentioned previously, it is likely that distrust of the healthcare sector could lead to under-reporting of marginalized communities. The greatest limitation to a study such as this one is that it is difficult to isolate causation. There is no concrete way to test variables in a vacuum and declare that one or all social factors is the cause of increased infectious disease transmission. However, we believe that these data and our findings are beneficial to the task of formulating policies intended to reduce public health inequality and build resilience in the system.

Conclusion

Socially constructed systems have immense impacts on individual lives and health outcomes. Income and race both condition an individual's socioeconomic status which in turn impacts their likelihood to experience inequalities in housing and access to healthcare. Discrimination against a community can induce a cyclical effect in which the discrimination begets bias which can lead to an absence of economic opportunities, barring individuals in the community from social mobility, which ultimately weakens the social resiliency of the community. Without social resiliency, a community trapped within this cycle is made vulnerable to the impacts of crises like the COVID-19 pandemic.

This cycle can perpetuate endlessly unless those with power choose to break the circuit and invest in the resiliency of communities. Inequality obstructs human potential and social mobility, thus widening the gap between haves and have-nots, and continuing the marginalization of communities. People are not

inherently marginalized but are actively made vulnerable through the capitalist system that seeks to divert resources to the processes of accumulation rather than the communities most at risk.

We maintain that the lack of social resiliency in the Jane and Finch community of Toronto laid the foundation for the onslaught of infections during the COVID-19 pandemic. However, as the most urgent phase of the current crisis starts to wane (hopefully) with the distribution of vaccinations, we must recognize more crises will eventually follow. The climate crisis will carry along with it a plethora of wicked problems. Those most likely to be hardest hit will, once again, disproportionately be the poor and racialized communities pushed to the margins of society. Without social resiliency through investment in humans, rather than human capital, inequality will, as Marx and Engels (1978) wrote 150 years ago, continue to "diminish the means whereby crises are prevented".

Abbreviations

full year/full-time work income (FY/FT)

low-income measure after tax (LIM-AT)

low-income cut-off after tax (LICO-AT)

Affordable Housing Office (AHO)

Shelter and Support & Housing Administration (SSHA)

Toronto Employment & Social Services (TESS)

Social Development, Finance & Administration (SDFA)

Canada Recovery Sickness Benefit (CRSB)

Canada Recovery Caregiving Benefit (CRCB)

Canada Emergency Response Benefit (CERB)

Declarations

Ethics approval and consent to participate

This study was conducted in compliance with the University of Toronto protocols on ethics in human research. This research did not involve the use of human or animal participants. Because there were no human participants, this research did not necessitate the collection of informed consent.

Consent for publication

Both authors, Jenny Phan and Brett R. Caraway, authorize the publication of this article. This article has not been previously published, nor is it under review elsewhere.

Availability of data and material

This study relied, in part, on publicly available data from the City of Toronto's COVID-19 data dashboard and the city's operating budget, both of which can be found at the following links:

<https://www.toronto.ca/city-government/budget-finances/city-budget/previous-budgets/2020-city-budget/>

<https://www.toronto.ca/home/covid-19/covid-19-pandemic-data/covid-19-monitoring-dashboard-data/>

Competing interests

The authors have no competing interests to report or declare.

Funding

No funding was provided to support this research.

Authors' contributions

The authors of this article contributed equally to this work. Jenny Phan is the primary author and Brett R. Caraway is the secondary author.

Acknowledgements

The authors of this paper have no acknowledgements to declare.

References

1. Adler NE, Boyce T, Chesney MA, Cohen S, Folkman S, Kahn RL, ... Socio. Socioeconomic Status and Health: The Challenge of Gradient. *Am Psychol.* 1994;49(1):15–24. <https://doi.org/10.1016/B978-0-08-097086-8.14043-7>.
2. Bailey ZD, Krieger N, Agénor M, Graves J, Linos N, Bassett MT. Structural racism and health inequities in the USA: evidence and interventions. *The Lancet.* 2017;389(10077):1453–63. [https://doi.org/10.1016/S0140-6736\(17\)30569-X](https://doi.org/10.1016/S0140-6736(17)30569-X).
3. Canada Mortgage and Housing Corporation. (2021). Rental Market Survey Data Tables. Retrieved March 23, 2021, from <https://www.cmhc-schl.gc.ca/en/data-and-research/data-tables/rental-market-report-data-tables>.
4. CBC News. (2019). Governments announce \$4.5M to help Toronto police curb gun violence.
5. CBC News. (2020, October 5). Coronavirus: What's happening in Canada and around the world on Monday. CBC News.
6. City of Toronto. (2020). City of Toronto Budget Summary.
7. City of Toronto. (2021a). Confronting Anti-Black Racism. Retrieved March 23, 2021, from <https://www.toronto.ca/community-people/get-involved/community/confronting-anti-black-racism/>.
8. City of Toronto. (2021b). Current City of Toronto Average Market Rents & Utility Allowances. Retrieved March 23, 2021, from <https://www.toronto.ca/community-people/community-partners/social-housing-providers/affordable-housing-operators/current-city-of-toronto-average-market-rents-and-utility-allowances/>.
9. Choi KH, Denice P, Haan M, Zajacova A. (2021). Studying the social determinants of COVID-19 in a data vacuum. *Canadian Review of Sociology*, 58(2).
10. DeRigne L, Stoddard-Dare P, Quinn L. Workers Without PSL Less Likely To Take Time Off For Illness Or Injury Compared To Those With PSL. *Health Aff.* 2016;35(3):520–7K.
11. Egede LE, Walker RJ. (2020). Structural Racism, Social Risk Factors, and Covid-19 – A Dangerous Convergence for Black Americans. *New England Journal of Medicine*, 1–3. Retrieved from [nejm.org](https://www.nejm.org).
12. Government of Canada. (2021). Canada Recovery Sickness Benefit (CRSB).
13. Government of Ontario. (2021). Sick Leave.
14. Marcello Barbosa Otoni Gonçalves Guedes, Sanderson José Costa de Assis, Geronimo José Bouzas Sanchis, Diego Neves Araujo, Angelo Giuseppe Roncalli Da Costa Oliveira, & Lopes JM. (2021). COVID-19 in Brazilian cities: Impact of social determinants, coverage and quality of primary health care. *PloS ONE*, 16(9).
15. Hankivsky O, Christoffersen A. Intersectionality and the determinants of health: A Canadian perspective. *Crit Public Health.* 2008;18(3):271–83. <https://doi.org/10.1080/09581590802294296>.
16. Harvey D. *Spaces of Capital: Towards a Critical Geography*. New York: Routledge; 2001.
17. Henricks K. (2015). Bursting Whose Bubble? The Racial Nexus Between Social Disaster, Housing Wealth, and Public Policy. *Social Justice Research* (2015) 28:318–338.
18. Heymann J, Raub A, Waisath W, McCormack M, Weistroffer R, Moreno G, ... Earle A. Protecting health during COVID-19 and beyond: A global examination of paid sick leave design in 193 countries*. *Glob Public Health.* 2020;15(7):925–34. <https://doi.org/10.1080/17441692.2020.1764076>.
19. Infectious Disease Working Group. (2020). ReConnect: A Community Resource Tool.
20. Ingen T van, Khandor E, Fleiszer P. (2015). The Unequal City 2015: Income and Health Inequities in Toronto. *Toronto Public Health.* Retrieved from <http://www.toronto.ca/legdocs/mmis/2015/hl/bgrd/backgroundfile-79096.pdf>.
21. Klein N. *The Shock Doctrine: The Rise of Disaster Capitalism*. New York: Picador; 2007. <https://doi.org/10.1093/cdj/bsn030>.
22. Krieger N. Methods for the scientific study of discrimination and health: An ecosocial approach. *Am J Public Health.* 2012;102(5):936–45. <https://doi.org/10.2105/AJPH.2011.300544>.
23. Krieger N. Living and Dying at the Crossroads: Racism, Embodiment, and Why Theory Is Essential for a Public Health of Consequence. *Am J Public Health.* 2016;106(5):832–3. <https://doi.org/10.2105/AJPH.2016.303100>.
24. Krieger N. ENOUGH: COVID-19, structural racism, police brutality, plutocracy, climate change-and time for health justice, democratic governance, and an equitable, sustainable future. *Am J Public Health.* 2020;110(11):1620–3. <https://doi.org/10.2105/AJPH.2020.305886>.
25. Krouse HJ. COVID-19 and the Widening Gap in Health Inequity. *Otolaryngology - Head and Neck Surgery. (United States)*. 2020;163(1):65–6. <https://doi.org/10.1177/0194599820926463>.
26. Lee W-C, Guillot-Wright S, Raimer BG. (2021). Assessing How Level of Segregation Affects Social Determinants of Health of African Americans in U.S. 500 Cities. *International Journal of Community Well-Being*.
27. Link BG, Phalen J. (1995). Social Conditions As Fundamental Causes of Disease. *Journal of Health and Social Behavior*, 80–94.
28. Mahamoud A, Rochea B, Homer J. Modelling the social determinants of health and simulating short-term and long-term intervention impacts for the city of Toronto, Canada. *Soc Sci Med.* 2013;93(September):247–55.
29. Marx K. Manifesto of the Communist Party. In: Tucker RC, editor. *The Marx-Engels Reader*. 2nd ed. New York: W. W. Norton & Company; 1978. pp. 469–500.
30. McNeely CL, Schintler LA. Social Determinants and COVID-19 Disparities: Differential Pandemic Effects and Dynamics. *World Med Health Policy.* 2020;12(3):206–17.

31. Murray CJL, Kulkarni SC, Michaud C, Tomijima N, Bulzacchelli MT, Iandiorio TJ, Ezzati M. Eight Americas: Investigating mortality disparities across races, counties, and race-counties in the United States. *PLoS Med.* 2006;3(9):1513–24. <https://doi.org/10.1371/journal.pmed.0030260>.
32. Shaw AK, White LA, Michalska-Smith M, Borer ET, Craft ME, Seabloom EW, ... Travisano M. Lessons from movement ecology for the return to work: Modeling contacts and the spread of COVID-19. *PLoS ONE.* 2021;16(1 January):1–22. <https://doi.org/10.1371/journal.pone.0242955>.
33. Sod-Erdene O, Vahid Shahidi F, Ramraj C, Hildebrand V, Siddiqi A. Is social assistance boosting the health of the poor? Results from Ontario and three countries. *Can J Public Health.* 2019;110(4):386–94. <https://doi.org/10.17269/s41997-019-00206-3>.
34. Smith MJ, Thompson A, Upshur REG. (2019). Public Health as Social Justice? A Qualitative Study of Public Health Policy-Makers' Perspectives. *Social Justice Research* (2019) 32: 384–402.
35. Statistics Canada. (2016). Neighbourhood Profiles. Retrieved from <https://www.toronto.ca/city-government/data-research-maps/neighbourhoods-communities/neighbourhood-profiles/>.
36. Toronto Police Services. (2021). Shooting and Firearm Discharges. Retrieved March 26, 2021, from <https://app.powerbi.com/view?r=eyJrJljoIOWI3YWl2MTAtOGUzNC00MmEzLTkxNzlY2JiZmlzYjNjZmNkliwidCl6ljg1MjljMjl1LWFjNDMtNDc0Yy04Zml0LTBmNDA5NWFLOGQ1ZCIsImMiOjN>
37. Toronto Public Health. (2021). COVID-19: Status of Cases in Toronto. Retrieved from <https://www.toronto.ca/home/covid-19/covid-19-latest-city-of-toronto-news/covid-19-status-of-cases-in-toronto/>.
38. Toronto Public Health, & Canadian Census. Covid-19 and the Social Determinants of Health. What Do We Know ?; 2020.
39. United Nations. (2020). COVID-19, Inequalities and Building Back Better.
40. Vilar-Compte M, Gaitán-Rossi P, Félix-Beltrán L, Bustamante AV. (2021). Pre-COVID-19 Social Determinants of Health Among Mexican Migrants in Los Angeles and New York City and Their Increased Vulnerability to Unfavorable Health Outcomes During the COVID-19 Pandemic. *Journal of Immigrant and Minority Health.*
41. Wang ML, Behrman P, Dulin A, Baskin ML, Buscemi J, Alcaraz Kl, ... Fitzgibbon M. Addressing inequities in COVID-19 morbidity and mortality: Research and policy recommendations. *Translational Behav Med.* 2020;10(3):516–9. <https://doi.org/10.1093/tbm/iba055>.
42. Westoll N. (2020). Jane-Finch Community Hub project's future uncertain as Metrolinx looks at land sale options.
43. Wortley S. (2020). A Disparate Impact: Second interim report on the inquiry into racial profiling and racial discrimination of Black persons by the Toronto Police Service.
44. Yang J, Allen K, Mendleson R, Bailey A. (2020, June 28). Toronto's COVID-19 divide: The city's northwest corner has been 'failed by the system.' *Toronto Star*, pp. 1–7. Retrieved from <https://www.thestar.com/news/gta/2020/06/28/torontos-covid-19-divide-the-city-s-northwest-corner-has-been-failed-by-the-system.html>.

Figures

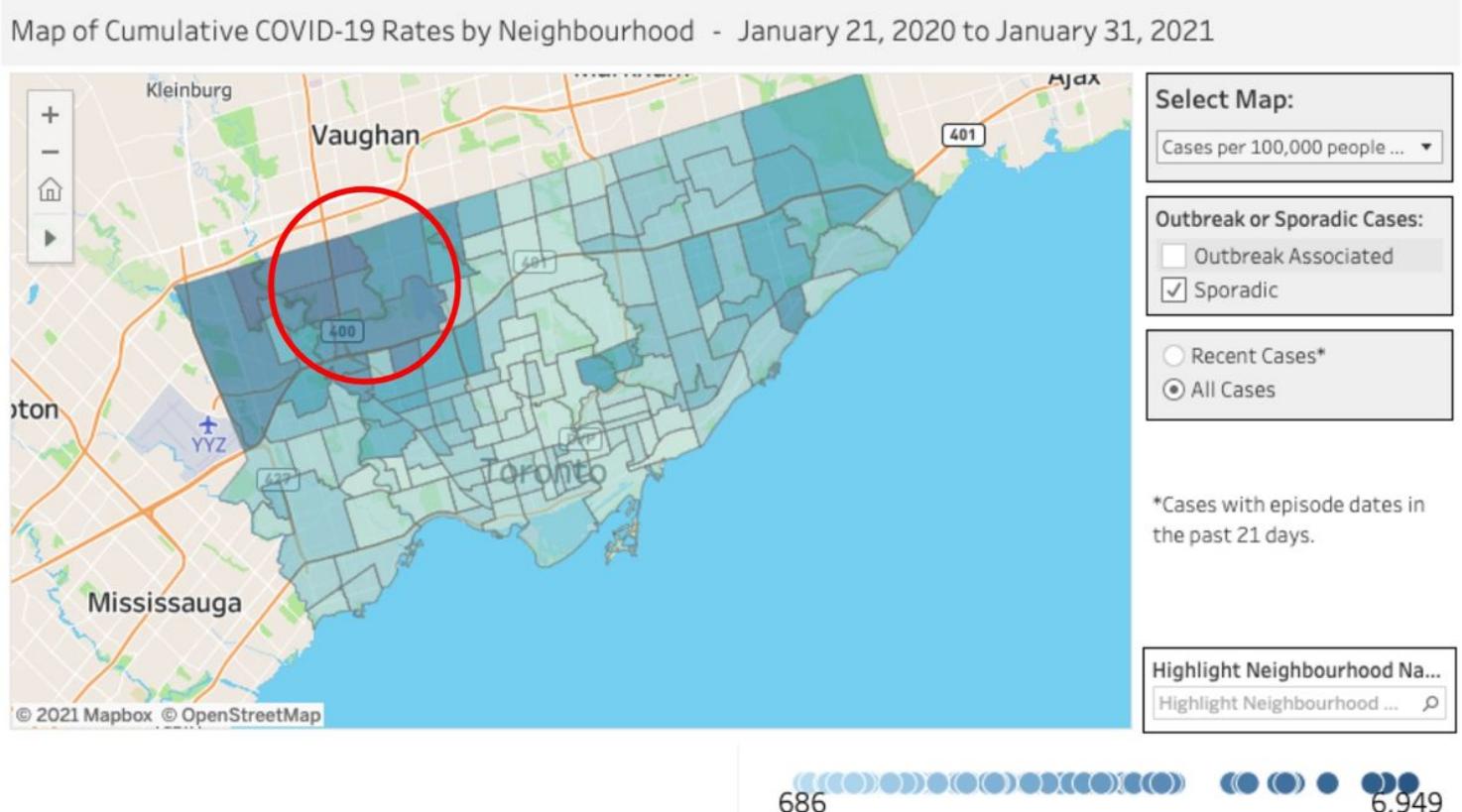


Figure 1

COVID-19 case rate map for all of Toronto (Toronto Public Health, 2021).

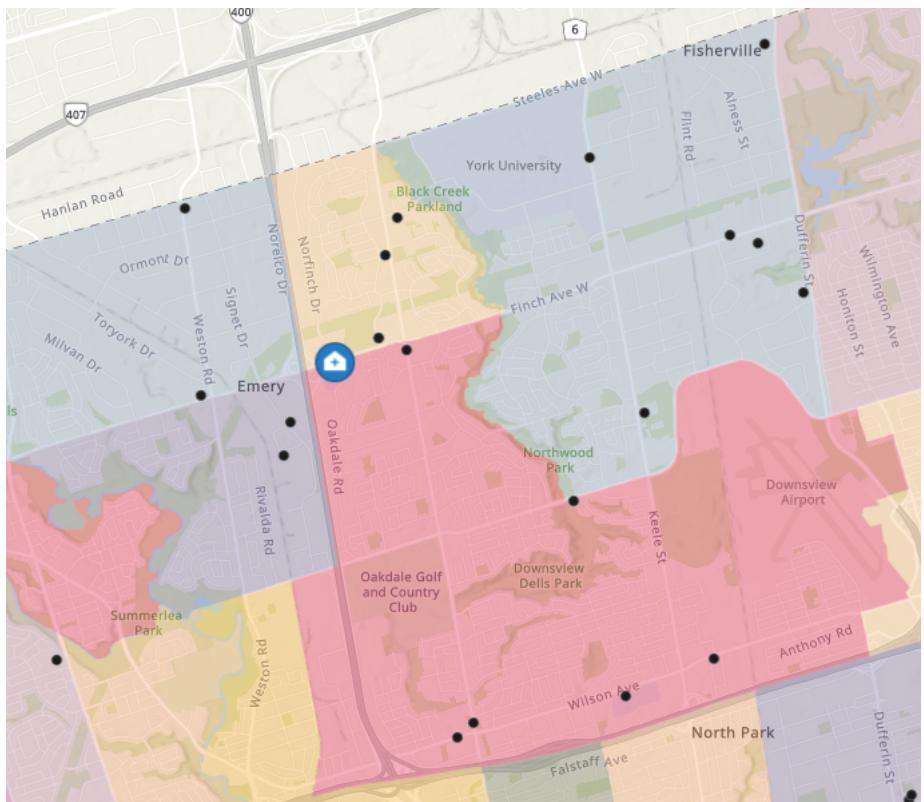


Figure 2

Healthcare services and COVID-19 assessment centres in the neighbourhoods of Humbermeade, Black Creek, Glenfield-Jane Heights, Downsview-Roding-CFB, and York University Heights (Infectious Disease Working Group, 2020).

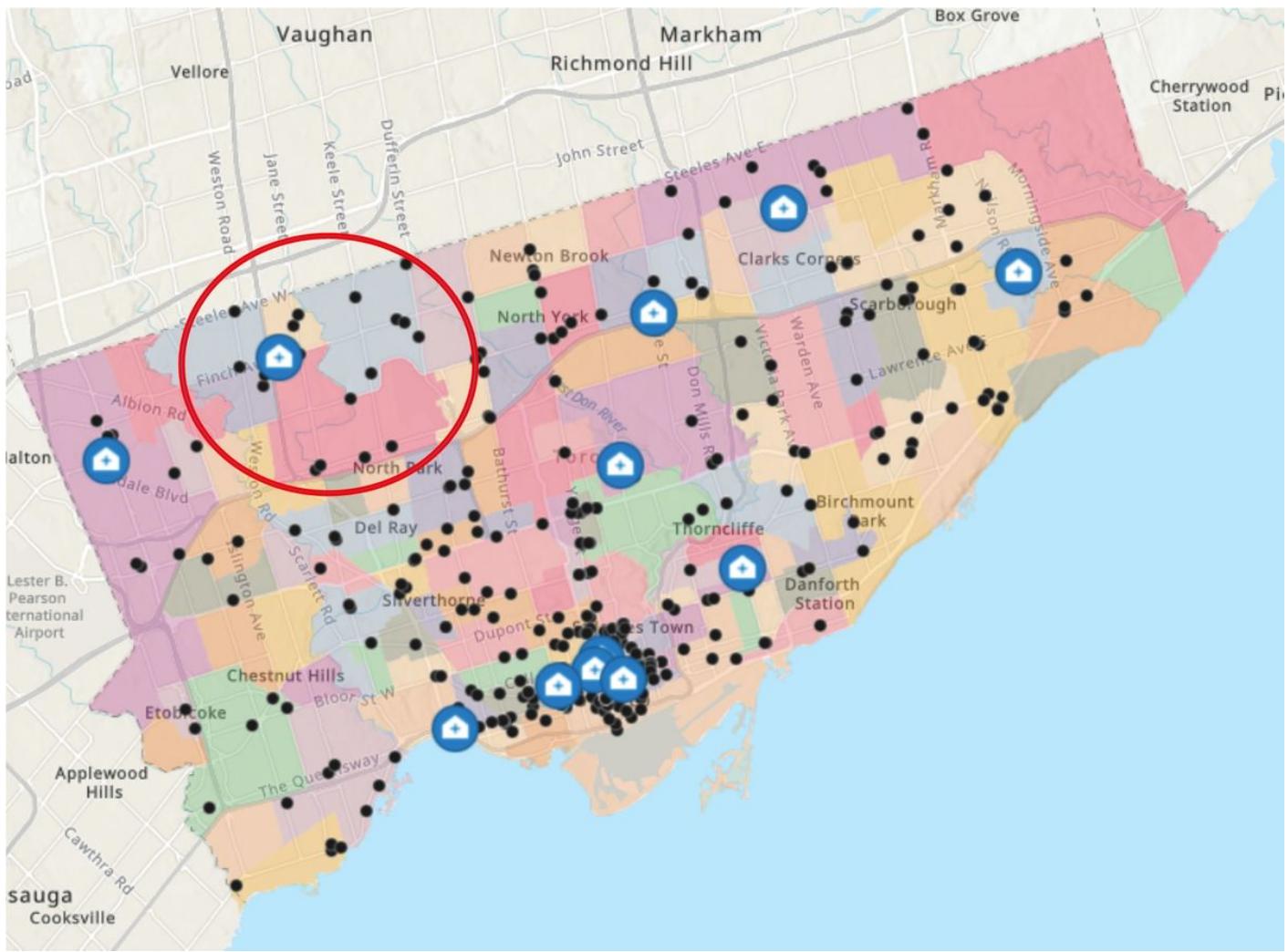


Figure 3

Healthcare services and COVID-19 assessment centres in all of Toronto (Infectious Disease Working Group, 2020).

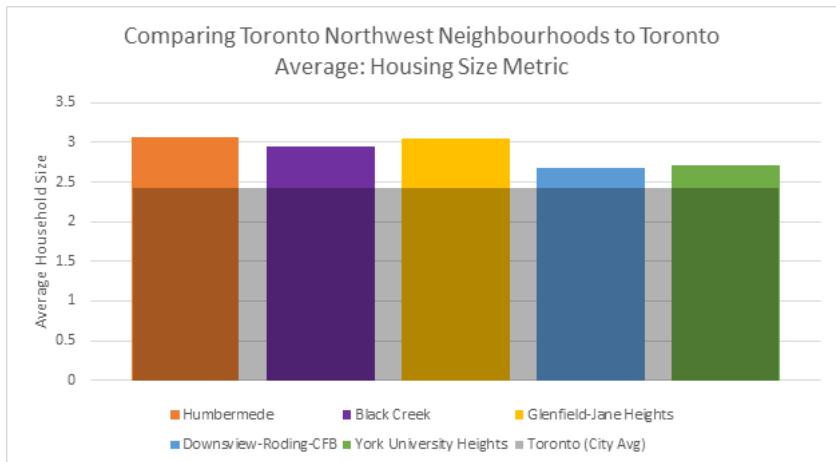


Figure 4

Comparing Toronto northwest neighbourhoods to Toronto average: Housing size metric (Statistics Canada, 2016).

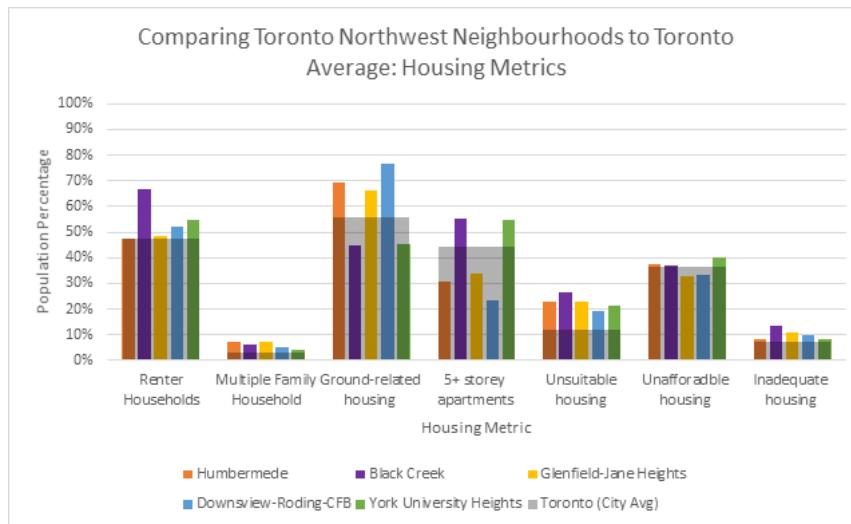


Figure 5

Comparing Toronto northwest neighbourhoods to Toronto average: Housing metrics (Statistics Canada, 2016).

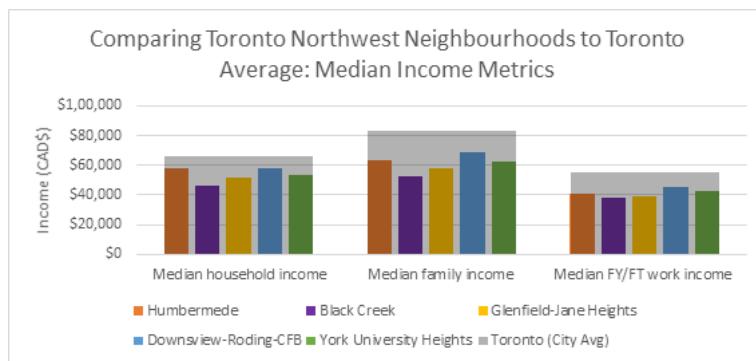


Figure 6

Comparing Toronto northwest neighbourhoods to Toronto average: Median income metrics (Statistics Canada, 2016).

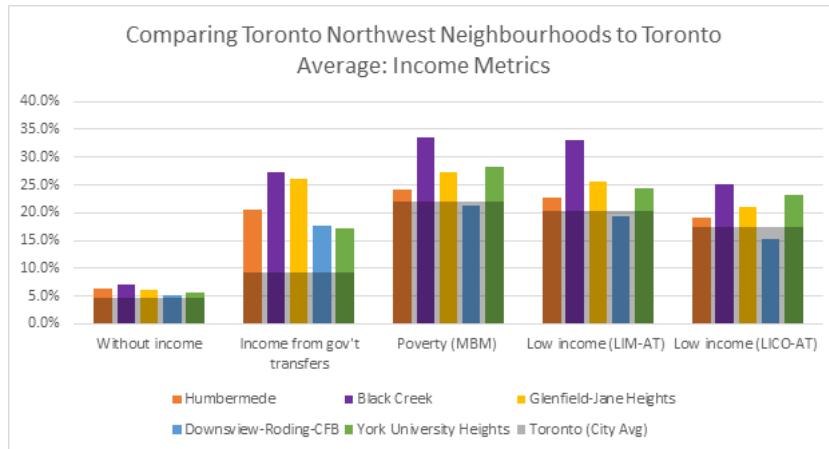


Figure 7

Comparing Toronto northwest neighbourhoods to Toronto average: Income metrics (Statistics Canada, 2016).

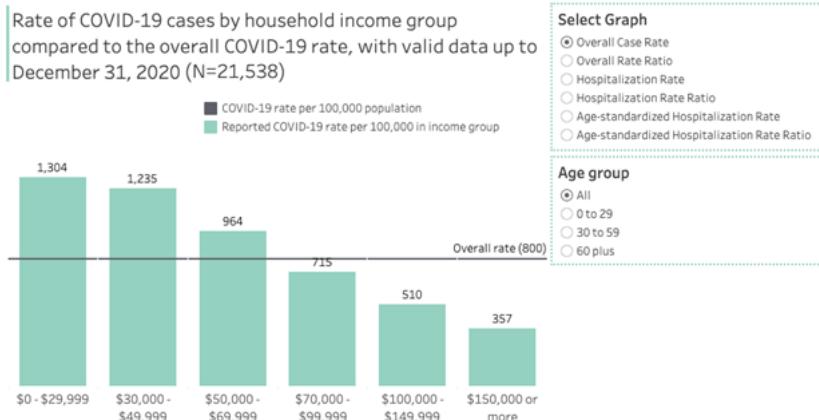


Figure 8

Rate of COVID-19 cases by household income group compared to the overall COVID-19 rate (Toronto Public Health, 2021).

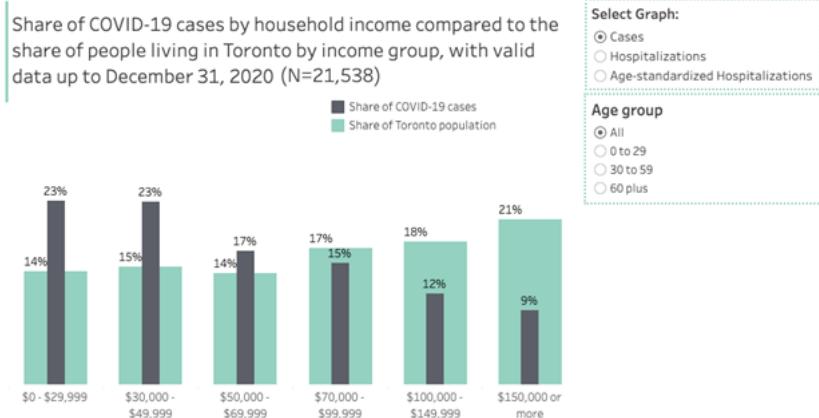


Figure 9

Share of COVID-19 cases by household income compared to the share of people living in Toronto by income group (Toronto Public Health, 2021).

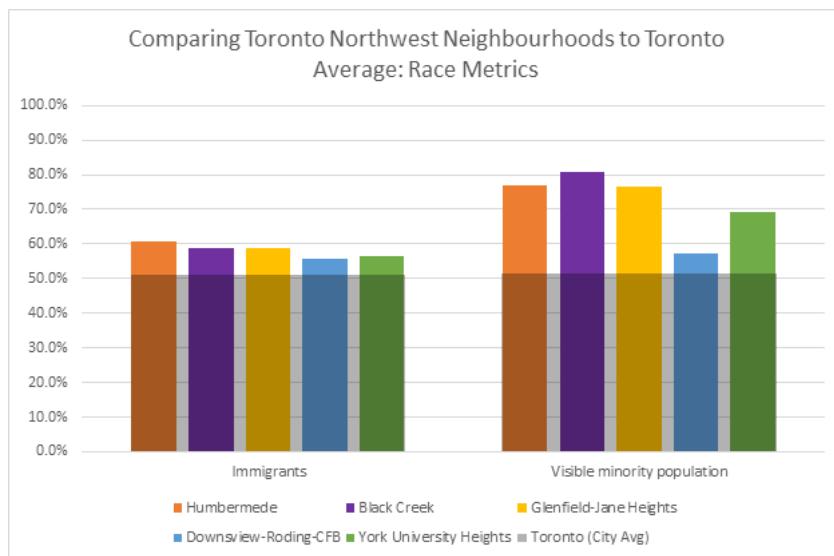


Figure 10

Comparing Toronto northwest neighbourhoods to Toronto average: Race metrics (Statistics Canada, 2016).

Rate of COVID-19 cases among ethno-racial groups compared to the overall COVID-19 rate for Toronto, with valid data up to December 31, 2020 (N=40,732)

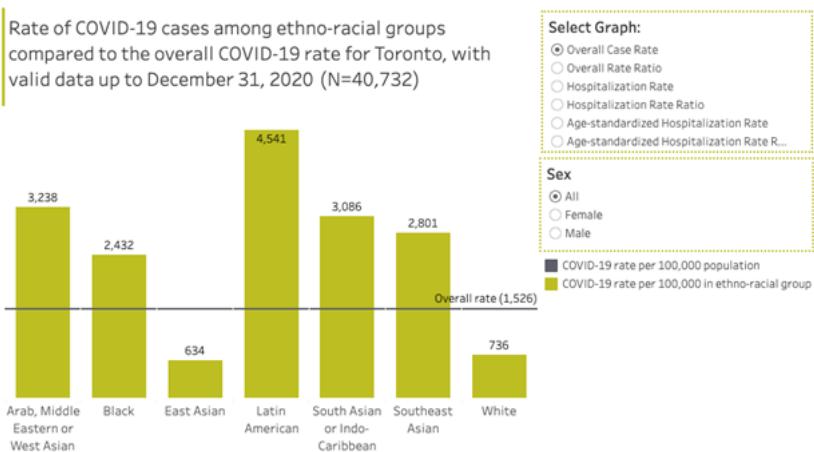


Figure 11

Rate of COVID-19 cases among ethno-racial groups compared to the overall COVID-19 rate for Toronto (Toronto Public Health, 2021).

Share of COVID-19 cases among ethno-racial groups compared to the share of people living in Toronto, with valid data up to December 31, 2020 (N=40,732)

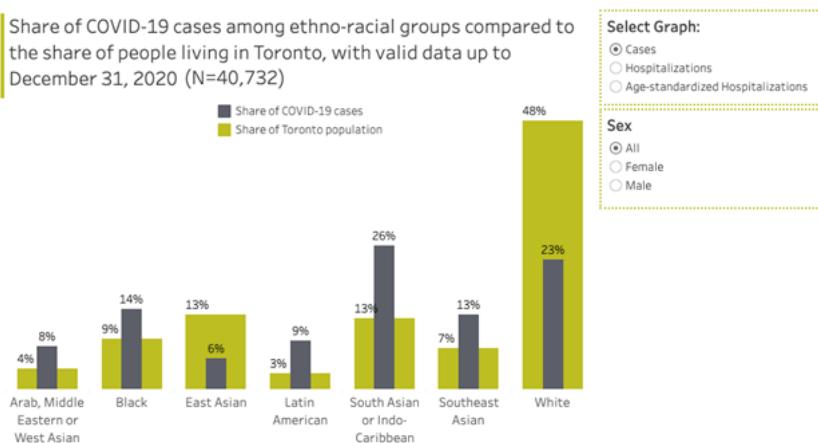


Figure 12

Share of COVID-19 cases among ethno-racial groups compared to the share of people living in Toronto (Toronto Public Health, 2021).

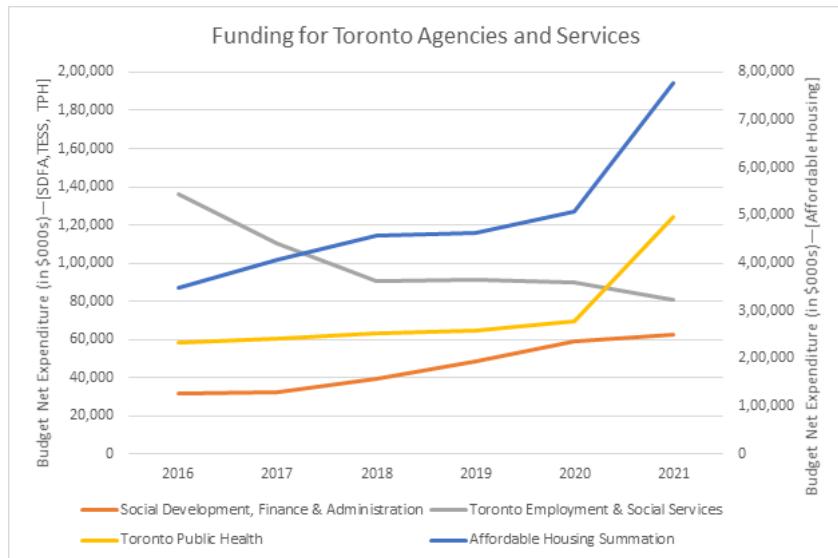


Figure 13

Funding for Toronto Agencies and Services from 2016 to 2021 (City of Toronto, 2020).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Appendix.docx](#)