

Examining Toronto’s Shelter System Flow during a Pandemic*

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Abstract

The City of Toronto operates and funds different services to people who are experiencing homeless in the streets of Toronto. In this paper, we will examine the homeless population of different population groups (i.e., youths, families, etc.) throughout the different months within 2020 to 2021 and how Covid-19 has affected them. The overall data shows that there is a slight drop in the homeless population, and we will analyze why this may have occurred, its relationship to Covid-19, and what it means to the homeless community. The data examined are based on the Daily Shelter Occupancy data set which provides the listing of all the active shelters serving the City of Toronto area.

1 Introduction

Toronto is Canada’s largest city and as such contains the highest homeless population within the country. To aid Torontonians experiencing homeless, the city has implemented and funded services such as emergency shelters, respite, and other allied services dedicated to them. These services then use Shelter Management Information System (SMIS) to intake people who are accessing these services into their programs (*Toronto Shelter System Flow* 2022).

Starting from the beginning of 2020, Canada has been impacted by the Coronavirus, and Toronto’s homeless population has become one of the virus’ most susceptible victims. Along with having their everyday activities criminalized, now this population also must deal with the increased likelihood to suffer from underlying health conditions and social distancing in an inadequate shelter system (Toronto Scarborough News 2020). While Toronto has invested in various methods to assist and protect its homeless through vaccinations and has increased focus on infection and prevention control (IPAC) measures in the shelter system (“City of Toronto Continues to Protect and Assist People Experiencing Homelessness During the Ongoing COVID-19 Pandemic” 2021), many say that there still needs to be more action taken to ensure their safety and confront homelessness (Ryan Patrick Jones 2021).

2 Data

The data in this paper were analyzed through the use of R, a programming language for statistical computing (R Core Team 2020), and various R packages for data manipulation. Some of these packages include tidyverse (Wickham et al. 2019) and dplyr (Wickham et al. 2021) for handling the data, ggplot2 (Wickham 2016) for graphing, knitr (Xie 2021) and kableExtra (Zhu 2021) to construct and style tables, and zoo (Zeileis and Grothendieck 2005) for working with irregular date times. The opendatatoronto package was used to import the data used in this paper was taken from the Open Data Toronto Portal (Gelfand 2020).

*Code and data are available at: <https://github.com/ChristinaChanYing/Toronto-Shelter-System>

2.1 Data Source

The Toronto Shelter System Flow data contains information about people who are experiencing homelessness and enter and leave the shelter system each month (*Toronto Shelter System Flow* 2022). This data also includes the unique case of people who are not considered actively homeless but have used the shelter system at least once in the past three months (*Toronto Shelter System Flow* 2022). It should be made clear that this data only includes those who have been entered into Toronto’s shelter system and that the data does not reflect all of Toronto’s homeless. It is also assumed based on the most recent Street Needs Assessment that there is roughly 18 percent of people experiencing homelessness in Toronto are not currently reflected in this data (*Toronto Shelter System Flow* 2022).

2.2 Data Characteristics

Within the data, there are various labels used to separate the homeless population into population groups. Open Data Toronto Portal defines some of these labels as such (*Toronto Shelter System Flow* 2022):

- **All populations:** Refers to total number of individuals represented in the report without any demographic breakdown.
- **Chronic (refers to chronic homelessness):** People who meet one of the two following criteria, as per the federal definition of chronic homelessness. The person has recorded a minimum of 180 overnight stay in the past year (365 days); or the person has recurrent overnight stays over the past three years with a cumulative duration of at least 546 nights.
- **Families:** Individuals who are recorded as staying in a family designated overnight service.
- **Youth:** Refers to unaccompanied youth and includes people who are between 16 and 24 years old by the last date of the reporting month and are not members of a family as defined above.
- **Single Adult:** Refers to individuals who are neither classified as youth nor are members of a family.
- **Refugees:** People who either identify as refugees upon intake to a shelter system or whose intake is completed into a program designated for refugees. Applies to all household members as answered by the household head.
- **Non-Refugees:** People who are not categorized as refugee per the definition above.
- **Indigenous:** An individual is classified as Indigenous if the person has self-identified as First Nations (status, non-status, treaty, non-treaty), Metis or Inuit in at least one of the intake(s) completed in SMIS (Shelter Management Information System).

The data also includes the number of people who are returning from housing, those that returned to the shelter, newly identified homeless, those that moved to housing, those with no recent shelter use, those actively homeless, the number of people in different age groups (ranging from under 16 to over 65), gender and the population group percentage.

One crucial piece of data absent from this dataset is the number of each group’s total population throughout the months. To cover up for this absence, the sum of each group’s age group (i.e., age under 16, age 16-24, etc.) was calculated together to get the total population. However, when calculating the sum of the genders (since this is another valid way to get the total population), it was discovered that it did not match the sum of the age groups as seen in Table 1. This most likely means that not every person in the system entered all their personal data, thus causing this difference in number. Since the difference between the age groups and gender is minuscule, using the sum of the age groups as the total population would not make much difference. It, however, should be noted that this number may not be accurate as a result.

Table 1: Total Population in January 2020

Group	Population from Age	Population from Gender
All Population	9916	8307
Chronic	3469	3713
Families	2706	1717
Indigenous	NA	965
Non-refugees	6975	6798
Refugees	2941	1509
Single Adult	6219	5796
Youth	987	794

2.3 Data Analysis

Once obtaining the total population, the average population of each group can be compared between the last two years to see how much the pandemic affected it. As seen in Table 2, the population of all 7 groups has not changed that much. The average total population has decreased from 8315 to 8298 from 2020 to 2021, and the order of most population to least has stayed the same with non-refugees at the top, and Youths at the bottom (with the exclusion of the Indigenous group that was only added in January 2021). It should be noted that many people fall into multiple categories, thus making non-refugees the largest groups since there is only a small portion of actual refugees.

Table 2: Average Group Population per Year

Group	Population 2020	Population 2021
All Population	8315	8298
Non-refugees	6394	7201
Single Adult	5479	6083
Chronic	3582	3846
Families	2034	1400
Refugees	1921	1097
Youth	784	805
Indigenous	NA	965

When the total population of each group are displayed in a graph (see Figure @ref(fig: pop-month), we are able to see that non-refugees, single adults, and all population closely follow each other indicating each group most likely carries the same members. We are also able to see that both families and refugees drop in numbers around April 2020. During this time, it was discovered that there were at least 135 positive Covid-19 cases found among Toronto’s homeless. These cases were attributed to the shelter and the lack of social distancing put into practice in the city’s shelter system. As such, many groups in Toronto file legal action against city and the homeless are opting to stay outdoors as opposed to the shelters (Knope 2020).

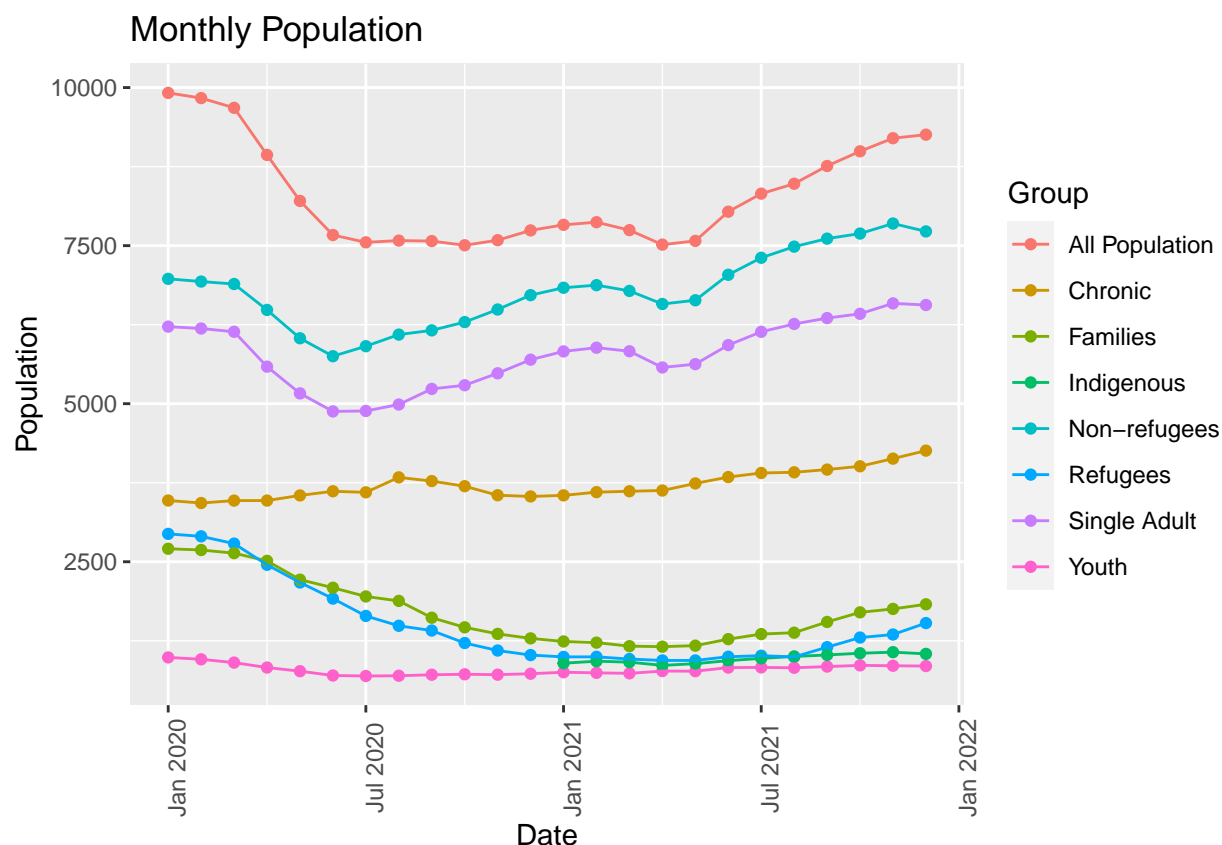


Figure 1: Homeless population of each group per month

In Figure @ref(fig: pop-month), we are also able to see that the number of refugees and families have had the biggest drop out of all the population groups with not much recovery. While a drop in the homeless population may seem like a good thing, we have to keep in mind that this data only reflects the people who have used an overnight service and do not include people exclusively sleeping outdoors or using other homelessness services (*Toronto Shelter System Flow 2022*). It also does not include shelter sites that do not use SMIS or are funded by other levels of government (*Toronto Shelter System Flow 2022*). Even though this dataset shows a consistent drop through 2020 to 2021, it does not mean that Toronto succeeded in helping these groups of people out of homelessness. As Canada tightened Covid-19 restrictions in the spring of 2020, it has also affected the number of people entering the country including refugees. As such, it is very likely that the drop in refugees facing homelessness is due to the fact that there are less refugees entering the country.

Some other factors that may have affected the decrease in population may have been the increase in violence in Toronto shelters and the homeless encampments. At the beginning of 2021, it was reported that the number of violent incidents in Toronto shelters has more than tripled during the Covid-19 (Casey 2021). It was also around the same time that outdoor homeless encampments were gaining a lot of popularity over shelters. The rise in violent incidence was named as one of the driving forces behind the increase of outdoor encampments (Casey 2021). As seen in Figure @ref(fig: no-month), from January 2021 to April 2021, while outdoor encampments were on the rise, there were fewer and fewer people returning to shelters. This is further proved by the drop in people with no recent shelter use after April since the city had given the encampment residents until April of 2021 to move out of city parks (Draaisma 2021). The city's reported reason for doing so was the lack of sanitation and the threat of fire (Draaisma 2021).

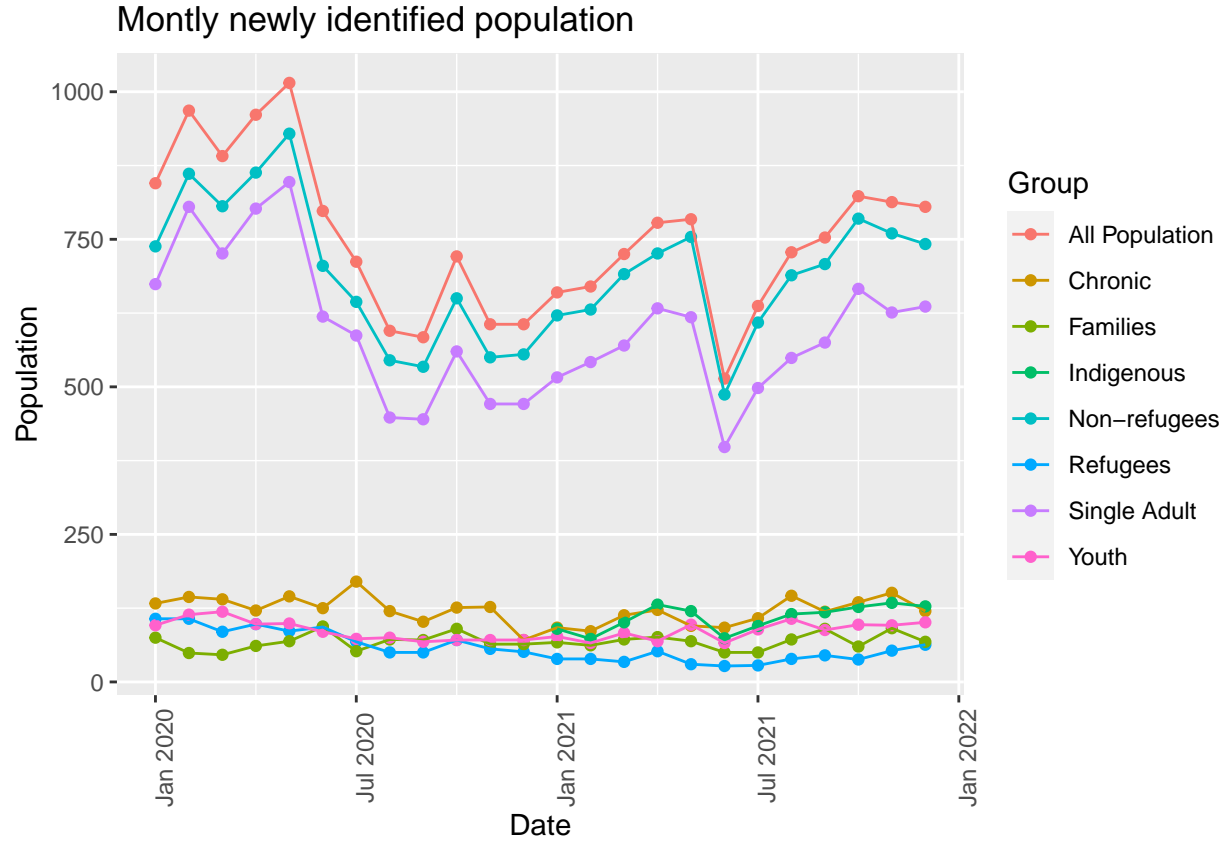


Figure 2: Homeless with no recent shelter use per month

3 Results and Discussion

While the most results from my analysis of the data were not surprising (like the decrease in homeless refugees), there were other unexpected finds. While this does not necessarily relate to the pandemic itself, the dataset's lack of information on the Indigenous groups was unexpected. Indigenous homelessness has been a large on-going issue within all of Canada for the past few decades. This dataset, however, has only began to include Indigenous people within their data collected in January 2021, after an updated Indigenous identity question became mandatory in Oct 2020 (*Toronto Shelter System Flow* 2022). This could point to some bias the country still holds against this population group and indicates that Toronto does not think of Indigenous homelessness as a major concern when it should be. Additionally, since this dataset only includes the data from people who have use the overnight shelter service that are funded by the municipal level of government. As such, there is a large portion of people who are faced with homelessness that are excluded from this dataset.

All the exclusions of different populations groups along with various other circumstances (i.e. the weather, vaccines, social distancing, etc.) have led to a lower homeless population in this dataset. This decrease, however, does not indicate that fewer people in Toronto are facing homelessness, but that fact that fewer people are going to shelter due to safety.

4 Conclusion

Toronto still has a long way to go before the city can solve its homeless problem. Covid-19 has especially shown how much more attention the city needs to give to the homeless community. The homeless have now become what some refer to as the invisible victims of Covid-19. There needs to be more data on how Covid-19 has affected Toronto's homeless in order for the city to help them. Breakouts in the shelter have forced the homeless to with the decision to either sleep on the streets in the cold, or to risk becoming infected with Covid-19 and stay in violent areas. If the city truly wants to aid the homeless and keep them safe, the city needs to shift their focus to support affordable housing, support services and prevention through voting, public funding and remain impartial and objective (Denette 2021).

References

- Casey, Liam. 2021. “‘Explosion of Fury and Violence and Blood:’ Toronto’s Shelters See Increase in Violence.” The Canadian Press. <https://globalnews.ca/news/7925736/toronto-shelters-rise-violence-covid-pandemic/>.
- “City of Toronto Continues to Protect and Assist People Experiencing Homelessness During the Ongoing COVID-19 Pandemic.” 2021. City of Toronto. <https://www.toronto.ca/news/city-of-toronto-continues-to-protect-and-assist-people-experiencing-homelessness-during-the-ongoing-covid-19-pandemic/>.
- Denette, Nathan. 2021. “What If We Treat Homelessness Like a Pandemic?” The Canadian Press. <https://theconversation.com/what-if-we-treat-homelessness-like-a-pandemic-168553>.
- Draaisma, Muriel. 2021. “‘City Tells Encampment Residents They Have Until April 6 to Remove Makeshift Homes from Parks.’” CBC/Radio Canada. <https://www.cbc.ca/news/canada/toronto/city-of-toronto-serves-notice-trepass-encampment-residents-unhoused-people-1.5967258/>.
- Gelfand, Sharla. 2020. *Opendatatoronto: Access the City of Toronto Open Data Portal*. <https://CRAN.R-project.org/package=opendatatoronto>.
- joels. 2019. “Can’t Control Position of Tables and Figures in Knitted Pdf Document.” RStudio Community. <https://community.rstudio.com/t/cant-control-position-of-tables-and-figures-in-knitted-pdf-document/37364/3>.
- Knope, Julia. 2020. “Toronto Groups File Legal Action Against City over Its Response to COVID-19 Outbreaks in Shelters.” CBC/Radio Canada. <https://www.cbc.ca/news/canada/toronto/toront-legal-action-city-covid-19-shelters-homeless-population-1.5545070>.
- R Core Team. 2020. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.
- Ryan Patrick Jones, Rebecca Zandbergen. 2021. “More Than 100 Unhoused People Died in Toronto This Year. Some Say the Shelter System Is ‘Crumbling Quickly’” CBC/Radio Canada. <https://www.cbc.ca/news/canada/toronto/homeless-deaths-toronto-2021-1.6300513>.
- Toronto Scarborough News, University of. 2020. “How the Homeless Will Be Policed in the COVID-19 Era.” University of Toronto Scarborough. <https://utsc.utoronto.ca/news-events/breaking-research/how-homeless-will-be-poled-covid-19-era>.
- Toronto Shelter System Flow*. 2022. Shelter, Support & Housing Administration. <https://open.toronto.ca/dataset/toronto-shelter-system-flow/>.
- Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. <https://ggplot2.tidyverse.org>.
- Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D’Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. “Welcome to the tidyverse.” *Journal of Open Source Software* 4 (43): 1686. <https://doi.org/10.21105/joss.01686>.
- Wickham, Hadley, Romain François, Lionel Henry, and Kirill Müller. 2021. *Dplyr: A Grammar of Data Manipulation*. <https://CRAN.R-project.org/package=dplyr>.
- Xie, Yihui. 2021. “Knitr: A General-Purpose Package for Dynamic Report Generation in R.” <https://yihui.org/knitr/>.
- Zeileis, Achim, and Gabor Grothendieck. 2005. “Zoo: S3 Infrastructure for Regular and Irregular Time Series.” *Journal of Statistical Software* 14 (6): 1–27. <https://doi.org/10.18637/jss.v014.i06>.
- Zhu, Hao. 2021. *kableExtra: Construct Complex Table with ‘Kable’ and Pipe Syntax*. <https://CRAN.R-project.org/package=kableExtra>.