

Demographic survey on Toronto shelter*

Xizi Sun

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1 Introduction

Homelessness is a pressing issue in major cities worldwide, and Toronto is no exception. Recent observations suggest a growing number of homeless individuals on Toronto streets, raising concerns about the dynamics of the shelter system, the demographics of those affected, and their pathways into homelessness. To address these concerns, this study aims to analyze the flow of individuals into and out of Toronto's shelter system, with a particular focus on understanding the origins and characteristics of the homeless population. By analyzing the patterns in shelter use, this study seeks to answer key questions such as: where are these individuals coming from, what are their demographic characteristics, and how frequently do they cycle through the shelter system? Understanding these factors is critical for identifying gaps in services and making data-driven policy recommendations to reduce homelessness in Toronto. The ultimate goal, in line with the City's vision, is to contribute to efforts that make homelessness in Toronto a rare, brief, and non-recurring experience.

In this paper, I will analyze key indicators such as the number of people returning to shelters after being housed, the rate of newly identified homeless individuals, and demographic breakdowns such as age, gender, and population groups (youth, families, refugees, Indigenous individuals, etc.). This analysis will help illuminate the pathways into homelessness and provide evidence for policies aimed at mitigating the problem.

This paper is organized into several sections, each contributing to a comprehensive understanding of homelessness in Toronto, based on the provided shelter system dataset. The structure includes an exploration of the dataset, visualizations of key metrics, analysis of trends and patterns, and a discussion of the implications of these findings.

*A GitHub Repository containing all data, R code, and other files used in this investigation is located here:
https://github.com/LilianS77/Toronto_shelter_research.git

2 Data

2.1 Data Tools

All data analysis and visualizations were conducted using R (R Core Team 2023). Data was obtained from the City of Toronto’s Open Data Catalogue (City of Toronto, n.d.) and included the Toronto Shelter System Flow dataset (Toronto Shelter & Support Services 2024). Visualizations were created using the ggplot2 package (Wickham 2016), with data manipulation carried out via dplyr (Wickham et al. 2023) and tidyr (Wickham, Vaughan, and Girlich 2024). Date handling was simplified with the lubridate package (Grolemund and Wickham 2011), and all R code was formatted using the styler package (Walthert et al. 2023). Guidance on storytelling with data was drawn from Telling Stories with Data (Alexander 2023).

2.2 Data Source And Measurement

The dataset Toronto Shelter System Flow(Toronto Shelter & Support Services 2024) used in this study is sourced from the Toronto Open Data Platform(City of Toronto, n.d.). It measures and tracks homelessness in Toronto by capturing information through a Shelter Management Information System (SMIS) that covers various services such as shelters, 24-hour respite sites, and warming centers funded by the City of Toronto. The data spans from January 2018 to September 2024 and includes individuals who have accessed any of these services in the past three months. The dataset updated monthly and published on the 15th of each month, provides monthly records on the movement of people into and out of these services, offering insight into the demographics, trends, and dynamics of homelessness in Toronto.

The table Table 1 shows the variables after data cleaning, showing 6 of the 604 observations. Due to space constraints we are only showing 2 age groups in this table. The variable “date.mmm.yyy.” goes by month from 2018 to August 2024. The data covers different age groups: under 16, 16-24, 25-34, 35-44, 45-54, 55-64, 65 and over, and types of population: refugees, single adults, families, youth, and chronically ill. It tracks inflow and outflow: returned from shelter and returned from housing.

Table 1: Sample of cleaned lead data

Date	Population Group	Returned from Housing	Returned to Shelter	Age under 16	Age 16-24
Jan-18	All Population	46	494	1233	1111
Jan-18	Chronic	11	29	223	346
Jan-18	Refugees	4	32	914	241

Table 1: Sample of cleaned lead data

Date	Population Group	Returned from Housing	Returned to Shelter	Age under 16	Age 16-24
Jan-18	Families	0	14	1232	187
Jan-18	Youth	12	64	0	924
Jan-18	Single Adult	34	416	0	0

2.3 Data Selection

There are many databases on homelessness in Toronto, such as About Hostel Services: Homeless Shelter Locations(Toronto Shelter & Support Services 2019), but it doesn't distinguish well between population types, and we can't tell from it where homeless people come from. The data (Toronto Shelter & Support Services 2024) I chose has very complete age groupings and also divides the people who seek help from shelters like they return from housing or return to shelter. better still we can know more information about the homeless from this dataset such as whether they are refugees, single or have a family so that we can combine it with the literature to have a better discussion about the Homeless trends and causes of homelessness in Toronto.

3 result

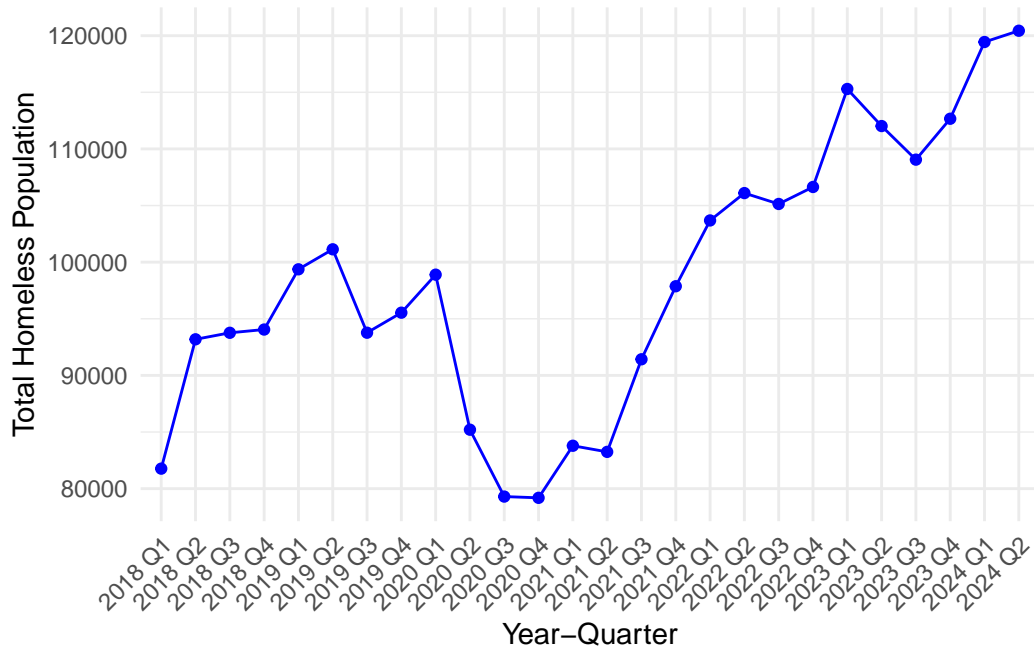


Figure 1: Total Homeless Population Trend by Quarter

Figure 1 shows the total homeless population trend from 2018 Q1 to 2024 Q2. The population rises until 2019, then sharply declines in 2020, with the lowest point falling below 60,000. From 2021 onward, the population steadily increases, reaching its highest point in 2024 Q2, exceeding 80,000.

Figure 2 describes a significantly higher number of non-refugees and single adults returning to shelter compared to other groups. Approximately 30,000 non-refugees returned to shelter, the highest value in the chart. Single adults are slightly below 30,000, but still make up a large percentage of the population returning to shelters. Refugee, family, chronically ill, indigenous and youth groups returned to shelters in significantly lower numbers.

Figure 3 shows shelter returns among different demographic groups, and similar to returns to shelters, non-refugees had the highest number of returns from shelter, just over 4,000. The number of single adults is also high at just under 4,000. Chronically ill and family populations are moderately represented, with both returning from shelters in the range of 1,000 to 1,500 people. The indigenous and youth groups have the lowest rates of return from housing, with just over 500 indigenous people and just over 1,000 youth.

Figure 4 shows the distribution of age groups within the current single adult homeless population, highlighting the predominance of the 25.34 and 35.44 year old age groups, which account

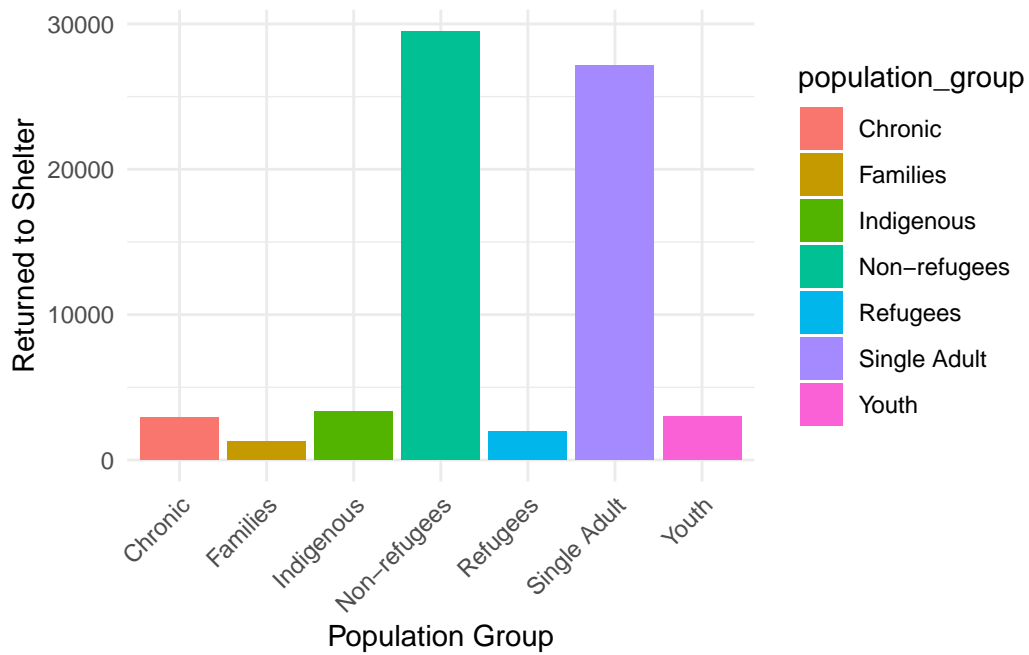


Figure 2: Returned to Shelter Across Population Groups

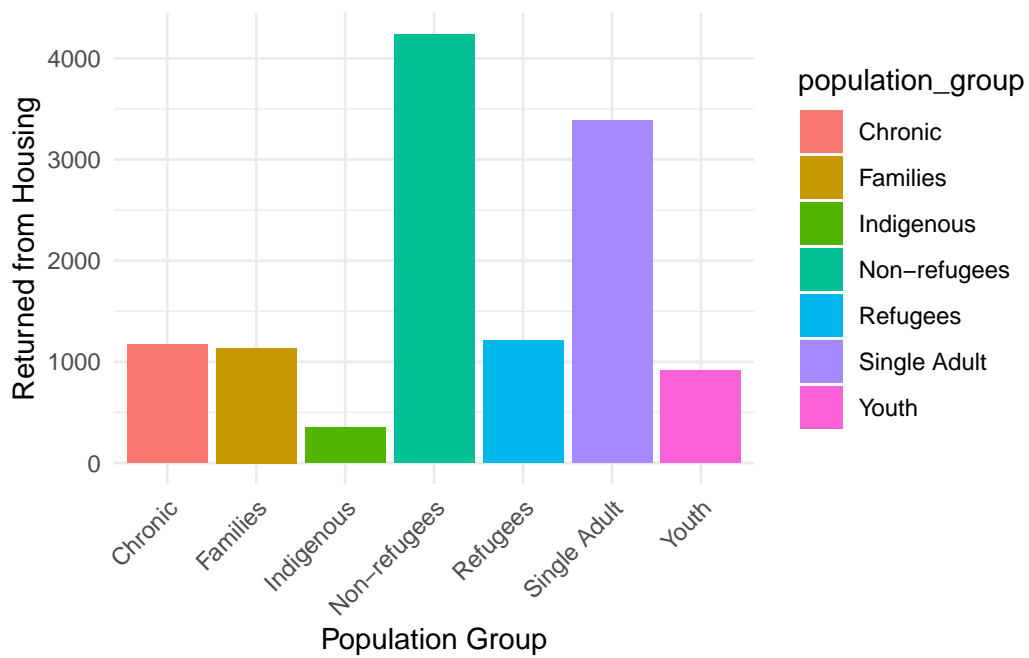


Figure 3: Returned from Housing Across Population Groups

Age Group Distribution in Single Adult Population

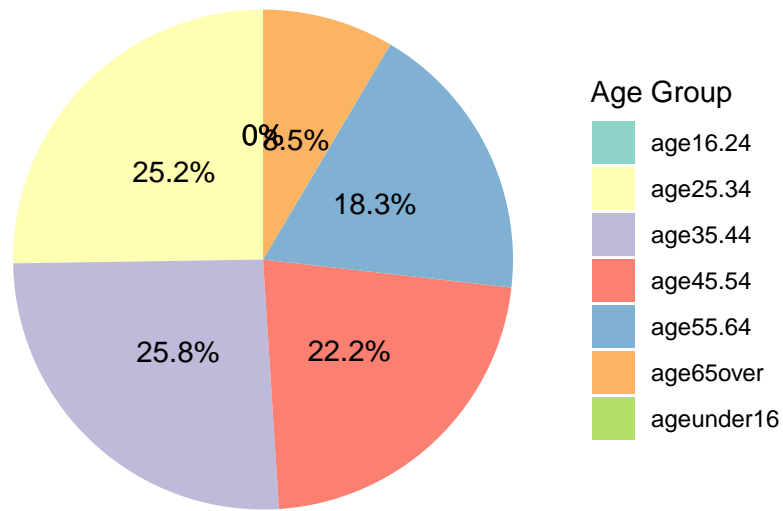


Figure 4: Age Group Distribution in Single Adult Population

for approximately 25.2% and 25.8% of the total population respectively. In contrast, the 16.24 year old age group is relatively underrepresented at 8.5%. 65 years and over are not represented in any of the single adult populations, accounting for 0%. The under-16s are minors and therefore account for 0%. This distribution suggests that middle-aged people form the bulk of the population, while the young and the old are virtually absent.

Figure 5 shows several important trends in the homeless population by age group. The 25-34 and 35-44 age groups have been consistently higher than other age groups since 2018 and are growing, especially after 2021. 25-44 year olds make up a growing share of the homeless population, totaling more than 50 percent of the total in 2024. At the same time, the number of homeless people in the middle-aged age group of 45.54 to 55.64 years is decreasing, and the 65+ age group is trending downwards after 2022. Children and young people (under 16) will start to decline after 2018 but will increase after 2021.

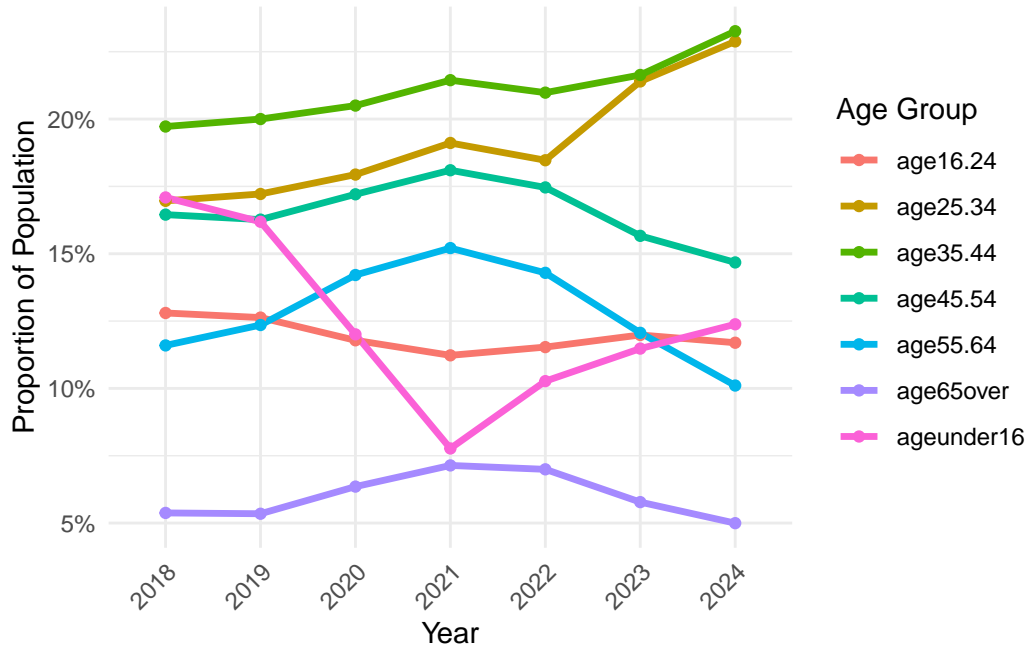


Figure 5: Trends in Age Group Proportions Over Time (Yearly)

4 Discussion

4.1 Overview of Homeless in Toronto

Rising rates of homelessness in Toronto reflect significant challenges in managing housing instability, particularly among specific vulnerable groups. According to a comprehensive literature review on homelessness in Toronto, the number of homeless people has increased dramatically over the past few decades (Gaetz 2004). The data Figure 2 and Figure 3 shows that non-refugees and single adults make up the largest percentage of those returning to shelters, demonstrating their vulnerability and continued housing insecurity. This trend is likely caused by economic challenges, lack of affordable housing, and inadequate social safety nets. The literature (Gaetz 2004) highlights how policy changes, including cuts to social housing and benefits, have exacerbated the problem, putting more people at risk of chronic homelessness.

4.2 Impact of unemployment on single adults aged 25-44 years

In Figure 2 and Figure 3, we see that single adults make up a large portion of those returning to shelters for help. And from Figure 4 and Figure 5, 25-44 year olds make up a large portion of single adults and the overall homeless population. The unemployment crisis has severely impacted single adults, especially those aged 25-44, who make up a large portion of the

homeless population. The COVID-19 pandemic triggered a sharp economic downturn that led to widespread unemployment and income insecurity. According to (Jones et al. 2020), Canada's unemployment rate rose sharply in 2020, with young and middle-aged adults disproportionately affected. This population is particularly vulnerable because they rely heavily on employment to pay rent and meet basic needs. Without a steady income, many in this age group face eviction, bankruptcy, and an increased likelihood of homelessness. This is compounded by mental health challenges and limited access to social services (Poremski et al. 2015).

4.3 Future Insights

Given the rising rates of homelessness among single adults, public policy interventions must address both immediate and long-term solutions. Expanding affordable housing and strengthening employment support programs are critical. Governments at all levels should also focus on improving access to mental health services and implementing policies that prevent evictions, especially in times of economic crises. A particular emphasis should be placed on preventative measures, such as emergency rental assistance programs and increasing the availability of affordable housing (Gaetz 2004). Additionally, the development of job retraining programs tailored to individuals who have lost employment due to economic downturns could provide sustainable solutions for those in the 25-44 age bracket. ## Weakness and Limitations {#sec-Weakness-and-Limitations} While the data provides valuable insights into homelessness trends in Toronto, there are important limitations that should be acknowledged. The dataset reflects only individuals who use overnight shelter services, excluding those who sleep outdoors or rely on non-shelter-based services. Additionally, shelters that do not participate in Toronto's Shelter Management Information System (SMIS) are not included in the dataset. As a result, the data may underestimate the total homeless population, especially among individuals who do not seek help through formal shelter systems.

Appendix

.1 Dataset and Graph Sketches

Sketches depicting both the desired dataset and the graphs generated in this analysis are available in the GitHub Repository.

.2 Data Cleaning

The data cleaning process involved filtering out some of the columns from the raw dataset and renaming some of the data entries for clarity and simplicity.

A Statement on LLM usage

Aspects of the code were written with the help of the auto-complete tool, ChatGPT. The abstract, introduction and discussion were written with the help of ChatGPT and the entire chat history is available in `other/llms/usage.txt`.

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