Use of homeless shelters in Toronto: Data may differ greatly from reality

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Abstract

Data of homeless shelters are important tools for both the public and the government to see how the homeless community is doing and what difficulty they are facing, however, bias in the way of how to shelter data was reported can be misleading. This report uses data on daily shelter and overnight service usage to examine the reality of shelter usage and compare it to the new reports saying the homeless community is facing a huge difficulty in finding shelters. While the data show that, the number of available spaces in shelters in Toronto is sufficient, the number of accusations of hard-to-find space in shelters continues. However, the governments' budget report shows that $2 million to clear the encampments was spent in the year 2020-2021, and yet no major improvement has been shown. The extent of shelters in Toronto is difficult to estimate due to the unmatched government-reported data and the news-reported story.

1 Introduction

Homelessness is one of the biggest social focuses in most cities in the Great Toronto Area. Due to the lack of organized arrangements, the number of homeless people is growing each year. As of December 2021, there are a total of 9255 people who are actively experiencing homelessness in the city of Toronto, which is 8% more than the same period of last year (C. of Toronto (2022)). As of January 24, 2022, a total of 7657 individuals are using the shelter and overnight service provided by the city government however, this makes 1598 individuals forced to live on the street in the cold weather of Toronto. In the past year of 2021, with the outbreak of Covid-19, the government of Canada announced their new budget for investing in new homes, hoping, in that case, it can help end homelessness, however, it does not go far enough (Richter (2021)). In 2021, the government of Canada proposes a 567 million over two years, to the Reaching Home program (the government's main program to help end homelessness)(Freeland (2021)). And an additional 45 million for a new program that "aimed at reducing veteran homelessness through the provision of rent supplements and wrap-around services for homeless veterans such as counseling, addiction treatment, and help to find a job." (Canada (2021)).

Homeless persons in Canada are divided into three groups: those who live in emergency shelters, those who live on the streets or in parks, and those who do not have a fixed residence. People with impairments, retirees, families with children, and single folks are among these populations(Strobel and Hossain (2021)). Shelters provide temporary accommodation and related support services that assist people to move into housing, as the most helpful and most likely the first thing one will look at when becoming homeless, are very important to those who are homeless. Shelters are better options than letting homeless people sleep in metro stations, says Montreal's mayor (News (2021)). The importance of having a shelter to stay tell its table, however, the limitation of space and the uncertainty of availability is well known as well.

Given the importance of having a shelter and knowing the information of availability and capacity of the shelter to homeless individuals, it is important to understand how shelter-related information is reported and also how it may be interpreted. In this report, I will use data from the open-access platform Open Data Toronto, provided by the Shelter, Support & Housing Administration (SSHA) to analyze how shelter

occupancy, vacancy, and capacity changed during the past year and how to shelter related data are organized and presented to the public. More importantly, I will discuss the impact of the government's funding on the development of shelters in GTA and any potential bias that may be important for the public and especially for the homeless to know. The data set will be processed using R (R Core Team (2020)), and a package inside R called tidyverse (Wickham et al. (2019)). Most figures and tables are also being done with R using ggplot2 (Wickham et al. (2019)), dplyr(Wickham et al. (2021)), and kableextra (Zhu (2021)). To generate this R markdown report, knitr (Xie (2021)) package was also used.

2 Ddata

2.1 Data Source

In the Shelter Support and Housing Administration division's Shelter Management Information System (SMIS) database. The Shelter Management Information System (SMIS) was created to offer a consolidated information management system for the emergency shelter system in Toronto. It offers real-time data about shelter occupancy to the system's managers(City of Toronto 2020). The system was created to help develop "permanent solutions to address homelessness"(Wilson (2021)). This data collection offers a daily list of operational overnight shelters and linked services. The data includes the program's operator, location, categorization, occupancy, and capacity, as well as regularly updated information regarding SSHA's shelter and overnight service programs. This dataset was obtained in a format of CSV from the Toronto Open Data Portal (Gelfand (2020)) and using the R package opendatatoronto (Gelfand (2020)). This dataset is being updated daily until the day this report is being written which is January 25, 2022.

2.2 Methodology and Data Collection:

The data set contains daily reports of shelter and overnight service about its occupancy, vacancy, and capacity across GTA. Each reported data is recorded from the system at 4 a.m each business day and will be updated to the dataset on the next business day. In addition, data is collected through a survey of shelter managers. This information includes the number of beds available in each shelter; and the number of people who use these beds (C. of Toronto (2017)). However, this dataset does not include any information about the states of the homeless individuals who used these shelters, we have nowhere to know the health status of the individuals who live in the shelter, which means we do not know if any homeless individuals living in shelter are in danger of exposing them-self in any infectious disease. Also, this dataset does not include any information on the condition of any shelters, i.e. the accessibility of running water, hot water, internet, air-conditioning, or any other necessary conditions for daily use.

After further research on the related topic, I noticed the dataset may not be an accurate representation of the real shelter availability in GTA. There is evidence of the data being wrongly collected to be present to the public, to fake the fantasy of homeless individuals having the ability to secure their spot in the shelter as they need. Toronto street pastor is accusing municipal officials of providing false data regarding the number of available rooms in the city's emergency shelters daily, claiming that the system is frequently overburdened even when the city claims beds are available (Jabakhanji (2020)). The city releases a daily snapshot of SMIS that includes information on shelter occupancy, vacancies, and capacity. It's meant to be a lifeline for the thousands of individuals who require refuge around the city, a figure that has risen as the COVID-19 outbreak has spread and the winter season approaches(Lee-Shanok (2020)). However, as the evidence is clear and the problem is becoming more and more emergent, the city gives only a vague response saying the occupancy data is based on a snapshot taken at 4:00 a.m. in the city's shelter system, which is "dynamic" and fluctuates as individuals join and exit the system. Individuals may phone Central Intake and be advised that there are no open beds and that they should call again later (Kyle (2020)). It is deadly for someone to spend the night outdoors in a cold winter like Toronto, especially with a temperature of -18C and feels like -25c yet no safe place for the night is offered (Lam (2022)). The wrongly reported occupancy, vacancy, and capacity of shelters leads to biased data which did not fully reflect the real availability of the shelters.

Both the collectors and publishers of the data hide the authenticity of the data to satisfy the public but do so without caring for the homeless people who need the information. Again, these numbers would have an impact on how shelters are actually used.

If the true data of the availability of shelter in GTA differ from the dataset we have, the bias must be considered when processing the data. When it comes to housing, radicalized women face disproportionate discrimination (York University (2021)). Discriminate against single moms based on their age, family size, poor income, welfare status, race, language competency, and a lack of references (Homelessness (2015)). The lack of proper living conditions in most of the shelters and warming centers in Toronto are well recorded, over-accommodation which exceeds the limit of capacity, poor sanitation, and serious noise impacts are also constantly affecting homeless who live in a shelter(Ngabo (2019)). Also, due to the Covid-19 pandemic, many shelters would have to be cutting their capacity for social distancing, and this makes the situation of not having a shelter stay even worth, indirectly causing the tragedy of during the epidemic, the number of homeless people who died of opined overdoses more than quadrupled, from 135 to 323 in the same period the year before (Neufeld (2021)). However, even with the massive amount of social attention on the matter of poor living conditions and the wrongly reported data of homeless emergency shelter data, this type of situation is not getting any better, which will certainly underlie the data and the result of the data analyzing.

2.3 Data Characteristics

The Daily Shelter & Overnight Service Occupancy & Capacity data set includes all information on the capacity and the occupancy of shelters in the GTA from the year 2021 to the beginning of 2022 (C. of Toronto (2022)). There were 50944 observations in the data set, and 32 attributes: id, occupancy data, organization id, organization name, shelter id, shelter group, location id, location name, location address, location postal code, location city, location province, program id, program name, sector, program model, overnight service type, program area, service user count, capacity type, capacity actual bed, capacity funding bed, occupied beds, unoccupied beds, unavailable beds capacity actual room, capacity funding room, occupied rooms, unoccupied rooms unavailable rooms, occupancy rate beds, and occupancy rate rooms.A full description of the variables can be fund **here**. For this paper, I am using: capacity actual bed, occupied beds, sector, and location city. Capacity actual bed and occupied beds are numerical attributes simply representing the capacity of a shelter and the occupation of the shelter, this will give a direct view of the availability of each shelter in GTA each day in the year 2021. The sector is the gender, age, and family size of the service user group(s) serviced at the shelter location are used to categories homeless shelters. Adult men, adult women, mixed adult, juvenile, and family shelters are now available in Toronto (C. of Toronto (2022)). Lastly, the location city is the city where the shelter is located.

2.3.1 Overall Capacity of Shelters

The capacity of a shelter is a numerical factor that indicates the number of people that one shelter can fit, it is usually dependent on the number of beds that one shelter has. Shelters with a limit of capacity will not accept any homeless individual if the shelter will exceed the limit. As during the pandemic, the capacity of all the shelters will have to follow the rules of social distancing, which helps prevent Covid-19 from spreading, as study shows that elders and smokers are more likely to be affected by Covid-19, and elders and smokers are a major group and homeless community (Commission (2020)). Below is a histogram of the total capacity of all the shelters recorded in the data set, followed by a summary table containing numerical data summation of the graph.

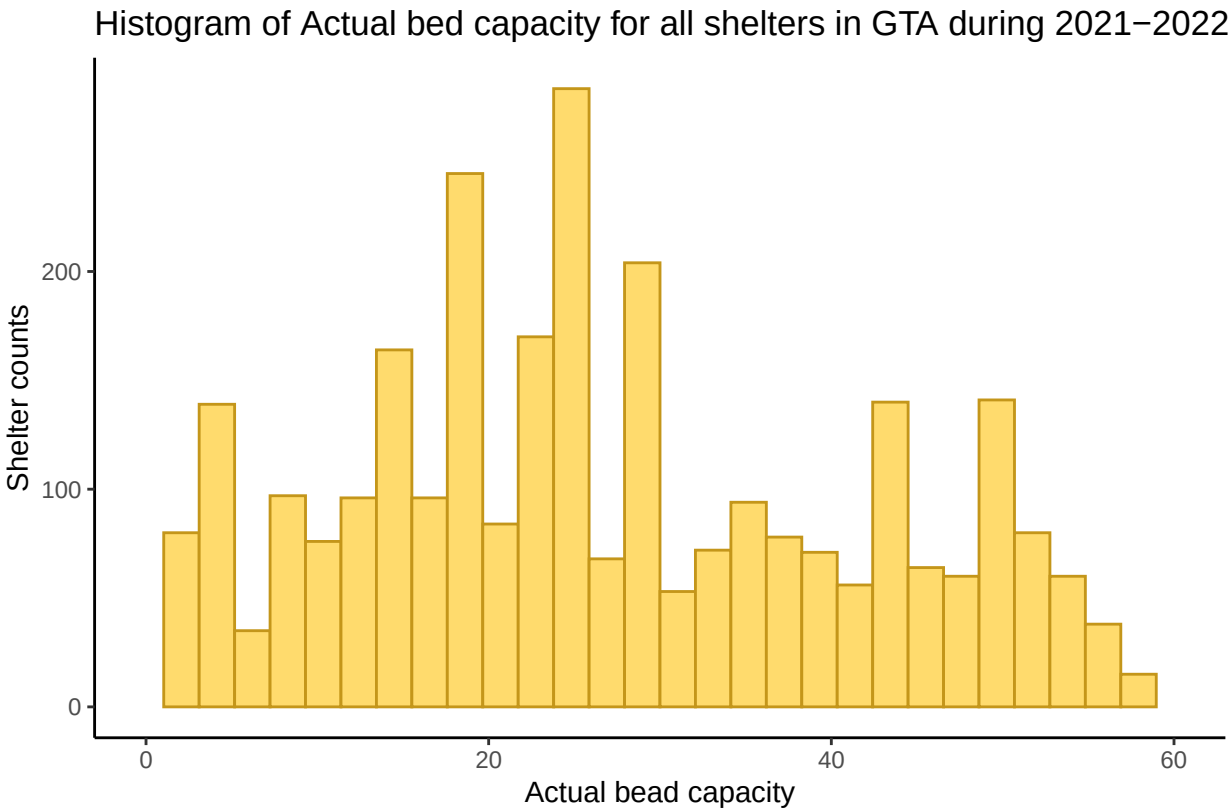

Figure 1: Overall capacity histogram

Table 1: Summary of actual bed capacity

min	median	max	mean	sd
1	26	235	34.51471	32.33631

In figure 1, we can see that most shelters that are recorded in the data set have a capacity between 20 to 40, a few shelters have a capacity of almost 60. From the summary table, the data is more clear for us to view, the actual capacity of the shelters touches as low as only 1 person and reaches as high as 234 people. The actual capacity of shelters has a median of 26 people and a mean of 34 people, which further proved our indication, which was most shelters have a capacity of between 20 to 40. Do take note that, the number of capacity was being recorded daily at 4 am, this may affect the data in a biased way where the facilities being wear and tear, shelters bing shut down due to Covid-19 and other un-preconceptable factors. Both the graph and the table give us a great overall view of the capacity of the shelters in GTA, later on, we will see how these are compared to the occupancy of the shelters.

2.3.2 Shelter type for cities in GTA

There are four major cities recorded in the data set, each is Etobicoke, North York, Scarborough, and Toronto, and five different types of shelters available: Families, Women, Men, Youth, and Mixed adults. Homeless can pick their shelter as their own need, i.e their gender, size of the family, and more importantly, their location. Below are a bar chart sorting the types of shelters by their location, followed by a table that gives a numerical conclusion of the chart.

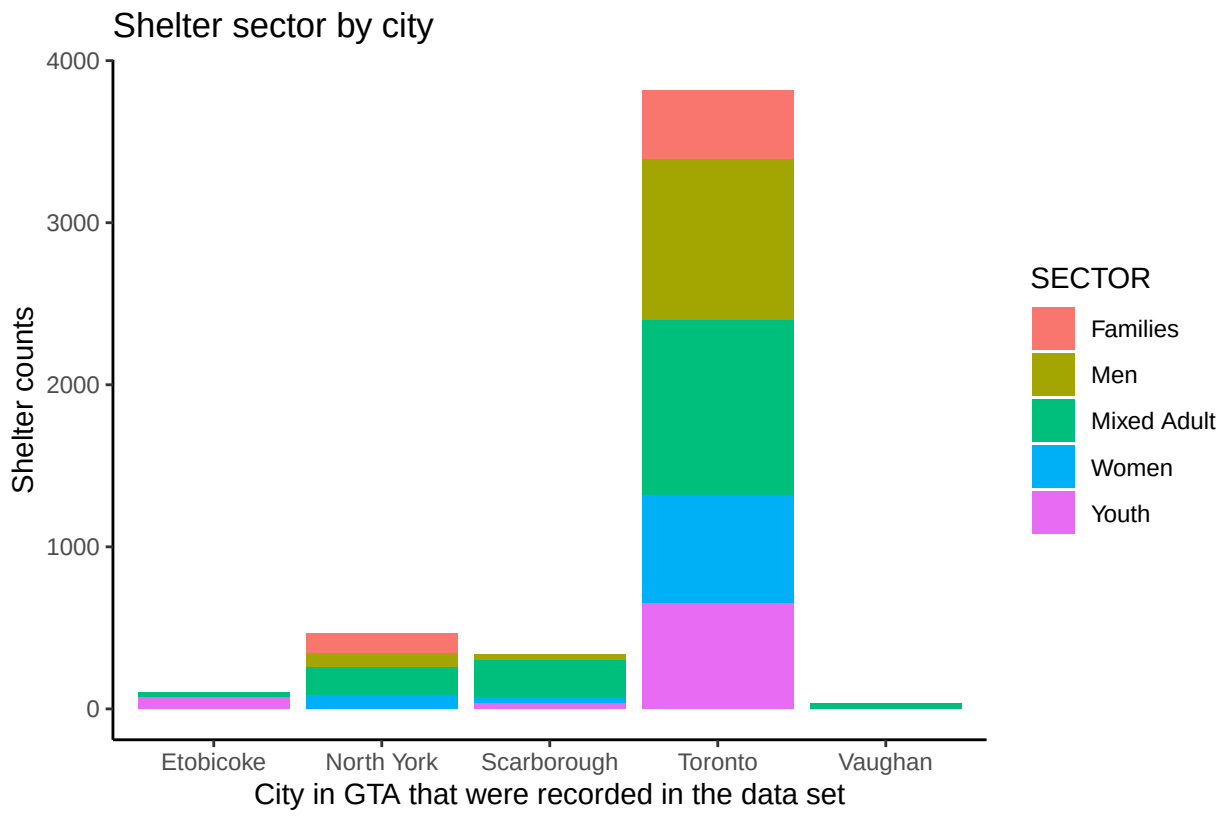

Figure 2: Total count of shelter by sector in each city in GTA

Table 2: Summary of actual bed capacity by city

LOCATION_CITY	min	median	max	mean	sd
Etobicoke	14	18.5	23	18.50000	4.532491
North York	32	60.0	130	67.95000	33.003329
Scarborough	9	48.0	68	38.21118	17.974082
Toronto	1	25.0	235	33.92351	32.619389

In Toronto, there are both men's and women's shelters. Shelters provide emergency and transitional housing to homeless men and women, many of whom are senior citizens in need of long-term care. The difference of the different types of shelters is open to different groups, which are distinguished mainly by gender, age, and family status. The allocated to different groups of different homeless refuge approaches can be helpful for management and allocation of limited resources, the different homeless shelters also have different facilities, such as shelters for the family is equipped with family suites rather than an open house, and youth shelters are equipped with a youth help center, Particular attention was paid to the physical and mental health and development of adolescents. From the bar graph, we can easily see that most shelters in the GTA are located in Toronto, secondly North York. Toronto as the city which has the most shelters in GTA has an even layout of different types of shelters, among which mixed-adult shelters are the largest group of shelters. However, as the graph shows, there are no youth shelters in North York, which is a surprise to me. A major takeaway we get from the two charts is that almost all the city in GTA has some number of shelter available to the public, and these two chart can be a great guide to the homeless community to help them look for a shelter if needed.

2.3.3 Capacity vs Occupation

A combination of the above two sections will analyze the needs of the shelters and the availability of the shelters. Below is a line graph of the actual bed capacity vs. the bed occupation of each shelter. In this graph, the compression between the two key factors will give an idea of whether or not the shelter system in GTA the overwhelming, compared to the huge amount of news reports saying that being homeless in Toronto is fatal since there are no available shelters.

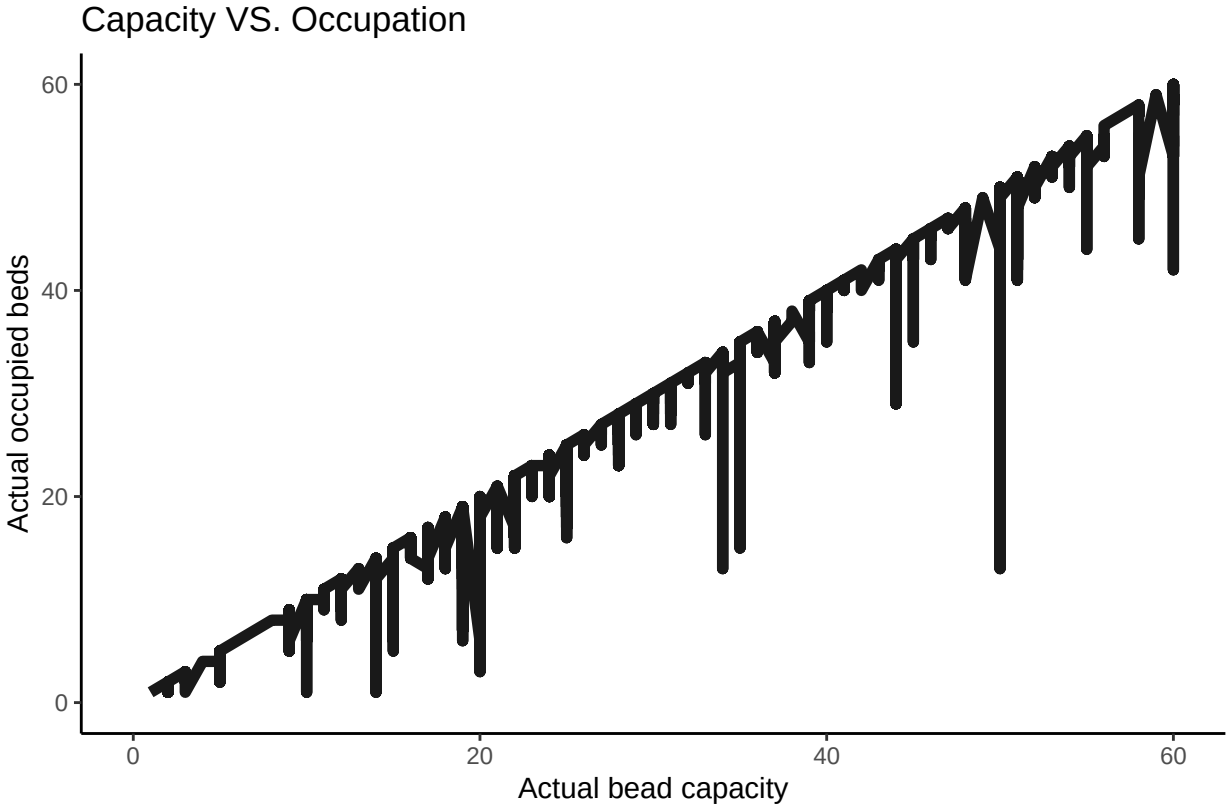

Figure 3: Capacity vs Occupation Line Graph in GTA

In this graph, as the shelter will not be allowed their occupancy to exceed their capacity, the most extreme situation one can expect is a perfect x=y line, which means every shelter reaches its 100% capacity, there for the conclusion of the Toronto shelter system is overwhelming can be made. However, what we saw in the graph is different, most shelters do reach their capacity with a graph showing their capacity equal to their occupied, but there are also plenty of shelters that did not reach their capacity and still have plenty of space available to be occupied. This is completely counter the fact that some homeless people slept in makeshift encampments in municipal parks such as Trinity Bellwoods Park, Alexandra Park, and Lamport Stadium. The city declared these structures to be unsafe and illegal, citing fire hazards and COVID-19 transmission as reasons and spent nearly $2 million to clear the encampments(Neufeld (2022)). Also, this data almost seems un-true as reporters are claiming "Between October 30, 2020, and February 28, 2021, at least 13,780 callers to the City's shelter system Central Intake line requesting a spot in the shelter system were advised there was no room available - an average of 117 callers per day."(F. C. Toronto (2021)). As can be seen from the chart above, the data that the government gives us about homeless shelters is different from what people experience in the official situation. There's still a lot of investigation to be done, and it's not clear what the government's huge investment is going on, and whether it has anything to do with corruption. But the fact that the numbers are so different from reality shows that the shortage of homeless shelters still exists and needs to be taken seriously. There are so many people in Toronto who need help and a chance to start over.

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