Families are the Most Impacted Sector in Toronto Shelters in 2020

Reem Alasadi

February 4, 2021

Abstract

The City of Toronto has 56 shelters for different sectors. In this study, I want to see which sectors were impacted by COVID-19 the most during 2020. Through data visualization, I conclude that the family sector was the most impacted by the pandemic and lockdown.

Introduction

There are 119 programs working in 56 shelters that can accommodate people in need of a shelter at the City of Toronto. The City funds and coordinates services between the Shelter, Support & Housing Administration division and community agencies and stakeholders to provide housing and homelessness services to vulnerable people. In their website, they mention that their services include "emergency shelter and supports, street outreach, 24-hour respite, [and] housing stability services", like eviction prevention for example ("Shelter, Support & Houding Administration" 2019). The city has a target of 90% occupancy in all emergency shelters for each sector (Jadidzadeh and KneeBone 2018), but how can the system accommodate more people in times of need (like severe weather conditions, or a pandemic for example) when it is functioning at near full capacity?

According to the City of Toronto's website, an initiative of more than 40 temporary housing programs have been put forward in temporary locations to accommodate physical distancing measures in shelters. Twenty-five out of 40 are currently activated ("Daily Shelter & Overnight Service Usage" 2021). But is that enough? Looking at 2020 shelters' data will help identify which sectors were impacted the most during the pandemic. From there, I will be able to find out.

Method

The dataset will be explored using R (R Core Team 2020) and packages like `dplyr` (Wickham et al. 2021), `janitor` (Firke 2021), `tidyverse` (Wickham et al. 2019), `lubridate` (Grolemund and Wickham 2011), and `ggplot` (Wickham 2016). Inspiration was drawn from Professor Rohan Alexander's exploratory pursuit on 'Shelter usage in Toronto (2017-2021)' (Alexander 2021).

Dataset Description

Data Source

The dataset is published by the Shelter, Support & Housing Administration division under the City of Toronto ("Daily Shelter Occupancy" 2021). It provides a daily report of the use of shelters in the city. The report is generated by Shelter Management Information System, which captures data at 4:00 am each day ("Daily Shelter & Overnight Service Usage" 2021). The report was last updated on February 2, as it updates

every second day of the month to include data about the previous month. The dataset is imported through `OpenDataToronto` which makes datasets publicly available (Gelfand 2020).

Ethical Considerations

A potential bias might affect the data as information regarding Violence Against Women shelters is removed for confidentiality ("Daily Shelter & Overnight Service Usage" 2021).

Toronto Shelters in 2020

The dataset initially has 41,061 observations and 12 variables, but after some data-cleaning, it now contains 16,167 observations and 12 variables. The columns are as follows:

```
##  [1] "OCCUPANCY_DATE"      "ORGANIZATION_NAME"   "SHELTER_NAME"
##  [4] "SHELTER_ADDRESS"     "SHELTER_CITY"        "SHELTER_PROVINCE"
##  [7] "SHELTER_POSTAL_CODE" "FACILITY_NAME"       "PROGRAM_NAME"
## [10] "SECTOR"              "OCCUPANCY"           "CAPACITY"
```

Before we begin, I am curious about what 'SHELTER_CITY' column includes. It caught my eye because all shelters should be *in* Toronto. So let's investigate:

```
## [1] "Toronto"     "North York"  "Scarborough" "Etobicoke"
```

So the column just lists different cities within Toronto. Moving on.

The dataset contains 5 sectors that I'm interested in exploring:

```
## [1] "Women"    "Families" "Co-ed"    "Men"      "Youth"
```

I will start by plotting the traffic to the shelters by different sectors throughout 2020. As mentioned earlier, the lock-down was enforced around mid-March, so I am expecting to see a decrease in shelter usage from March onward due to physical-distancing measures.

Toronto Shelter Occupancy in 2020
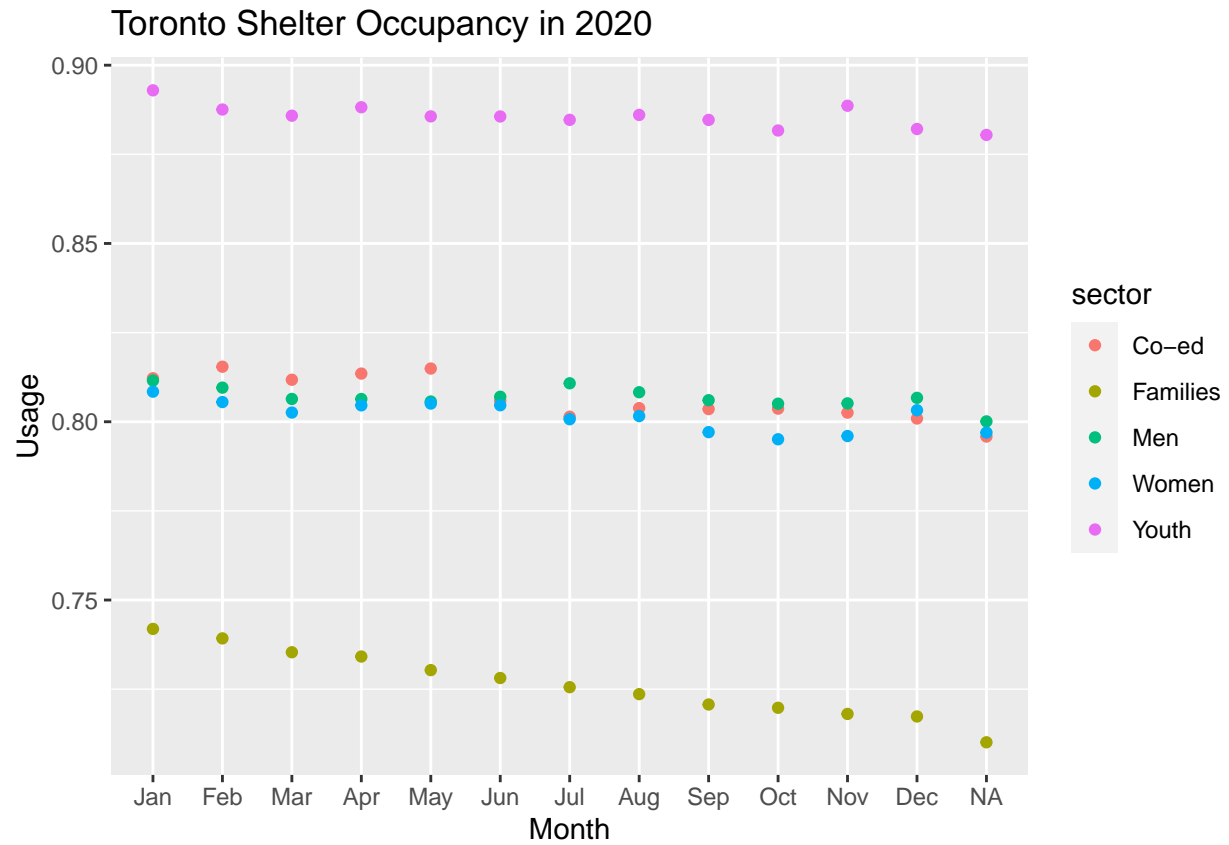
All sectors seem to generally maintain their average shelter usage throughout the year. The families sector was the most impacted sector.

Table 1: Family Sector's Usage (in percentages)

Sector	Max_Usage	Min_Usage	Difference
Family	74.19	71.01	3.18

It experienced a gradual drop of ~ 3% in shelter usage from January to December. To put this in context, that is almost equivalent to 816 people. It is unknown where these people have gone. I am hopeful that they do not need temporary housing anymore and that they have found permanent residence, because any other possibility is horrifying.

References

Alexander, Rohan. 2021. "Rohan Alexander: Shelter Usage in Toronto (2017-2021)." https://rohanalexander.com/posts/2021-01-24-shelter-usage-in-toronto-2017-2021/.

"Daily Shelter Occupancy." 2021. Shelter, Support & Housing Administration. https://open.toronto.ca/dataset/daily-shelter-occupancy/.

"Daily Shelter & Overnight Service Usage." 2021. City of Toronto. https://www.toronto.ca/city-government/data-research-maps/research-reports/housing-and-homelessness-research-and-reports/shelter-census/.

Firke, Sam. 2021. *Janitor: Simple Tools for Examining and Cleaning Dirty Data.* https://CRAN.R-project.org/package=janitor.

Gelfand, Sharla. 2020. *Opendatatoronto: Access the City of Toronto Open Data Portal.* https://CRAN.R-project.org/package=opendatatoronto.

Grolemund, Garrett, and Hadley Wickham. 2011. "Dates and Times Made Easy with lubridate." *Journal of Statistical Software* 40 (3): 1–25. https://www.jstatsoft.org/v40/i03/.

Jadidzadeh, Ali, and Ron KneeBone. 2018. "Patterns and Intensity of Use of Homeless Shelters in Toronto." *Canadian Public Policy* 44 (4): 342–55. https://doi.org/10.3138/cpp.2018-013.

R Core Team. 2020. *R: A Language and Environment for Statistical Computing.* Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

"Shelter, Support & Houding Administration." 2019. City of Toronto. https://www.toronto.ca/city-government/accountability-operations-customer-service/city-administration/staff-directory-divisions-and-customer-service/shelter-support-housing-administration/.

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.