

Hate Crime in Toronto*

What is the Primary Reason for Hate Crime?

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First sentence. Second sentence. Third sentence. Fourth sentence.

1 Introduction

Toronto, often celebrated as one of the most multicultural cities in the world, stands as a beacon of diversity and inclusion. With over half of its population identifying as a visible minority and more than 180 languages spoken, the city reflects a rich tapestry of cultural, ethnic, and religious backgrounds. It has long been regarded as a model for successful urban integration, where immigrants and marginalized communities contribute to the city’s vibrant social, economic, and cultural fabric. However, beneath this inclusive narrative, Toronto also faces challenges in addressing the rising threat of hate crimes.

According to government of Canada (Ndegwa and McDonald 2023), hate crime is defined as criminal acts done by a person who is motivated by an extreme bias or hatred towards a particular social group. Research studies show that hate crimes cause “disproportionate harm” to individual victims as well as other members of the community belonging to the targeted social group. These crimes lead to not only physical but also psycho-emotional hurt. For example, if the assault occurs because the victim’s race, then victim may live in fear of being victimized again for the rest of his life because a person’s race can never be changed.

Despite Toronto’s inclusive policies and progressive reputation, the city has not been immune to the global rise in hate-fueled violence. In recent years, incidents targeting specific communities—including Muslim, Jewish, Black, and LGBTQ+ populations—have underscored the persistent challenges that marginalized groups face. While hate crimes constitute only a fraction of overall crime, their impacts are disproportionately harmful, not only to direct victims but also to the broader communities they belong to, fostering fear, division, and alienation.

*Code and data are available at: [LINK](#).

This paper aims to analyze the hate crimes in the following perspectives: when, where and why. When means the amount of crimes happened in each year. Where means the neighborhood of the hate crime occurred. And why is the reason that triggered this hate crime.

STILL MISSING!

2 Data

All relevant data can be found in the Open Data Toronto portal, and extracted using the `opendatatoronto` library for R (Gelfand 2022). In particular, the original dataset includes the information about each hate crime, investigated by the Hate Crime Unit by reported date since 2018, and its latest update was on 17 September, 2024. The information includes each crime's offence number, the exact date of occurrence, the exact date of report, the police division where offence happened, the reason caused this hate crime, the neighborhood of such crime occurred, and if there is people got arrested.

2.1 Data Tools

The data was extracted, cleaned and analysed using R (R Core Team 2023), with functions from `tidyverse` (`rTidyverse?`), `ggplot2` (`rGgplot2?`), `dplyr` (`rDplyr?`), `readr` (`rReadr?`), `opendatatoronto` (Gelfand 2022), `knitr` (`rKnitr?`), and `here` (`rHere?`).

2.2 Overview of Dataset

The selected dataset has selected some of the variables that will be discussed later in the paper. The selected variables are id, year of crime occurred; reasons of hate crime: age, mental or physical disability, race, ethnicity, language, religion, sexual orientation, gender; and the neighborhood of this crime occurred. See **Table 1** for an overview of the data.

ID	Year	Bias Type	Neighbourhood
1	2018	Religion	Forest Hill North (102)
2	2018	Religion	Mount Pleasant East (99)
3	2018	Race	Annex (95)
4	2018	Religion	Rustic (28)
5	2018	Religion	Bay-Cloverhill (169)
6	2018	Religion	Oakdale-Beverley Heights (154)

Table 1: Sample of Hate Crime Open Data

The column “Bias Type” is not on the original dataset, instead, the original one has variables for each type of bias, I use the “Bias Type” variable which stores the name of bias(data type: character) so this is easier for later calculation. In the original dataset, there are one more bias called multiple bias, which indicates that the crime is caused by more than one reason/bias. Multiple bias may cause over-counting in other bias, so for easier calculation I didn’t select crimes with multiple bias. Also, in the Neighbourhood variable, I find that some of the crimes didn’t have information about neighbourhood, so I removed crime with “NSA” in the ‘neighbourhood_158’ column.

2.3 Distribution of Hate Crimes per Year

The average number of hate crimes per year is 193. However, the range of crime is very wide: from 111 in 2018 up to 329 in 2023.

Year	Total Crimes
2018	111
2019	104
2020	186
2021	227
2022	204
2023	329

Table 2: Count of Hate Crime by Year

2.4 Distribution of Hate Crimes by Bias

The range of number of crimes in different bias vary largely,

Bias Type	Total Crimes
Ethnicity	133
Gender	49
Language	3
Race	308
Religion	516
Sex	152

Table 3: Count of Hate Crime by Bias

The goal of our modelling strategy is twofold. Firstly,...

Here we briefly describe the Bayesian analysis model used to investigate... Background details and diagnostics are included in Appendix [B](#).

2.5 Model set-up

Define y_i as the number of seconds that the plane remained aloft. Then β_i is the wing width and γ_i is the wing length, both measured in millimeters.

$$y_i | \mu_i, \sigma \sim \text{Normal}(\mu_i, \sigma) \tag{1}$$

$$\mu_i = \alpha + \beta_i + \gamma_i \tag{2}$$

$$\alpha \sim \text{Normal}(0, 2.5) \tag{3}$$

$$\beta \sim \text{Normal}(0, 2.5) \tag{4}$$

$$\gamma \sim \text{Normal}(0, 2.5) \tag{5}$$

$$\sigma \sim \text{Exponential}(1) \tag{6}$$

We run the model in R (R Core Team 2023) using the `rstanarm` package of Goodrich et al. (2022). We use the default priors from `rstanarm`.

2.5.1 Model justification

We expect a positive relationship between the size of the wings and time spent aloft. In particular...

We can use maths by including latex between dollar signs, for instance θ .

3 Results

Our results are summarized in [?@tbl-modelresults](#).

4 Discussion

4.1 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.

4.2 Second discussion point

4.3 Third discussion point

4.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

Appendix

A Additional data details

B Model details

B.1 Posterior predictive check

In `?@fig-ppcheckandposteriorvsprior-1` we implement a posterior predictive check. This shows...

In `?@fig-ppcheckandposteriorvsprior-2` we compare the posterior with the prior. This shows...

B.2 Diagnostics

`?@fig-stanareyouokay-1` is a trace plot. It shows... This suggests...

`?@fig-stanareyouokay-2` is a Rhat plot. It shows... This suggests...

References

- Gelfand, Sharla. 2022. *Opendatatoronto: Access the City of Toronto Open Data Portal*. <https://CRAN.R-project.org/package=opendatatoronto>.
- Goodrich, Ben, Jonah Gabry, Imad Ali, and Sam Brilleman. 2022. “Rstanarm: Bayesian Applied Regression Modeling via Stan.” <https://mc-stan.org/rstanarm/>.
- Ndegwa, Anna, and Susan McDonald. 2023. “Hate Crimes in Canada.” <https://www.justice.gc.ca/eng/rp-pr/cj-jp/victim/rd16-rr16/p1.html>.
- R Core Team. 2023. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.