```yaml
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title: "In-Depth Analysis of Hate Crime Bias Motivations in Toronto"
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```

Introduction

Hate crimes are criminal offenses primarily motivated by bias or prejudice against groups based on characteristics such as race, gender, religion, ethnicity, or sexual orientation. These crimes extend beyond the immediate harm inflicted upon victims; they instill a sense of insecurity and fear among targeted communities, leading to social division and erosion of societal cohesion. In recent years, there has been a significant increase in hate crimes globally. A study in Canada reported a substantial 72% increase in police-reported hate crimes from 2020 to 2021 alone, marking a three-year consecutive rise up to 2023. This alarming trend highlights the urgent need to comprehend the factors contributing to this increase and to develop strategies aimed at reducing and ultimately eliminating such hate-motivated offenses.

Toronto, recognized as one of the most culturally diverse cities worldwide, boasts a population where more than half identify as visible minorities (City of Toronto, 2017). While this diversity enriches the city both economically and culturally, it also presents challenges, including intercultural tensions that can undermine social harmony. The rise in hate crimes poses a threat to the multicultural fabric of Toronto, necessitating a deeper examination of these incidents to understand the motivations behind them.

The Toronto Police Service's Hate Crime Unit maintains records of all reported hate crimes, including the primary motivations behind these offenses—whether they are motivated by age, sexual orientation, religion, language, ethnicity, race, mental or physical disability, gender, or multiple factors. This investigation examines the bias motivations behind hate crimes in Toronto over the past few years, aiming to identify patterns and trends that can inform effective strategies to combat hate-motivated offenses.

Research Questions:

- What are the trends in hate crime incidents in Toronto from 2018 onwards?
- How have bias motivations (race, religion, sexual orientation, etc.) evolved over time?
- Are there geographical clusters of hate crime incidents in certain neighborhoods?

Data Description

Data Overview

The dataset used for this analysis includes all verified Hate Crime occurrences investigated by the Hate Crime Unit of the Toronto Police Service from 2018 onwards. The data is structured at the offense and/or occurrence level, meaning that a single occurrence may involve multiple bias categories. This structure allows the dataset to comprehensively represent incidents where victims are targeted based on more than one bias factor.

The hate crime categories, also known as bias categories, include:

- Age
- Mental or Physical Disability
- Race
- Ethnicity
- Language
- Religion
- Sexual Orientation
- Gender
- Other Similar Factors Each bias category reflects the primary motivation behind the hate crime, as perceived by the investigators.

Hate Crime vs. Hate Incident

A key distinction in understanding the dataset is between hate crimes and hate incidents:

Hate Crime: A hate crime is a criminal offense committed against a person or property that is motivated, either in whole or in part, by bias, prejudice, or hate based on characteristics such as race, ethnicity, language, religion, sexual orientation, or gender identity. These offenses are prosecutable under criminal law.

Hate Incident: In contrast, a hate incident refers to non-criminal actions or behaviors motivated by hate against an identifiable group. Examples of hate incidents include the use of racial slurs, offensive remarks, or other discriminatory behavior that does not meet the threshold of a criminal offense. While hate incidents are not included in this dataset, understanding the distinction between them is important when analyzing the broader context of bias-motivated behaviors in a city as diverse as Toronto.

Key variables in the dataset include:

- **EVENT_UNIQUE_ID**: A unique identifier for each offense.
- **OCCURRENCE_YEAR**: The year in which the offense occurred.
- **Bias Motivation Variables**:
    - **RACE_BIAS**
    - **RELIGION_BIAS**
    - **SEXUAL_ORIENTATION_BIAS**
    - **GENDER_BIAS**
    - **AGE_BIAS**
    - **MENTAL_OR_PHYSICAL_DISABILITY**
    - **ETHNICITY_BIAS**
    - **LANGUAGE_BIAS**

- **NEIGHBOURHOOD_140**: The neighborhood where the incident occurred.
- **PRIMARY_OFFENCE**: The type of offense committed.

Results

Exploratory Data Analysis

Total Hate Crimes Over Time

We first examine the total number of hate crimes reported each year to understand overall trends.

```r
# Summary of hate crimes per year
summary_by_year <- cleaned_data %>%
  group_by(OCCURRENCE_YEAR) %>%
  summarise(TotalCrimes = n())

# Visualize total hate crimes per year
ggplot(summary_by_year, aes(x = OCCURRENCE_YEAR, y = TotalCrimes)) +
  geom_bar(stat = "identity", fill = "steelblue") +
  labs(title = "Total Hate Crimes per Year (2018 Onwards)",
       x = "Year", y = "Number of Crimes") +
  theme_minimal()
```
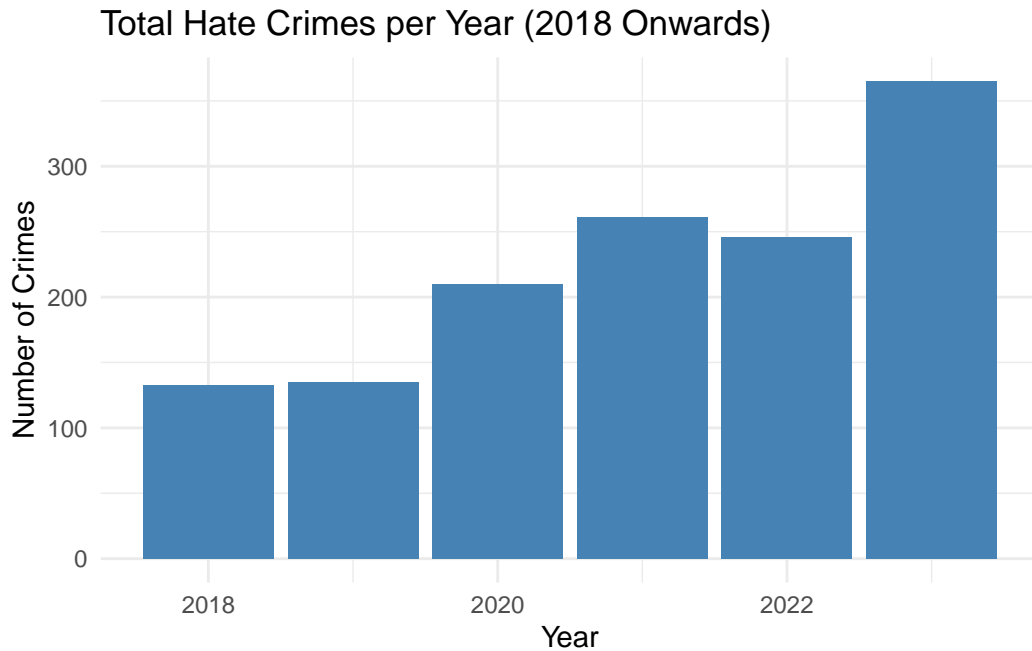
Figure 1: Total hate crimes reported each year in Toronto from 2018 onwards.

As shown in Figure @ref(fig-total-crimes), the total number of hate crimes...

Hate Crimes by Bias Motivation

Next, we analyze how hate crimes are distributed across different bias motivations each year.

```
# Summary of hate crimes by year and bias motivation
summary_by_bias <- cleaned_data %>%
  group_by(OCCURRENCE_YEAR, BiasMotivation) %>%
  summarise(TotalCrimes = n())

# Visualize hate crimes by bias motivation over time
ggplot(summary_by_bias, aes(x = OCCURRENCE_YEAR, y = TotalCrimes, fill = BiasMotivation)) +
  geom_bar(stat = "identity", position = "dodge") +
  labs(title = "Hate Crimes by Bias Motivation (2018 Onwards)",
       x = "Year", y = "Number of Crimes", fill = "Bias Motivation") +
  theme_minimal()
```

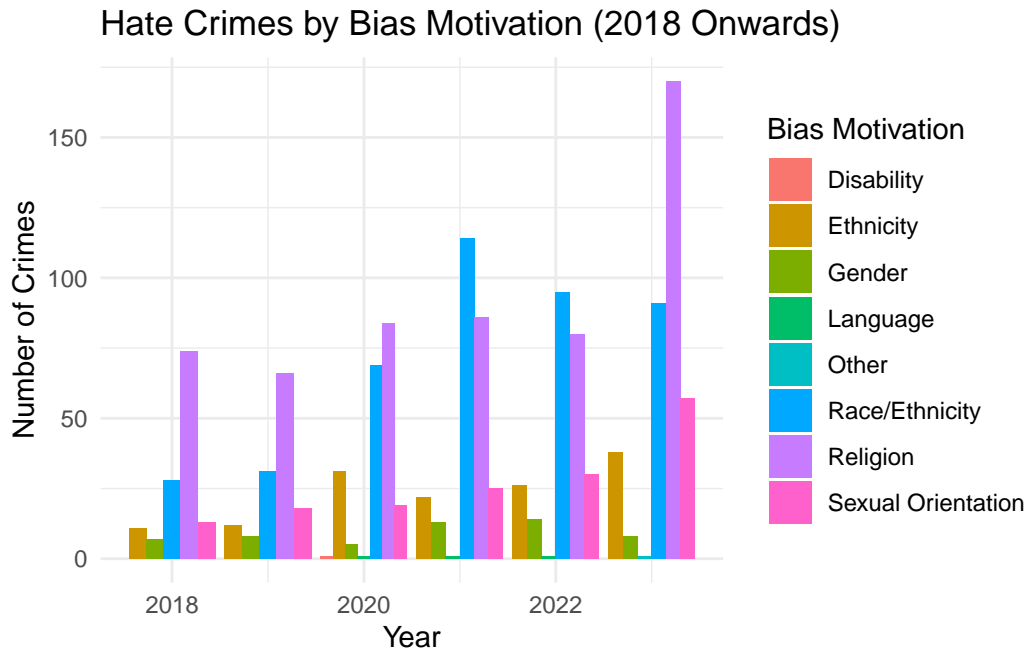## Hate Crimes by Bias Motivation (2018 Onwards)

Figure 2: Hate crimes broken down by bias motivation from 2018 onwards.

Figure

@ref(fig-bias-motivation) illustrates the distribution of hate crimes by bias motivation...

Proportional Analysis of Bias Motivations

We perform a proportional analysis to understand the relative prevalence of each bias motivation over time.

```
# Proportion of bias motivations per year
summary_by_bias_prop <- cleaned_data %>%
  group_by(OCCURRENCE_YEAR, BiasMotivation) %>%
  summarise(TotalCrimes = n()) %>%
  group_by(OCCURRENCE_YEAR) %>%
  mutate(Proportion = TotalCrimes / sum(TotalCrimes))

# Visualize proportional analysis
ggplot(summary_by_bias_prop, aes(x = OCCURRENCE_YEAR, y = Proportion, fill = BiasMotivation)
  geom_area(position = "fill", alpha = 0.7) +
  labs(title = "Proportional Analysis of Bias Motivations (2018 Onwards)",
       x = "Year", y = "Proportion", fill = "Bias Motivation") +
  theme_minimal()
```
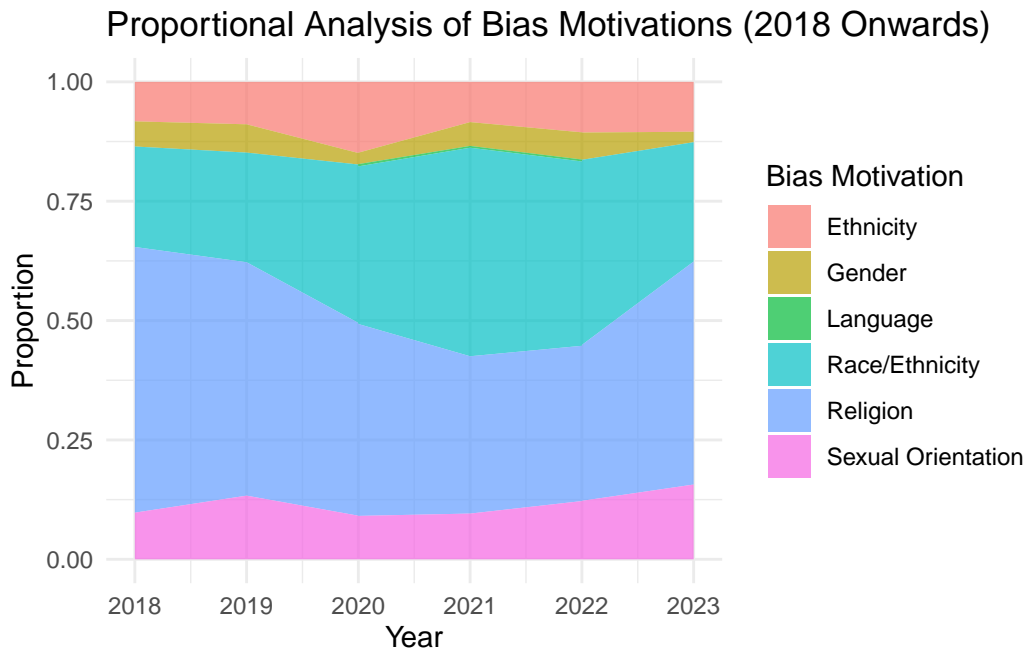
Figure 3: Proportional analysis of bias motivations in hate crimes over time.

As seen in Figure @ref(fig-bias-proportion), the relative prevalence of each bias motivation...

Geographical Analysis

Hate Crimes by Neighborhood

We analyze the geographical distribution of hate crimes to identify potential hotspots.

```
# Summary of hate crimes by neighborhood
summary_by_neighborhood <- cleaned_data %>%
  group_by(NEIGHBOURHOOD_140) %>%
  summarise(TotalCrimes = n()) %>%
  arrange(desc(TotalCrimes))

# Visualize hate crimes by neighborhood (Top 20 neighborhoods)
ggplot(summary_by_neighborhood %>% top_n(20, TotalCrimes),
       aes(x = reorder(NEIGHBOURHOOD_140, TotalCrimes), y = TotalCrimes)) +
  geom_bar(stat = "identity", fill = "darkred") +
```

```
coord_flip() +
labs(title = "Top 20 Neighborhoods by Hate Crime Incidents (2018 Onwards)",
     x = "Neighborhood", y = "Number of Crimes") +
theme_minimal()
```
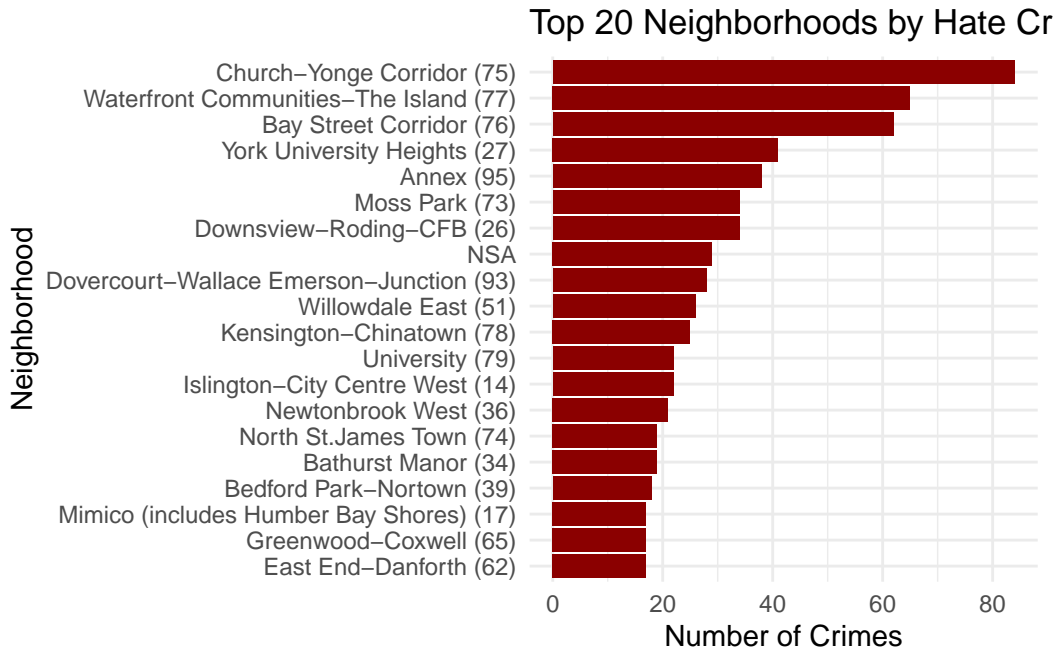

Figure 4: Top 20 neighborhoods in Toronto with the most hate crime incidents from 2018 onwards.

Figure @ref(fig-neighborhoods) shows the top neighborhoods with the highest number of hate crimes...

Conclusion

In this analysis, we examined hate crime trends in Toronto from 2018 onwards. The data reveals patterns in bias motivations and geographical distributions, providing insights into how hate crimes have evolved over recent years. Understanding these trends is crucial for developing targeted interventions and policies to combat hate crimes and promote community safety.

Future Work

Future research could explore the relationship between hate crime trends and external socio-political events or demographic changes. Additionally, qualitative studies could provide deeper insights into the underlying causes of hate crimes.

References

- City of Toronto. (2017). **Toronto's racial diversity**. Link
- Statistics Canada. (2022). **Police-reported hate crime in Canada, 2021**. Link

Saving the Cleaned Data

```
# Save the cleaned dataset for future use
write_csv(cleaned_data, "../data/03-cleaned_data/cleaned_data.csv")
```