

# Analyzing Patterns and Biases in Hate Crimes: A Toronto-Based Statistical Study

Marzia Zaidi  
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## Abstract

This paper explores the patterns and biases of hate crimes in Toronto, drawing on data from the Hate Crimes Open Data dataset, which includes all verified hate crime occurrences reported since 2018. By examining various bias categories, such as race, religion, and sexual orientation. This study aims to uncover trends and underlying societal factors that contribute to hate-motivated violence in the city. The analysis reveals significant variations in the prevalence and nature of hate crimes, shedding light on the complexities of victimization and their broader implications for community cohesion. Additionally, the findings of this study contribute to a deeper understanding of hate crimes in Toronto, offering valuable insights that can inform strategies to foster a safer and more equitable society.

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# 1 Introduction

Hate crimes, rooted in deep-seated biases, represent not merely personal attacks but a direct affront to the foundation of a diverse and inclusive society. In Toronto, a city renowned for its multiculturalism, such incidents starkly contrast with the ideals of unity and tolerance. As the complexity of hate crimes continues to evolve, driven by factors such as race, ethnicity, religion, and gender identity, understanding their patterns becomes essential for addressing underlying causes and informing effective policy interventions. The growing population of Canada results in greater diversity within the country, with the number of visible minorities increasing over the past decade [5]. Recent data has shown that approximately 13% of the Canadian population identifies as part of visible minority groups, reflecting a growth of six percent compared to the overall Canadian population in 1991 [5]. The increasing number of individuals from diverse ethnic backgrounds contributes to a rich tapestry of culture, religion, and language in Canada [5]. However, this growing diversity also presents the potential for heightened societal stress [5]. In extreme cases, such tensions can emerge as hate crimes, which pose serious threats to community cohesion. Hate-motivated crimes not only instill fear in the direct victims but also heighten concern and anxiety within their respective communities [5]. Such acts can create a pervasive atmosphere of distrust and vulnerability, impacting the sense of safety and belonging among all members of the group.

The aim of this analysis is to examine the patterns and biases of hate crimes in Toronto by utilizing the Hate Crimes Open Data dataset. Through a comprehensive review of verified hate crime occurrences since 2018, this study seeks to identify trends related to the various bias categories, including race, religion, sexual orientation. The paper further explores the timing of these incidents to identify patterns in hate crimes. By analyzing when these events occur, the research aims to uncover trends that may be associated with specific times of day. By analyzing the frequency and nature of these incidents, the research aims to uncover underlying societal factors contributing to hate-motivated violence in the city. Additionally, this analysis aspires to contribute to the development of informed strategies for preventing hate crimes and fostering a more inclusive environment in Toronto.

## 2 Data

### 2.1 Data Source

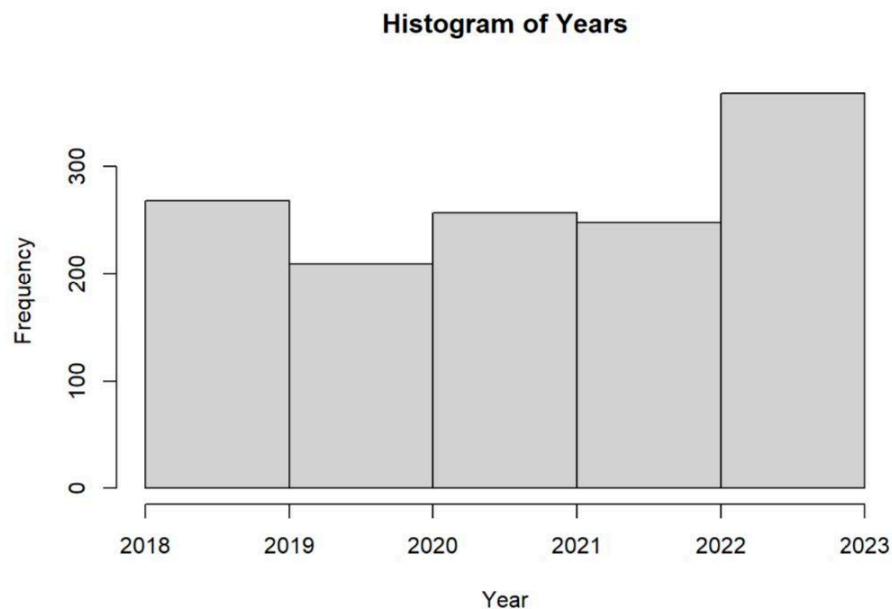
The dataset titled "Hate Crimes Open Data," used in this study, was sourced from the *Open Data Toronto portal* [1]. It captures hate crime occurrences reported in Toronto between 2018 and 2023. The dataset includes a variety of variables such as the occurrence date and time, report date and time, location type, primary offense, neighborhood, and bias categories, including factors like age, disability, race, religion, ethnicity, language, sexual orientation, and gender. This comprehensive dataset offers valuable insights into the prevalence, patterns, and nature of hate-motivated incidents across the city during this period.

For this study, the key variables of interest were the occurrence and report dates and times, as well as biases related to race, religion, and sexual orientation. The raw dataset obtained from the *Open Data Toronto portal* [1] was well-structured, with clearly labeled variables and minimal missing data. As a result, no data cleaning processes were required before analysis. The data analysis for this study was conducted using the *R programming language* [3], with visualizations created using the *ggplot2* package, and data manipulation handled by *dplyr* [7].

## 2.2 Limitations

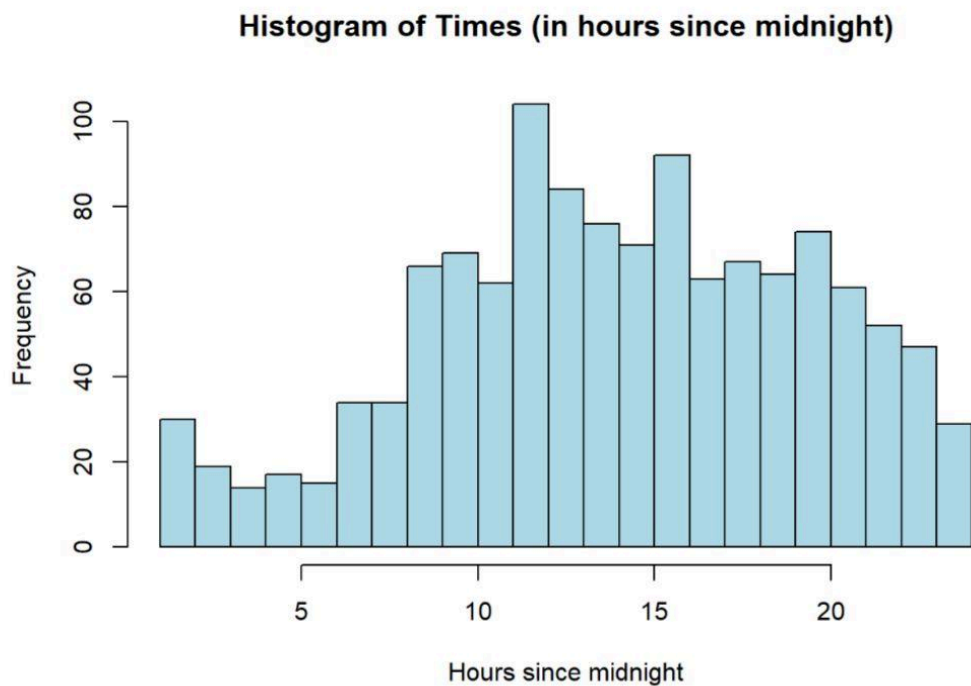
One of the key limitations of the dataset is the underreporting of hate crimes. A significant percentage of these incidents are never reported to the police and, therefore, remain unrecorded [4]. Hate crimes are among the most underreported offenses, largely due to a variety of social and psychological barriers. For instance, some witnesses may fear that by coming forward, they could be wrongfully implicated in the crime, while others may be hesitant to report incidents due to concerns for their personal safety, particularly in cases of racially or religiously motivated violence [4]. Additionally, mistrust in the criminal justice system can discourage victims from filing reports [4]. In one study, individuals from the Muslim community expressed hesitancy in reporting hate crimes, fearing that the authorities might not take their complaints seriously or may respond inadequately [4]. These factors contribute to the gap in hate crime data, limiting the full understanding of the scope and impact of these incidents. The dataset has aggregated the locations of hate crimes at the neighborhood level to safeguard privacy and prevent the disclosure of specific locations [1].

## 3 Results



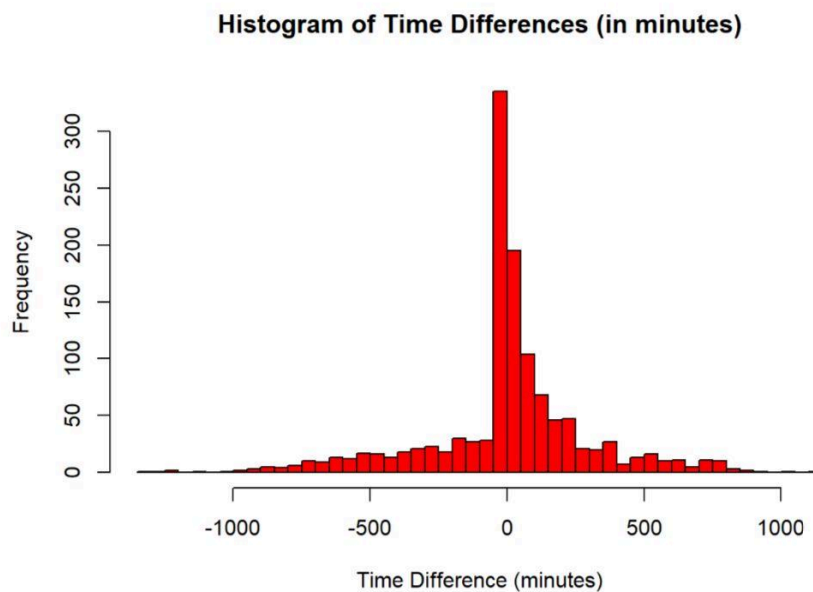
**Figure 1:** The Occurrences of Hate Crimes throughout the years 2018-2023 in Toronto

Figure 1 presents a histogram detailing the occurrence of hate crimes from 2018 to 2023. Throughout the majority of this period, the frequency of hate crimes remained relatively stable, with only slight variations from year to year. However, in 2023, there is a noticeable spike in occurrences, marking a significant increase compared to previous years. This sudden rise may be reflective of broader social or political shifts, increased tensions in certain communities, or more comprehensive reporting mechanisms that capture hate crimes more effectively. The trend underscores the importance of further exploring the specific factors contributing to this escalation in 2023.



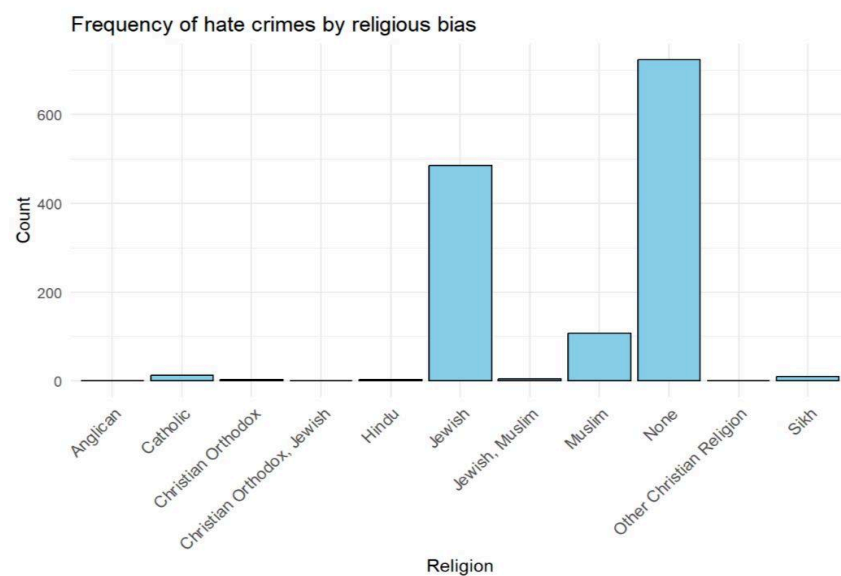
**Figure 2:** Distribution of Hate Crime Incidents in Toronto by Time of the Day

Figure 2 demonstrates that hate crimes are more likely to occur during daylight hours, with a noticeable peak between 11 AM and 4 PM. This pattern suggests that hate-motivated incidents tend to take place when individuals are actively present in public and community spaces, such as workplaces, schools, and transportation hubs. The increased social interaction during these hours likely raises the probability of bias-driven conflicts, as visibility and exposure to diverse groups are heightened. Additionally, the presence of bystanders and witnesses in these environments may contribute to more frequent reporting of such incidents, thereby influencing the observed increase in crime rates during this time frame. This correlation between higher levels of social activity and the incidence of hate crimes underlines the need for targeted interventions in public areas where individuals from marginalized communities may be more vulnerable to hostility and discrimination.



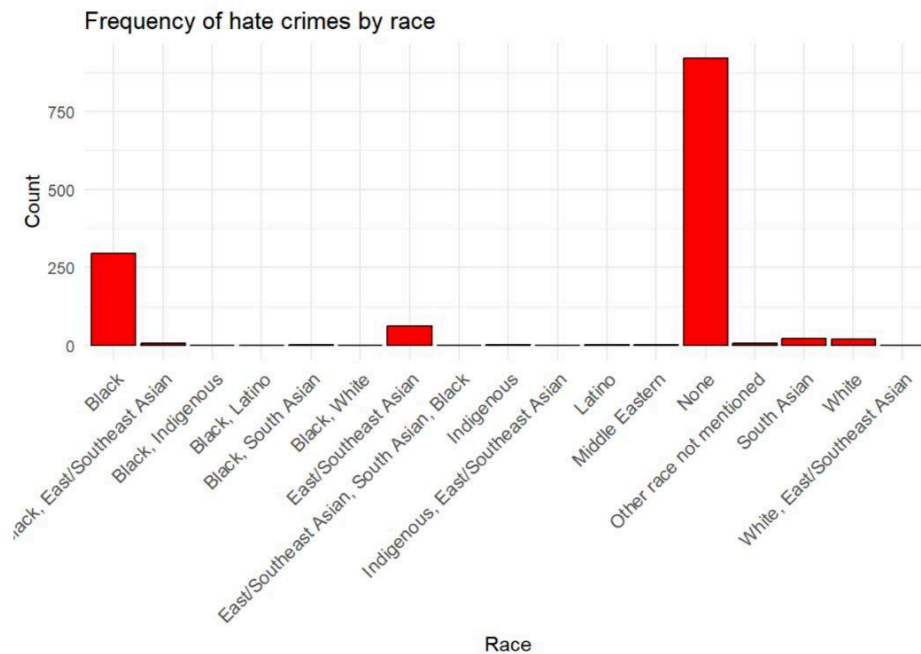
**Figure 3:** Reporting Time Distribution for Hate Crime Incidents in Toronto

Figure 3 illustrates the reporting times for hate crime incidents, revealing that the majority of these crimes were reported promptly after they occurred. The histogram demonstrates a significant concentration of reports occurring within a few hours of the incidents, indicating a strong sense of urgency among victims or witnesses. Additionally, a smaller segment of the data reflects instances where crimes were reported the following day, which is represented by the negative portion of the distribution. This delayed reporting could stem from various factors, including the emotional impact of the incident on the victim, potential barriers to reporting such as fear of retaliation, or a lack of trust in law enforcement.



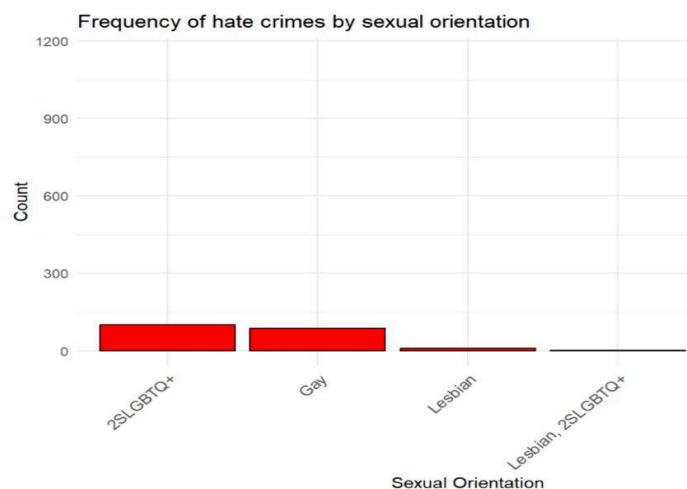
**Figure 4:** The Frequency of Hate Crime Occurrences Motivated by Religion Bias

The following graph indicates that certain religious groups experience disproportionately higher rates of hate crimes compared to others. Specifically, it is evident that the Jewish community in Toronto is the most frequently targeted group for hate crimes, closely followed by the Muslim community.



**Figure 5:** The Frequency of Hate Crime Occurrences Motivated by Race Bias

The graph in Figure 5 illustrates the frequency of hate crimes motivated by race, highlighting that the Black community is disproportionately affected compared to other racial groups. The data reveals that incidents targeting individuals from the Black racial group are significantly higher than those directed towards South Asian, Southeast Asian, and White communities. While these groups also experience hate crimes, the frequency is comparatively lower than that experienced by the Black community.



**Figure 6:** The Frequency of Hate Crime Occurrences Motivated by Sexual Orientation Bias

The graph in Figure 6 illustrates the prevalence of hate crimes motivated by sexual orientation, revealing that the 2SLGBTQ+ community is the group most significantly affected. The data indicates a troubling trend, with incidents targeting individuals based on their sexual orientation increasing in frequency over the analyzed period. This pattern underscores the persistent discrimination and violence faced by the 2SLGBTQ+ community, which often stems from societal stigmas and deep-rooted biases.

## 4 Discussion

Canada has long been celebrated as a multicultural nation, characterized by its rich diversity and commitment to inclusivity. However, despite this progressive image, the country continues to grapple with the reality of hate-motivated violence, which poses significant threats to social cohesion and the safety of various communities. The analysis presented in this paper reveals troubling trends in hate crimes across Toronto from 2018 to 2023, highlighting that marginalized groups, particularly those identified by race, religion, and sexual orientation are disproportionately targeted. From the analysis conducted within this paper, it is evident that certain groups, particularly Jewish, Muslim, Black, and LGBTQ+ communities, are more vulnerable to hate crimes than others. This heightened vulnerability is significant for the criminal justice system's focus on hate crimes, as these incidents have unique impacts on the victim that extend beyond the physical harm that is typically associated with the crime [4]. To elaborate further, hate crimes targeting victimized groups based on their ethnicity, race, religion, or sexual orientation often strike at the core of their identity. Such hate crimes not only inflict physical harm on the victims but can also undermine their sense of self, leading to feelings of vulnerability and anger [4]. Hate crimes receive significant attention from the criminal justice system due to their profound impacts. These crimes affect not only the individual victim but also their entire community, heightening feelings of fear and increasing tensions between different religious and racial groups [4]. Such incidents can fracture communities and create divisions, ultimately raising the likelihood of further harm [4].

This paper also highlights that hate crimes are more frequently reported during daylight hours, likely because these incidents occur in public spaces where there are more witnesses. The presence of bystanders increases the likelihood that the crime will be observed and promptly reported to authorities. However, this introduces a potential gap in the data. Crimes that occur at night, when fewer people are around, may go unnoticed and therefore unreported, leading to an underrepresentation of incidents that happen during these times. The absence of witnesses or a social hub during late hours might explain why fewer reports are filed for nighttime incidents, suggesting that the data may not fully capture the true extent of hate crimes occurring under these circumstances. This potential discrepancy is important to consider when interpreting the patterns observed in hate crime reports, as it highlights the limitations of relying solely on reported incidents to understand the full scope of the problem.

Several societal factors can contribute to the motivation behind hate crimes, with political polarization playing a significant role. When political leaders or influential public figures engage in divisive rhetoric or fail to denounce acts of hatred, they create an environment where individuals feel validated in expressing their biases through violence. This emboldens perpetrators, as they may believe their actions are in line with prevailing societal attitudes or ideologies. In such a polarized climate, hate crimes can be seen not just as isolated incidents, but as reflections of broader tensions within society, fueled by political discourse that encourages division rather than unity. An example of how political rhetoric can fuel hate crimes is seen in the 2016 U.S [2]. presidential campaign led by Donald Trump. During his campaign, Trump made inflammatory remarks about Muslims, immigrants, and liberals, labeling them as "un-American" and blaming these groups for various social problems [2]. His campaign also gained significant support from white supremacist groups across the United States, who believed that Trump's election would help restore white dominance in the country [2]. These controversial statements sparked widespread hatred toward minority groups, leading to a surge in hate crimes both in the U.S. and internationally [2]. The ripple effects were felt in Canada as well, most notably in the tragic incident involving Alexandre Bissonnette, a known Trump supporter [2]. In 2017, Bissonnette entered a mosque in Quebec City and murdered six individuals, an act of violence directly tied to the divisive political climate that Trump's campaign had amplified [2]. Other societal factors may also play a role in motivating hate crimes that include but are not limited to cultural and religious tensions, social media influence etc.

In conclusion, the findings of this study underscore the need for continued efforts to address hate-motivated violence, especially within marginalized communities. As societal tensions evolve, so too must our strategies for combating these crimes, fostering a more inclusive and safe environment for all. The data highlights not just the importance of awareness but also the critical role of community cohesion and proactive interventions in addressing the root causes of hate.



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