

paper

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Abstract

top-level finding, what is the one thing that we learn about the world because of this paper?

Often we see crimes on the global news and majority is happening in the States. Canada is known to be relatively safe country around the world. Toronto is one of the biggest city in Canada and thus the most populated. By investigating the dataset from Toronto Police Services, this report demonstrate the top three crimes reported over the year from 2014 to 2022.

Introduction

Why I deal with this data? General trends of victims reporting following crimes, robbery, assault, sexual violation. Tables and graphs support visualize the trends over the year. From the dataset, we want to find out whether there are any point outlining from the trend between sexes, age_group, year. Then draw a correlation between other factor such as global pandemic.

Impact of pandemic on reporting crimes,

This paper use R to analyze a dataset from opendatatoronto. This dataset includes all identified victims of crimes against the person, including, but not limited to, those that may have been deemed unfounded after investigation, those that may have occurred outside the City of Toronto limits, or have no verified location. The paper extract age group, count, sex, subtype of crimes, report year.

Visualize trend among the sex, age group per crime. The tendency of male not reporting might skew the result.

Data

The unknown values for age_group, age_cohort, sex are excluded as they do not contribute to define data groups explicitly. The data set does not offer explicit details about the unknown values. Similarly, the other crime is not included in the cleaned_data set due to its uncertainty. Thus, the cleaned_data only serve top three reported crimes; robbery, assault, and sexual violation. Moreover, the sex is divided into two, female and male. Age group has three subgroups, adult, youth, child.

The table (Table 1) below showcases the general trend on the number of victims in different age group. Age information is based on the year that crime was reported. Adult is considered the group at an age of 18 or older. The age of the youth group is between 12 to 17. Below 12 is considered the child group.

Table 1: Total sum of victims in different age group throughout the years

REPORT_YEAR	Adult	Youth	Child
2,014	16,278	2,283	1,215
2,015	17,037	2,216	1,124
2,016	17,826	2,457	1,095
2,017	18,512	2,621	1,094
2,018	19,512	2,311	1,063
2,019	20,109	2,551	1,180

Table 1a (Table 1) counts the total number of victims for each age group over the years. It is obvious to find out that Adult victim group is reported the most and the Child victim group is reported the least. Also, it is noticeable that in 2020, the reported number of victims are far less than the other years. In three different age group, crime reporting rate significantly reduced by the impact of COVID and its lockdown.

Bar graph (Figure 1) refers table (Table 1). By visualizing the age group into a bar per year, it is clear to see that majority of victims of reported crimes are adult. Also, the bars are showing ascending order from the year 2014 to 2018 but the reported crimes significantly drop between 2019 and 2020. One possible reason is because of COVID. Correlation between COVID pandemic and report crime rates

From 2014 to 2020 (Figure 2), the trend shows that the adult group is twice the size of the child group. Up until 2020, victims of sexual violation was predominantly adult age group. However, as of 2021, the youth victim group surpass the amount of the adult victim group.

? youth group

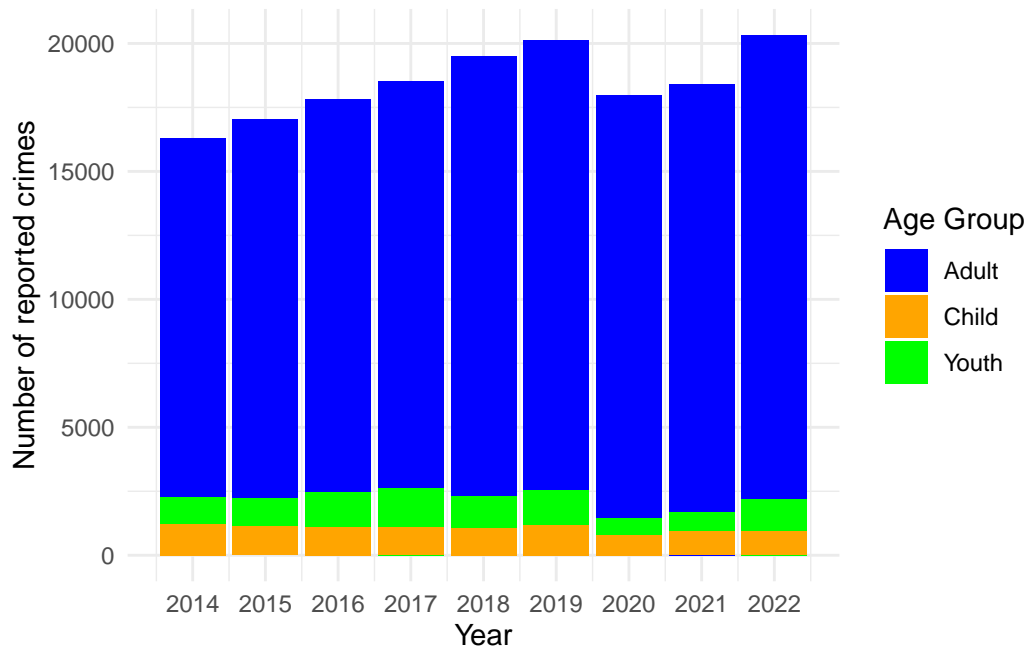


Figure 1: Number of Reported Victims of Crimes in Different Age Group Over the Years

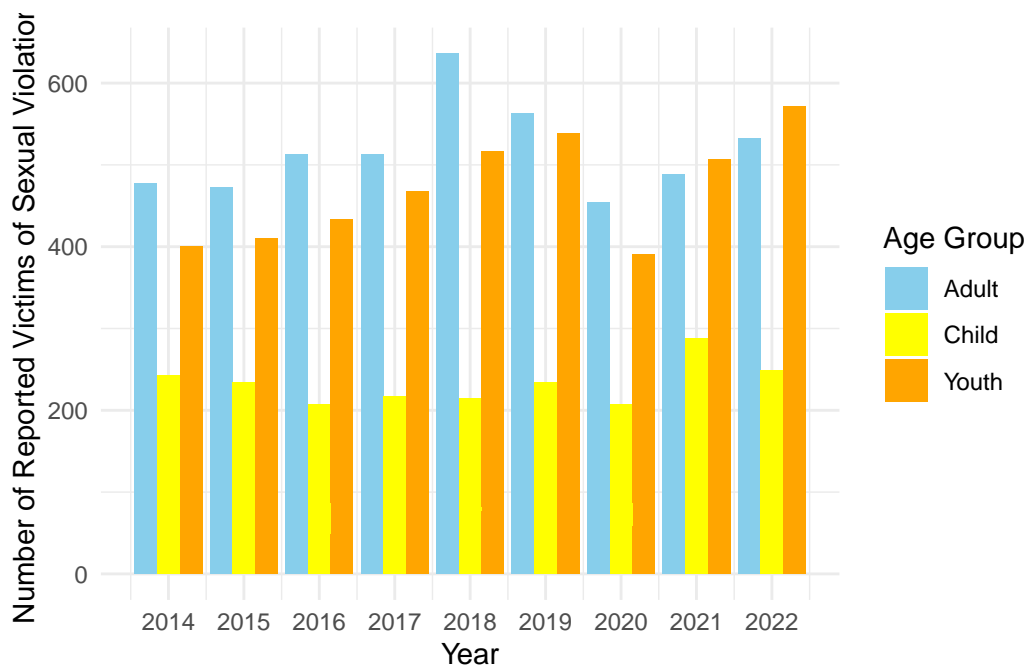


Figure 2: Victims Count of Sexual Violation by Age Group Over the Years

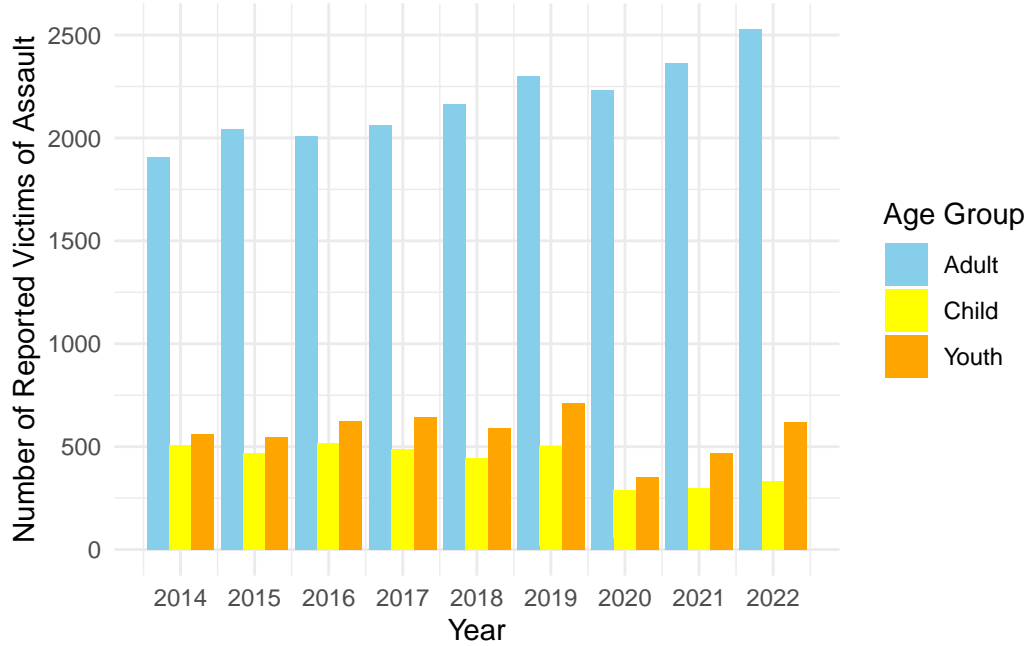


Figure 3: Victims Count of Assault by Age Group Over the Years

The graph (Figure 3) illustrates the ascending trend in number of victims of assault in city of Toronto over the year from 2014 to 2022. COVID does not seem to be a factor that skews the trend. Though, size of both child and youth victim groups got halved. Compared to child victim group, size of youth victim group grows fast.

Graph (Figure 4) depicts that as of 2018, youth group of victims of robbery diminished and it keeps at the lower level. COVID pandemic is the factor of bar graphs on the number of victim of robbery in different age group over the year. In 2020, victims of robbery in every age group significantly decreased. We could assume that lockdown mandate affect the decrease in victims.

Table 2: Total number of victims counted for each crime from the year 2014 to 2022

REPORT_YEAR	Assault	Robbery	Sexual Violation
2,014	14,380	3,327	2,069
2,015	15,095	3,157	2,125
2,016	15,808	3,392	2,178
2,017	16,278	3,643	2,306
2,018	16,925	3,281	2,680

REPORT_YEAR	Assault	Robbery	Sexual Violation
2,019	17,959	3,195	2,686

References

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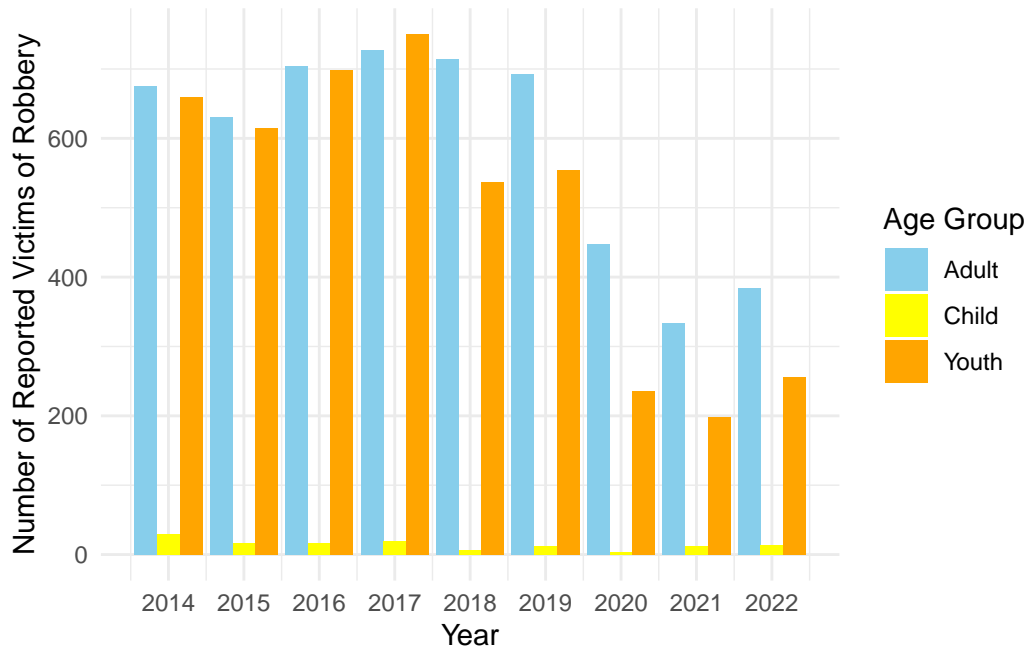


Figure 4: Victims Count of Robbery by Age Group Over the Years

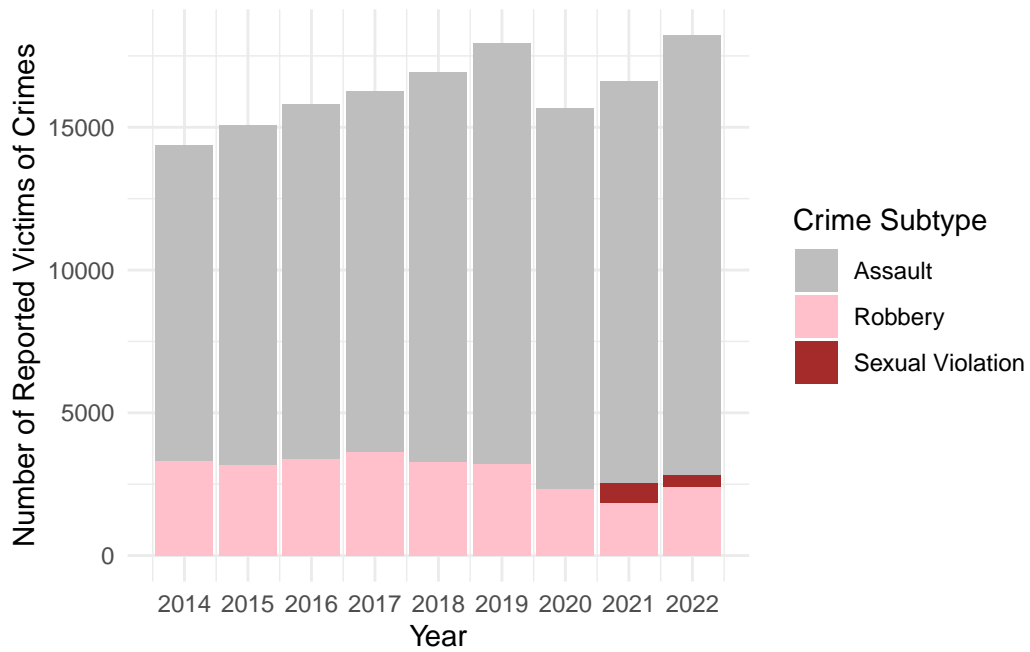


Figure 5: Victims Count by Crime Subtype Over the Years