

Toronto robbery Victims are primarily young males between 2014 and 2019*

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Abstract

Robbery is the criminal action of taking properties from other persons by force or threat, causing serious emotional and psychological impact on its victims. This paper explores the Toronto Police Annual Statistical Report to analyze who are the primary victims of robbery in Toronto. We use a descriptive table and a bar chart to show that young males within 12~34 age group are the major proportion of robbery victims.

1

1 Introduction

As robbery involves both threatened or actual violence and loss of property to victims, it ranks among the most serious and feared criminal offenses. (Harlow 1987) Previous studies on robbery have shown that robberies have serious and enduring effects on victims' social behavior and psychological health, such as increased nervousness, anxiety, fear of crime (Gale and Coupe 2005), acute stress disorder (Elklit 2002), etc. This paper explores who are major proportion of robbery victims in Toronto. We use the Toronto's Police Service Annual Statistical Report dataset on Victims of Crime as our data source and conduct descriptive analysis using a table and a line chart. The results shows that young males, particularly within 12~34 age group, are at more risk becoming victims of robbery.

We organize the rest of paper as follows: In Data section, we first introduce our data source and approach to collect and process the data. Then, we explore key features of the dataset. Next, we discuss variables in the dataset and perform the data cleaning. Finally, we use descriptive analysis to show our findings on Toronto robbery victims.

2 Data

Our data is of Toronto robbery victims based on Toronto's Police Service Annual Statistical Report. We analyzed it using R (R Core Team 2020), and packages `tidyverse` (Wickham et al. 2019), `scales` (Wickham and Seidel 2020) and `here` (Müller 2020)

*Code and data are available at: https://github.com/honn-ishinn/toronto_robbery_victims.

¹Link to the GitHub repo: https://github.com/honn-ishinn/toronto_robbery_victims

2.1 Data Collection

2.2 Dataset Features

2.3 Dataset Description and Data Cleaning

2.4 Descriptive Analysis

Our data is of penguins (Figure 1).

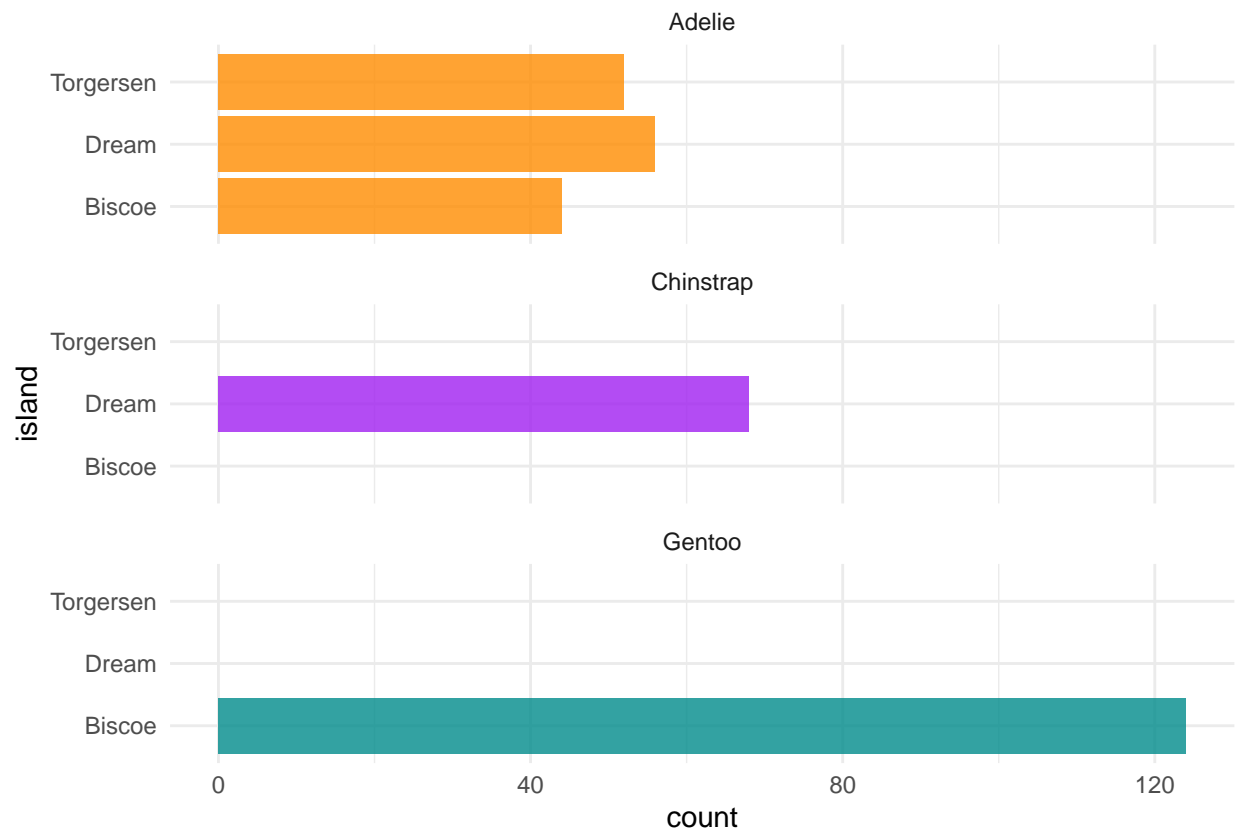


Figure 1: Bills of penguins

(Figure 1).

```
# read the cleaned data from inputs/data
victims_data <- read_csv(here::here("inputs/data/toronto_crime_victims_data.csv"))

##
## -- Column specification -----
## cols(
##   Index_ = col_double(),
##   ReportedYear = col_double(),
##   Subtype = col_character(),
##   Sex = col_character(),
##   AgeGroup = col_character(),
##   AgeCohort = col_character(),
##   Count_ = col_double()
## )
```

```
year <- length(unique(victims_data$ReportedYear))
```

```
victims_by_sex <-
  victims_data %>%
  group_by( Sex) %>%
  summarise(
    Annual_Victims = sum( Count_)/ year
  ) %>%
  mutate(across(where(is.numeric),round, 0))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
victims_by_sex
```

```
## # A tibble: 2 x 2
##   Sex      Annual_Victims
##   <chr>          <dbl>
## 1 Female        13174
## 2 Male         13235
```

```
victims_by_sex <-
  victims_data %>%
  group_by( Sex) %>%
  summarise(
    Annual_Victims = sum( Count_)/ year
  ) %>%
  mutate(across(where(is.numeric),round, 0))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
robbery_by_sex <-
  victims_data %>%
  filter( Subtype == "Robbery") %>%
  group_by( Sex) %>%
  summarise(
    Robbery_Victims = sum( Count_ ) / year
  ) %>%
  mutate(across(where(is.numeric),round, 0))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
robbery_data <- victims_by_sex %>%
  left_join( robbery_by_sex, by = "Sex") %>%
  mutate( Percentage_of_Robbery_Victims = percent(Robbery_Victims / Annual_Victims, accuracy = 0.01))
```

```
robbery_data %>%
  knitr::kable(
    col.names = c("Sex", "Crime Victims", "Robbery Victims", "Percentage of Robbery Victims"),
    align = "cccc",
    caption = "Average Annual Crime victims by sex between 2014 and 2019")
```

```
robbery_Victims_sexage <-
  victims_data %>%
  filter( Subtype == "Robbery") %>%
  group_by( AgeCohort, Sex) %>%
  summarise(
```

Table 1: Average Annual Crime victims by sex between 2014 and 2019

Sex	Crime Victims	Robbery Victims	Percentage of Robbery Victims
Female	13174	838	6.36%
Male	13235	2493	18.84%

```

    Victims_by_SexAge = sum( Count_ ) / year
  ) %>%
  mutate(across(where(is.numeric),round, 0))

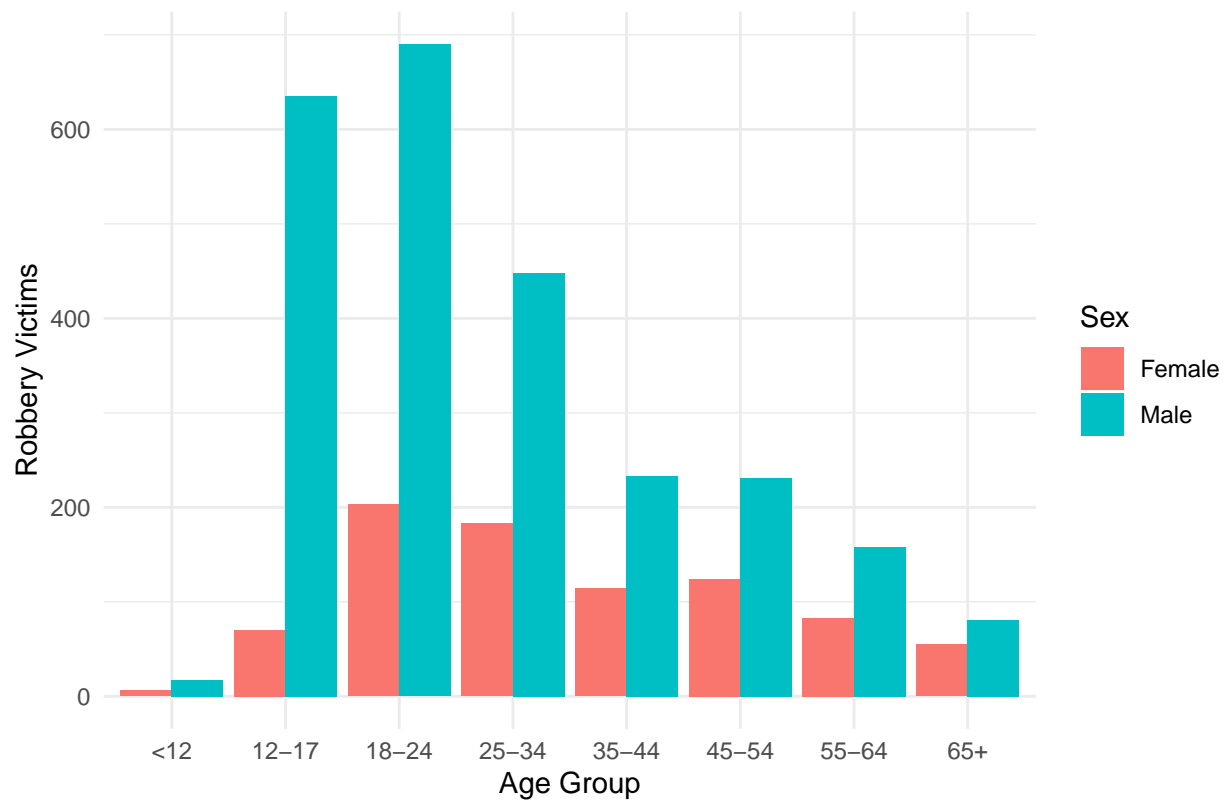
## `summarise()` regrouping output by 'AgeCohort' (override with `.groups` argument)
robbery_Victims_sexage

## # A tibble: 16 x 3
## # Groups:   AgeCohort [8]
##   AgeCohort Sex    Victims_by_SexAge
##   <chr>      <chr>          <dbl>
## 1 <12      Female              6
## 2 <12      Male              17
## 3 12-17    Female             70
## 4 12-17    Male             635
## 5 18-24    Female            203
## 6 18-24    Male             690
## 7 25-34    Female            183
## 8 25-34    Male             448
## 9 35-44    Female            114
## 10 35-44   Male             233
## 11 45-54    Female            124
## 12 45-54    Male             231
## 13 55-64    Female             83
## 14 55-64    Male             158
## 15 65+     Female             55
## 16 65+     Male              81

ggplot( data = robbery_Victims_sexage ) +
  geom_col(mapping = aes(x = AgeCohort, y = Victims_by_SexAge, fill = Sex ), position = "dodge" ) +
  theme_minimal() +
  labs(
    title = "Annual Robbery Victims by Age Group between 2014 and 2019",
    x = "Age Group",
    y = "Robbery Victims"
  )

```

Annual Robbery Victims by Age Group between 2014 and 2019



Talk more about it.

Also bills and their average (Figure 2). (Notice how you can change the height and width so they don't take the whole page?)

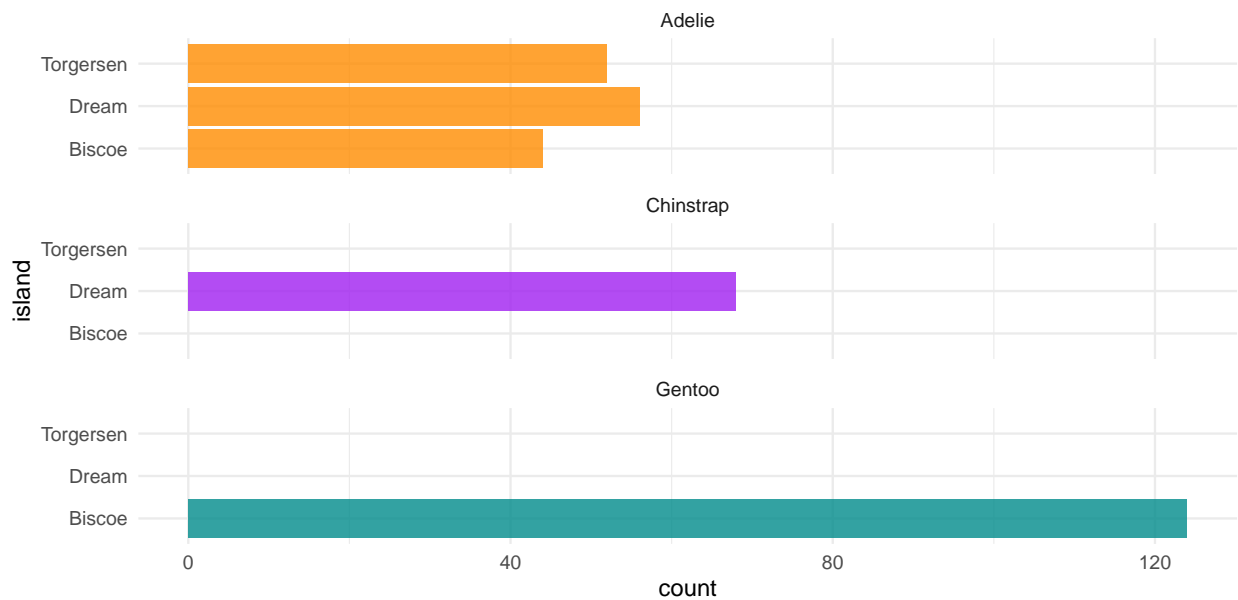


Figure 2: More bills of penguins

Talk way more about it.

Here's a dumb example of how to use some references: In paper we run our analysis in **R** (R Core Team 2020). We also use the **tidyverse** which was written by Wickham et al. (2019) If we were interested in baseball data then Friendly et al. (2020) could be useful.

3 Discussion

3.1 First discussion point

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

3.2 Second discussion point

3.3 Third discussion point

3.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

References

- Elklit, Ask. 2002. "Acute Stress Disorder in Victims of Robbery and Victims of Assault." *Journal of Interpersonal Violence* 17 (8): 872–87.
- Friendly, Michael, Chris Dalzell, Martin Monkman, and Dennis Murphy. 2020. *Lahman: Sean "Lahman" Baseball Database*. <https://CRAN.R-project.org/package=Lahman>.
- Gale, Julie-Anne, and Timothy Coupe. 2005. "The Behavioural, Emotional and Psychological Effects of Street Robbery on Victims." *International Review of Victimology* 12 (1): 1–22.
- Harlow, Caroline Wolf. 1987. *Robbery Victims*. US Department of Justice, Bureau of Justice Statistics.
- Müller, Kirill. 2020. *Here: A Simpler Way to Find Your Files*. <https://CRAN.R-project.org/package=here>.
- R Core Team. 2020. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.
- Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Golemund, et al. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4 (43): 1686. <https://doi.org/10.21105/joss.01686>.
- Wickham, Hadley, and Dana Seidel. 2020. *Scales: Scale Functions for Visualization*. <https://CRAN.R-project.org/package=scales>.