Positive Correlation Between Racialization, Gendering and Police Strip Searches in the Toronto Municipal, 2020-2021*

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Police strip search has always been a topic of great contention, where question commonly raised was how certain demographics are more likely to undergo strip searches than others. Data then was gathered from Open Data Toronto to assess the correlation between strip searches and the racial and gender identities of arrested 'suspects' in the Toronto Municipal from 2020 to 2021. In short, this paper finds that police strip searches are slightly racialized and gendered, especially towards people of African descent and females within Toronto. This analysis would enable us to rethink the modern form of policing, how it transpires in times of crisis and critically affects people of marginalized identities.

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*Code and data are available at: https://github.com/ponolite/Police_Arrests_and_Strip_Searches/tree/main

1 Introduction

Recently, the Ford government has been at the forefront of public push-back in Toronto, due to their revisions of strip search laws under the Ministry of Correctional Services Act, R.S.O. 1990, c. M.22. Addressed by the Canadian Civil Liberties Association, the revisions "fall short…to ensure that prisoners are treated with basic respect" (O'Brien 2023). By definition, strip search is a police enforcement, which entails removing some or all articles of clothing to visually inspect a person's private body parts and see if they harbor any items like weapons or drugs (Data 2022). Surprisingly, while contended as a dehumanizing policing act, little has been done to assess strip search as a form of police power abuse in Toronto. This is especially relevant considering the city's racialized and gendered demographics (Canada 2022b, 2022a), how strip searches most likely affect these social groups under the subtext of COVID-19 from 2020 to 2021 (Lemke 2022).

This paper thus inspects gender and racial identities of all Toronto police arrests from 2020 to 2021, and assesses if there is a correlation between marginalized identities and police strip searching. Foremost, this paper aims to be a form of data activism, contributing to the dialogue around police power abuse that enforces strip-search to undermine the the vulnerable populations in Toronto. To analyze, I first map out the distribution of Toronto police arrests by race and gender and reasons for strip searching from 2020 to 2021 using R (R Core Team 2022) to create summary tables, double bar charts and bubble charts. Particularly, for each category of race, gender and reasons for strip searching, the distribution bars or points would be sectioned into various categories like 'including strip searches' or 'not including' to visualize the statistics of strip searching against intersecting social identities. Racially, it was found that there is indeed an overrepresented count of black people being strip searched, and minority

groups are more likely to be strip searched regardless of the number of reasons for their actions at time of arrest. Gender-wise, females are more likely to be strip-searched with less reasons provided and despite the low severity of their actions.

It's worth noting that this dataset may already contain much racial and gender bias, because it was retrieved from the very source that this paper is questioning: the Toronto Police Services (Lemke 2022). Then, the findings presented might not fully encapsulate the actual landscape of strip searching in Toronto from 2020 to 2021. Nonetheless, it's still worth looking at due the precedents of police power abuse (Allen and Yang 2020).

This paper is organized into the following sections: Data, Results and Discussion. First, the Data section divulges the nature of the dataset obtained from Open Data Toronto and how data extraction took place (Data 2022). Then, all the trends and findings discovered are shown in the Results section. while the Discussion section further assesses these findings and summarizes the paper's main insights.

2 Data

The data package used for analysis was sourced from the Open Data Toronto Portal under the library `opendatatoronto` (Gelfand 2022). Only one dataset was retrieved from the data package to examine the racial and gender identities of Toronto police arrests from 2020 to 2021, which is the package `Police Race and Identity Based Data - Arrests and Strip Searches` (Data 2022). Data was generated, extracted and cleaned using the open-source statistical programming language R (R Core Team 2022), leveraging functions from `tidyverse` (Wickham et al. 2019), `ggplot2` (Wickham 2016), `dplyr` (Wickham et al. 2022), `readr` (Wickham, Hester, and Bryan 2022), `tibble` (Müller and Wickham 2022), `here` (Müller 2020), `ggrepel` (Slowikowski 2024), janitor`[@rJanitor],`kableExtra`[@rKableExtra],`naniar`[@rNaniar]` `and`knitr‘ (Xie 2014).

2.1 Overview of "Police Race and Identity Based Data - Arrests and Strip Searches"

Published by Toronto Police Services, this primary dataset conveys information related to all police arrests and strip searches from 2020 to 2021 (which halted refreshing on December 2, 2022). Originally, the dataset features 65276 observations of police arrests and 26 variables, including date of arrest, event id, the arrested person's race, sex, and age group, arrest location, whether the arrest includes strip searching, the person's action at the time of arrest, and the police's reason for strip searching along with any items found. Data of strip searches are lodged based on each police arrest throughout 2020 and 2021, using a unique identifier called `id` which identifies the nature of the strip search and the social identities of the people involved. No other dataset was considered for the paper but this one, since it's the only dataset that communicates information on police enforcement of strip searching.

Table 1: Sample of Race and Gender against Police Arrests with and without Strip Searches

ID	Race	Gender	Strip Search	Items Found
1	White	M	No	NA
2	White	M	No	NA
3	Unknown or Legacy	M	No	NA
4	Black	M	No	NA
5	South Asian	M	No	NA
6	South Asian	M	No	NA

Informative as it is, the dataset contains much naming inconsistency and many variables outside the scope of this paper. Thus, in order to conduct an intersectional—or gender and race—analysis of police strip searches, I have to further clean this dataset and split it into two smaller datasets.

2.2 Racial and Gender Identities of Police Strip Searches

Most relevant to the paper are the variables on the racial and gender identities of people who were arrested and then strip-searched. There are 9 unique racial groups for the `race` variables and 3 unique gender groups for the `gender` variables. To streamline this data, the names within the original dataset are simplified and then the dataset is split into a smaller dataset containing relevant columns (see 1). This dataset entails demographic and strip search-relevant information for each police arrest event, such as race, gender, whether the event involves a strip search, and if it is a strip search, are there any items found.

Specifically, the column 'Strip Search' signifies whether an arrest involves strip search. As for the 'Items Found' column, either a `1` or a `0` will appear in a data cell if the 'Strip Search' value of an event is a `1`. This is because the items found within a strip search is only available when a police arrest does involve strip searching.

2.3 Reasons for Police Strip Searches

To further inspect the nature of each strip search, reasons for strip searching prove a vital data source. Thus, this dataset–another sub-dataset split from the orginal raw data–conveys all police arrests that involve strip searching and the reasons behind strip searching. Under close examination, the naming of individual data cells from the original, raw dataset is quite disordered, for instance, using `None` and `XX` in place of the usual `NA` to differentiate between variables. Thus, all inconsistent data cells were renamed to streamline the naming conventions and data processing later on. After renaming, the big dataset was refined into containing

Table 2: Sample of Reasons for Police Strip Searches

ID	Reason - Injury	Reason - Escape	Reason - Weapons	Reason - Has Evidence	Items_Found	Total Reasons
13	1	1	1	0	0	3
15	1	1	1	0	0	3
22	1	0	0	0	0	1
34	0	0	1	1	0	2
39	1	0	1	0	0	2
43	1	0	0	0	0	1

relevant columns (see 2). Then, for this particular dataset, all instances of police arrests without strip searching are dropped using the `filter()` function.

Except for "ID" variable, the four other variables in this new dataset are reasons to account for why the Toronto police force conducts strip search under certain arrests (see 2). For instance, "Reason - Assist Escape" is for people who may have helped other suspects escape and "Reason - Possess Evidence" is for people who are suspected of harboring items like drugs or an alibi. For each "Reason" variable, if the data cell contains `0`, this means that strip search happens for other reasons beside this particular one. Vice versa, if it contains `1`, this means strip search happens because of this very reason. In addition, a new column called "Total Reasons" is added to sum all reasons used to account for each strip search. To do this, `mutate()` is utilized, where all instances of `1` and `0` are changed into numeric with `as.numeric()` and then summed together.

3 Results

3.1 Racialized Police Strip Searches Statistics

To encapsulate, throughout 2020 and 2021, there are a total of 7801 recorded strip searches out of 65276 incidents of police arrests, which accounts for 12% of all arrests (see Table 6).

Table 3: Summary Statistics of Racialized Police Strip Searches

Race	Strip Search	Count	Percentage	Total Arrests
Black	No	15092	86	17526
Black	Yes	2434	14	17526
East/Southeast Asian	No	4074	92	4415
East/Southeast Asian	Yes	341	8	4415
Indigenous	No	1628	84	1934
Indigenous	Yes	306	16	1934
Latino	No	1636	93	1768
Latino	Yes	132	7	1768
Middle-Eastern	No	3009	93	3237
Middle-Eastern	Yes	228	7	3237
None	No	3	75	4
None	Yes	1	25	4
South Asian	No	3356	93	3613
South Asian	Yes	257	7	3613
Unknown or Legacy	No	4520	89	5056
Unknown or Legacy	Yes	536	11	5056
White	No	24157	87	27723
White	Yes	3566	13	27723

Particularly, accounting for the discrepancies between counts of strip search grouped by different racial and gender identities are challenging. This is due to the incongruous population spread of each racial and gender group within Toronto. For instance, 44.3% of Toronto population is made up of white people (Canada 2022b), thus it's more probable that the people arrested and strip searched by the police force are ethnically "White" in the dataset (see Table 3). As such, to render the data statistically proportionate to one another, `mutate()`was used to create new variables that are mostly percentage values.

Then, Figure 1 illustrates the percentage of strip searches among different racial groups in Toronto from 2020-2021. Observably, while being the the major population group in Toronto, people of white racial roots aren't the most strip searched. Rather, it's the racialized population of Toronto like black and Indigenous people that are being strip searched by police, at respectively, 16% and 14% each. This hints at the possibility of strip search being more racialized than it seems, targeting minority groups in Toronto due to racial biases. Moreover, examining tbl-race-strip-search, 2434 out of 17526 black people are strip searched in Toronto from 2020 to 2021, making them overrepresented despite their small population make-up. Once more, this emboldens the racialized nature of police strip search.

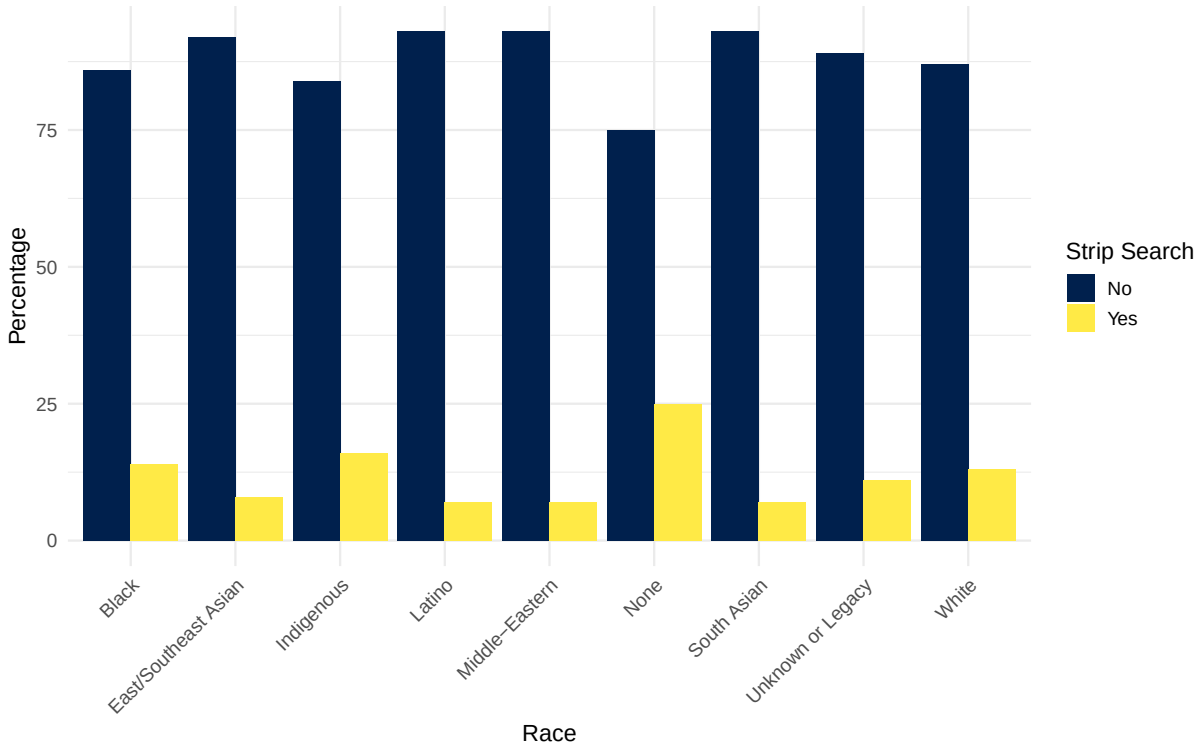


Figure 1: Racial Identities and Police Strip Search Per Arrest in Toronto, 2020-2021

3.2 Gendered Police Strip Searches Statistics

Gender-wise, men are more likely to be strip searched compared to women when arrested, at 12% and 10% respectively (see Table 4). Though, observably, the difference is quite marginal. To note, people of unidentified gender identity aren't strip searched at all according to the dataset (denoted as `U` in the tables and graphs).

Table 4: Summary Statistics of Gender Identities against Police Strip Searches

Gender	Strip Search	Count	Percentage	Total Arrests
F	No	11334	90	12617
F	Yes	1283	10	12617
M	No	46132	88	52650
M	Yes	6518	12	52650
U	No	9	100	9

Figure 2 illustrates the percentage of gender groups being strip searched in Toronto. It's observable that the number of strip searches between men and women are comparable, especially considering the 48-52% population split between the two categories of gender in Toronto, according to the 2021 Census (Canada 2022a).

Nonetheless, the dataset only contains a binaristic view of gender, without regarding those who identify as non-binary or others, and essentially lumping all other gender identities as "Unidentified". This proves inconsistent against the constant public backlash agasint police for their power abuse of people belonging to the LGBTQI+ community in Toronto (Cheese 2022). This point will be further discussed below.

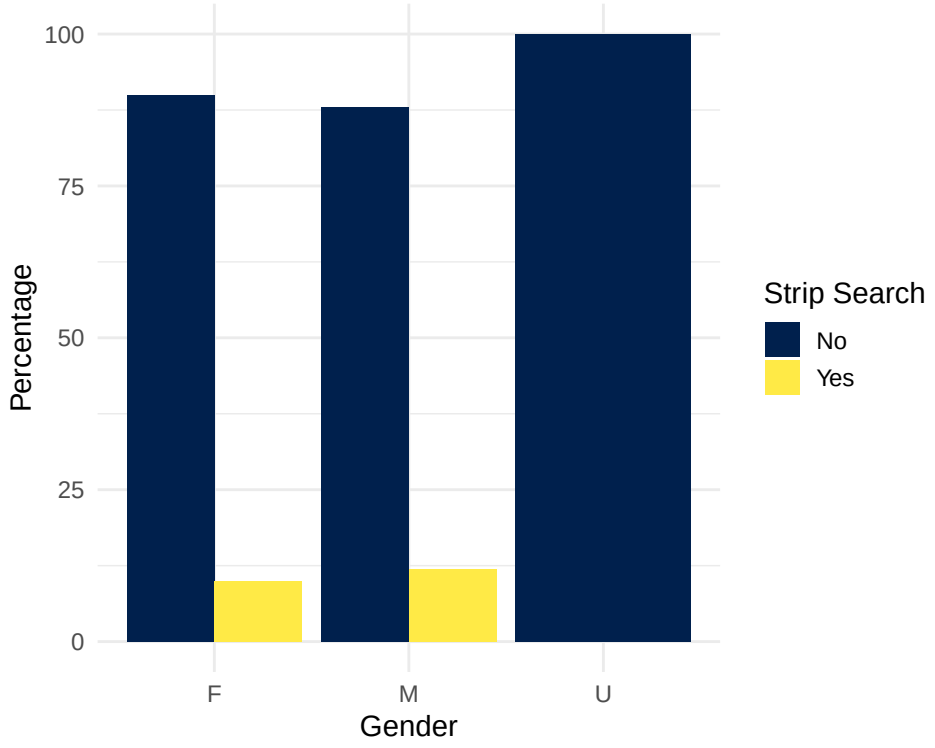


Figure 2: Gender Identities and Police Strip Search Per Arrest in Toronto, 2020-2021

3.3 Reasons for Police Strip Searches Statistics

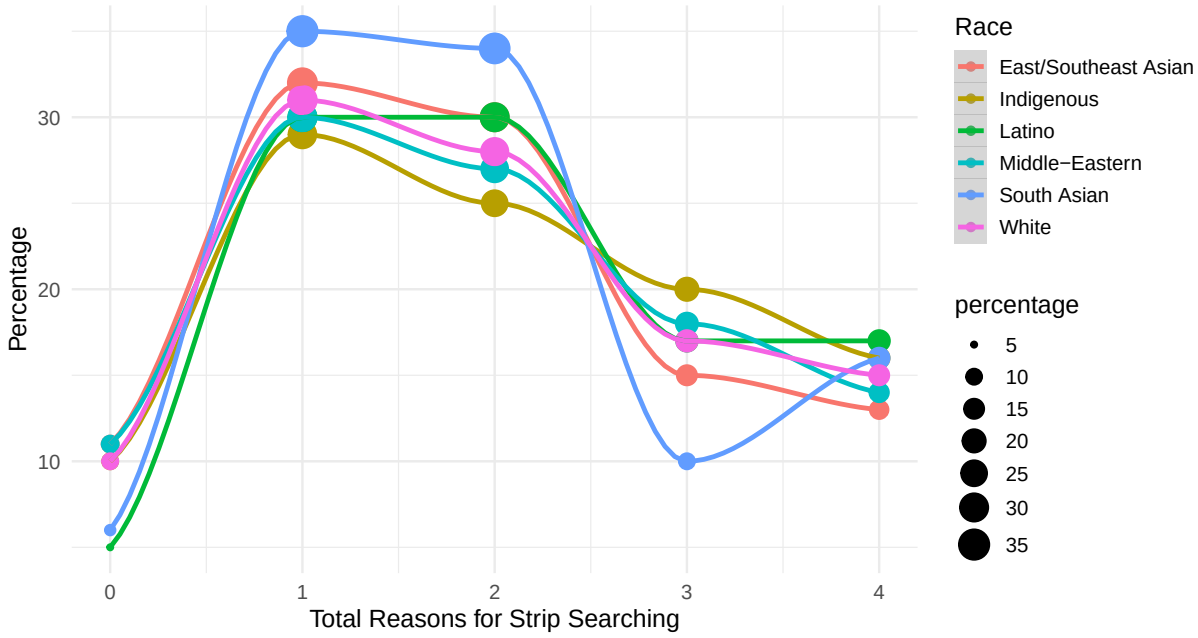
In general, there is a substantial 10% of strip searches being conducted without any reasons (see Table 5). Commonly, strip searches are carried out by at least 1 or 2 reasons provided by the police, both at 29% (see Table 5). As for items found during searches, at a whooping 63%, most strip search enforcement doesn't garner any suspected items (see Table 6). This critically denotes how many strip searches aren't motivated by civic considerations but are moreso carried out by intuition, or personal biases that can extend to racial profiling. It signifies an alarming potential for misconducted strip searches that are racially or sexually motivated. To visualize this data, Figure 3 and Figure 4 both map, respectively, the racial and gender distribution of strip searches by the total number of reasons each strip search has.

3.3.1 Race and Total Reasons for Strip Searching

Regarding Figure 3, due to the sheer number of police searches that people who are racially black and white have compared to other groups, this paper subsections the dataset on racialized police searches into two graphs. Both of these graphs are devoid of data from people are racially unknown or don't identify with any races–"None" or "Unknown or Legacy"–to ensure graph visibility. In specifics, graph a) of Figure 3 contains only the distribution from people who racially identify as black and white, while graph b) of Figure 3 contains the distribution of all other minority groups–except for black people–along with white people. This ensures data clarity between groups with higher counts of strip searches and groups with lower counts of strip searches. In addition, to ensure that data is proportionate to one another, the percentages for each racial group when subdivided into each of the different sums of reasons are calculated and used instead of `count`.

Based on part a) of Figure 3, the number of black people who are strip searched surpasses white people on all counts of total number of reasons, except for instances where the police only has one reason to conduct strip search. This again signifies an alarming rate of racialized strip searches against black people despite their small population make-up in Toronto (Canada (2022b)). For part b) of Figure 3, the percentages between other minority groups fluctuate. But intriguingly, compared to white people, all of other minority groups are more likely to be strip searched regardless of the number of reasons at hand. To note, at 11%, 11% and 10% each, people of "Middle-Eastern", "East/Southeast Asian" and "Indigenous" descent are most commonly strip searched without any provided reasons. "South Asian" in particular surpass all other racial groups when it comes to being strip searched because of 1 or 2 reasons for their actions at the time of arrest, at 34% and 35% respectively. This connotes that people of "South Asian" descent are more readily strip searched by police despite having a few reasons for their actions at the time of arrest. Speculatively, there could be a lot of colorism at play, considering how prerelevant racial profiling is to police power abuse, where South Asian and

(a) Black and White



(b) Other Minority Groups and White

Figure 3: Relationship Between Reasons for Strip Search and Race in Toronto, 2020-2021

black people generally have a darker skin color compared to all of the other races mentioned (Francis 2018).

3.3.2 Gender and Total Reasons for Strip Searching

Similarly, for the plot that maps "Total Reasons for Strip Searching" and "Gender", to ensure that data is proportionate to one another, instead of using `count`, the percentages for each gender group when subdivided into each of the different sums of reasons are calculated.

Regarding Figure 4, intriguingly, the graph calls into question of the above data confirming how males are slightly more likely to be strip searched compared to females when they're arrested. However, when intersected with data like the total number of reasons attributed to strip searches, there appears to be a trend of females being more frequently strip searched when there are a smaller number of reasons–0-2 reasons–regarding their actions at the time of arrests. Specifically, this can translate to the fact that police more readily strip-search females compared to males even if the severity of their actions may not necessitate strip searching. Yet again, this hints at the potential of strip searching being sexually motivated and gendered, especially when there are mostly male police officers in Toronto (Francis 2020) and where strip searching is notoriously regarded as a guise for sexual assault (Grewcock and Sentas 2021).

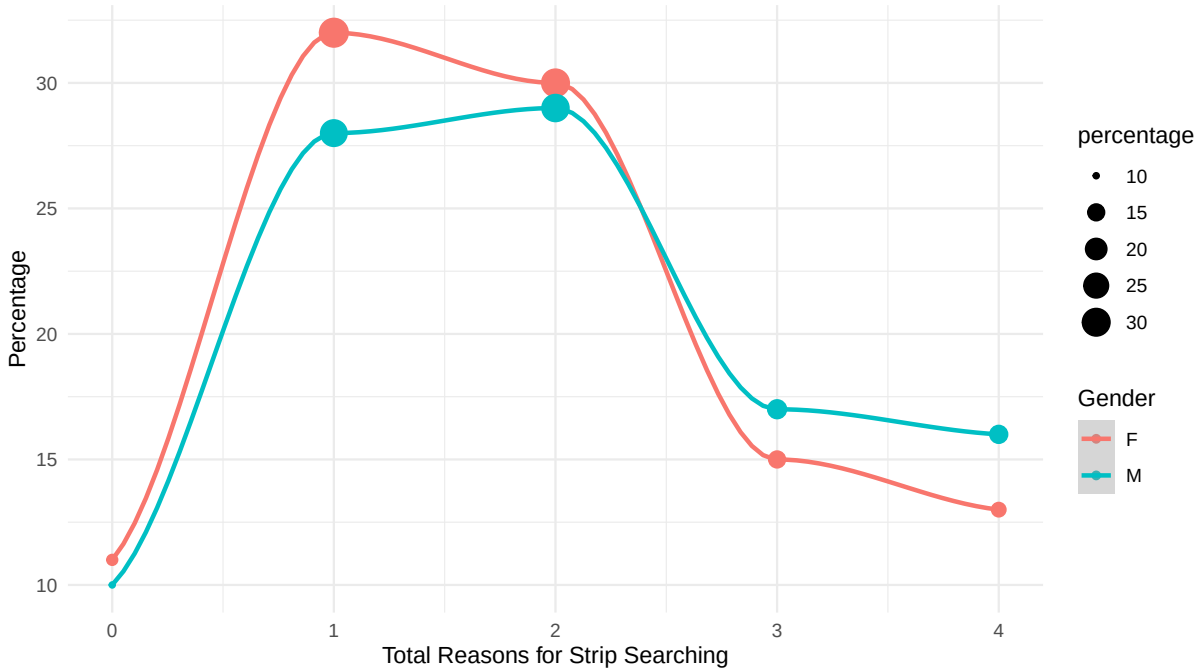


Figure 4: Relationship Between Reasons for Strip Search and Gender in Toronto, 2020-2021

4 Discussion

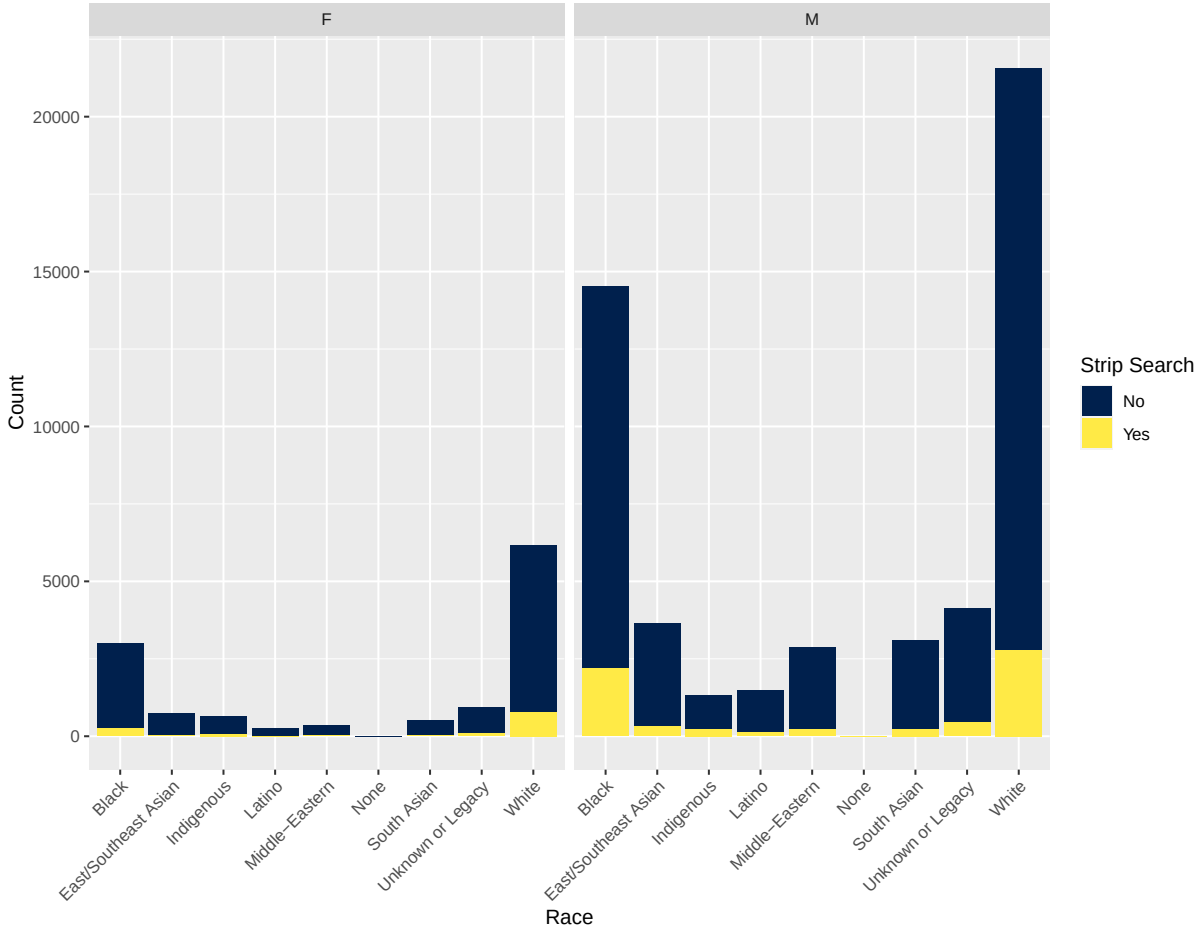


Figure 5: Count of Gender and Racial Identities against Police Strip Searches in Toronto

4.1 Overview of Intersectional Insights on Strip Searching

Illustrated in Figure 5, this paper aims to interogate the relationship between strip searching and social identities such as race and gender in Toronto from 2020 to 2021. Within these intersecting identities, it was found that if there is an police arrest in Toronto from 2020 to 2021, strip searching would most likely happen to an Indigenous person or a black person. This is a statistically improbable insight, considering the major population make-up of white people in Toronto and their huge counts of arrests as seen in past bar graphs (see Figure 5). Out of all the minority racial groups, at 2434 people, the black population has the highest counts of strip searches. Regarding reasons accounted for each strip search, minority racial groups are more likely to be strip searched without any reason provided or with less reasons provided compared

to those that are ethnically white. Gender-wise, even though arrested males prevail in terms of being strip searched (see Figure 5), females are more likely to be searched with less reasons provided. These insights all substantiate the assumptions that Toronto police strip searches are racialized and gendered, which calls for a legal and political revisions of this intrusive form of policing as it hinges on racial biases, profiling, social intimidation and sexual invasion.

4.2 Loopholes and Weaknesses

4.2.1 Quantification of Reasons for Strip Search

While these findings point towards a positive correlation between police strip search being racially inclined and gendered, particularly towards the black and female population of Toronto, it's worth noting how the data has decontextualized the reasons the police account for each strip search. Specifically, each reason– including "Injury", "Weapons", "Escape" and "Possess Evidence"–is quantified as a single, equal unit for each arrest, without other further details on the severity scale of the reason itself. This can very much seclude the fact that some arrests–even those having the same reason–are more necessary to be strip searched than others, thus skewing the nature of this paper's analysis. Moreover, referring back to Table 5, more reasons to account for a strip search doesn't necessarily mean that a person is bound to be strip searched. The number of reasons the dataset attributes to each strip search–as provided by Toronto Police Service (Data 2022)–can be purely projected based on the police in power's racial preconceptions or gender biases. This means that the way the reasons are flagged out for each strip search might be personally motivated.

4.2.2 Categorization of Data and Identities

That said, there are further pain-points regarding the nature of the dataset, making the analysis suggestive in nature. As mentioned, noting the combative nature between the Toronto police force and people from the LGBTQI+ community (Cheese 2022), this paper recognizes that simplifying the gender spectrum to a mere binary of males and females can disregard the struggles non-binary people have against police strip searching (see Table 4). This problem of 'categorization' is also problematic for the white population in Toronto, where the dataset essentially lumps the many ethnic variations within 'whiteness' into one category. This thus makes the paper's analysis of the white population in relation to strip-searching one dimensional, unable to dissect how they are also acutely impacted by invasive strip searches. This goes the same for the "None" and "Unknown or Legacy" entries in the `race` column. While this is not necessarily the dataset's loophole, these entries's non-clarified data points somewhat delimit the paper analysis of how Toronto police strip searches are racialized.

5 Future Directions

Throughout this paper, only one dataset was used to cover strip-searching in Toronto. Considering the subtext of COVID-19 from 2020 to 2021, where physical contact was constrained and less people can go out despite the rising police enforcement, this dataset will benefit a lot more with additional datasets on strip searching in Toronto throughout the years, especially those without COVID-19 mobility restrictions. This will enable a large sampling size and make the data on strip searching more well-represented.

Additional social variables can also further ascertain the validity of this dataset. Information on the people involved in each arrest like their economic background, education and health status can be some insightful variable to see how strip search affects certain social identities more than others. Ultimately, having these new variables, we can assess police strip search as a socio-political phenomenon, and aim to resolve its injustices and marginalization.

6 LLMs

Statement on LLM usage: no Learning Management Systems (LMSs) were solicited during the writing of this paper.

Table 5: Summary Statistics of Reasons for Police Strip Searches

Total Reasons	Items Found	Count	Items Found Percentage	Searches by Total Reasons	Searches Percentage
0	0	465	59	785	10
0	1	320	41	785	10
1	0	1527	68	2251	29
1	1	724	32	2251	29
2	0	1384	61	2267	29
2	1	883	39	2267	29
3	0	778	59	1322	17
3	1	544	41	1322	17
4	0	736	63	1176	15
4	1	440	37	1176	15

Table 6: Summary Statistics of Items Found During Police Strip Searches

Strip Search	Items Found	Count	Total Searches	Percentage of Items Found
Yes	0	4890	7801	63
Yes	1	2911	7801	37

Appendix

.1 Strip Search and Reasons for Strip Search Correlation

Table 5 connotes the summary statistics how many reasons the police force attributes to each person prior to conducting strip searches and the number of items found during each search. This table leverages `mutate` to create three new columns on the data's percentages and counts, enabling the data to be proprotionate to one another. "Total Reasons" conveys the total number of reasons a strip search has, while "Items Found Percentage" conveys the percentage of items found for each total of reasons. "Total Searches by Total Reasons" conveys the total number of searches for each total of reasons, while "Searches Percentage" conveys the percentage of each total of reasons out of all strip searches.

.2 Strip Search and Items Found Correlation

Table 6 conveys the total number of strip searches happening in Toronto from 2020 to 2021, and whether or not items were found during each search.

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