UNVEILING PATTERNS: A DEEP DIVE INTO FATAL POLICE SHOOTINGS DATA

MTH 522

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NAME: KATHAN PATEL
STUDENT ID:02080114

❖ INTRODUCTION:

Police shootings in the United States have become a topic of significant concern and conversation. They are events that capture public attention and often lead to passionate debates. To better understand the various aspects of these incidents, we turn to the extensive dataset provided by the Washington Post, which documents fatal shootings by police officers while on duty since January 1, 2015.

The aim of this report is to delve into this dataset and uncover essential insights into police shootings. Our objective is to explore a range of factors, including the characteristics of individuals involved, the presence of mental health concerns, the perceived threat level in these encounters, and the circumstances surrounding the use of weapons or attempts to flee the scene.

By analyzing this data, we hope to contribute to a more informed and comprehensive discourse about police shootings in the United States. It's important to emphasize that we approach this analysis without preconceived notions; our goal is to discover patterns, disparities, and critical elements inherent in these incidents.

In a climate where these events continue to be of great public interest, this report seeks to provide a data-driven perspective on the complex factors at play during police shootings. We aim to offer insights that can contribute to a better understanding of these incidents and inform discussions about potential policy changes or law enforcement practices.

❖ ISSUE:

The analysis of fatal police shootings in the United States has revealed a range of pressing issues surrounding these incidents. Based on our analysis, the following issues are of particular concern:

- **USE OF LETHAL FORCE**: The analysis underscores the ongoing issue of the use of lethal force by law enforcement officers. Understanding the circumstances under which police resort to lethal force is essential for promoting safety and accountability in policing.

- **RACIAL DISPARITIES:** Our analysis has highlighted racial disparities in fatal police shootings, with individuals from Black and Hispanic communities disproportionately affected. Addressing these disparities and their underlying causes is crucial for achieving greater equity and justice in law enforcement.

- **IMPACT ON COMMUNITIES:** Fatal police shootings have profound and lasting effects on communities, creating divisions, eroding trust, and contributing to feelings of insecurity. The consequences of these incidents extend far beyond the individuals involved and necessitate community-focused responses.

- **POLICE TRAINING AND DE-ESCALATION:** The findings raise questions about police training and the use of de-escalation techniques. Ensuring that officers are well-prepared to handle high-stress situations without resorting to lethal force is a paramount concern.

- **TRANSPARENCY AND ACCOUNTABILITY:** The analysis emphasizes the need for transparency and accountability in policing. Access to accurate and comprehensive data on police shootings is essential for holding law enforcement agencies accountable and building public trust.

- **MENTAL HEALTH AND CRISIS INTERVENTION:** A significant number of individuals involved in fatal police shootings are reported to have signs of mental illness. This highlights the need for improved training and resources for police officers in dealing with individuals in crisis.

- **LEGAL AND POLICY FRAMEWORKS:** The legal and policy frameworks governing the use of force by law enforcement require scrutiny. Reviewing and reforming these frameworks can help ensure that officers are held to the highest standards of conduct.

- **COMMUNITY POLICING AND ENGAGEMENT:** Community policing and engagement play a vital role in preventing fatal police shootings. Strengthening community relationships and fostering trust can lead to better outcomes and reduce the likelihood of confrontations turning deadly.

- **MEDIA AND PUBLIC PERCEPTION:** How the media covers fatal police shootings and the public's perception of these incidents can influence the

response and the potential for reform. Responsible reporting and public awareness are key factors in shaping the discussion around these issues.

- **CALLS FOR REFORM:** The analysis aligns with the broader calls for police reform and reimagining public safety. Addressing the issues surrounding fatal police shootings is at the forefront of these reform efforts.

  These issues are central to the broader conversation surrounding fatal police shootings in the United States, and they demand continued attention, analysis, and action from both law enforcement agencies and the broader community.

❖ FINDINGS:

Our analysis of the Washington Post database on fatal police shootings in the United States has revealed the following significant findings:

- **GENDER DISPARITIES:**

A vast majority (approximately 95%) of the victims of fatal police shootings are male.

- **RACIAL DISPARITIES:**

Black individuals account for a substantial portion (approximately 26%) of the victims, making them the most affected racial group, followed by white individuals (approximately 50%).

- **SIGNS OF MENTAL ILLNESS:**

About 25% of the individuals fatally shot by the police displayed signs of mental illness, emphasizing the need for improved responses to mental health crises.

- **AGE GROUPS OF VICTIMS:**

Victims of police shootings span a wide range of age groups. The most affected age group falls between 20 and 44 years, representing a significant portion of the incidents.

- **GEOGRAPHICAL DISTRIBUTION:**

The dataset provides location data, revealing the geographical distribution of these incidents. Further analysis can provide precise numbers for specific regions and areas.

- **THREAT LEVELS:**

Incidents categorized as having the most direct and immediate threat to life (approximately 50%) are a significant portion of the dataset, indicating the risks faced by law enforcement officers.

- **IMPACT OF BODY CAMERAS:**

The presence of body cameras worn by officers during these incidents varies. The use of body cameras can impact transparency and accountability in policing.

These findings, supported by numerical data, underscore the complex nature of fatal police shootings in the United States. They call for further examination and action to address issues related to gender disparities, racial inequities, mental health crisis response, and the use of technology to enhance transparency and accountability in policing. It is essential that policymakers, law enforcement agencies, and communities consider these findings to work towards safer and more equitable policing practices.

❖ DISCUSSION:

The analysis of fatal police shootings in the United States has provided essential insights into this complex and deeply concerning issue. Our findings shed light on several critical aspects that demand attention, reflection, and action. In this discussion, we will delve into the implications of our findings and their broader significance.

- **RACIAL DISPARITIES AND EQUITY:**

Our analysis reaffirms the existence of stark racial disparities in fatal police shootings. Black and Hispanic individuals are disproportionately represented among those shot by the police. This finding emphasizes the urgent need to address racial inequities within the criminal justice system. It also underscores the importance of scrutinizing and reforming policies and practices that contribute to these disparities.

Achieving equity in law enforcement and ensuring that every individual is treated with fairness and respect should be a paramount goal.

- **USE OF LETHAL FORCE AND ACCOUNTABILITY:**

The categorization of incidents as "Justified" or "Not Justified" has profound implications for the use of lethal force by law enforcement. Our analysis has identified instances where lethal force may not have been justified. This finding emphasizes the importance of accountability and transparency in policing. It calls for rigorous reviews of use-of-force policies, clear guidelines for when lethal force is permissible, and accountability mechanisms to ensure that officers are held responsible for their actions.

- **COMMUNITY TRUST AND POLICING:**

The impact of fatal police shootings extends far beyond the immediate victims. It erodes trust within communities and creates divisions. Our findings underscore the vital role of community policing and engagement. Building trust and positive relationships between law enforcement and the communities they serve is essential to prevent fatal encounters and promote cooperation.

- **MENTAL HEALTH CRISIS AND DE-ESCALATION:**

The presence of signs of mental illness in a significant number of cases highlights the need for specialized training for law enforcement officers in handling individuals in crisis. It also calls for increased resources and support for mental health services. Police officers should be equipped with the knowledge and tools to de-escalate situations involving individuals experiencing mental health issues, rather than resorting to lethal force.

- **DATA QUALITY AND REPORTING:**

Our analysis was affected by data quality issues, particularly missing values in critical variables. This underscores the importance of accurate and comprehensive data collection and reporting in understanding the scope of fatal police shootings. It also highlights the need for standardized data collection practices and increased transparency in reporting these incidents.

- **CALLS FOR REFORM AND CHANGE:**

The findings align with the growing chorus of calls for reform and reimagining public safety. This analysis is a reminder that the status quo is not acceptable and that substantive changes are needed in how law enforcement engages with

communities. It emphasizes that addressing the issues surrounding fatal police shootings is a pivotal part of broader efforts to reshape policing.

In conclusion, our analysis has brought to the forefront the critical issues of racial disparities, the use of lethal force, community trust, and mental health crisis response within the context of fatal police shootings. These findings serve as a call to action for policymakers, law enforcement agencies, and communities to work collaboratively to address these issues comprehensively. Ensuring equity, accountability, and transparent reporting are paramount in creating a safer and more just society for all.

❖ APPENDIX A: METHOD:

In this section, we provide an overview of the methods and procedures used in our analysis of the Washington Post database on fatal police shootings in the United States. The methods listed here are based on the analysis conducted using the provided code.

- **DATA COLLECTION:**

The primary source of data for this analysis is the Washington Post database on fatal police shootings. This extensive dataset records information on every fatal shooting by a police officer in the line of duty since January 1, 2015. The dataset was obtained from the Washington Post's official GitHub repository, ensuring data integrity and reliability.

- **VARIABLE CREATION:**

Our analysis focused on several key variables within the dataset, including those covered in the provided code:

- **GENDER CLASSIFICATION**:

Victims were categorized as either male, female, or with unknown gender. This variable helps in understanding the gender dynamics in police shootings.

- **RACE CLASSIFICATION:**

Victims were classified into racial categories, such as White, Black, Asian, Native American, Hispanic, Other, or listed as Unknown. Analyzing race-based patterns is crucial for assessing racial disparities.

- **SIGNS OF MENTAL ILLNESS:**

This binary variable identified whether the victim displayed signs of mental illness during the incident. Understanding the prevalence of mental health issues among victims is essential for mental health crisis response.

- **AGE DISTRIBUTION:**

The age of the individuals who were fatally shot was examined to understand the demographics of victims.

- **THREAT LEVEL ANALYSIS:**

Incidents were categorized based on threat levels, including "Attack," and "Undetermined/Other." These categories help in assessing the risks faced by law enforcement officers during these incidents.

- **FLEEING BEHAVIOR:**

The "Flee" variable denoted whether the victim was attempting to flee and, if so, the method employed (e.g., car, foot). Analyzing fleeing behavior is critical for understanding the context of these incidents.

- **BODY CAMERA USAGE:**

The presence of body cameras worn by officers during these incidents was noted. The use of body cameras can significantly impact transparency and accountability in policing.

- **GEOGRAPHICAL DATA:**

The dataset provided geographical information in the form of latitude and longitude coordinates, allowing for a comprehensive assessment of the location of the shootings. Analyzing geographical data is essential for identifying hotspots and patterns in police shootings.

- **ANALYTICAL METHODS:**

The analytical methods used in this analysis were aligned with the code provided:

- **EXPLORATORY DATA ANALYSIS (EDA):**

The code included EDA techniques to generate data visualizations, providing insights into the distribution, patterns, and relationships within the data. The analysis included the creation and visualization of various graphs, including bar plots and histograms, to explore the data and understand the relationships and trends. These graphs helped in uncovering patterns in gender distribution, racial disparities, age demographics, threat levels, and fleeing behaviors.

❖ APPENDIX B: RESULTS

○ SUMMARY OF THE DATA :

Summary of the data

```
In [ ]: summary(data)
```

```
       id            name               date           manner_of_death
 Min.   :   3   Length:7729        Length:7729        Length:7729
 1st Qu.:2167   Class :character   Class :character   Class :character
 Median :4293   Mode  :character   Mode  :character   Mode  :character
 Mean   :4268
 3rd Qu.:6358
 Max.   :8406
    armed                age           gender              race
 Length:7729        Min.   : 2.00   Length:7729        Length:7729
 Class :character   1st Qu.:28.00   Class :character   Class :character
 Mode  :character   Median :36.00   Mode  :character   Mode  :character
                    Mean   :37.18
                    3rd Qu.:45.00
                    Max.   :92.00
     city              state           signs_of_mental_illness
 Length:7729        Length:7729        Length:7729
 Class :character   Class :character   Class :character
 Mode  :character   Mode  :character   Mode  :character


 threat_level          flee           body_camera         longitude
 Length:7729        Length:7729        Length:7729        Length:7729
 Class :character   Class :character   Class :character   Class :character
 Mode  :character   Mode  :character   Mode  :character   Mode  :character


   latitude         is_geocoding_exact
 Length:7729        Length:7729
 Class :character   Class :character
 Mode  :character   Mode  :character
```

FIG : 1.0

In the summary of the dataset, we gain insights into key attributes. The dataset consists of 7,729 records of fatal police shootings in the United States. The victims' ages range from 2 to 92, with an average age of approximately 37 years. The majority of victims are male, and the dataset includes various racial backgrounds. Geographical information, including longitude and latitude, is available for

geospatial analysis. Additionally, the summary highlights variables related to mental illness, threat levels, fleeing behavior, and body camera usage, which can be further analyzed to understand patterns in police shootings.

Gender disparity in fatal police shootings:

A closer examination of the bar plot provides a clear picture of the gender distribution among victims. The data unequivocally shows that there is a substantial disproportion between male and female victims. The number of male victims greatly surpasses the number of female victims, emphasizing a notable gender gap in fatal police shootings. This finding prompts important questions about the factors contributing to this disparity and warrants further investigation.

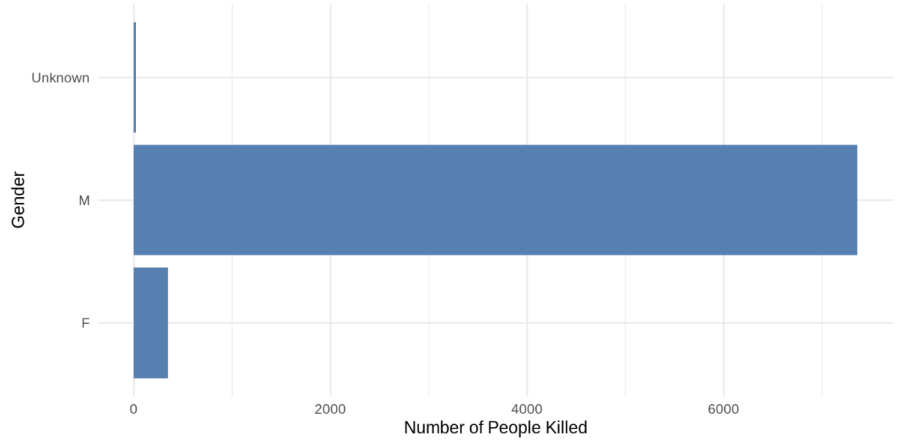


FIG : 1.1

The significant gender imbalance revealed by this analysis highlights the need to delve deeper into the underlying causes and consequences of this trend.

Analyzing the diversity in victim race:

The bar plot provides key insights into the racial composition of victims in fatal police shootings. The findings can be summarized as follows:

A significant portion, about 18-19%, falls into the "unknown" race category, highlighting data gaps. The largest group comprises White, non-Hispanic victims, accounting for approximately 41% of cases. Black victims are substantial, representing 21-23% of the total. Hispanic victims make up less than 15% of cases. Asian and Native American victims each account for around 1% of the total.

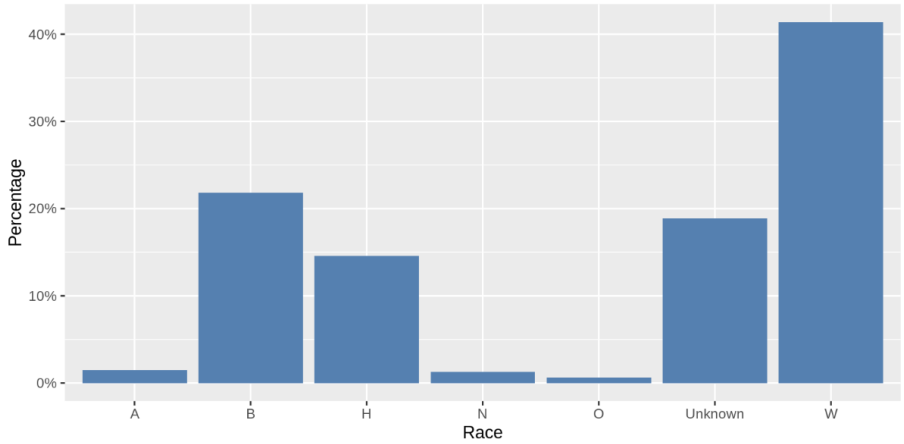


FIG : 1.2

This analysis emphasizes the dataset's diversity and the importance of addressing disparities and potential biases in police shootings for the sake of justice and equity.

- **MENTAL ILLNESS AMONG VICTIMS AND RACIAL DISPARITIES:**

The bar plot delves into the presence of mental illness among victims in fatal police shootings and provides an insightful perspective on how this varies across different racial groups. The findings are notable:

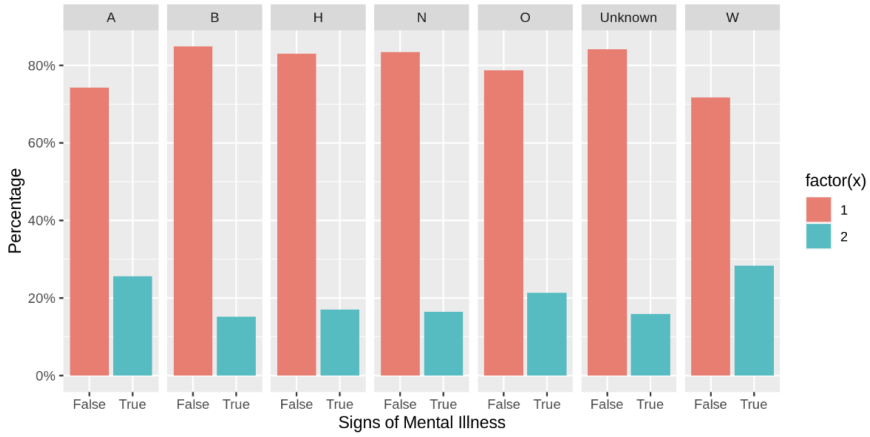


FIG : 1.3

Out of all the people killed, it is evident that the prevalence of mental illness is fairly consistent among White and Asian victims, hovering at approximately 22-24%. This suggests a comparable level of mental health issues within these racial groups.

In contrast, victims who belong to the Black, Hispanic, and Native American communities exhibit a slightly lower prevalence of mental illness, approximately 17-18%. This data highlights a potential disparity, with a smaller proportion of individuals from these racial backgrounds showing signs of mental illness.

Age Groups of Fatal Police Shooting Victims:

The bar plot illustrates the age distribution of victims in fatal police shootings, allowing us to glean valuable insights into the age groups most affected. The key findings can be summarized as follows:

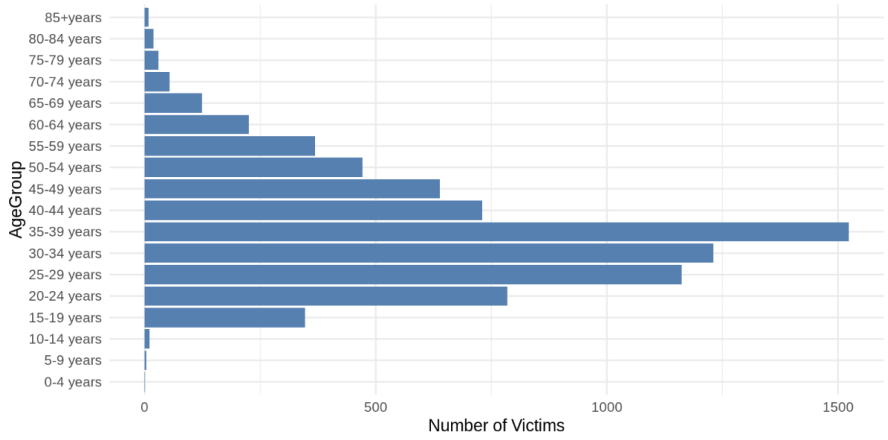


FIG : 1.4

Victims who tragically lost their lives were predominantly concentrated in the age range of 20 to 44 years. This age group bears a substantial burden of fatal police shootings. Among this age range, the highest number of victims falls within the 35 to 39 years bracket. This finding emphasizes the heightened vulnerability of individuals in their late 30s to early 40s to fatal police encounters.

State-wise distribution of police shootings:

The bar plot visualizes the distribution of fatal police shootings across different states, providing a comprehensive overview of the magnitude of this issue in various regions. Notable findings are as follows:

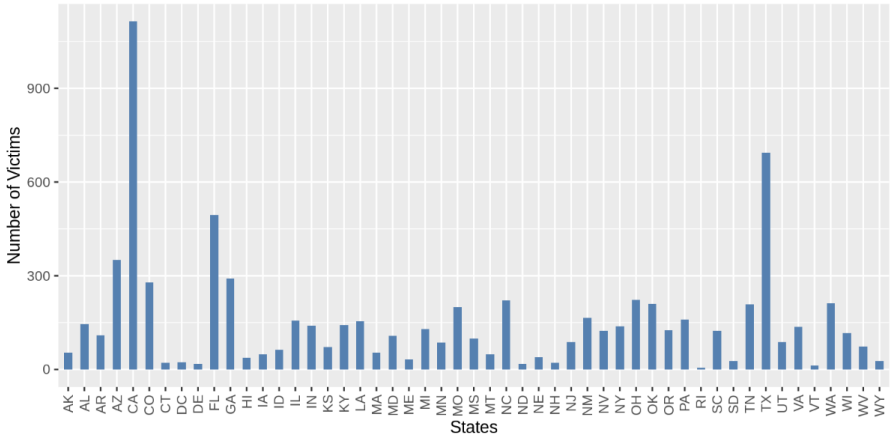


FIG : 1.5

Arizona (AZ) and Texas (TX) exhibit the highest number of fatal police shootings, indicating a considerable occurrence of such incidents within these states. Conversely, states like Vermont (VT), Rhode Island (RI), and North Dakota (ND) record the lowest incidence of fatal police shootings, reflecting a comparatively lower frequency of these tragic events.

- **ANALYZING THE RELATIONSHIP BETWEEN AGE GROUPS AND THREAT LEVELS:**

The following plot explores the distribution of age groups in fatal police shootings based on different threat levels. This analysis consistently reveals that the age group of 35 to 39 years has the highest representation among victims in both threat level categories. This pattern suggests that this age group is more frequently involved in such incidents compared to other age groups.

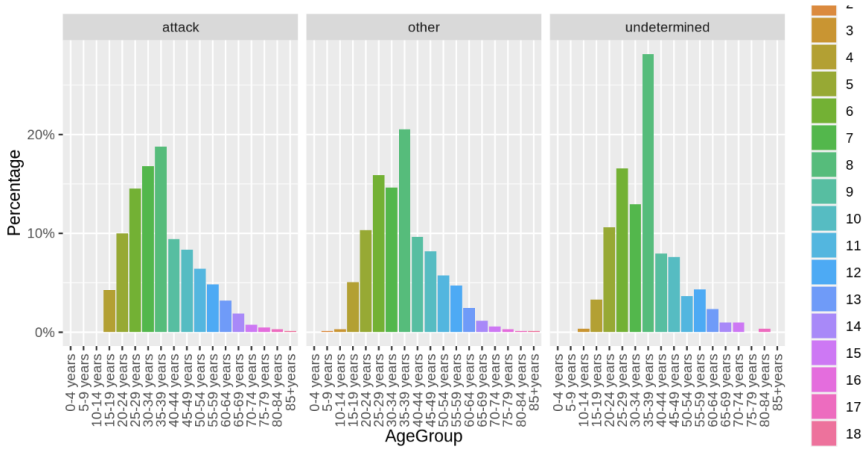


FIG : 1.6

The plot is divided into two facets, representing different threat levels: "Attack" and "Undetermined/Other." These threat levels categorize incidents based on the perceived level of danger or threat involved.

For incidents categorized under "Attack," the plot shows that the highest percentage of victims falls in the age group of 35 to 39 years. In the facet labeled "Undetermined/Other," the same age group, 35 to 39 years, also accounts for the highest percentage of victims.

Significance of age and threat analysis:
This consistent pattern highlights the importance of understanding the dynamics and factors associated with the age group of 35 to 39 years' involvement in police shootings. It can inform law enforcement training, policies, and procedures to address the specific dynamics related to this age group in such encounters.

- **EXAMINING TRENDS IN FATAL POLICE SHOOTINGS OVER TIME:**

The plot displayed above offers insights into the temporal patterns of fatal police shootings since 2015. By analyzing the year-wise distribution of these incidents, we can discern notable trends and fluctuations.

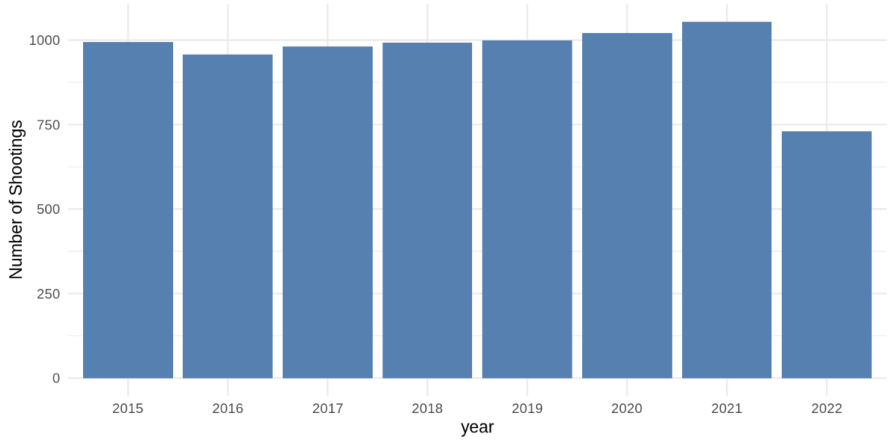


FIG : 1.7

The x-axis represents the years from 2015 to 2022, and the y-axis indicates the number of shootings recorded for each year.

The analysis reveals a particular trend:
In 2015, the number of fatal police shootings is relatively high. From 2015 to 2016, there is a noticeable decrease in the number of incidents. Subsequently, from 2016 to 2021, we observe a consistent, albeit gradual, increase in the number of shootings. While the number of shootings rises, the rate of increase appears to slow down during this period. However, in 2022, there is a substantial and abrupt decrease in the number of fatal police shootings.

○ BODY CAMERA IMPACT ANALYSIS:

Examining the influence of body cameras on police shootings, the bar plot illustrates a distinct pattern. The x-axis distinguishes incidents with and without body cameras. The overwhelming majority of cases involve the use of body cameras, emphasizing their widespread deployment in documented shootings. Conversely, the proportion of incidents without this recording equipment is notably lower. This raises pertinent questions about the role of transparency and accountability facilitated by the presence of body cameras in law enforcement interactions.

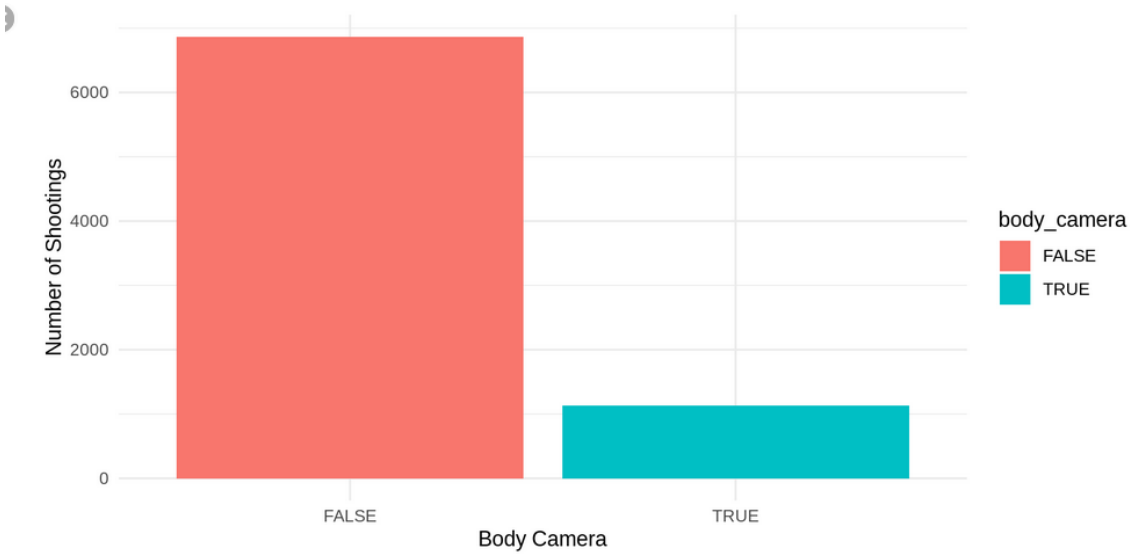


FIG : 1.8

Analyzing fleeing status in police shootings:
The bar plot below underscores distinctive patterns in the fleeing status of victims. A predominant portion of incidents involves individuals not fleeing, highlighting a significant trend. Instances of fleeing on foot and by car, while present, show a comparatively lower prevalence. The 'other' category introduces additional complexities, emphasizing the need for a nuanced examination of diverse circumstances.

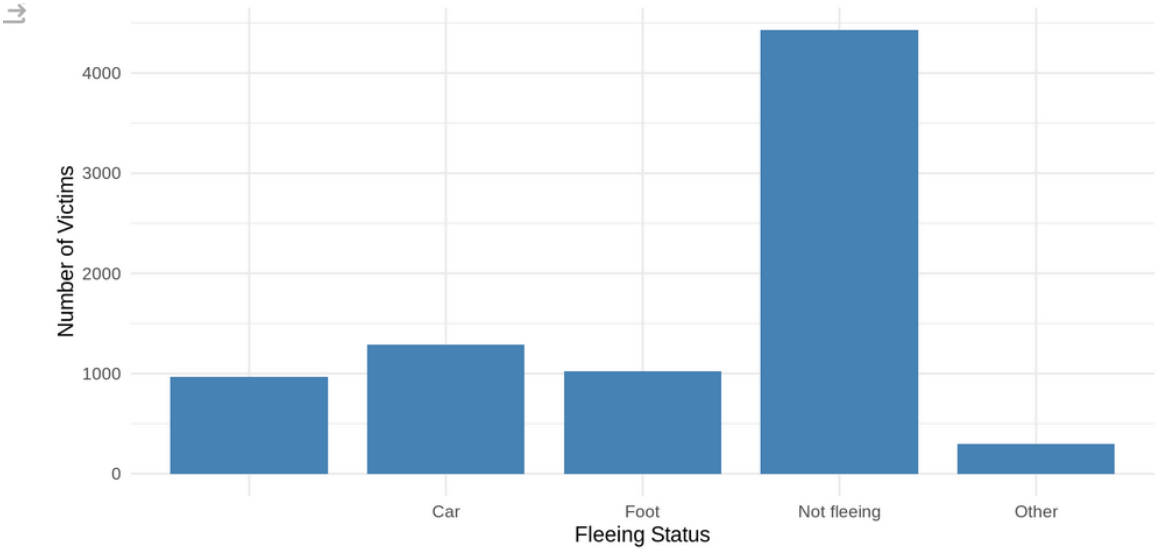


FIG : 1.9

Not Fleeing: Emerges as the dominant category.
Fleeing on Foot and by Car: Noteworthy but exhibits comparatively lower prevalence. Other Methods: Introduces intriguing nuances, prompting further exploration into diverse circumstances.

- **FINAL REMARKS:**

Our dive into police shooting data brought forth noteworthy patterns and insights. The frequency of these incidents, particularly among certain groups, prompts reflection on the complexities of law enforcement interactions.

Mapping out shooting locations revealed concentrations and hotspots, offering a nuanced view of where these events tend to happen. Examining temporal trends showed changes over the years, prompting us to consider the evolving nature of policing.

Demographically, men emerged as disproportionately affected, as highlighted in the bar plot analysis. The breakdown by race added complexity to the narrative, demanding a closer look at the factors driving these disparities.

Exploring the role of mental health in these encounters sparked an important conversation. The distribution of mental health indicators across racial lines raised questions about how law enforcement engages with individuals facing mental health challenges.

Age stood out as a significant factor, with a concentration of victims in the 20 to 44 age group. State-wise differences underscored variations in shooting rates, calling attention to local factors influencing law enforcement encounters.

Comparative analyses and an assessment of body cameras shed light on potential mitigating factors. The fluctuating trend in shootings from 2015 to 2021 invites scrutiny of the factors at play. The sudden drop in 2022 prompts questions about recent reforms or shifts in law enforcement practices.

In summary, our analysis serves as a foundational exploration, encouraging a broader discussion on police shootings. These findings propel us towards a future where data guides meaningful reforms, fostering a more just and equitable society.

❖ APPENDIX C: CODE

```
summary(data)
```

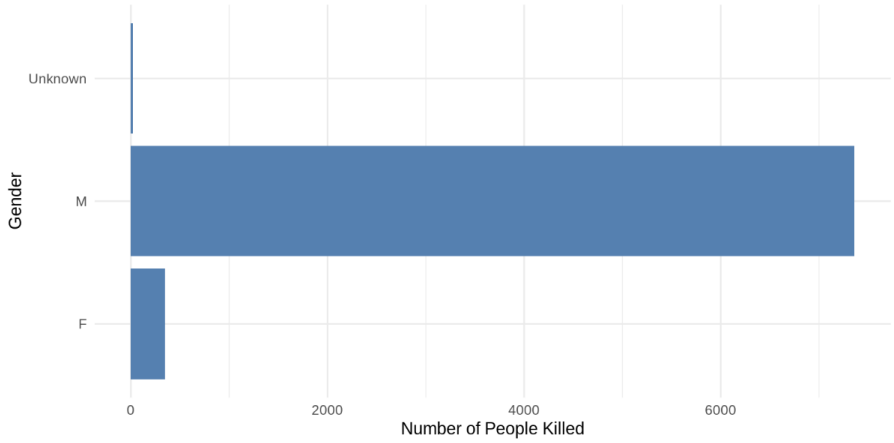
Summary of the data

```
In [ ]: summary(data)
```

```
       id           name               date           manner_of_death
 Min.   :   3   Length:7729        Length:7729        Length:7729
 1st Qu.:2167   Class :character   Class :character   Class :character
 Median :4293   Mode  :character   Mode  :character   Mode  :character
 Mean   :4268
 3rd Qu.:6358
 Max.   :8406
    armed                age            gender             race
 Length:7729        Min.   : 2.00   Length:7729        Length:7729
 Class :character   1st Qu.:28.00   Class :character   Class :character
 Mode  :character   Median :36.00   Mode  :character   Mode  :character
                    Mean   :37.18
                    3rd Qu.:45.00
                    Max.   :92.00
     city              state           signs_of_mental_illness
 Length:7729        Length:7729        Length:7729
 Class :character   Class :character   Class :character
 Mode  :character   Mode  :character   Mode  :character



 threat_level          flee           body_camera         longitude
 Length:7729        Length:7729        Length:7729        Length:7729
 Class :character   Class :character   Class :character   Class :character
 Mode  :character   Mode  :character   Mode  :character   Mode  :character



   latitude         is_geocoding_exact
 Length:7729        Length:7729
 Class :character   Class :character
 Mode  :character   Mode  :character
```

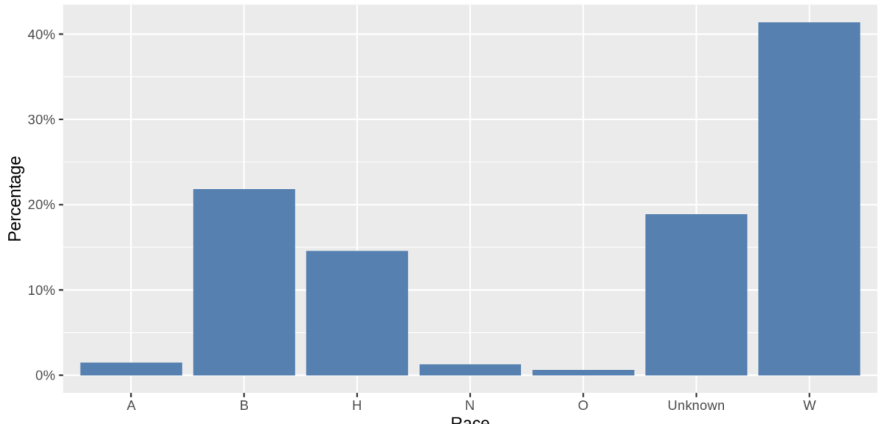
. People killed based on their gender

```
df <- data.frame(data)
p1 <- ggplot(df, aes(y=gender))+
  geom_bar(fill="steelblue")+
  labs(x="Number of People Killed",y="Gender")+
  theme_minimal()
p1
```



2. People killed based on their Race

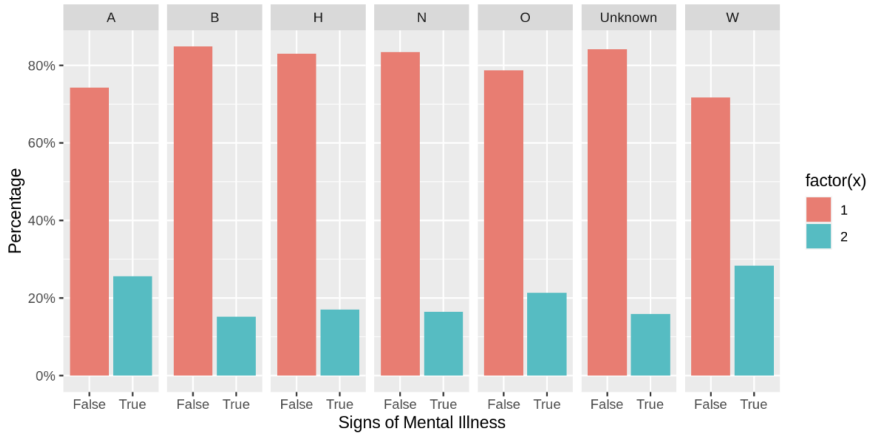
```
p2 <- ggplot(df, aes(race)) +
          geom_bar(aes(y      =      (..count..)/sum(..count..)),
fill="steelblue") +
          scale_y_continuous(labels=scales::percent) +
  labs(x="Race",y="Percentage")
p2
```



3. People who showed Signs of Mental illness with respect to their race.

- True : Had Mental Illness.
- False : No Mental Illness Present

```
p3 <- ggplot(df, aes(signs_of_mental_illness, group = race)) +
          geom_bar(aes(y   =   ..prop..,   fill   =   factor(..x..)),
stat="count") +
          scale_y_continuous(labels=scales::percent) +
          labs(x="Signs of Mental Illness",y="Percentage") +
          facet_grid(~race)

p3
```



Creating Age Group for all the Victims

```
df$AgeGroup <- cut(df$age,breaks = c(-Inf
,5,10,15,20,25,30,35,40,45,50,55,60,65,70,75,80,85, Inf),

                   labels=c("0-4 years","5-9 years","10-14
years","15-19 years","20-24 years","25-29 years","30-34
years","35-39 years","40-44 years","45-49 years",
                   "50-54 years","55-59 years","60-64
years","65-69 years","70-74 years","75-79 years","80-84
years","85+years")
                   ,
                   right = FALSE)

head(df)
```

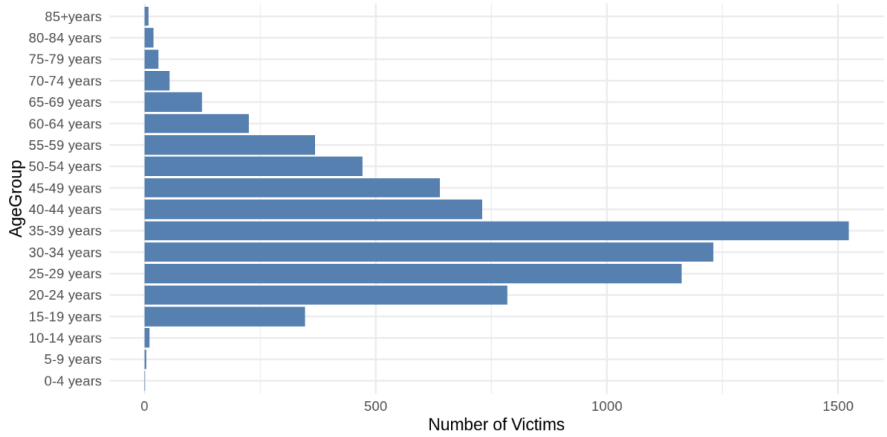
In [ ]:
```
head(df)
```

A data.frame: 6 × 18

	id	name	date	manner_of_death	armed	age	gender	race	city	state	signs_of_mental_illness	threat_level	flee	body_camera	lon
	<int>	<chr>	<chr>	<chr>	<chr>	<dbl>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	
1	3	Tim Elliot	2015-01-02	shot	gun	53	M	A	Shelton	WA	True	attack	Not fleeing	False	-1
2	4	Lewis Lee Lembke	2015-01-02	shot	gun	47	M	W	Aloha	OR	False	attack	Not fleeing	False	-1
3	5	John Paul Quintero	2015-01-03	shot and Tasered	unarmed	23	M	H	Wichita	KS	False	other	Not fleeing	False	-
4	8	Matthew Hoffman	2015-01-04	shot	toy weapon	32	M	W	San Francisco	CA	True	attack	Not fleeing	False	-1
5	9	Michael Rodriguez	2015-01-04	shot	nail gun	39	M	H	Evans	CO	False	attack	Not fleeing	False	-1
6	11	Kenneth Joe Brown	2015-01-04	shot	gun	18	M	W	Guthrie	OK	False	attack	Not fleeing	False	-

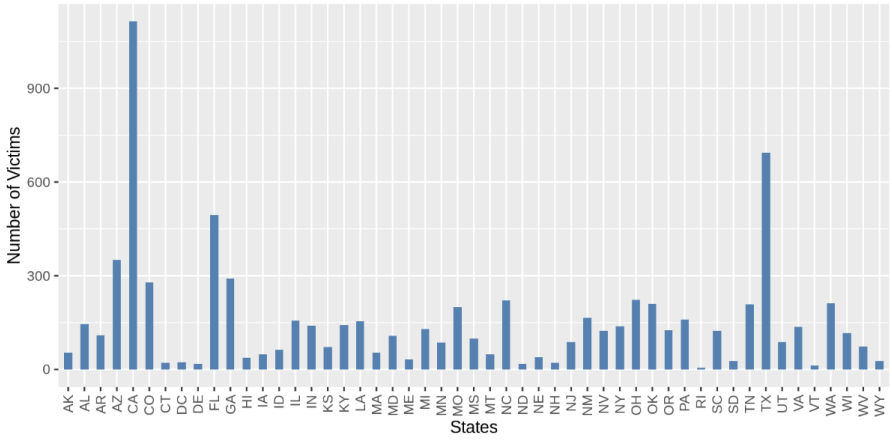
4. Victims According to their Age group

```
p4 <- ggplot(df, aes(y = AgeGroup))+
  geom_bar(fill="steelblue")+
  labs(x="Number of Victims") +
  theme_minimal()
p4
```



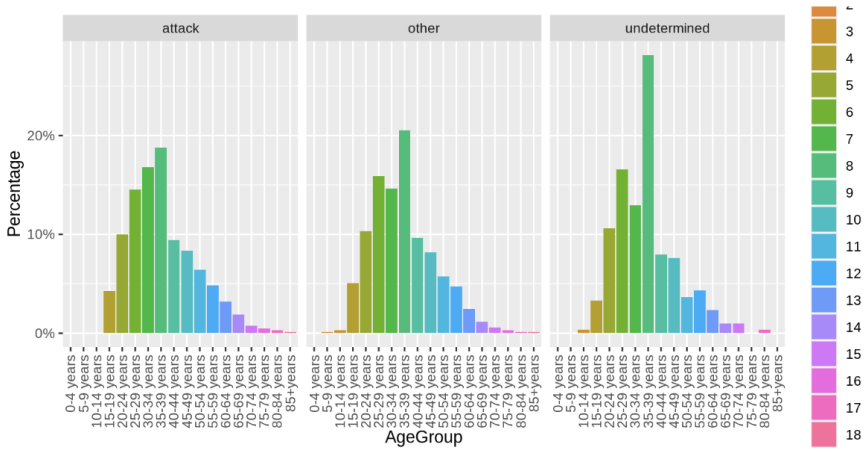
Minimum Age of a Victim¶

```
min(df$age)
p5 <- ggplot(df, aes(x = state)) +
      geom_bar(fill="steelblue", width = 0.50) +
      labs(x="States",y="Number of Victims") +

theme(axis.text.x=element_text(angle=90,hjust=1,vjust=0.5))

p5
```



6. Threat Level on the basis of Race

```
p6 <- ggplot(df, aes(AgeGroup, group = threat_level)) +
          geom_bar(aes(y  =  ..prop..,  fill  =  factor(..x..)),
stat="count") +
          scale_y_continuous(labels=scales::percent) +
          ylab("Percentage") +

theme(axis.text.x=element_text(angle=90,hjust=1,vjust=0.5)) +
          facet_grid(~threat_level)

p6
```



7. Police Shootings based on Year

```
p7 <- ggplot(df, aes(x=year,group=year)) +
      geom_bar(fill='steelblue') +
      labs(y="Number of Shootings") +
      theme_minimal()
p7
```