

# SCHOOL SHOOTINGS IN THE UNITED STATES

## Project Link

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# QUESTIONS

Can we observe **trends** in the frequency of school shooting **incidents** and **fatalities** over different **time periods** such as year, month, and time of day?



01



02



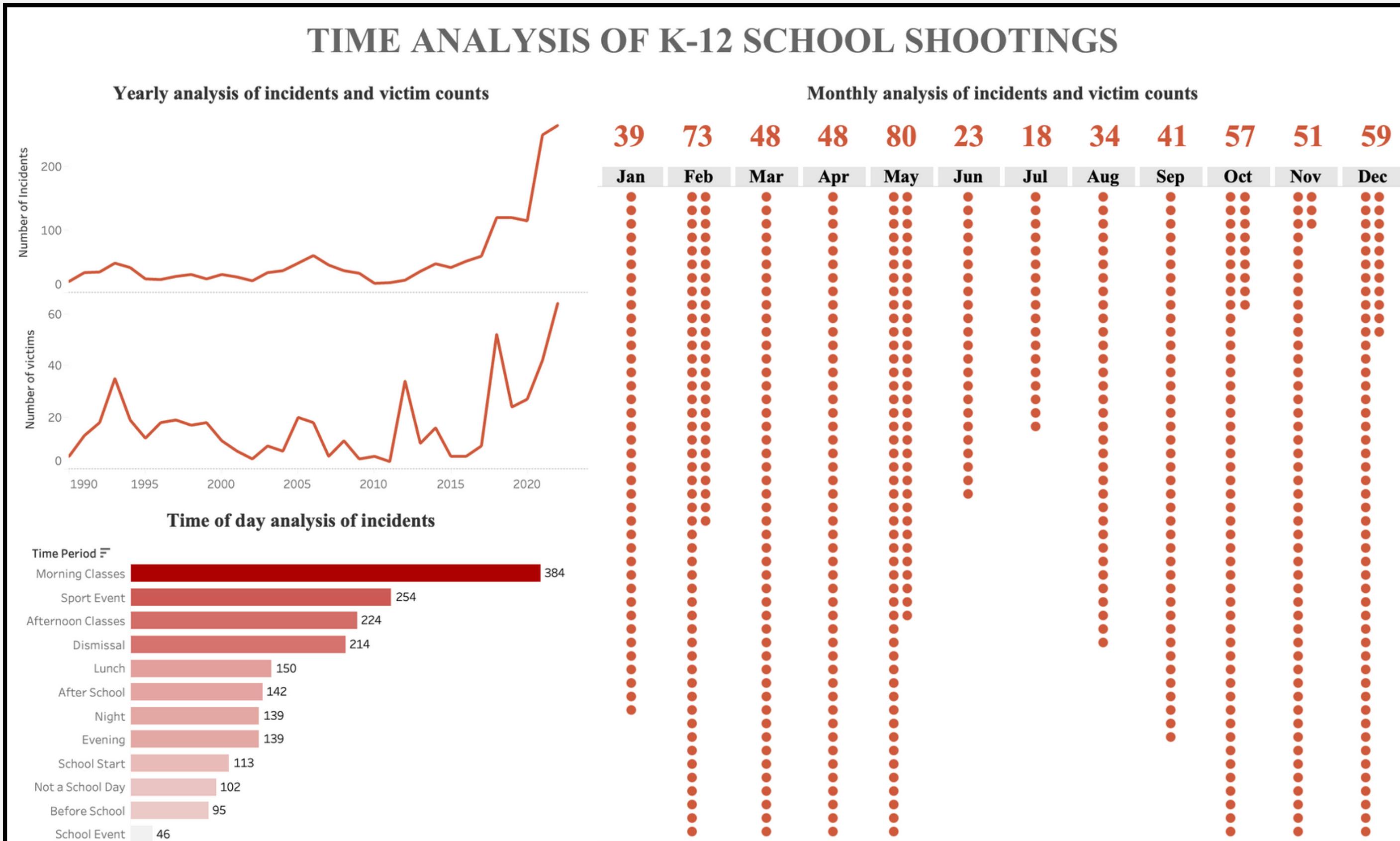
03

What are the predominant age groups and demographic characteristics of school **shooters**, and what types of weapons do they tend to utilize?

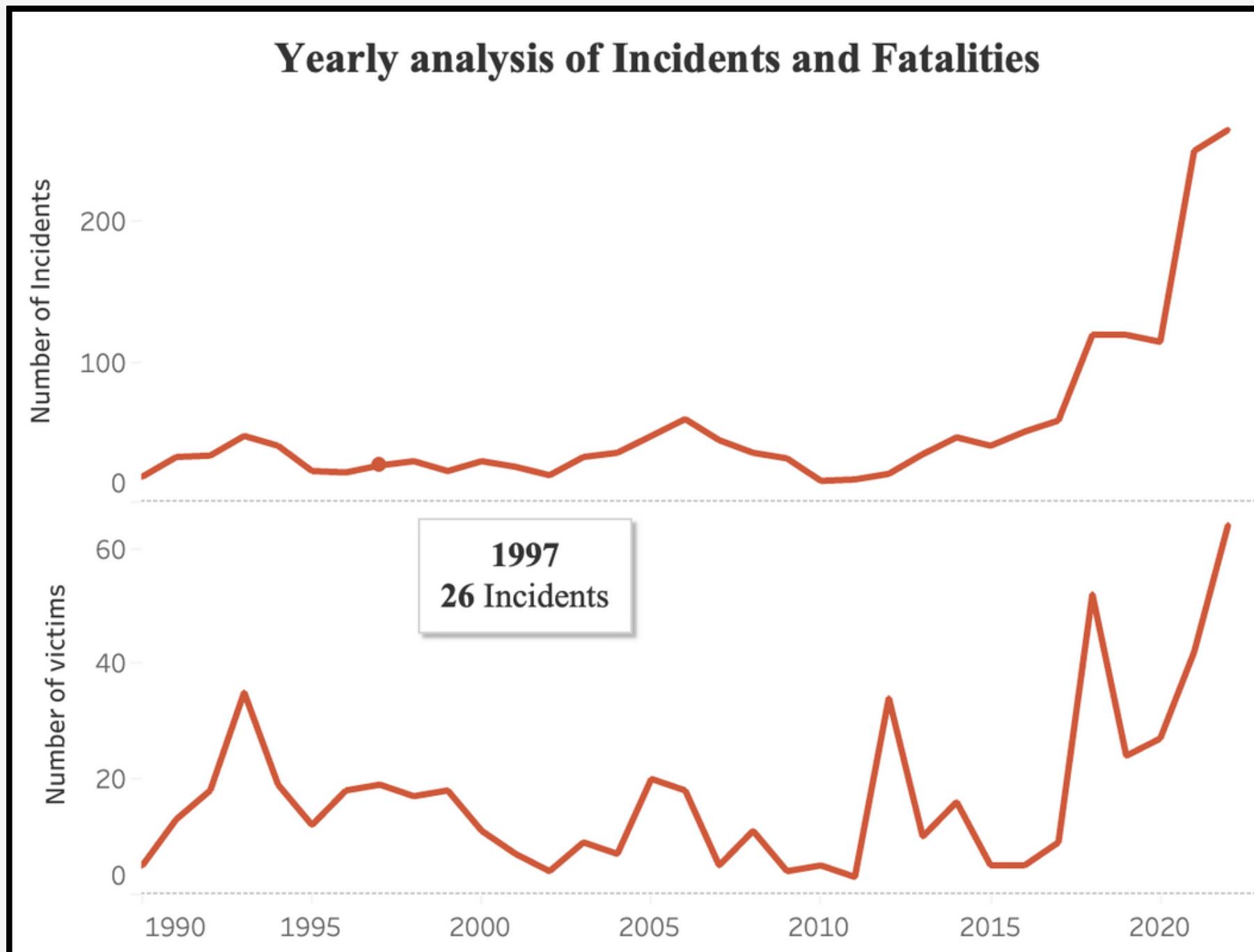
What trends in school-related violence emerge across states, and how do incident locations, **victim** demographics, and their school affiliations shape these patterns?

01

# TIME ANALYSIS

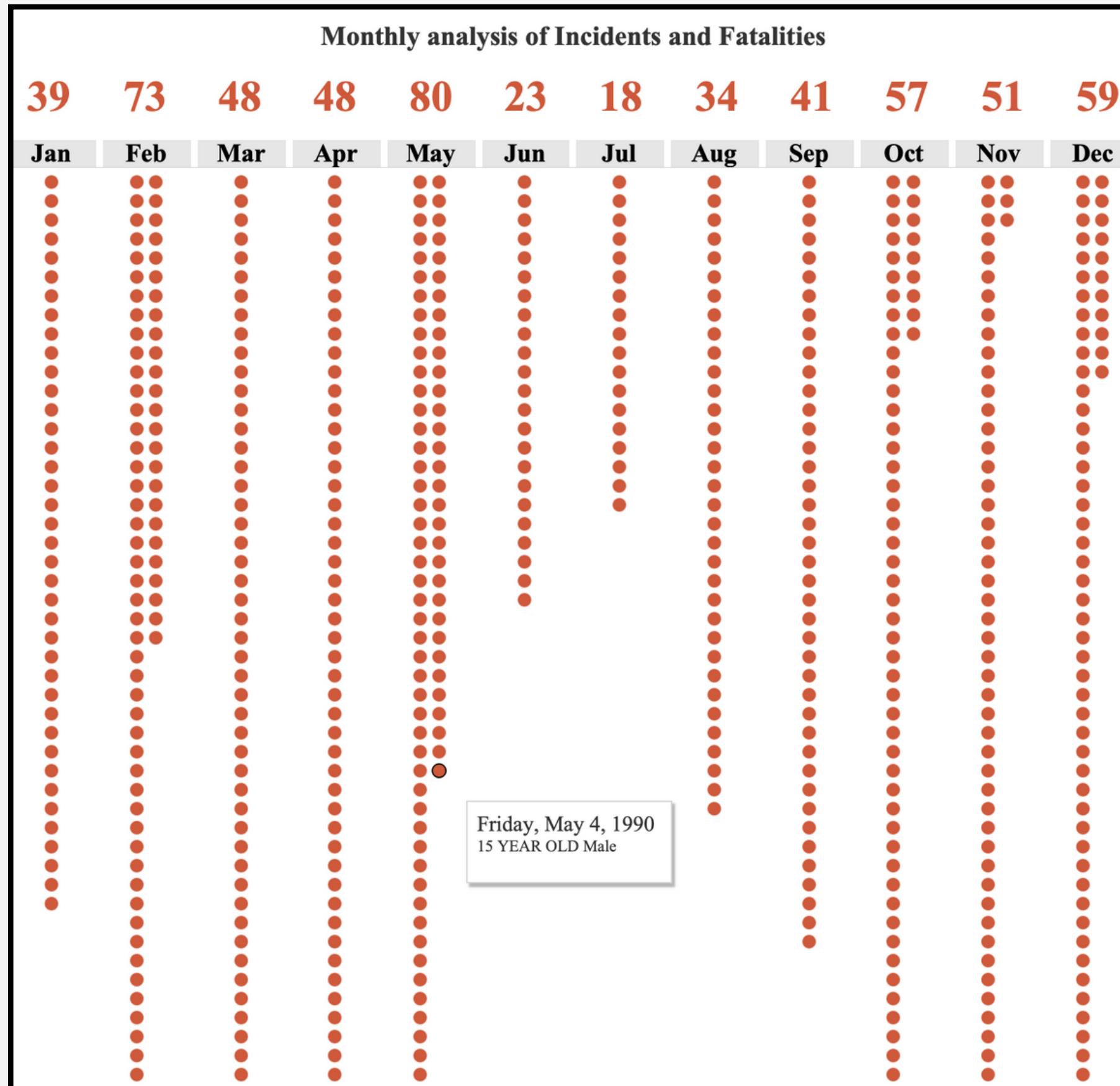


# YEARLY ANALYSIS OF INCIDENTS AND FATALITIES



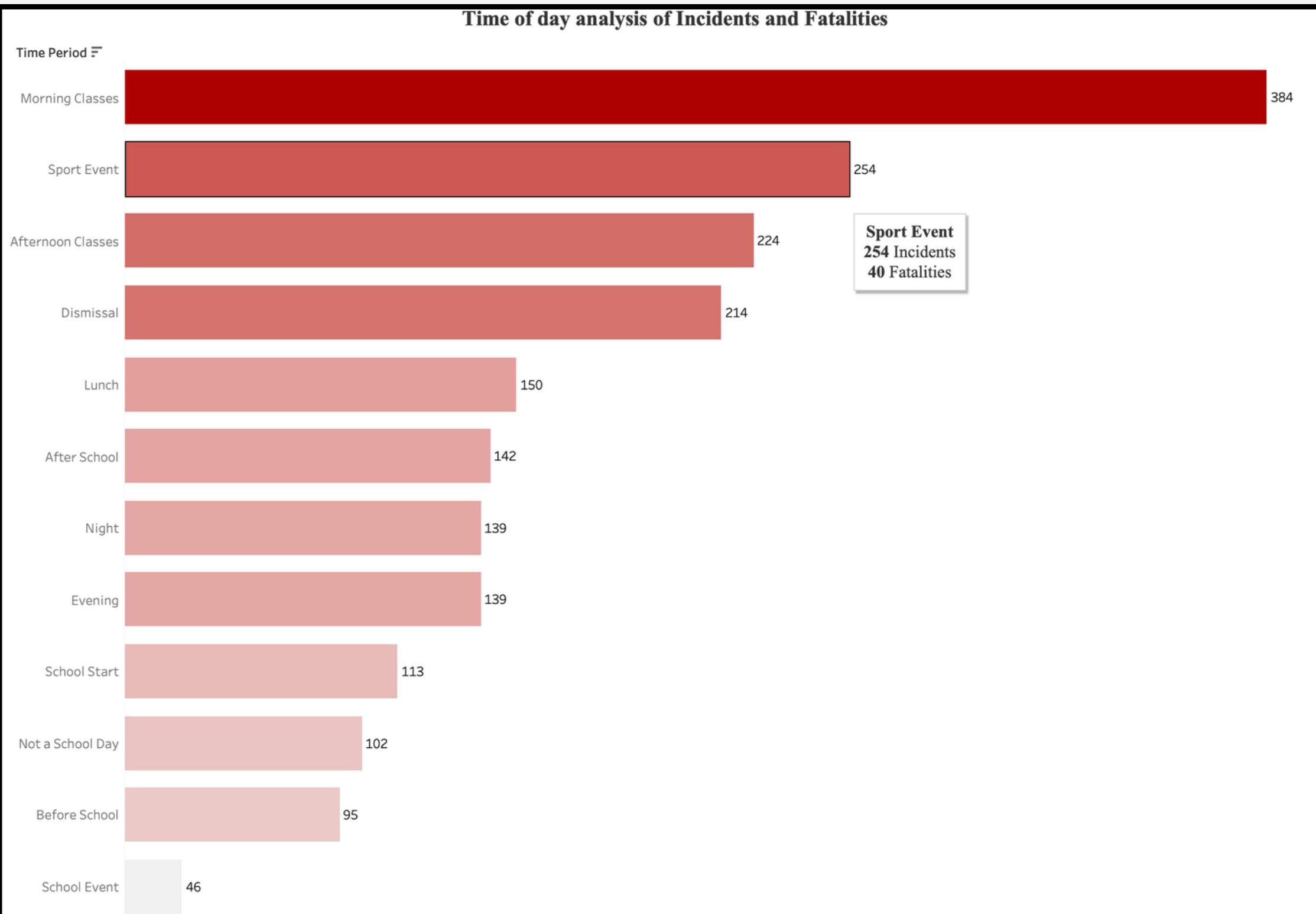
- This visualization displays **two line charts**, for indicating the **number of incidents and victims killed** for each year in the period 1990 to 2022.
- As can be seen in the first chart, the total number of school shooting incidents **increased slowly** over the years upto **2017**, post which there is a rather **steep rise**.
- At an initial guess, we would think that the COVID-19 pandemic leading to an online mode of schooling should have reduced the number of incidents that happened. However, this not the case and it would be interesting to explore this further.
- In the second chart, we can see that the number of victims killed has an **erratic year-by-year pattern** but tends to **increase overall**.

# MONTHLY ANALYSIS OF THE FATALITIES



- This is a rather unique visualization made of two elements:
  - **the header** containing the count of the **total victims killed each month**.
  - **the bubbles** further depicting the **date and demographic for each victim killed**.
- This is an interactive visualization affected by the year chosen. By default, it aggregates the results for each year.
- As can be seen, the most number of killings have happened during February, May, October, and December. These are usually the periods of breaks/vacations in the US schooling system. This observation is consistent with how the number of incidents had a sharp rise during covid, when schools were not in session in-person.

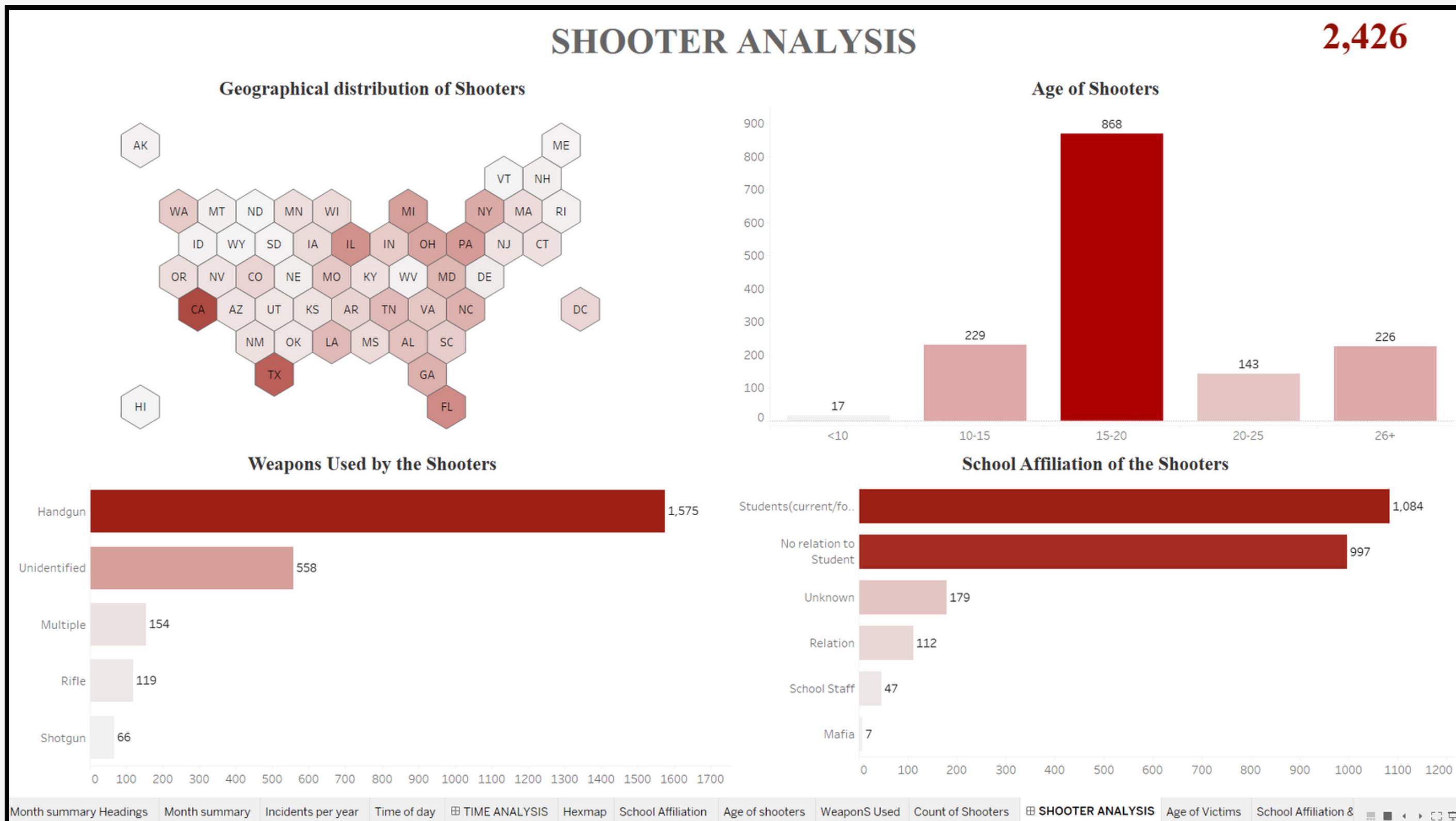
# TIME OF DAY ANALYSIS OF THE FATALITIES

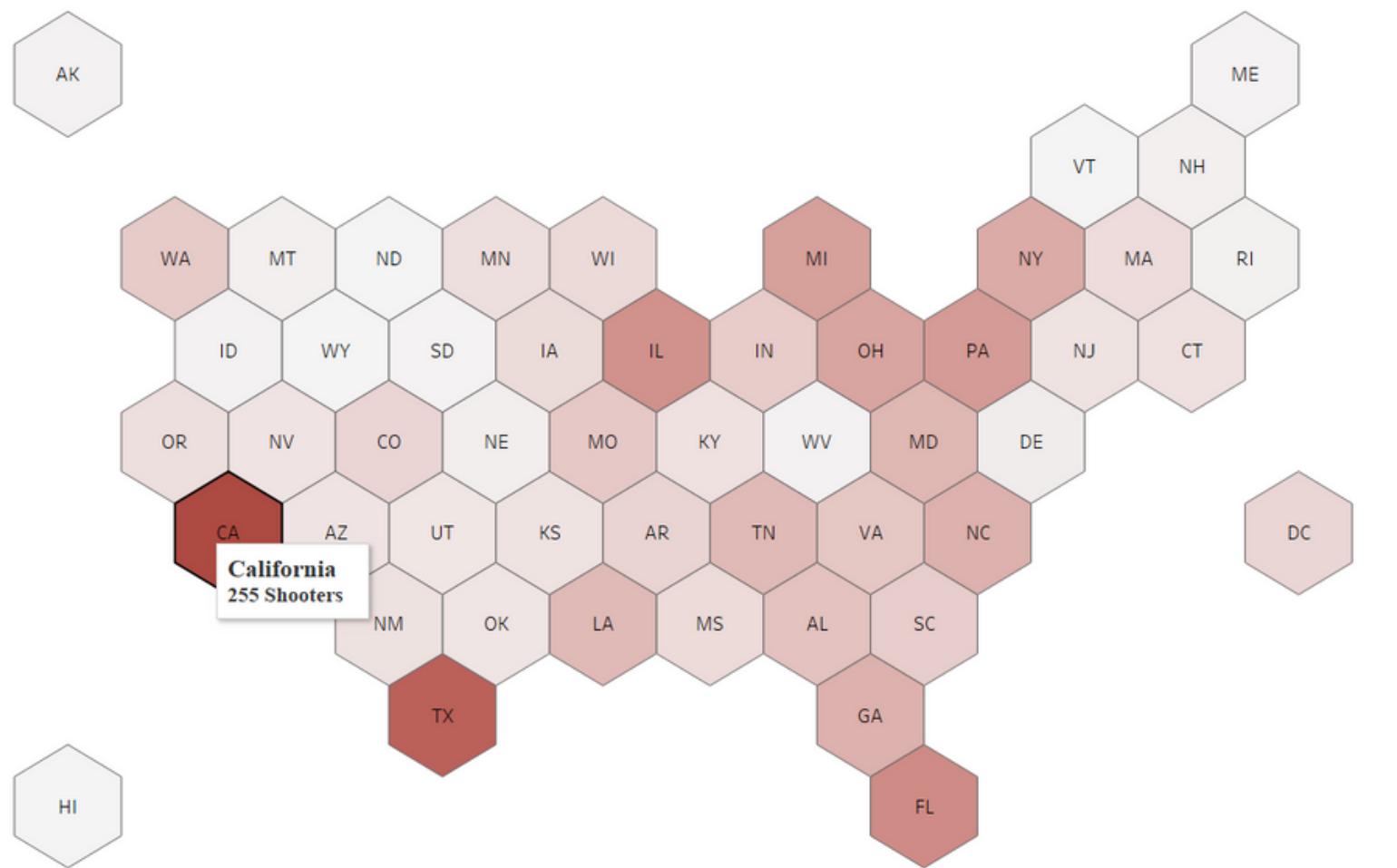


- This is a bar plot depicting the **total number of incidents that happened during different times of the day**.
- It is ordered in **descending order** of the count of incidents, and **color coded** to reflect the same.
- The tooltip also mentions the total number of fatalities that happened during this time period, for additional information.
- This is an **interactive visualization** affected by the year chosen. By default, it aggregates the results for each year.
- As can be seen, **most incidents occur during the morning and afternoon classes, sports events, or during dismissal**.

02

# SHOOTER ANALYSIS

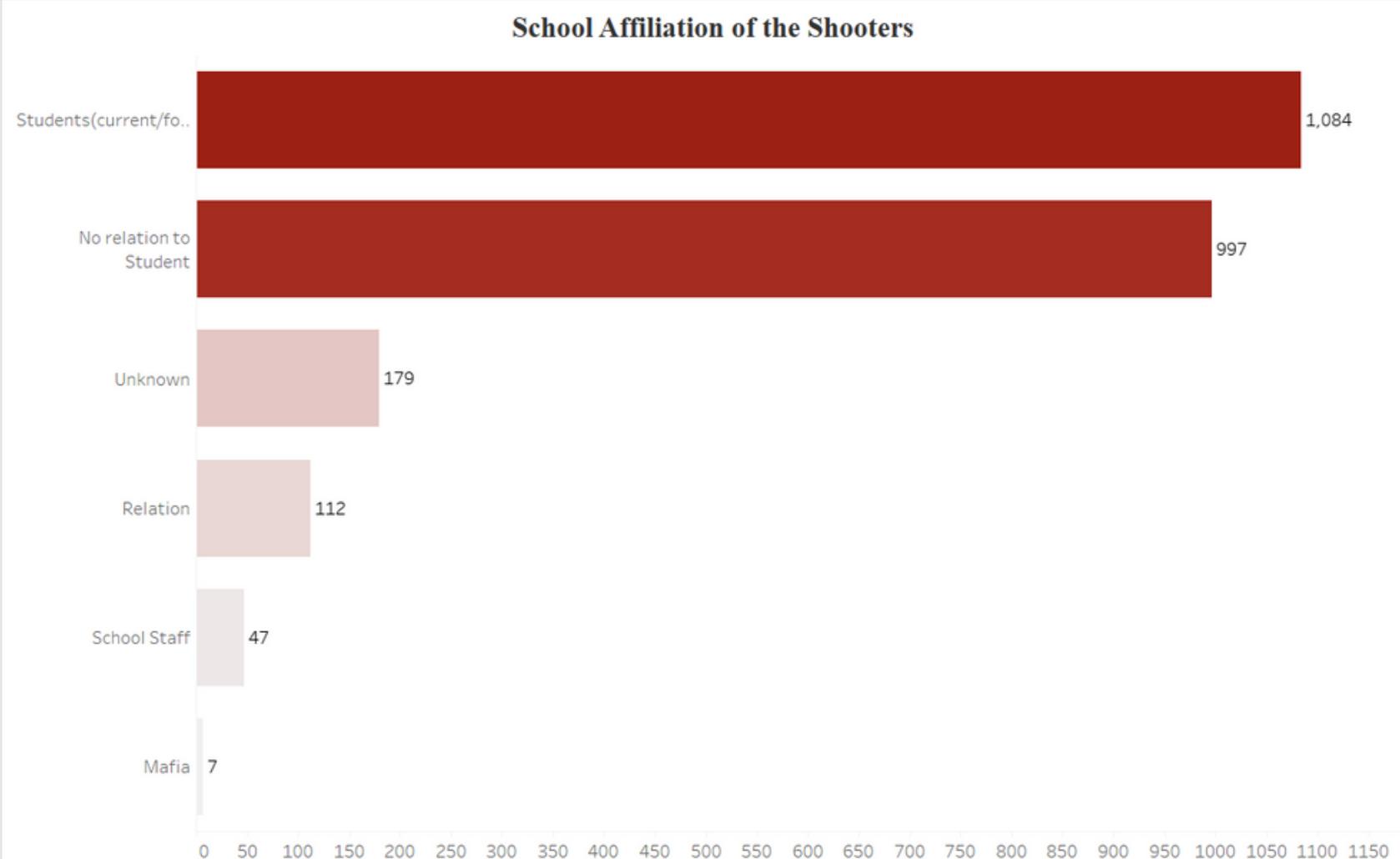




# FREQUENCY OF SHOOTERS

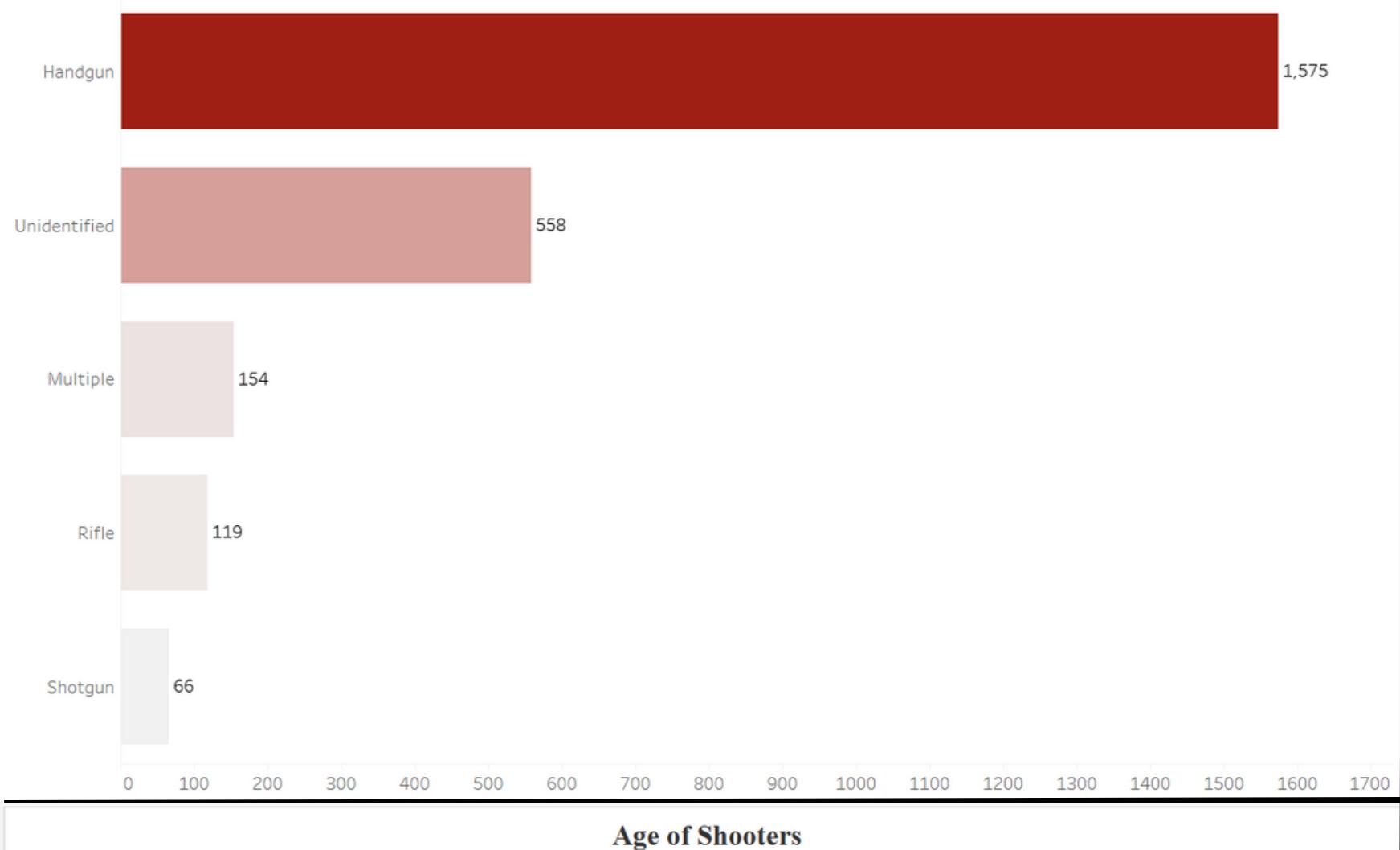
- The visualization features a **Hex Map** of the United States, where each state is represented.
- The graph employs **color-coding** to highlight states with the highest incidence of school shootings.
- **California** stands out as the darkest shade, indicating the highest number of cases at 255.

## SCHOOL AFFILIATION



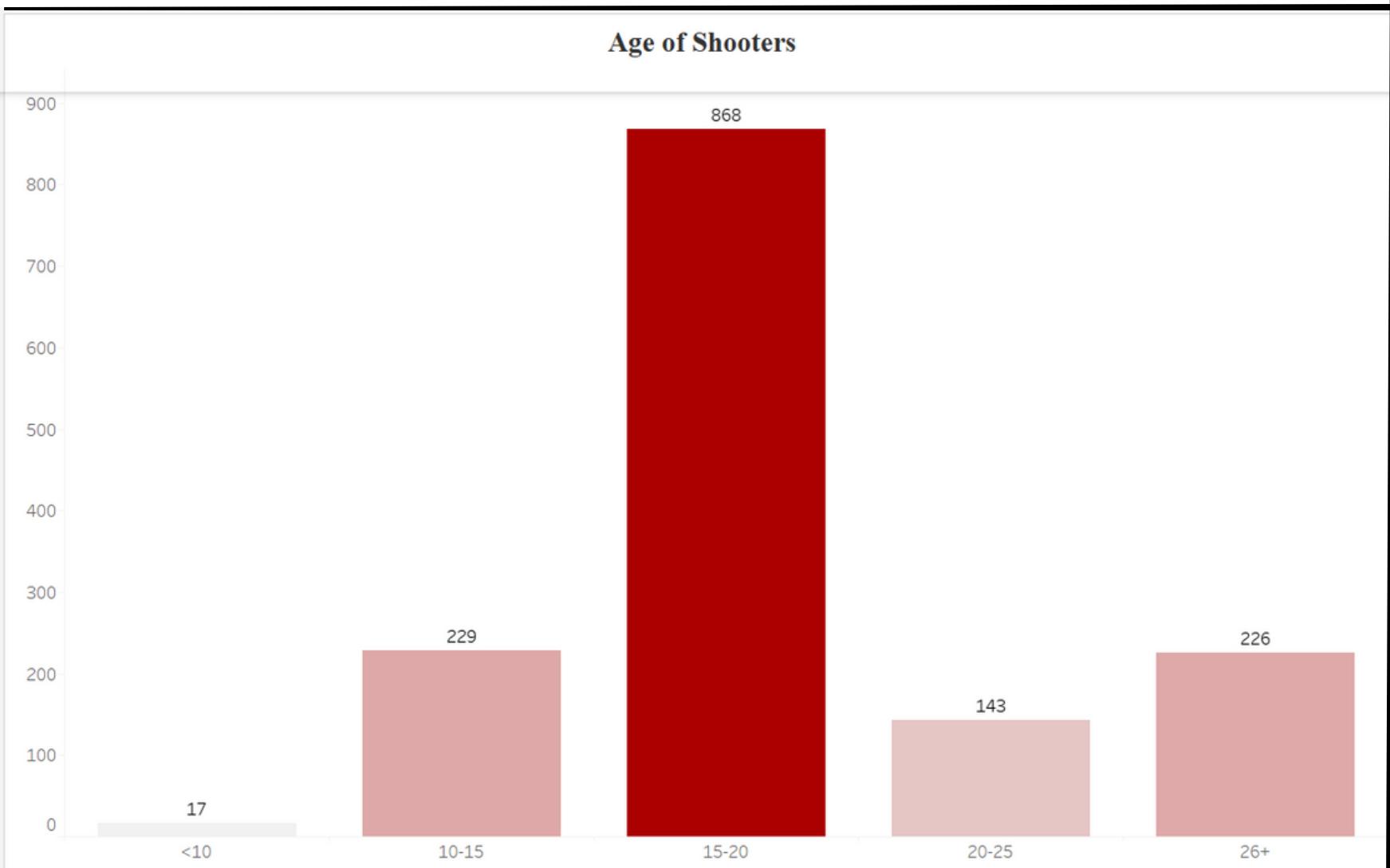
- In the graph above, it's evident that the **majority** of shooters were either **current or former students**.
- However, a **significant** proportion had **no affiliation** with the school or its students.
- Additionally, a **smaller** percentage of shootings were carried out by individuals **related** to the **students or staff**.

Weapons Used by the Shooters



## WEAPON ANALYSIS

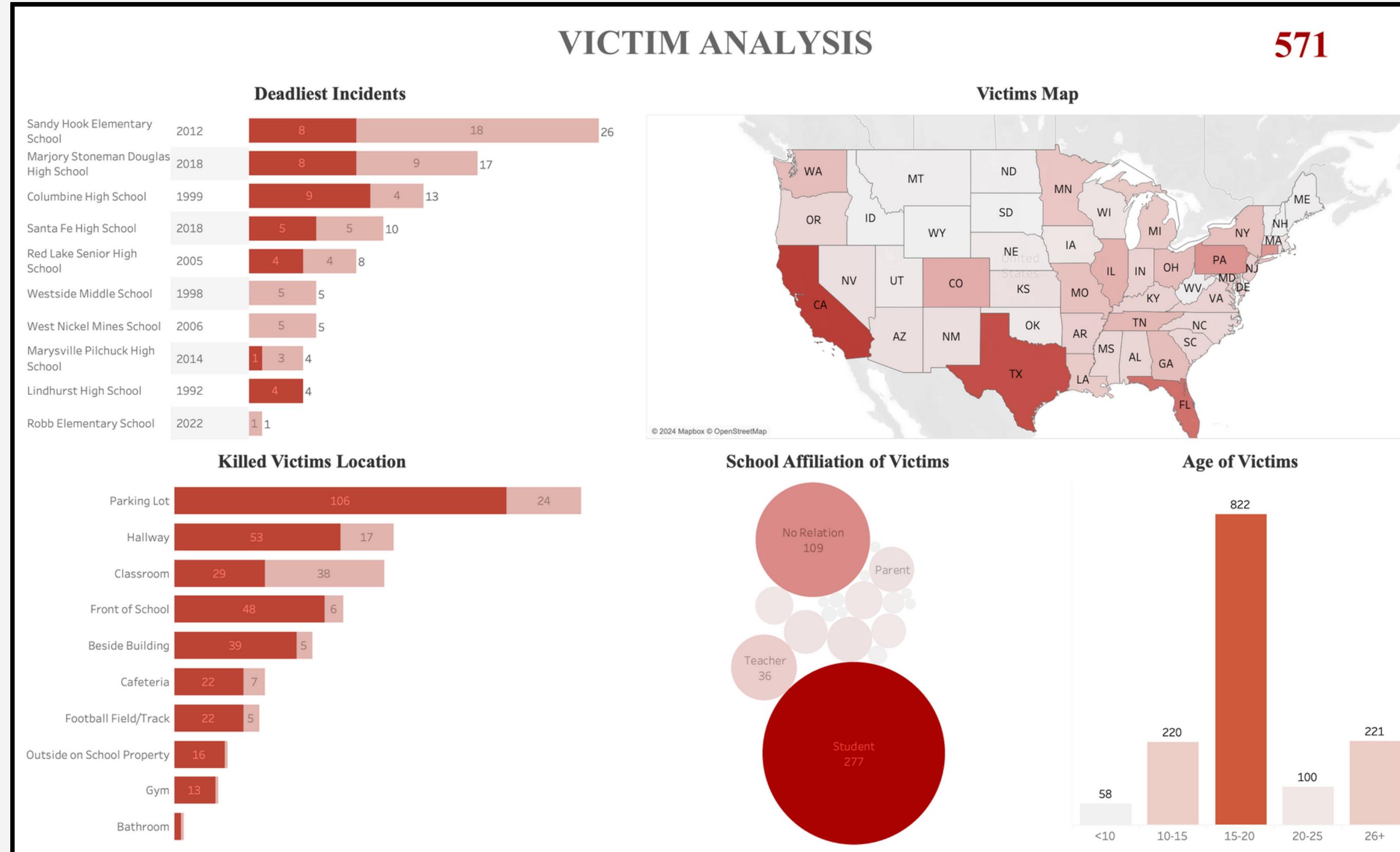
- The preceding graph delves into the **weapons utilized** in the shootings.
- It's apparent that **handguns** are the **most prevalent**, which could be attributed to their accessibility and affordability.
- Shotguns** and **rifles** also feature prominently in the data.



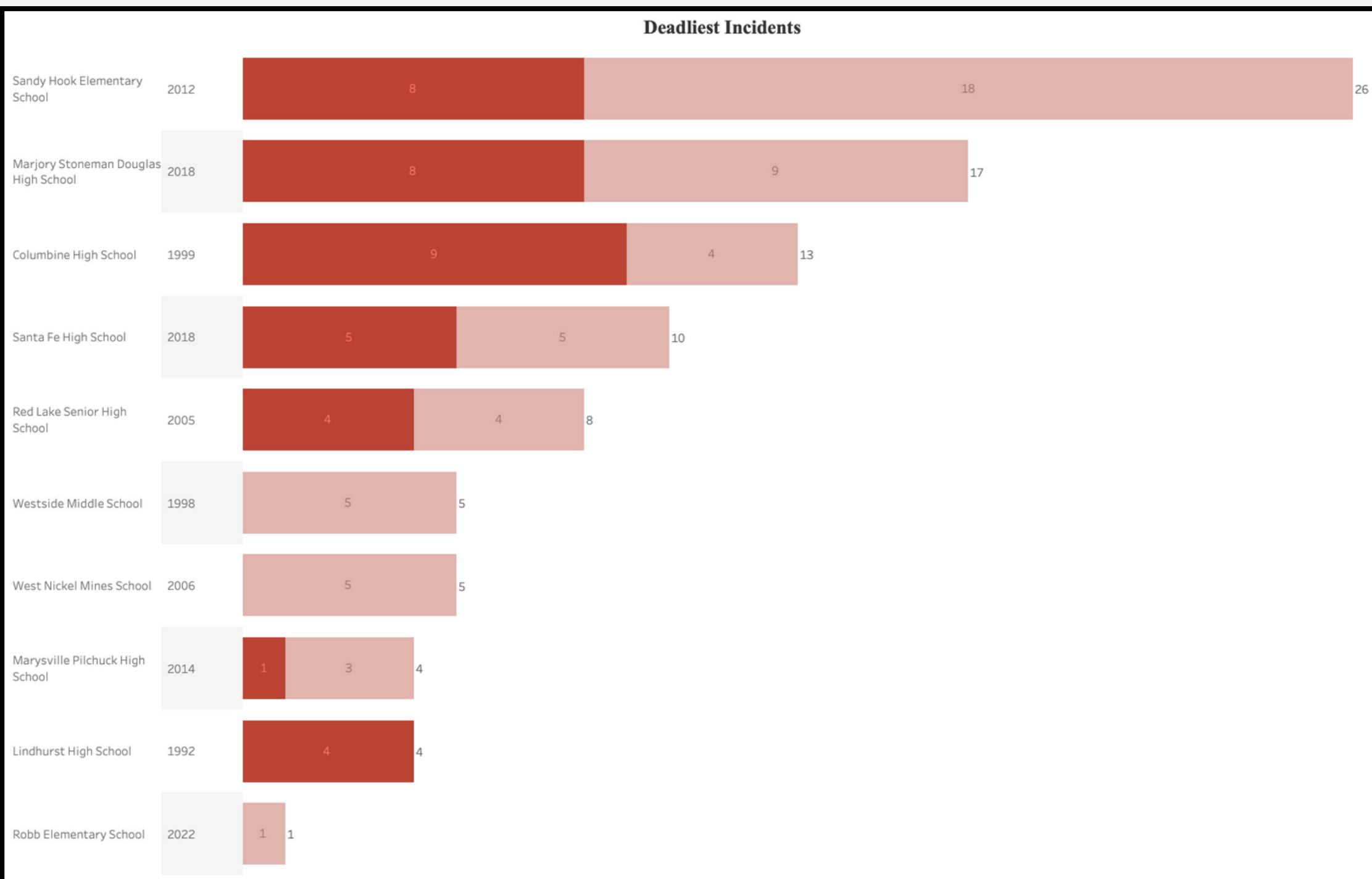
## AGE ANALYSIS

- The **highest** concentration of shooters falls within the age range of **15 to 20**, which aligns with expectations considering this demographic's presence in schools.
- However, there are a few **outliers** below the age of 10, which are unexpected.
- Similar **trend** has been observed across all states.

# VICTIM ANALYSIS

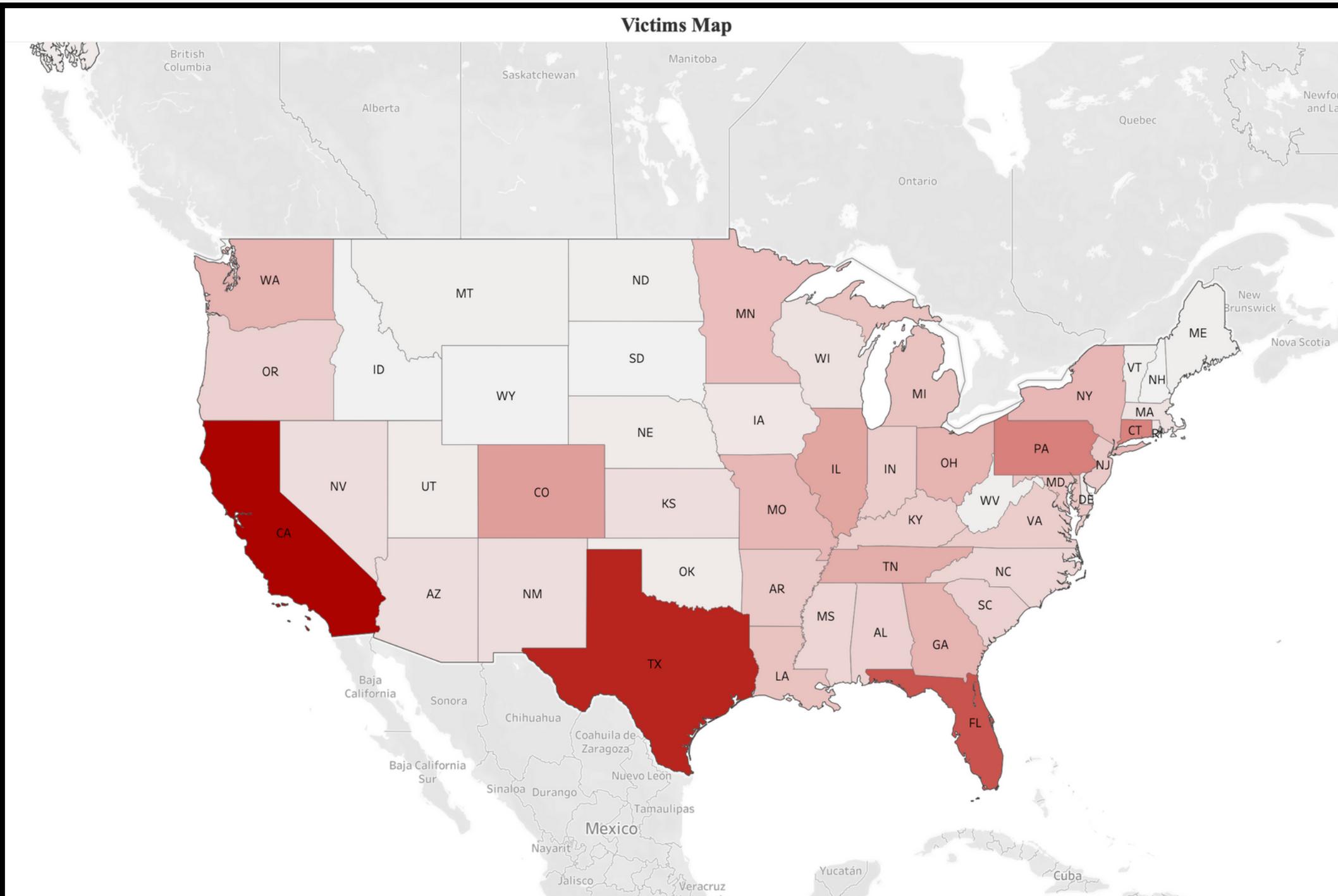


# DEADLIEST INCIDENTS



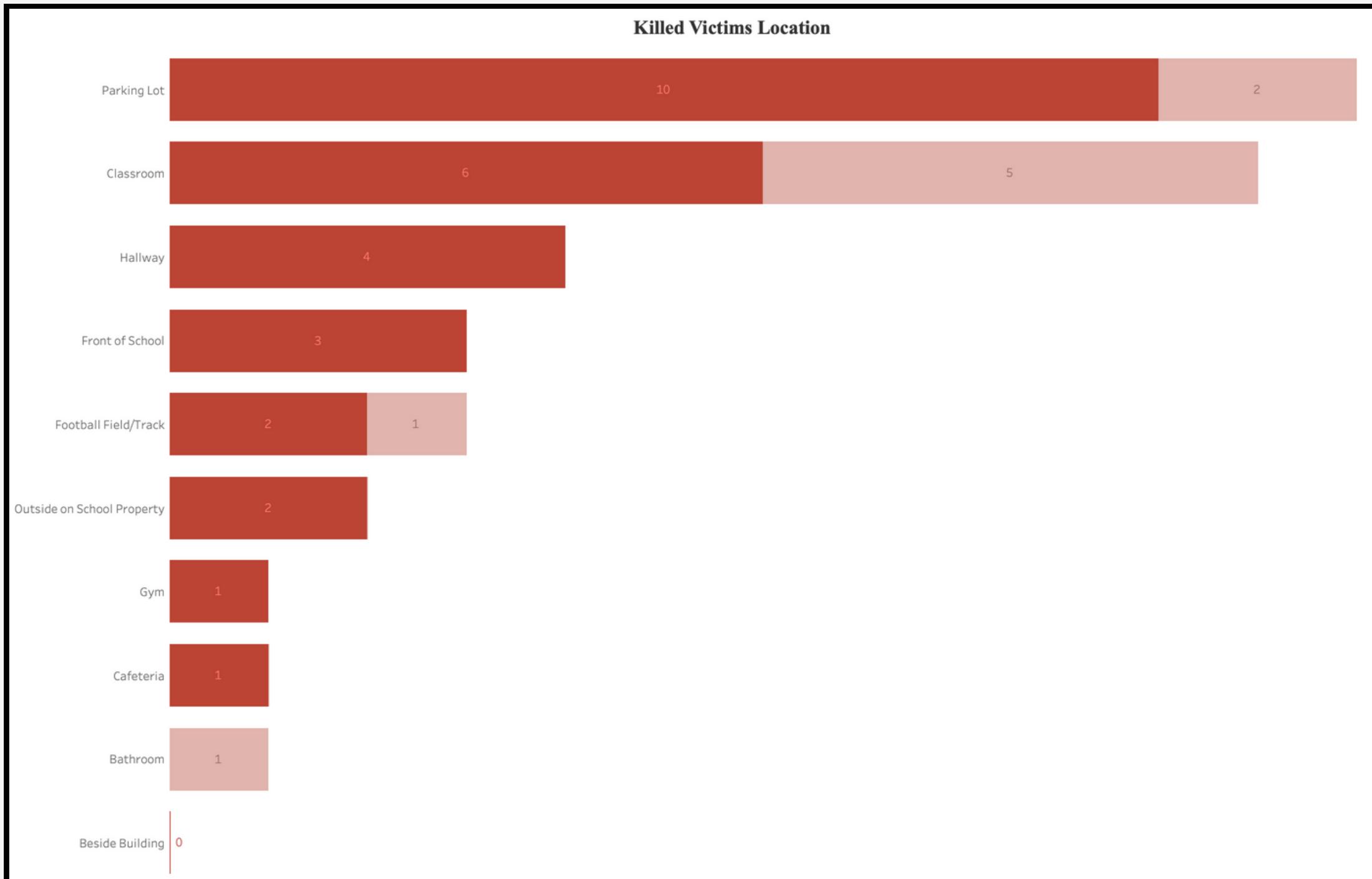
- The visualization presents a **horizontal bar chart** depicting the top 10 deadliest incidents in terms of victims killed across various schools.
- Each bar represents a school and year of incident, with the length of the bar corresponding to the **total number of victims killed**.
- Bars are color-coded, **darker for males, lighter for females**; aiding quick gender differentiation.
- It is evident that the deadliest incident occurred in the year **2012**, where a total of **26** victims were killed. Among these victims, **8 were male and 18 were female**.
- This tragic incident occurred at **Sandy Hook Elementary School**.

# STATE-WISE VICTIMS KILLED POPULATION



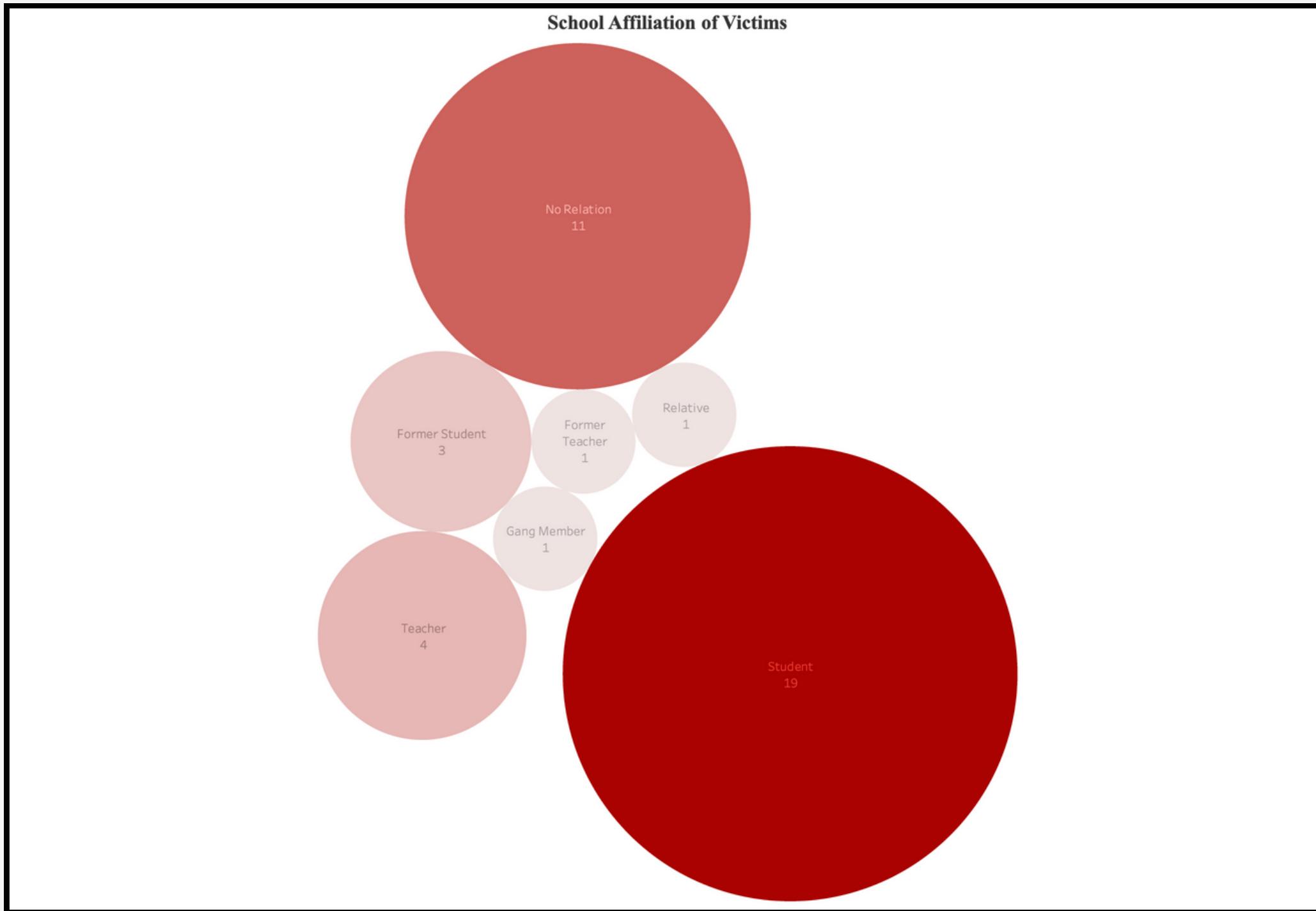
- The visualization is a **world map** highlighting the United States, with each state color-coded to represent the number of victims killed in the incidents.
- The intensity of red varies across states, with the **darkest shade** indicating the state with the **highest** number of victims killed, while **lighter shades** denote states with **fewer** victims killed.
- As observed, **California** and **Texas** have the **highest victims killed**.
- This map also serves as a **filter** for other visualizations based on the selected state.
- By clicking on a specific state, users can filter and analyze data pertaining to that particular location.

# SCHOOL LOCATION OF VICTIMS KILLED



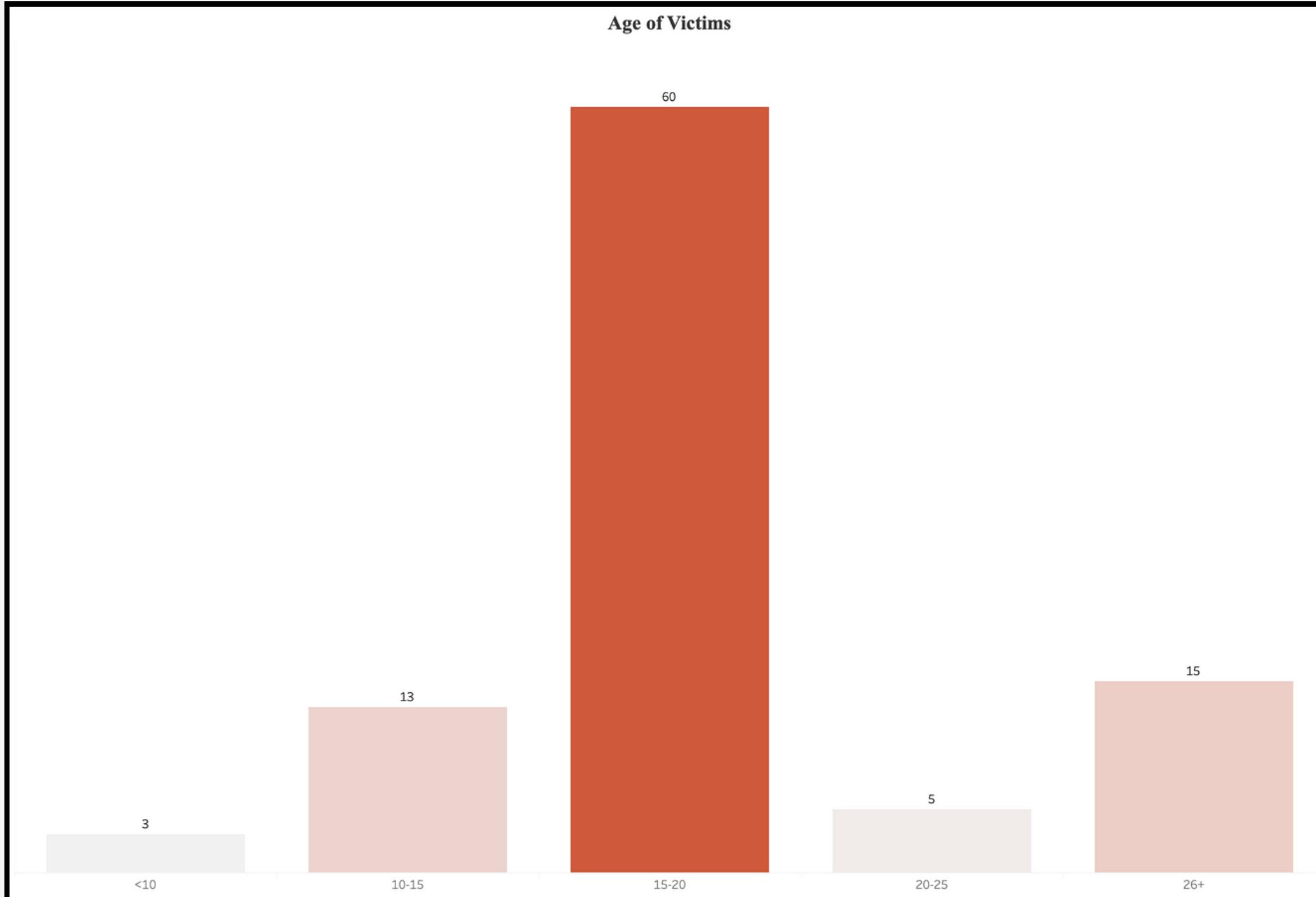
- The visualization features a **horizontal bar chart** illustrating various school locations where victims were killed, with each bar representing a specific location.
- The bars are color-coded, with **darker shades** of red indicating **male** victims killed and **lighter shades** representing **female** victims.
- It is evident that the highest number of victims killed occurred in **parking lots**, followed by **classrooms** and **hallways**, within the state of Texas as filtered.

# SCHOOL AFFILIATION OF VICTIMS KILLED



- The **bubble chart** visualization depicts school affiliations of victims who were killed, with each bubble representing a specific affiliation.
- The intensity of the bubble's color indicates the highest number of victims killed within each affiliation, along with their relationship with the school.
- It is evident that the highest number of **victims killed** were **19 students**, followed by victims with no relation to the school in the state of **Texas**.

# AGE OF VICTIMS



- The **bar chart** visualization illustrates the age distribution of victims compared to the total count of victims, with various age groups ranging from less than 10 years to over 26 years.
- Each bar represents an age group, with the length of the bar corresponding to the total number of victims within that group.
- The age group with the **highest** number of victims is highlighted with the **darkest shade**
- In the state of **Texas**, the highest number of victims, totaling **60** individuals, falls within the age group of **15-20 years**.



# THANK YOU!

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