



Instagram

A Data Science Solution: Detecting Suicidal Adolescents on Instagram

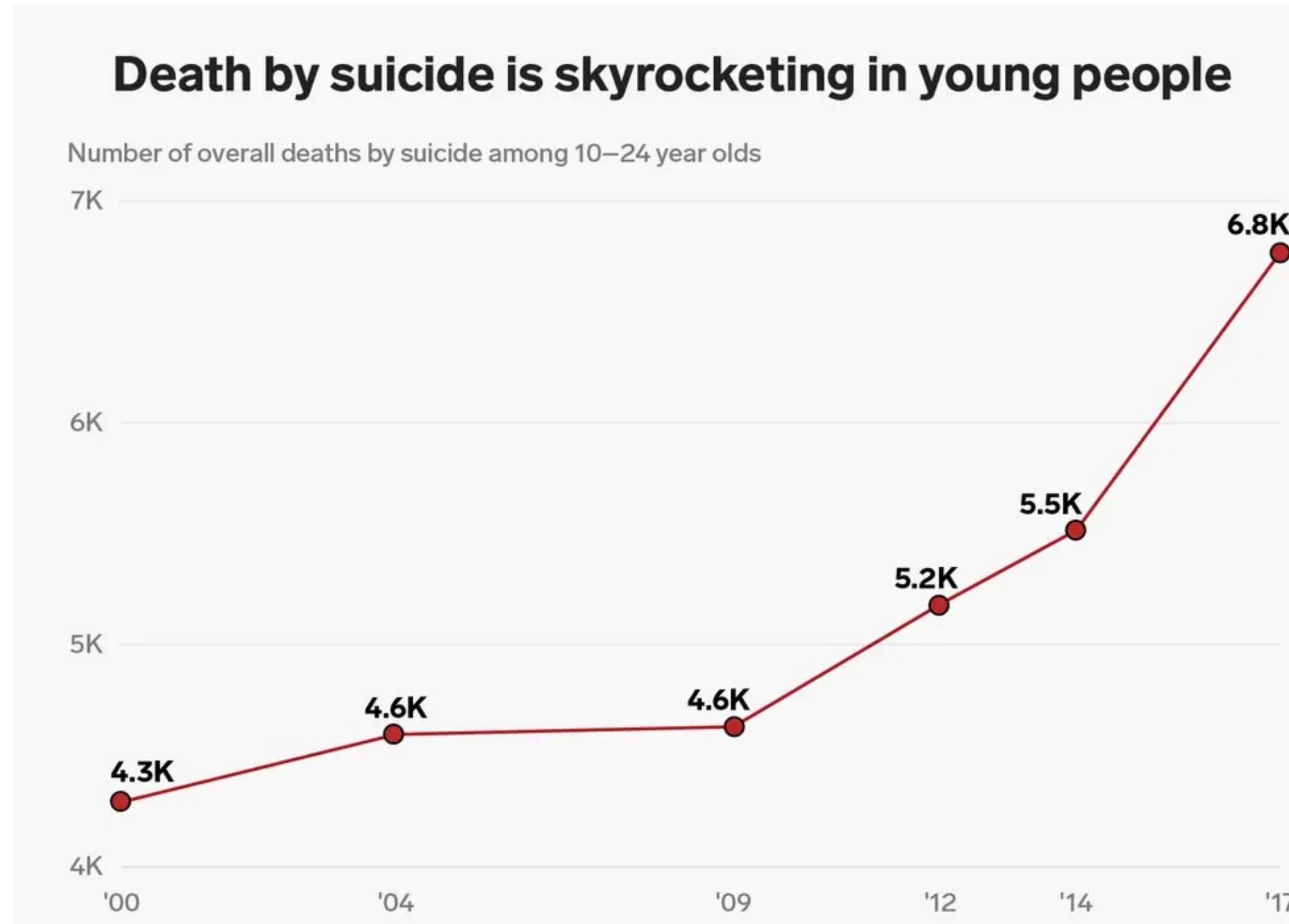
Metis

Heeyewon Jeong

Teenager Suicide Problems

1

Suicide is the **2nd** leading cause of death among adolescents in the United States.



2

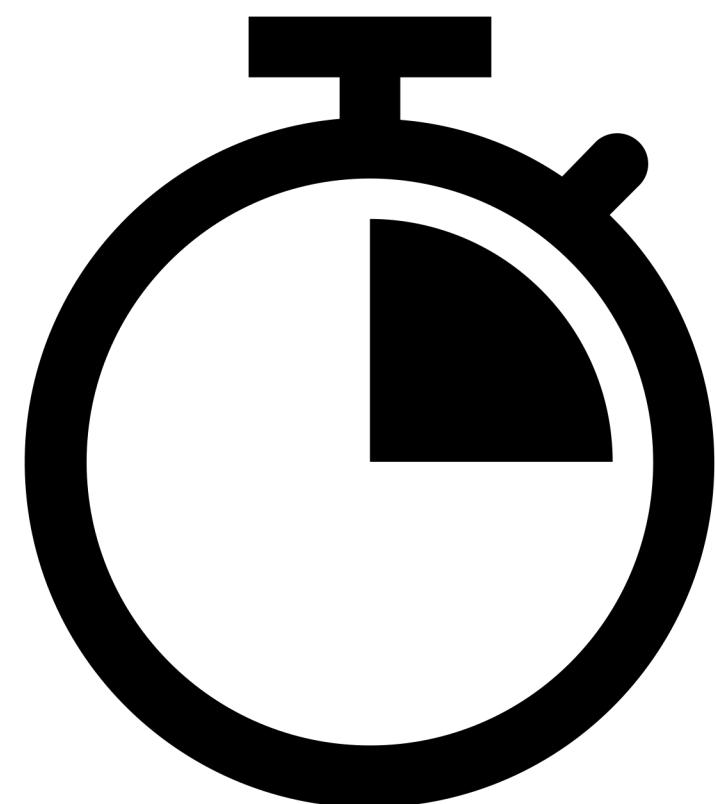
Suicide death in teenagers are on the rise.

3

It is complex to detect and difficult to **assess suicidal warning signs in real-time.**

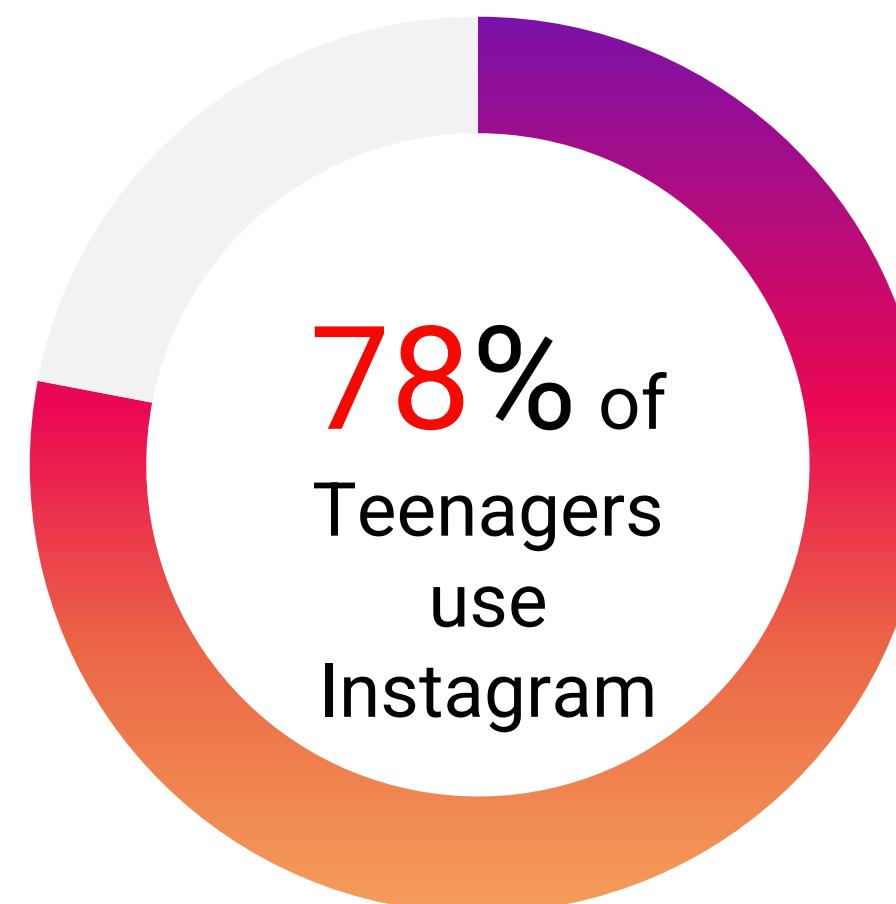
Social Media Use of Teenagers

Average Social Media Usage

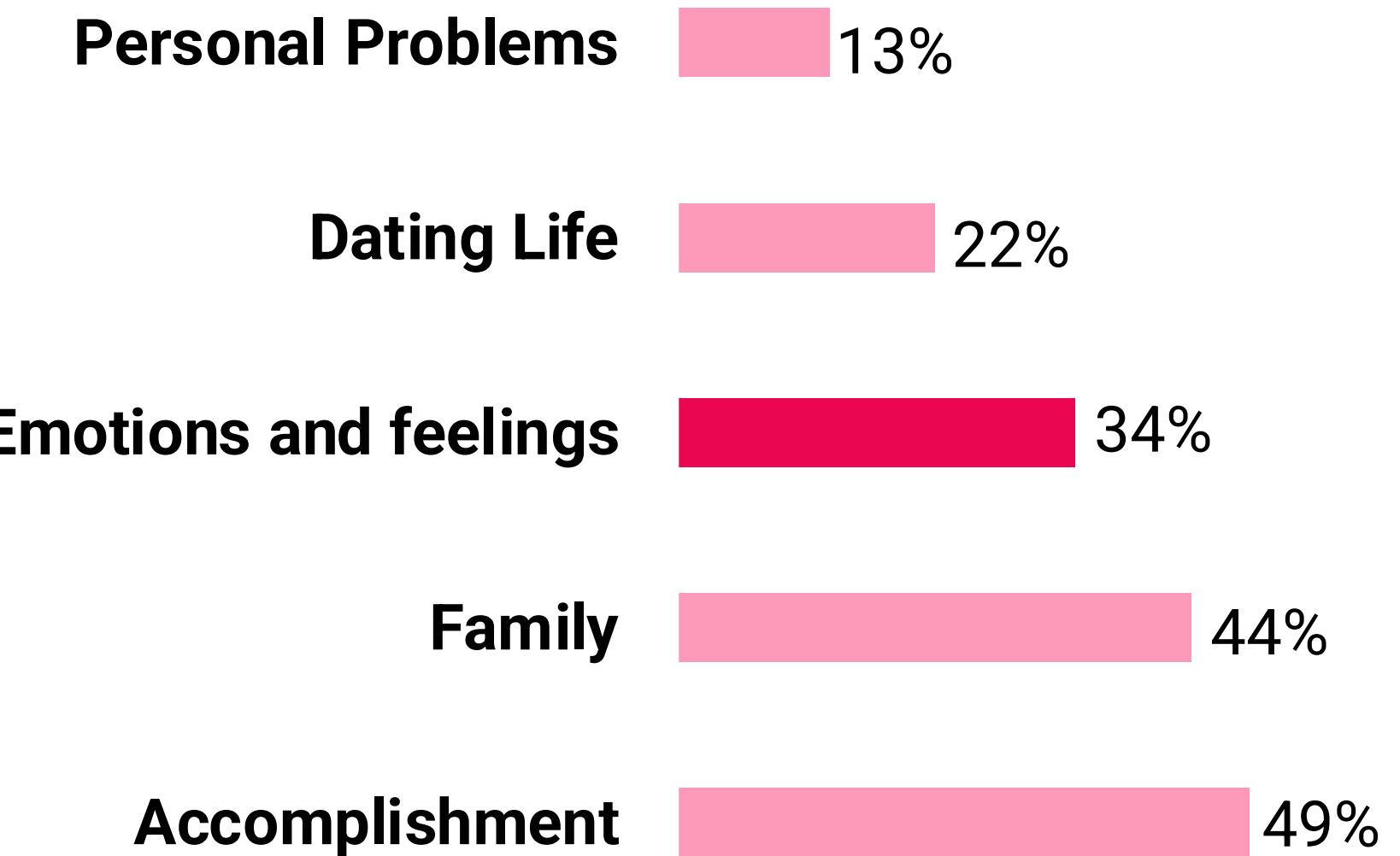


2 hours 22 minutes per day

Instagram is the Most Popular



Types of Contents on Social Media

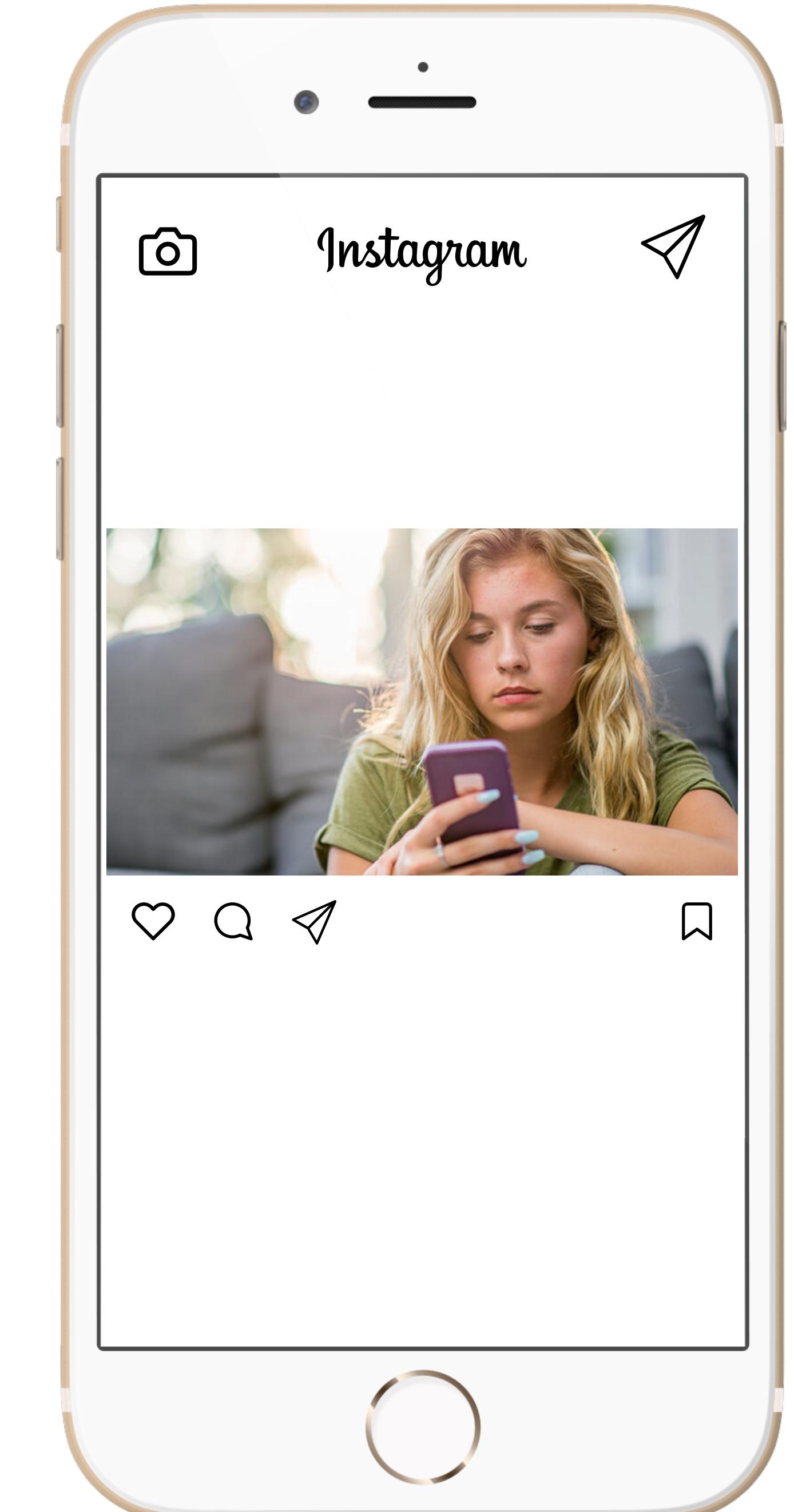




Opportunity

Instagram can help to detect suicidal warning signs by contents shared by adolescent users.

Instagram can help decreasing teenager suicide rates by providing mental health resources in **real-time** for those at suicide risk.



Methodology

1 Data

Youth Risk Behavior Surveillance System Prevalence (2017) from Centers of Disease Control and Prevention

2 Exploratory Data Analysis: Suicidal Behaviors among Teens

Insights and characteristics in suicidal thoughts and behaviors among the U.S. high school students aged 14 to 17 were analyzed.

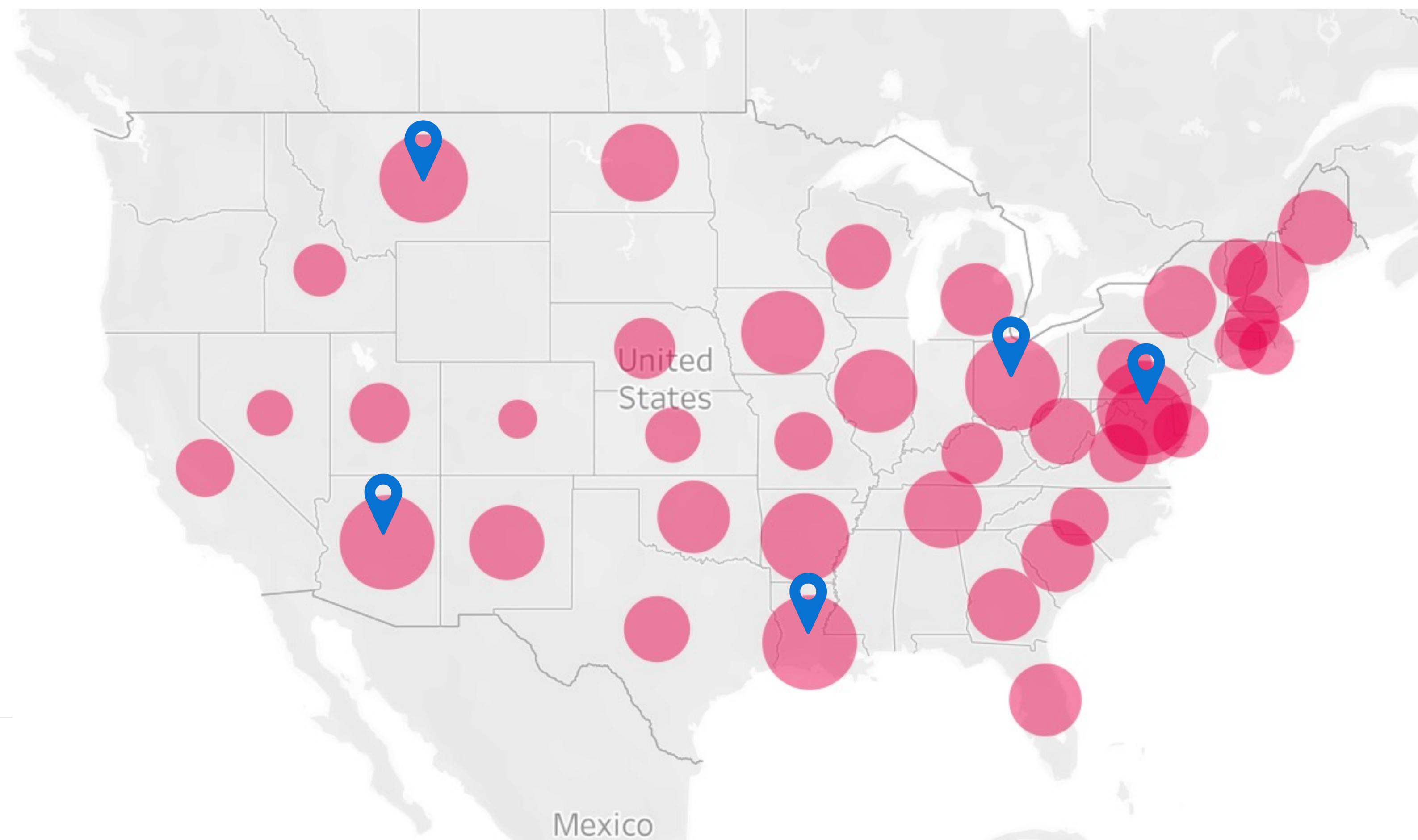
- Suicidal thoughts and behaviors
(feeling sad or hopeless and suicidal ideation, plan, attempt)
- Geographical location
- Grade
- Sexual Orientation and Identity

3 Tool

Data Analysis: Excel

Visualization: Tableau

The U.S. Teen Suicide Attempt Prevalence



Suicide Attempt Prevalence

10.71%

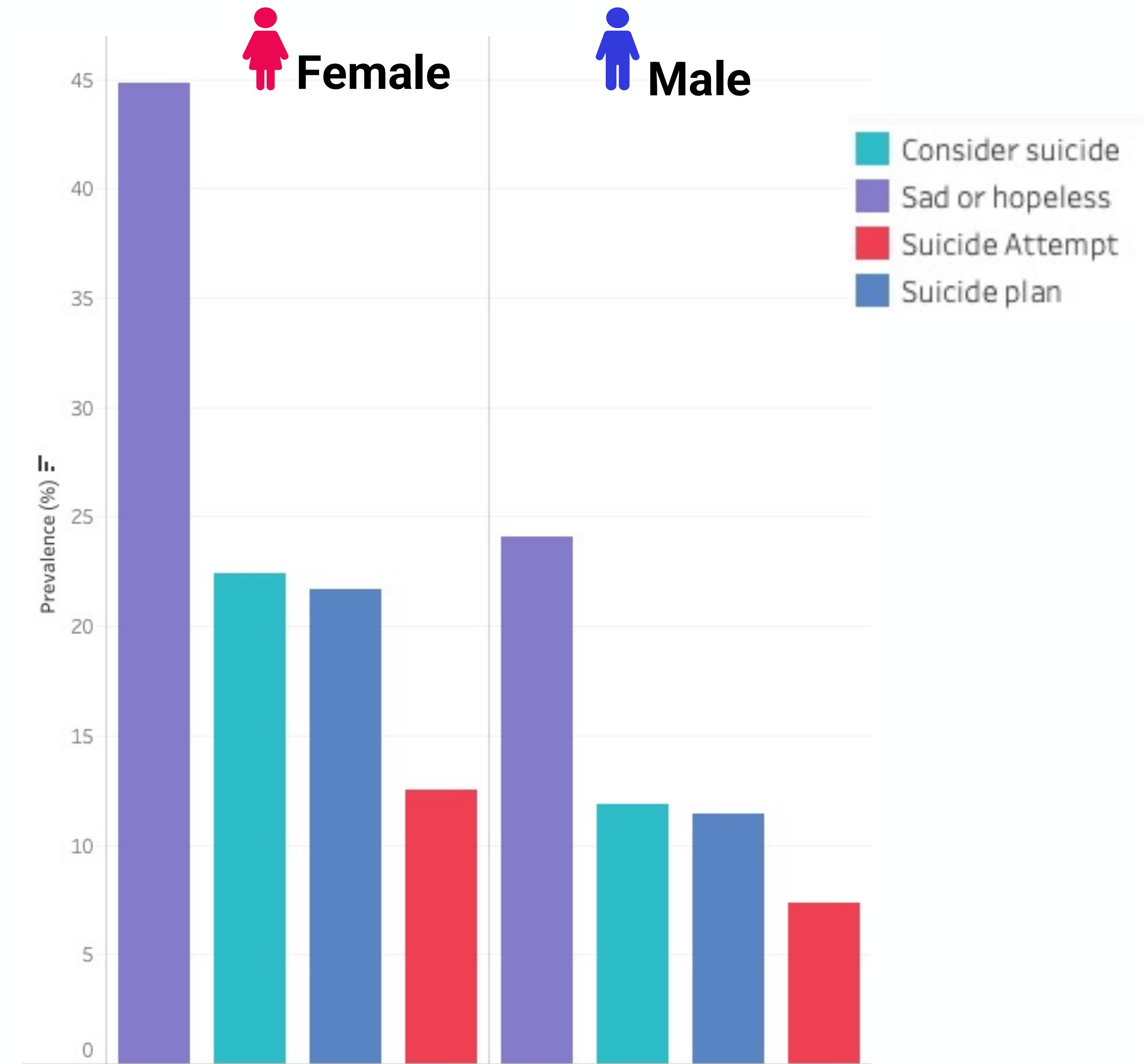
* In last 12 months

Top 5 Prevalent States

1. Maryland (19.73 %)
2. Ohio (19.70 %)
3. Arkansas (17.50 %)
4. New Mexico (12.38 %)
5. Missouri (7.03 %)

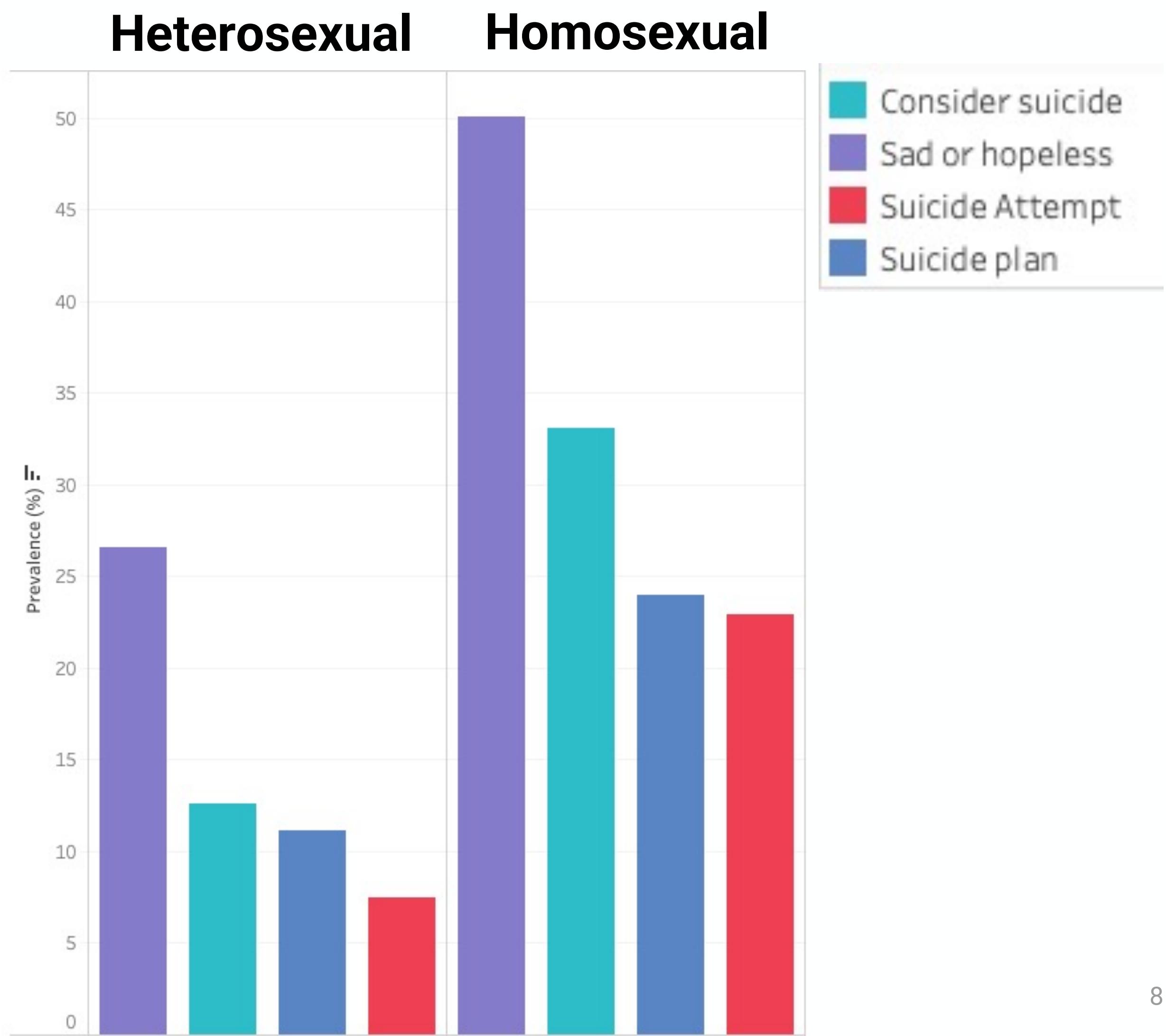
Sex Difference In Suicidal Behaviors

Female students showed
higher in all types of
suicidal behaviors than
male students.



Sexual Orientation In Suicidal Behaviors

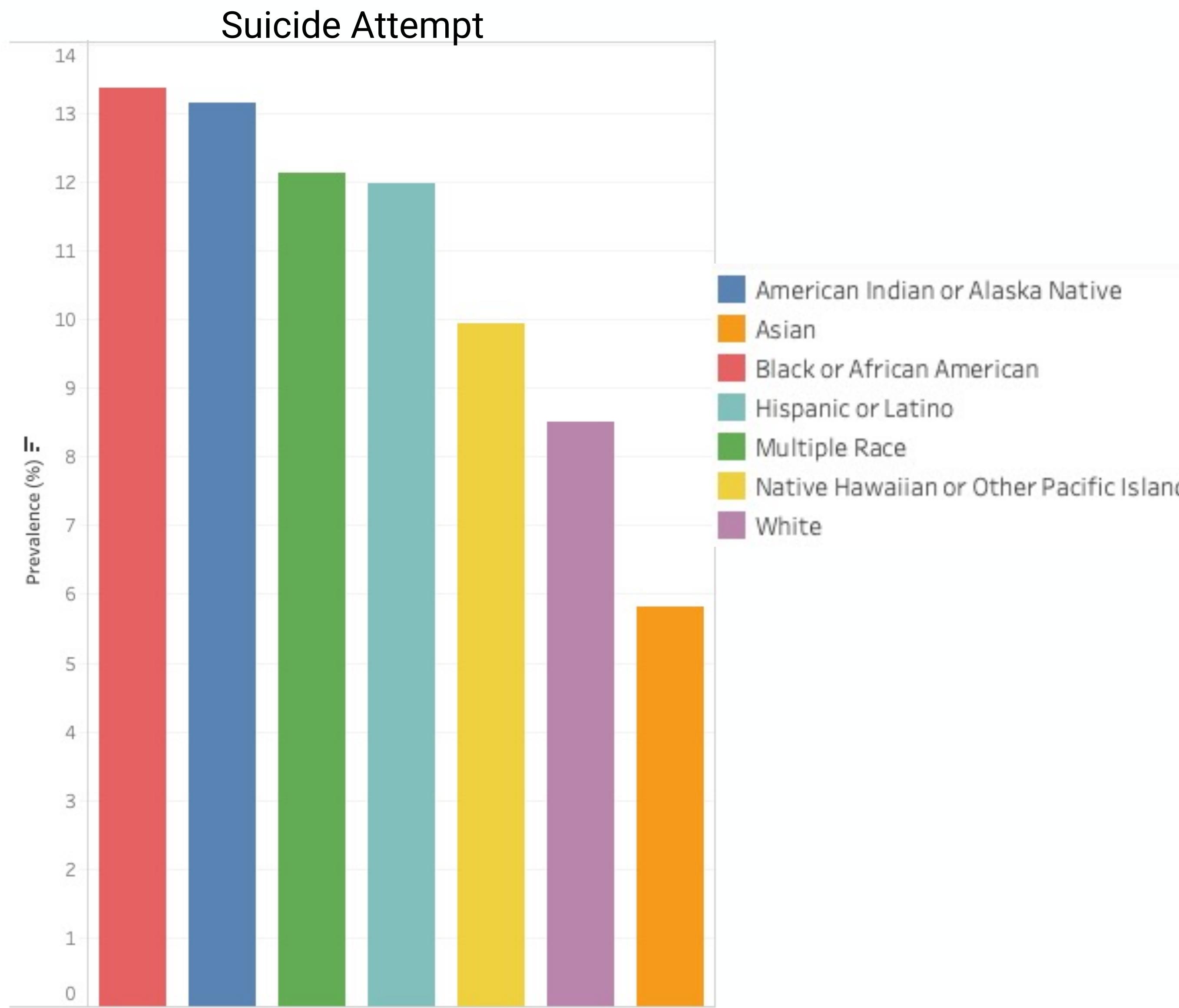
Homosexual students
showed **higher in all types of suicidal behaviors** than
Heterosexual students.



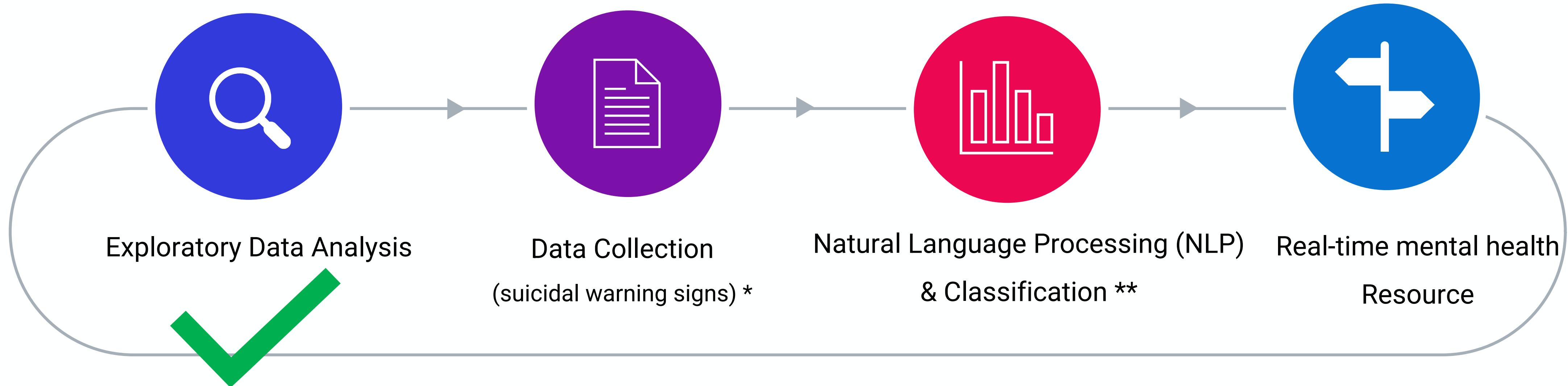
Race In Suicidal Behaviors

The Races with **higher** suicide attempt than the average

- African American
- American Indian
- Multiple Race
- Hispanic or Latino



Suggested Solution Paths



*Suicidal Warning Signs:

1. Talk pattern (Being a burden, wanting to be dead, experiencing unbearable pain, or feeling trapped)
2. Mood (Depression, anxiety, humiliation, or rage)
3. Behaviors (drinking alcohol excessively, searching lethal means, or sleeping little or too much)

** NLP for text content analysis and classification for the NLP results into suicidal warning sign categories (i.e., talk, behavior, and mood).

Social Media Impact on Teen: Instagram may cause teens more suicidal?

Depression is highly associated with suicide attempts.



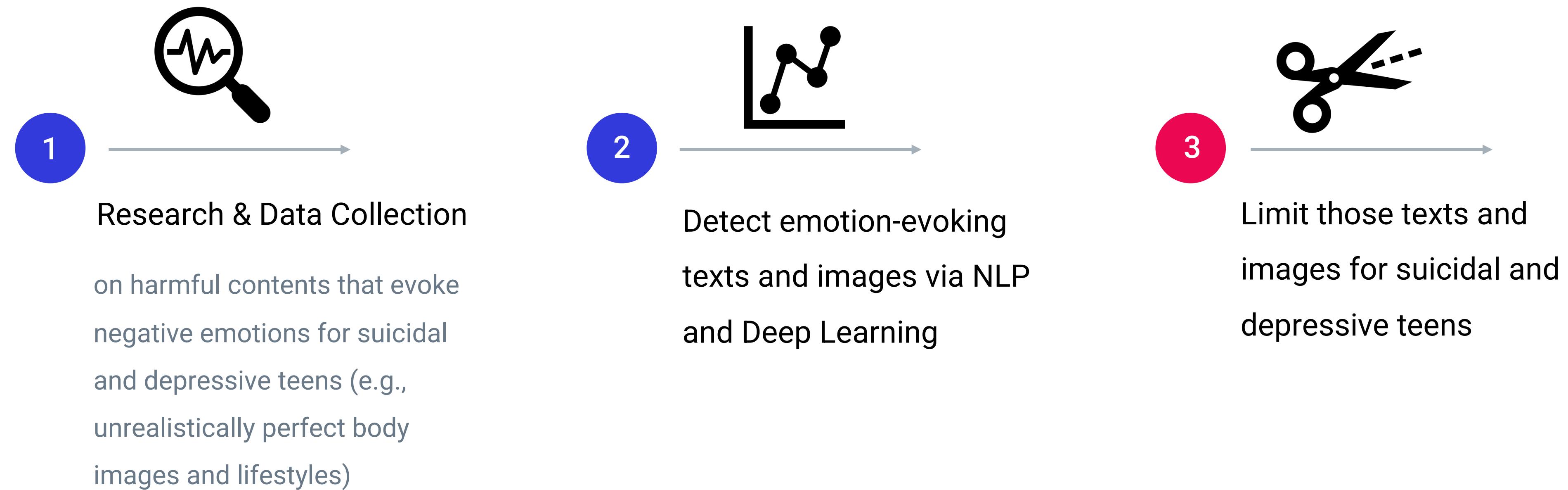
Spending more time on social media may lead higher rate of depression than spending less time.



Depressive teenagers tend to more compare themselves to others (e.g., perfect body images).

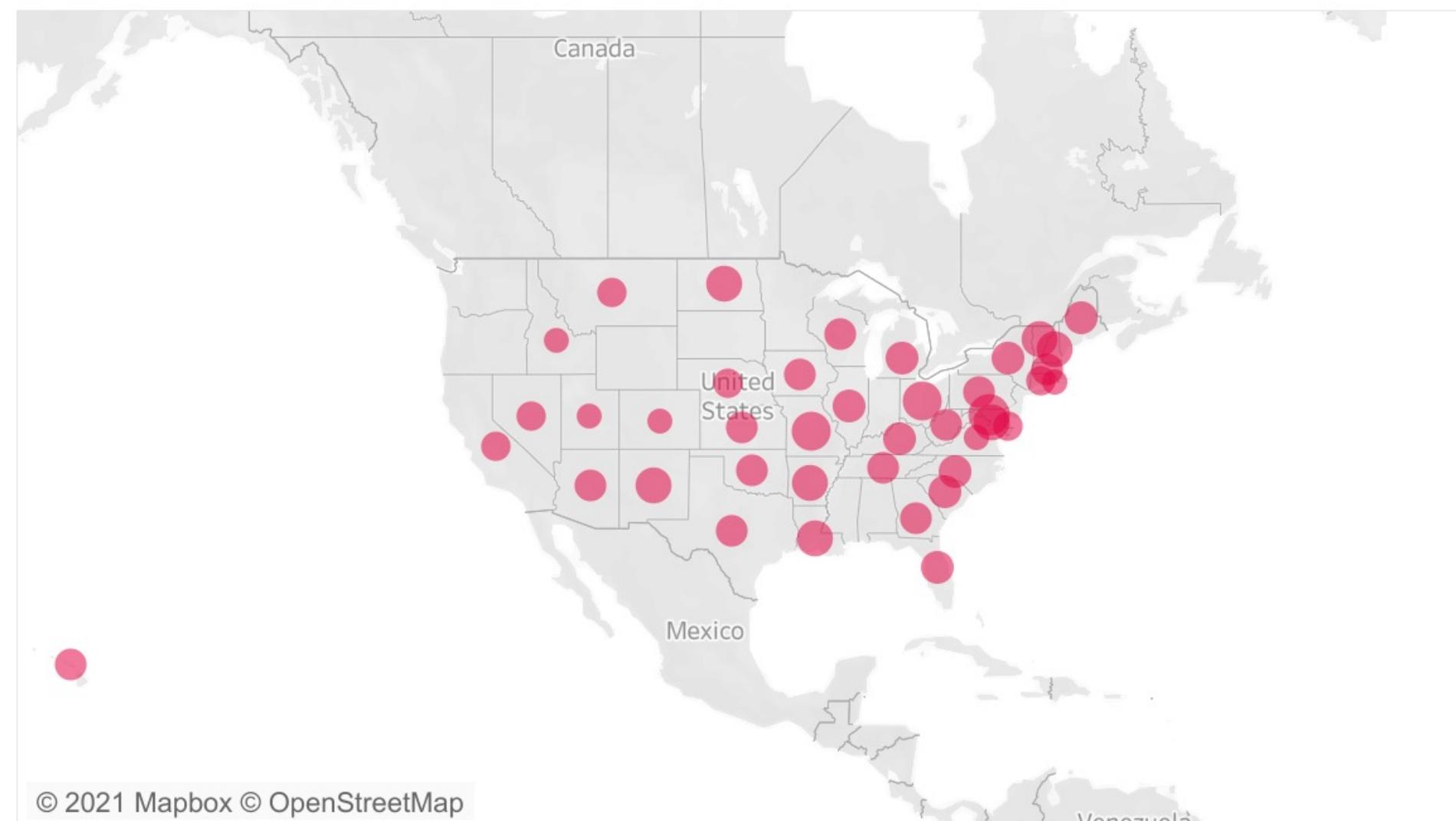
Bonus solution path:

Instagram may cause teens more suicidal?

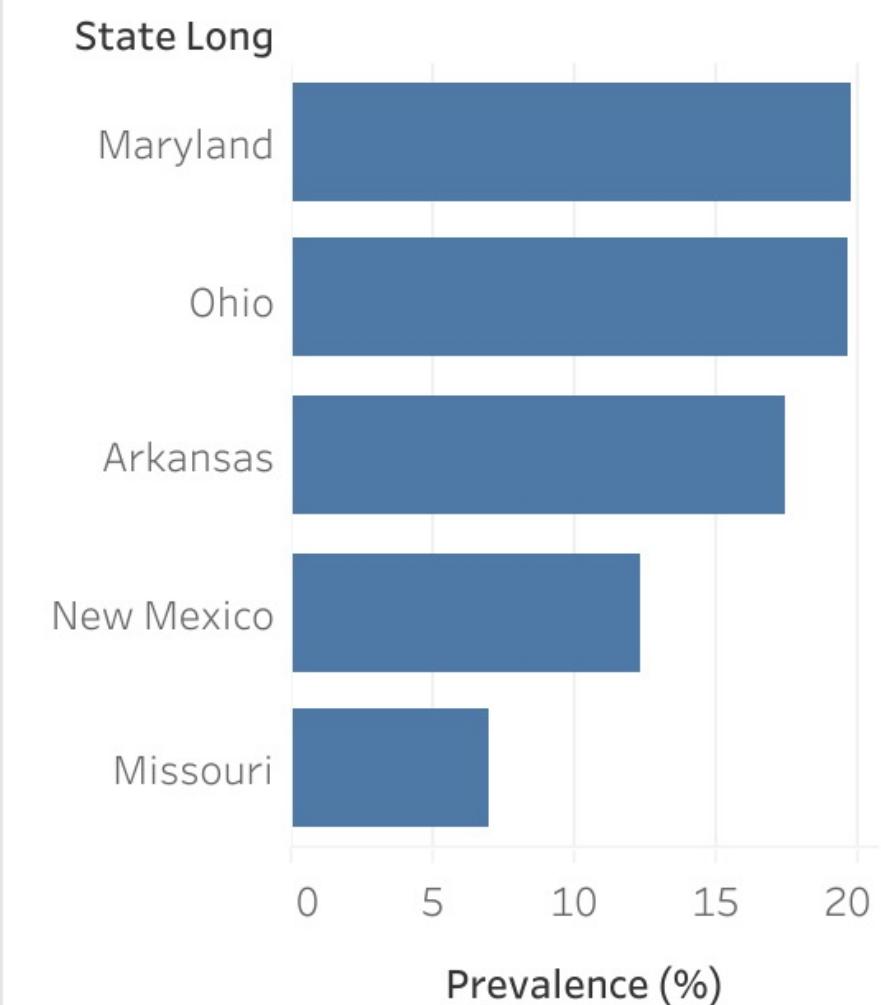


Appendix

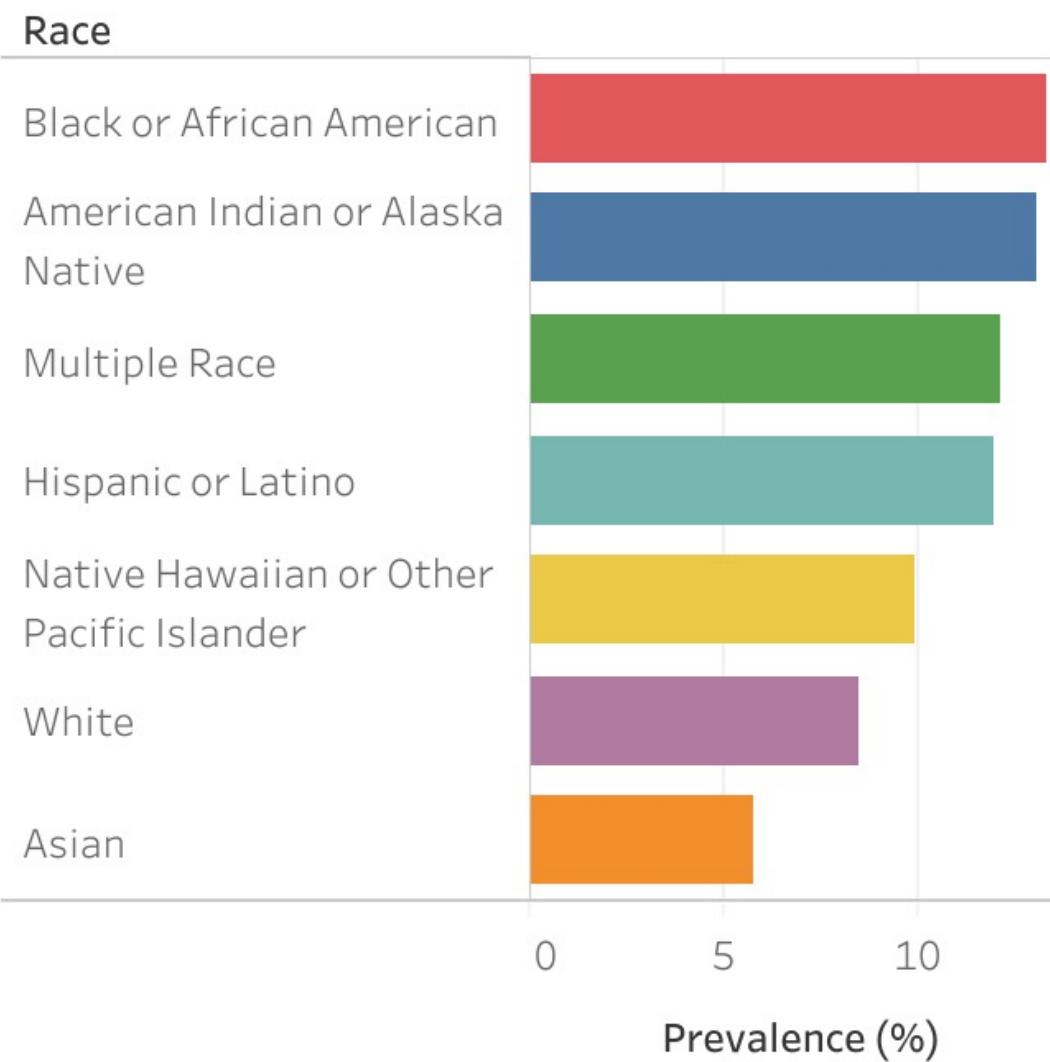
Teen Suicide Attempt Prevalence in the U.S.



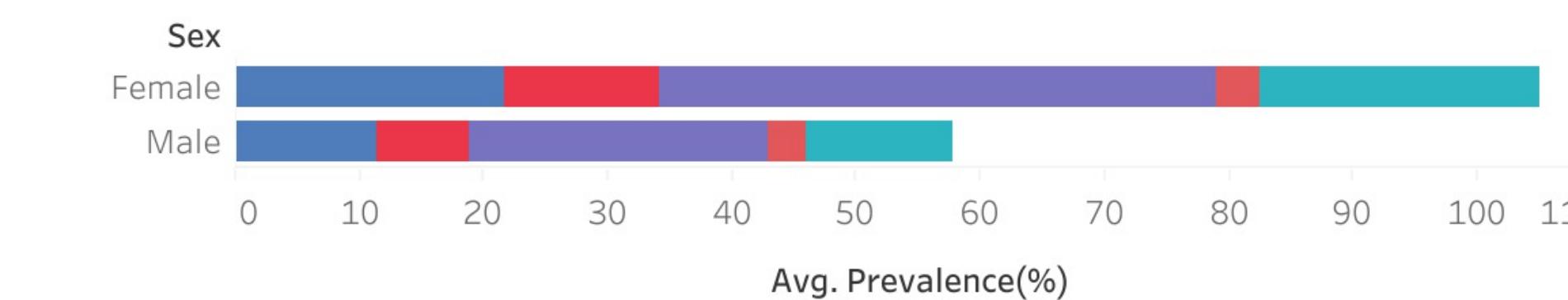
Top 5 Suicide Attempt Rates in the U.S. States



Suicide Attempt in Different Races



Sex Difference in Suicidal Behaviors

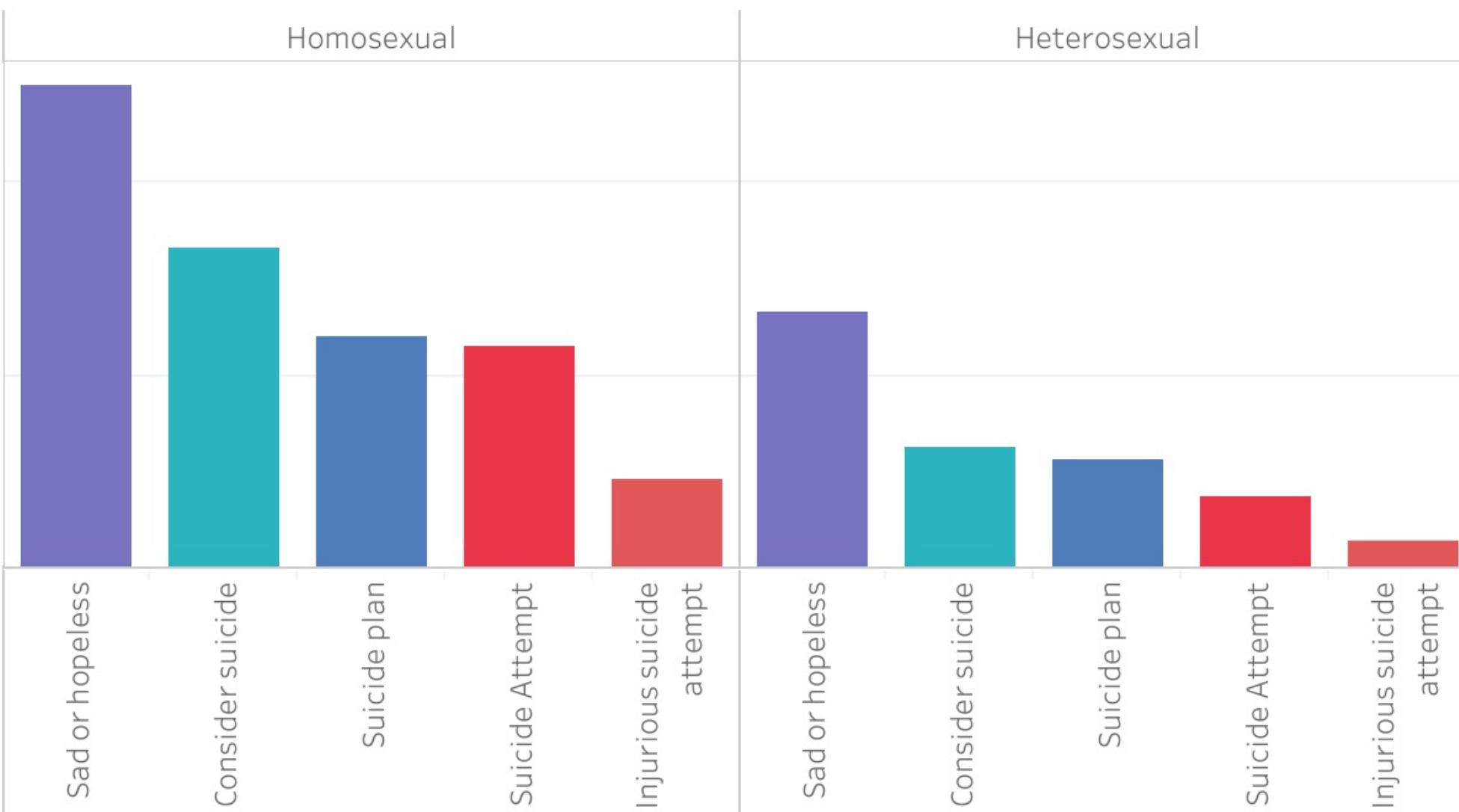


Total Number of Students in Survey:
721,489

Number of students	166,471
Prevalence(%)	11

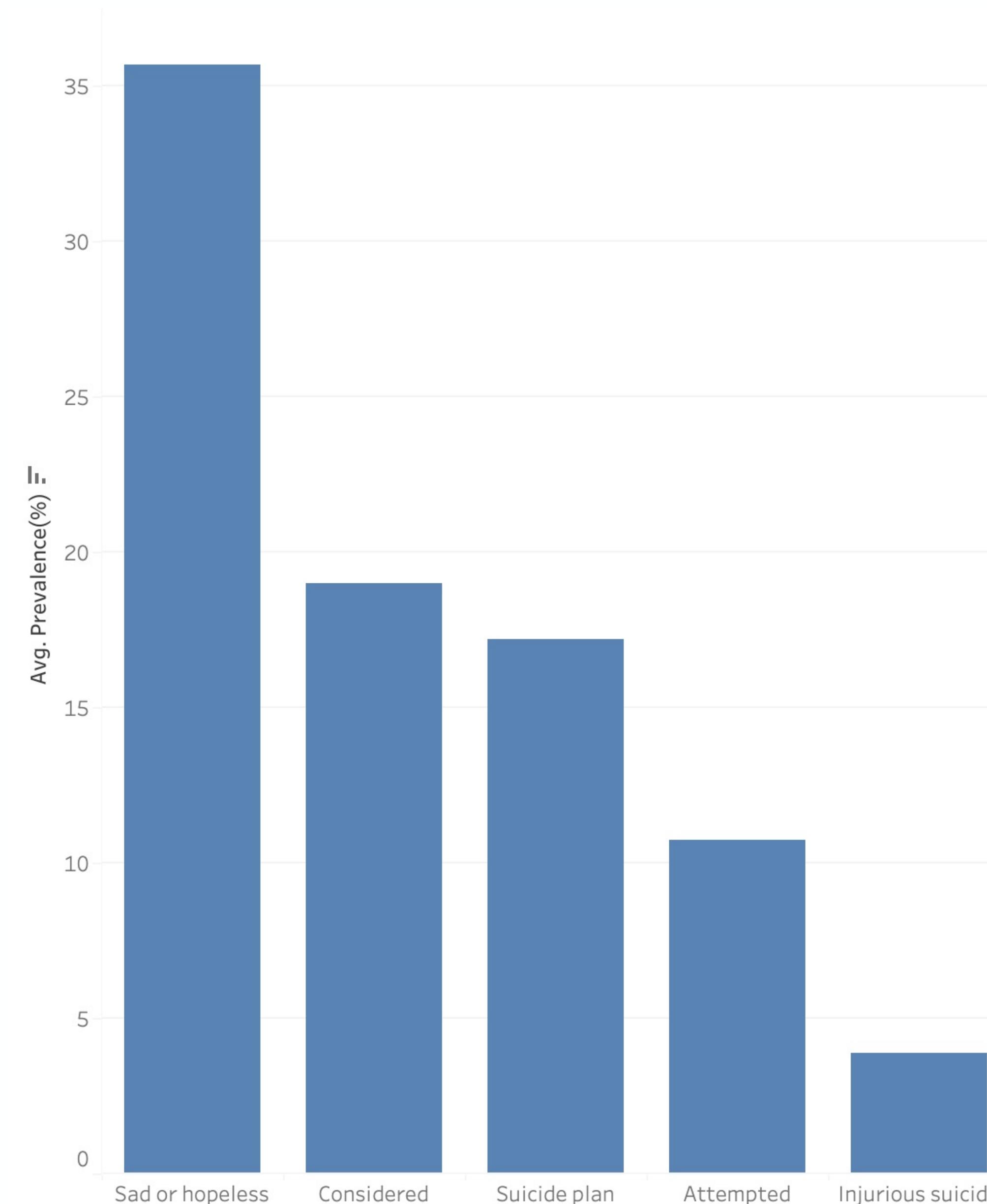
Types of Suicidal Behaviors Suicide Attempt

Suicidal Behaviors in Different Sexual Orientation



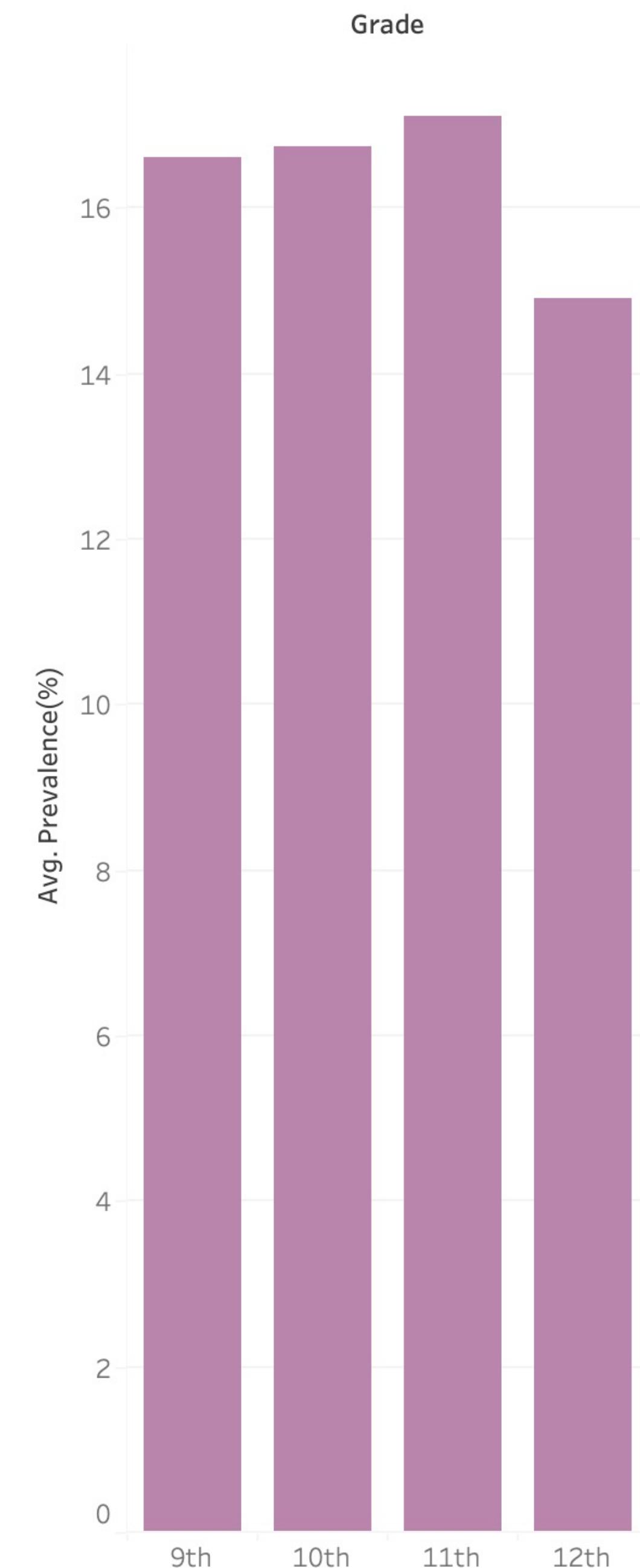
Appendix

Suicide-related Behavior Prevalence in Teenagers in 2017



Appendix

Suicide Attempt in Different Grades





Instagram

Questions?

Scan QR code to interact with the data

Contact

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