Using Social Media for a Probability Sample: Is it Possible

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Substantive Motivation

- Suicide is 2nd leading cause of death for 10-24 year olds.
- Sexual and gender minority (SGM) youth are 4 times more likely to attempt suicide, and half of transgender youth report thinking seriously about suicide.
- Unique risk and protective factors (e.g., bias-related victimization) likely shape suicidality among SGM youth
- Current research methods are flawed; only biased data are available to funders and intervention developers.

No evidence-based suicide prevention programs exist to meet the needs of SGM youth—and they can't be designed from the evidence we have.

Methodological Motivation

- Issue
  - Traditional surveys of children – such as the YRBS - use school-based probability sampling designs
  - While studies with these designs can produce reliable estimates for children, they do not usually provide enough sample in some important subdomains to allow detailed domain analyses

Solution

Social media with a Twist!

How It Works: Three Step Process

1. Develop a frame of the target population of interest on a social media platform
2. Use publicly available information on frame members to stratify them based on their likelihood of being in the subpopulation of interest
3. Apply post-survey adjustments to correct for differences in the frame population and the target population

Step 1: Develop a frame

- Issue:
  - Can a frame of users from a social media platform be created?
  - Can it be considered a random subset of the full set of platform users?

- Solution:
  - Twitter has an application programming interface (API) which allows researchers to access publicly available data from all Twitter
  - A random sample of users in the API can be drawn

Step 2: Stratify Population

- Issue:
  - What information is available to determine stratification?
  - What are the criteria which should be used for stratification?

- Solution
  - The API allows one to pull public tweets from frame members
  - An algorithm can be developed to determine likelihood person is in the subdomain of interest
  - Based on assigned likelihood strata can be formed

Step 3: Post-Survey Adjustments

- Issue:
  - No social media platform fully covers the population of interest
  - Users of a particular social media platform may be different than those who do not use it

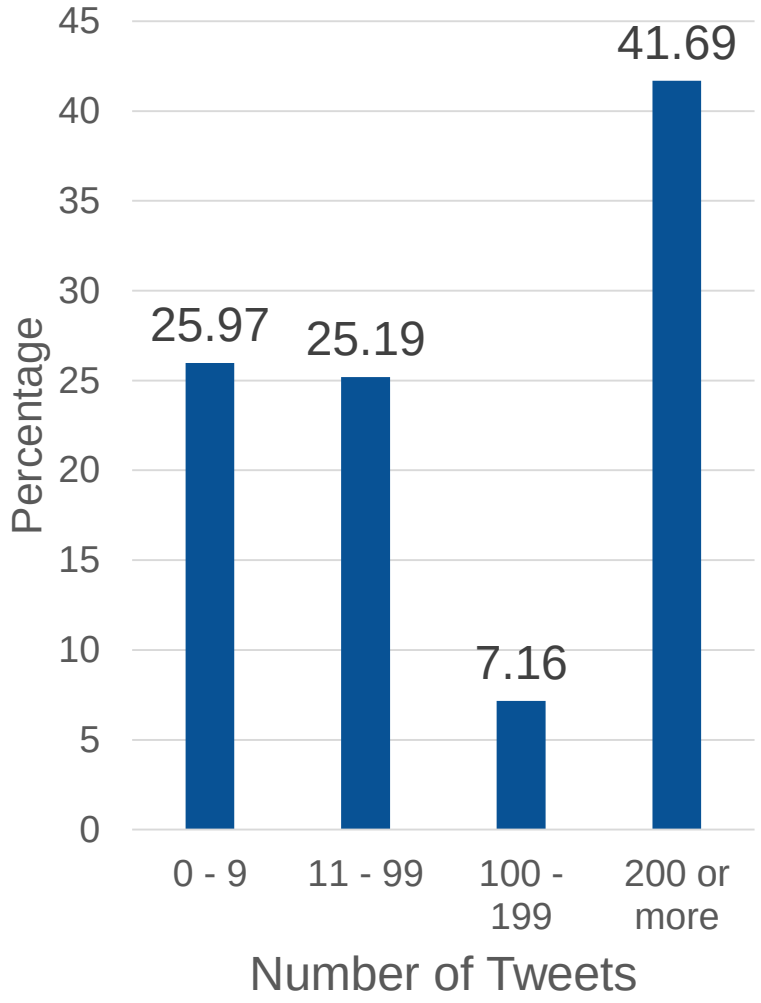
- Solution:
  - Embed items from nationally representative probability-based studies which are correlated with the outcome of interest
  - Use items in coverage adjustment along with demographic information

Application

- Outcome: Suicide ideation and attempt
- Target population: youth age 14 – 21 in the United States
- Subpopulation of interest: LGBTQ persons
- Social media platform: Twitter

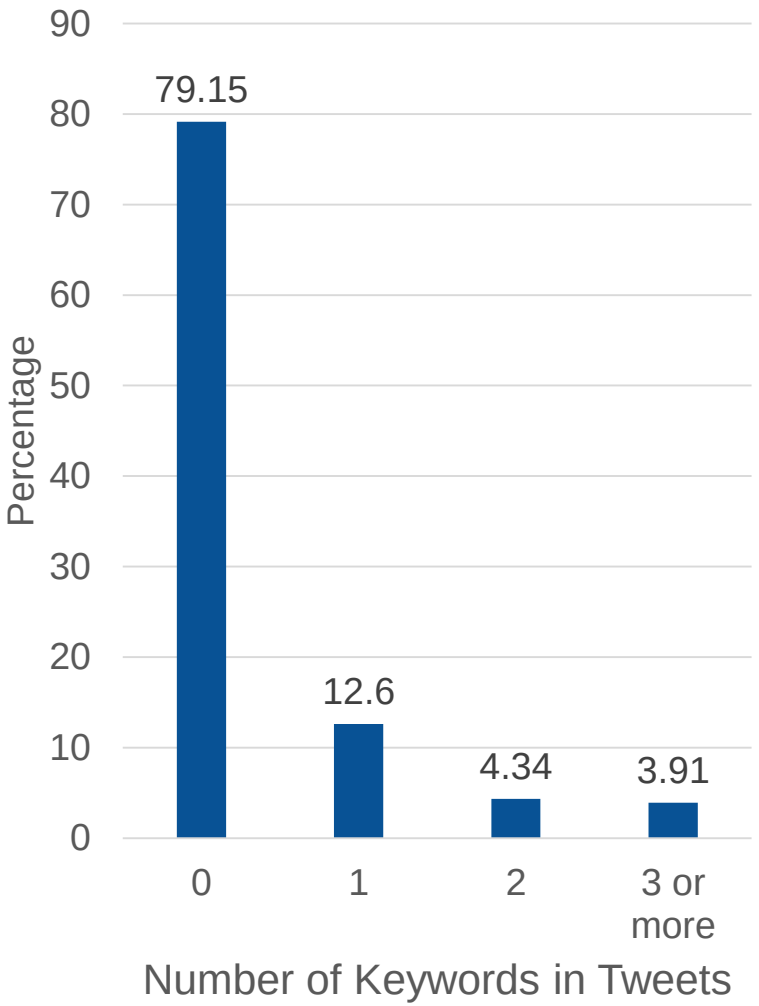
Step 1: Develop Frame

- Randomly selected a set of Twitter IDs from the API
- Needed to select extremely large set of IDs
  - Restricted based on time zone
  - Will later need to restrict on age



Step 2: Develop Stratification

- Held focus groups with LGBTQ youth
- Developed alpha version of stratification algorithm based on keywords focus groups identified as associated with LGBTQ persons
- Example terms
  - #NYpride
  - #queeryouth
- Based on keyword usage among frame, created 3 strata
  - Low: 0 or 1 keywords
  - Medium: 2 keywords
  - High: 3 or more keywords



Step 3: Post-Survey Adjustments

- Included two questions from YRBS related
  - Youth's belief about how their parents feel about them
  - Youth's feeling about closeness to people at school

Family Connectedness (YRBS)

13. How much do you feel that your parents care about you?
    A. Not at all
    B. Very little
    C. Somewhat
    D. Quite a bit
    E. Very much
    F. Does not apply

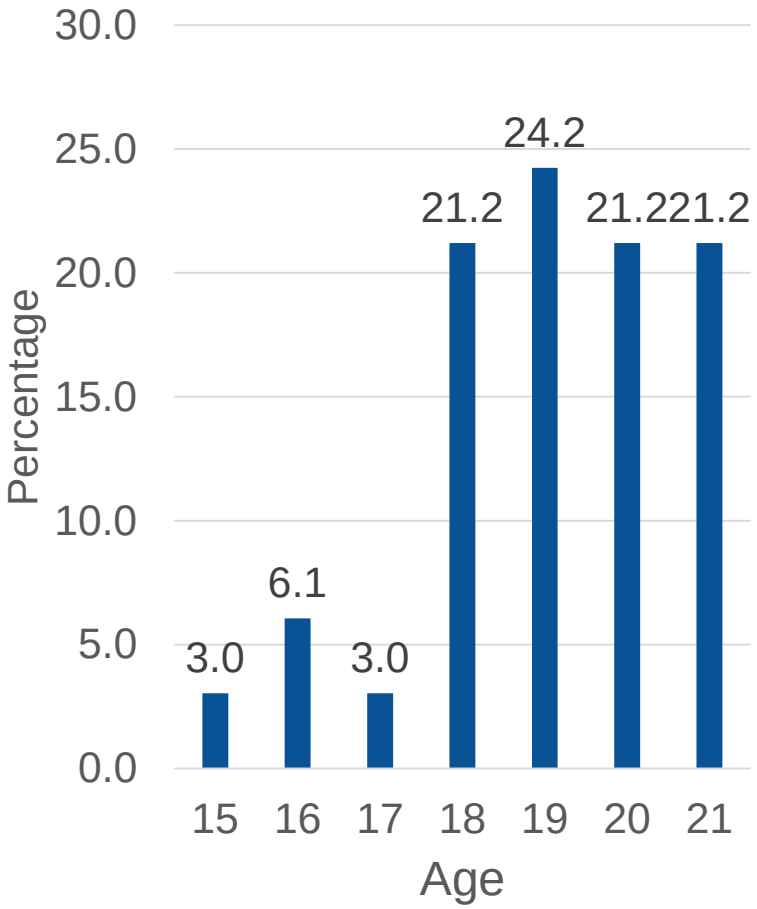
School Engagement (YRBS)

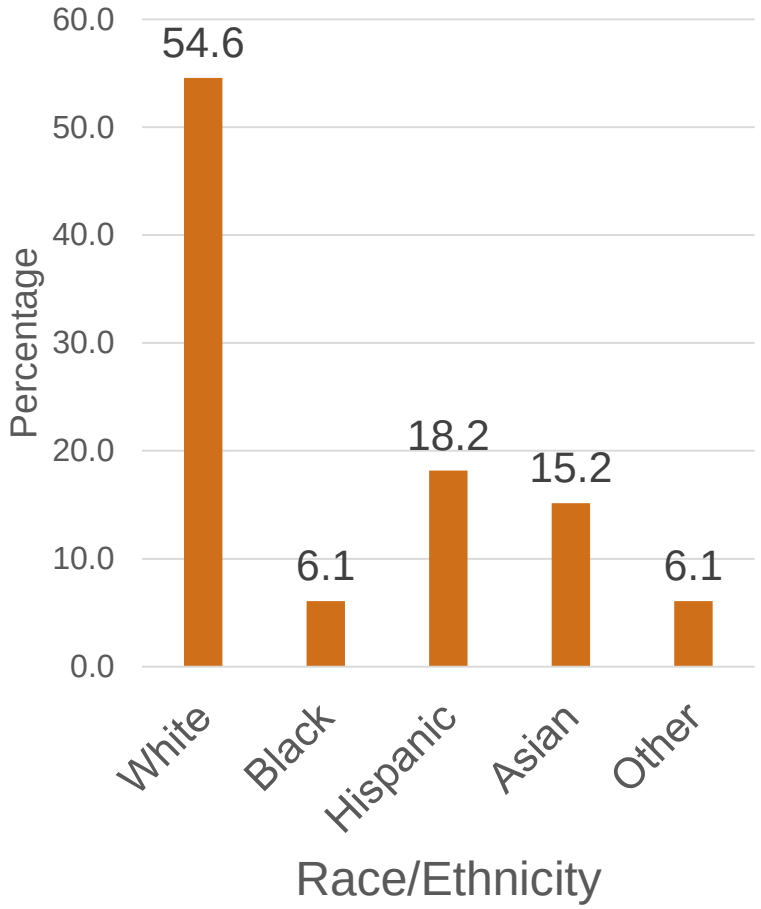
14. You feel close to people at your school.
    A. Strongly disagree
    B. Somewhat disagree
    C. Neither agree nor disagree
    D. Somewhat agree
    E. Strongly agree

Conducting Survey: Used Twitter Advertising

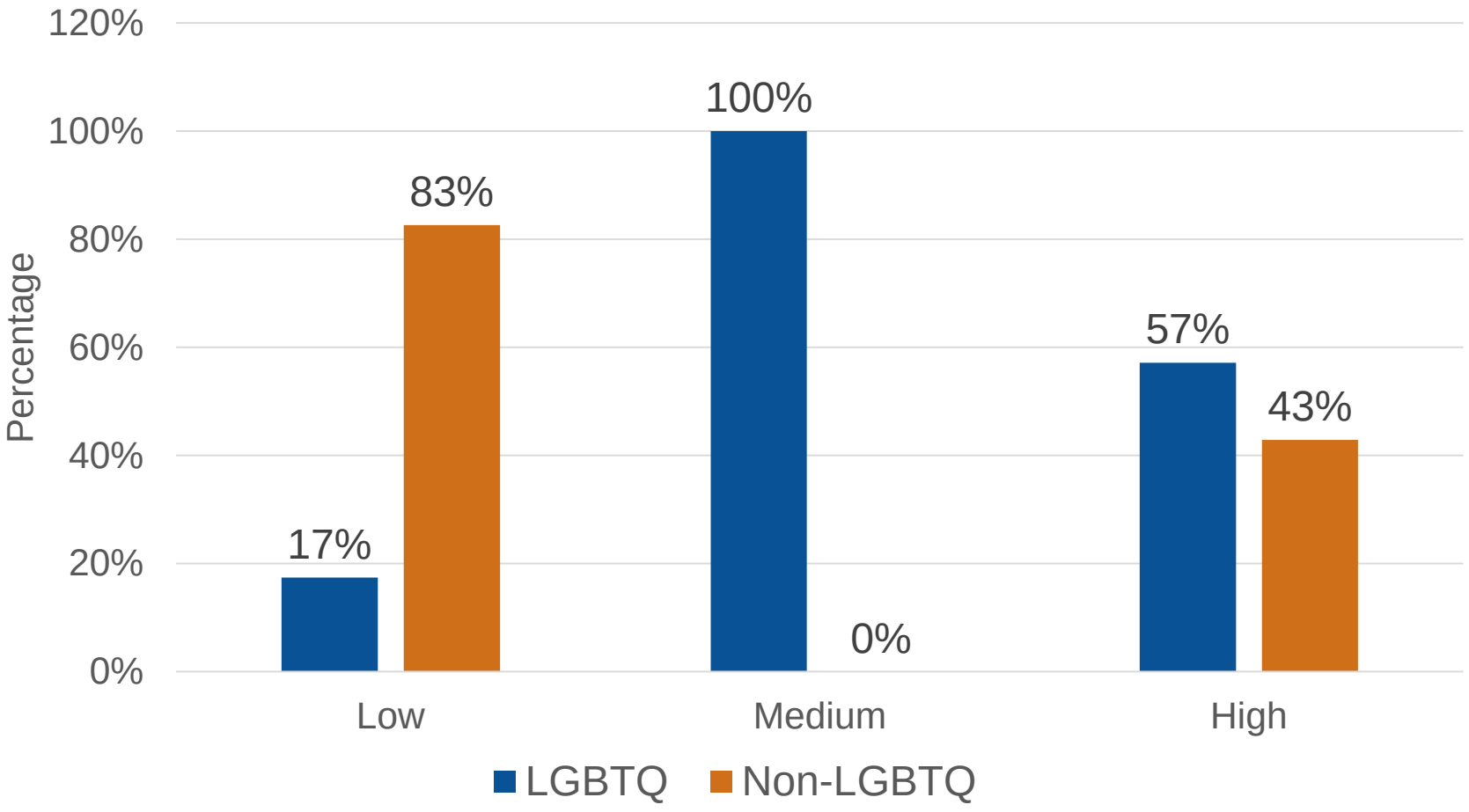
- Pros
  - Easy to load sample in different campaigns to manage sample release
  - Can use Twitter to subset to age range and country of interest
  - Can use Twitter analytics to help understand sample respondents
- Cons
  - Twitter “verifies” list of users which results in large reduction of sample available to receive advertisement; reduction was as high as 90%
  - Cannot manage the number of times a sampled person sees the ad

Initial set of respondents have skewed towards the older end of age range; predominantly been White Non-Hispanic





Based on preliminary results, stratification approach does seem to identify LGBTQ persons based on self-identified information



Current and Future Activities

Current

- Data collection for probability-based approach still underway
- Comparison non-probability study underway

Future

- Use API to obtain tweets from respondents to refine stratification algorithm
- Conduct post-survey adjustments and compare survey items not used in post-survey adjustments to comparable national estimates

More Information

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