

Possible Factors in Adolescent Tobacco Use

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Introduction

In 2023, the U.S Center for Disease Control and Prevention conducted a survey called the Youth Risk Behavior Survey. Approximately 20,000 adolescents 11-17 years old were asked various questions regarding their behavior and the behavior of those around them in regards to substance use, sexual activity, and mental health. For the purpose of this project, we chose to focus on tobacco use (cigarettes, cigars, smokeless tobacco, and/or electronic vapor products) and some of the factors behind it.

For demographic factors, we focused on the following: age, sex, and race. Additionally, we wanted to explore the relationship between verbally abusive households and tobacco use.

Materials and Methods

★ Data Collection

- data collected from the CDC (U.S Center for Disease Control and Prevention), the YRBSS (Youth Risk Behavior Surveillance System), and the 2023 YRBS (Youth Risk Behavior Survey)

★ Data Preparation

- installed various packages including tidyverse, dplyr, ggplot2, & Hmisc
- copied raw statistics from mdb. file instead of csv.
- removed special characters (e.g. commas, questions marks) that caused processing errors
- standardized columns, filtered rows, and cleaned incomplete or mislabeled entries

★ Data Cleaning

- used R Studio to filter specific questions regarding tobacco use

★ Data Visualization

- graphed demographics of tobacco users (sex, age, race, etc.)
- various kinds of graphs (e.g. bar graphs, tree) were fitted according to the variable types and distribution

Results

Most of our results were based on Yes/No answers. We used these to graph possible factors of tobacco usage based on the survey data. It is important to note that these are only some of the many factors surveyed.

Tobacco Users Based on Race

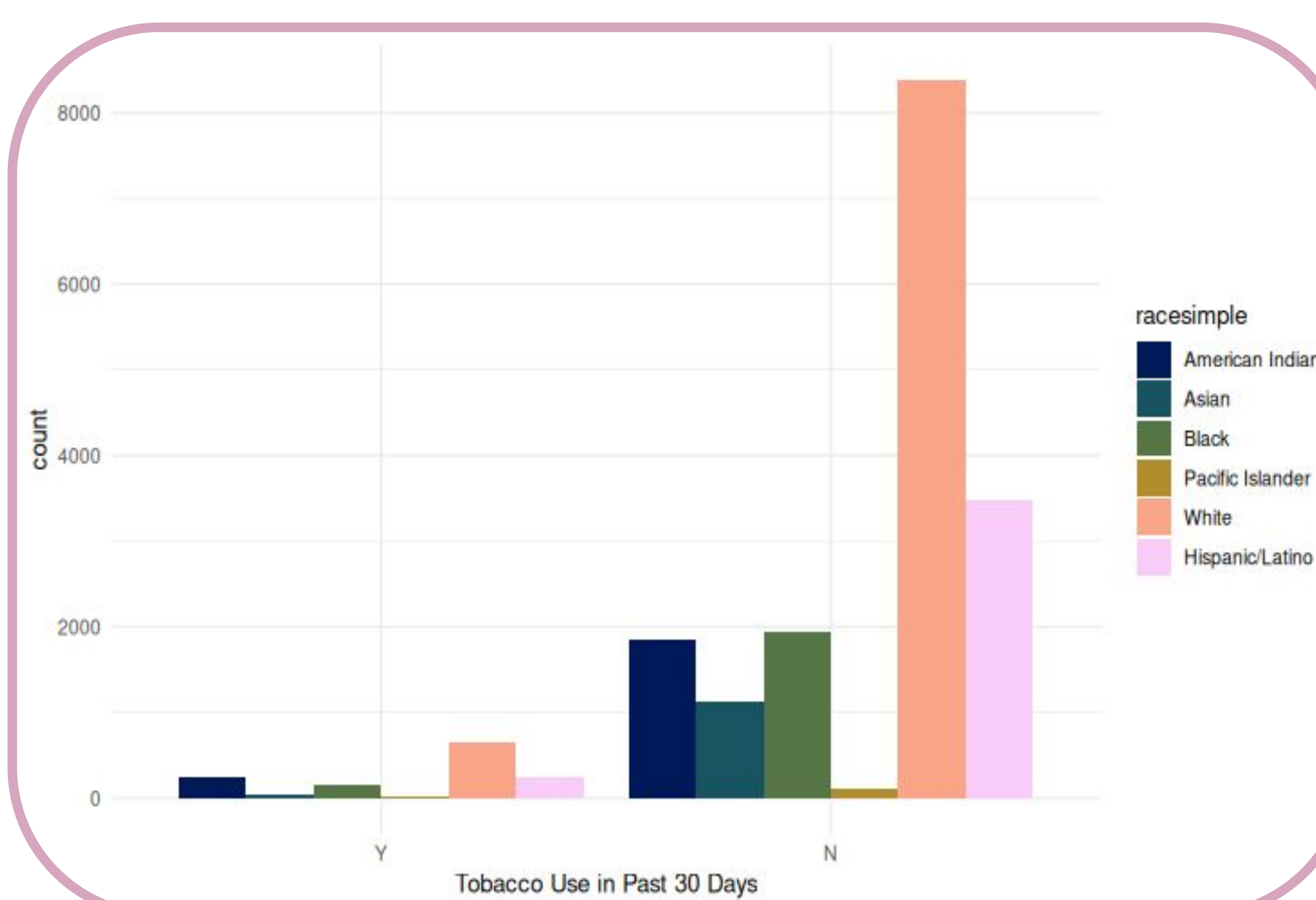


Figure 1. A graph displaying the difference between adolescence who've smoked tobacco in the last 30 days by race. With the color coding visible on the right-hand side. The bars on the right are kids who responded with "No" and the bars on the left are the kids who responded with "Yes".

Tobacco Users Based on Age

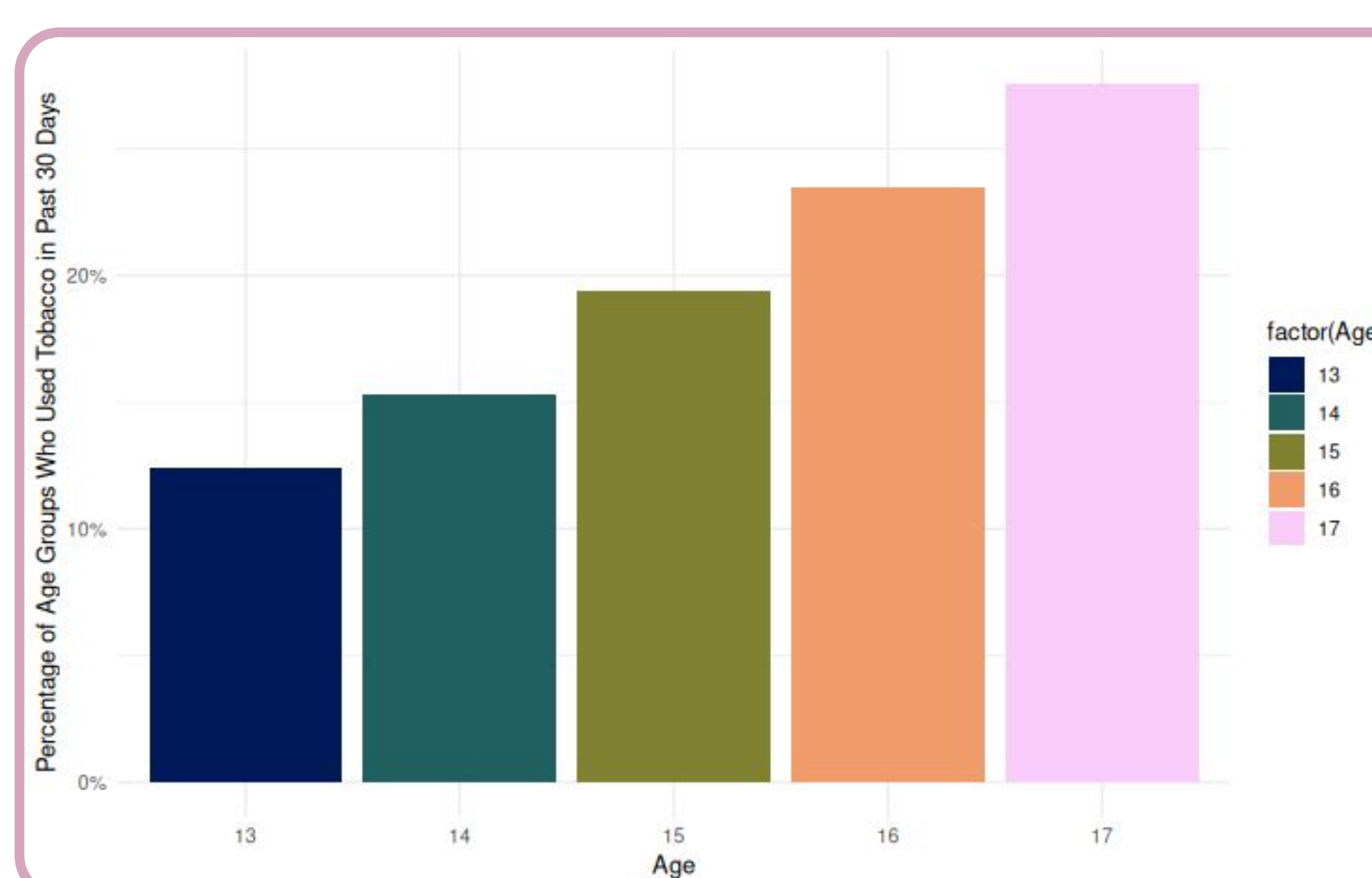


Figure 2. A graph displaying the responses of the percentages of adolescence who have smoked tobacco within the last 30 days of the survey based on age. The ages displayed are 13-17 and the number of answers "Yes" consistently increases as age goes up.

Tobacco Users Based on Sex

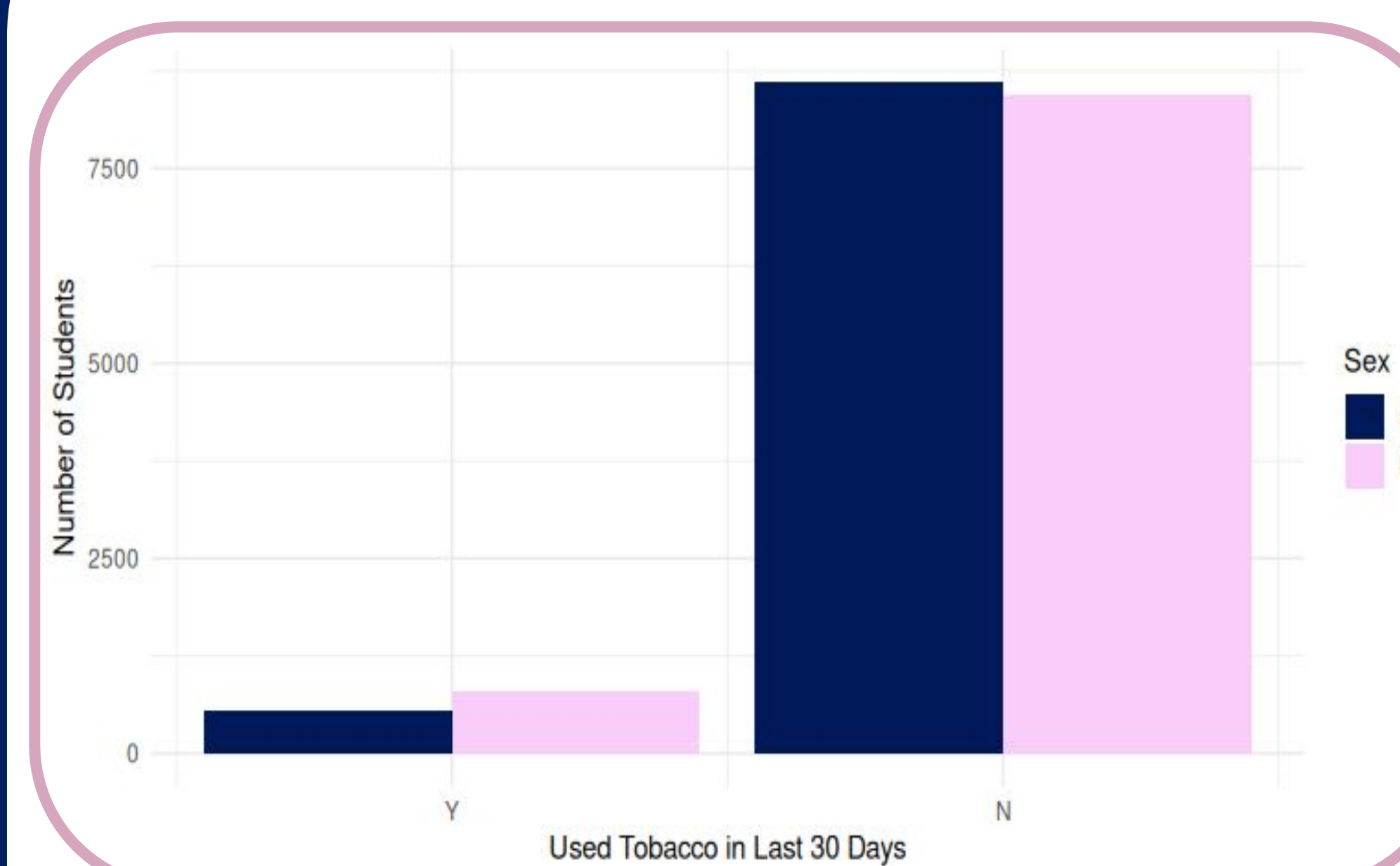


Figure 3. A graph displaying the difference between adolescence who've smoked tobacco in the last 30 days by sex. With purple representing female and pink representing Male. The longer bars on the right are kids who responded with "No" and the shorter bars on the left are the kids who responded with "Yes".

Adolescents with Their Parents/Adult at Home to be Verbally Abusive

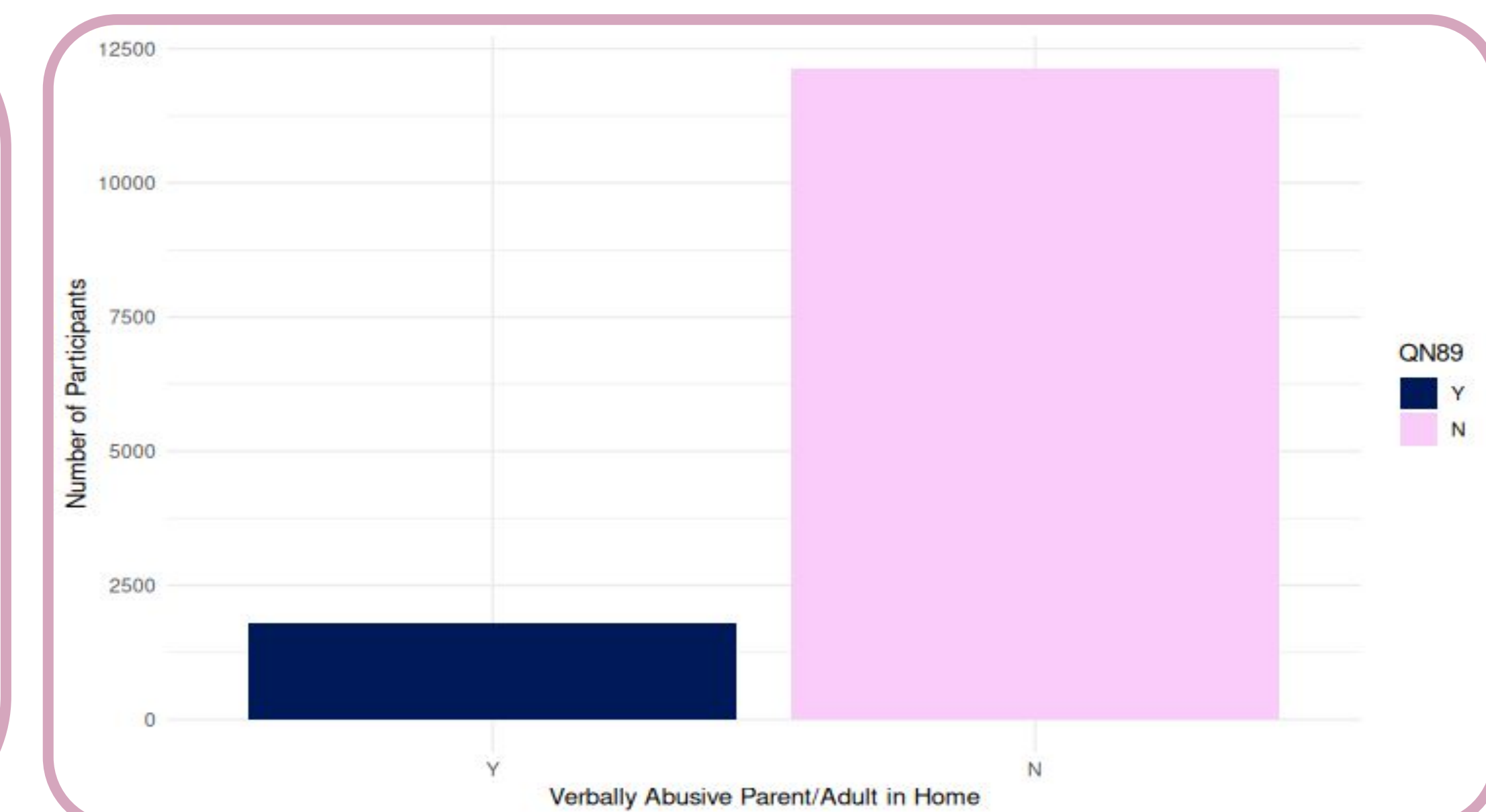
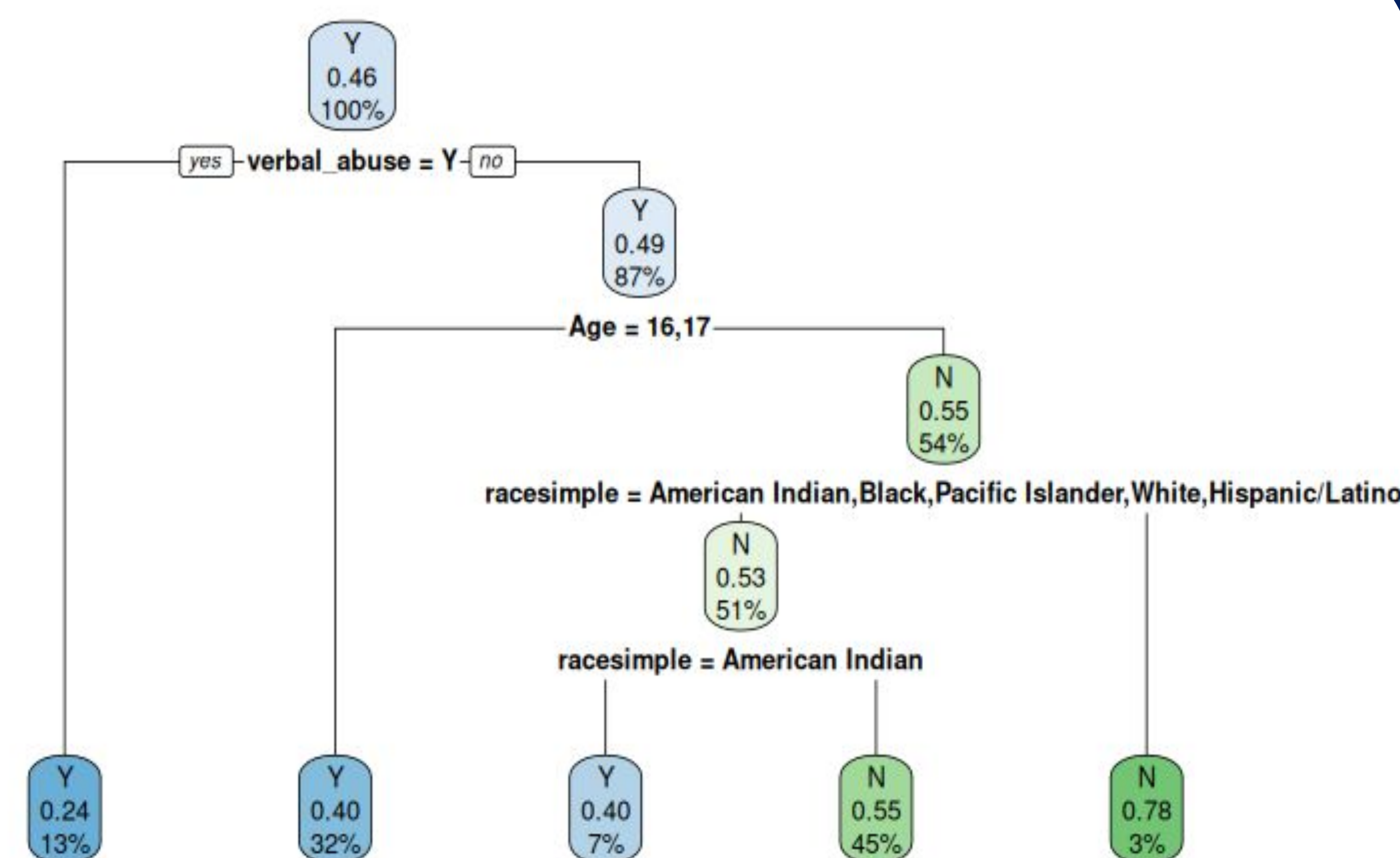


Figure 4. A graph displaying the responses of several thousand students to whether they consider their parents to be verbally abusive or not. The pink bar on the right are adolescence who responded with "No", and the pink left bar is adolescence who responded with "Yes."

Tobacco Usage Prediction



Conclusion

★ Overall Conclusion

- older white males smoke tobacco more (as per U.S. demographic)
- 13% of adolescents in population can be predicted for tobacco usage if verbally abused
- demographics of tobacco users (race, age, sex) are useful indicators

★ Future Research

Future research might focus on analyzing demographics of tobacco users further to allow for prevention and/or intervention. This would play a major role in supporting the health of tobacco users and raising awareness for demographics most at risk.

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References

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