



Visualizing Hampshire County Schools Health Data



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Overview

The SPIFFY coalition is a non-profit organization that aims to reduce unhealthy behaviors in Hampshire County youth. The coalition collects health data from middle and high schoolers through surveys, which they use to inform policies and outreach initiatives designed to prevent unhealthy behaviors. We worked with the SPIFFY coalition during the spring 2022 semester to expand their data dashboard, which communicates health data trends to the public and their stakeholders. We fixed issues with the previous iteration of the dashboard and expanded upon the dashboard to include new features.

Purpose

SPIFFY is an organization that focuses on prevention of unhealthy behaviors in Hampshire County youth. We expanded an existing Shiny web application for the SPIFFY Coalition to visualize trends in their survey data. The purpose of our work is to allow SPIFFY stakeholders and the public to interact with Hampshire County schools health data and use it to make data-driven decisions. We accomplished this by building a robust and detailed data visualization web app.

Dashboard Layout

The dashboard has two tabs, each with a main panel for visualizing data, a sidebar with various user input options, and text boxes with messages regarding the data and dashboard features. In the substance use tab, users can select a topic, such as "ease of access", and a substance, such as alcohol, and display percentages of students who responded a certain way to that survey topic over time (ex: what percentage of students responded "easy" when asked how easy it is to access alcohol?). Users can further customize the plot by choosing a grouping variable, such as gender, and adding p-values or individual point percentages.

Please use the options below to select data to display.

Topic
Ease of access

Substance
Alcohol

Response option
Easy

Group by
Gender identity

Years
2007 2021

Show p-values

Show individual percentages

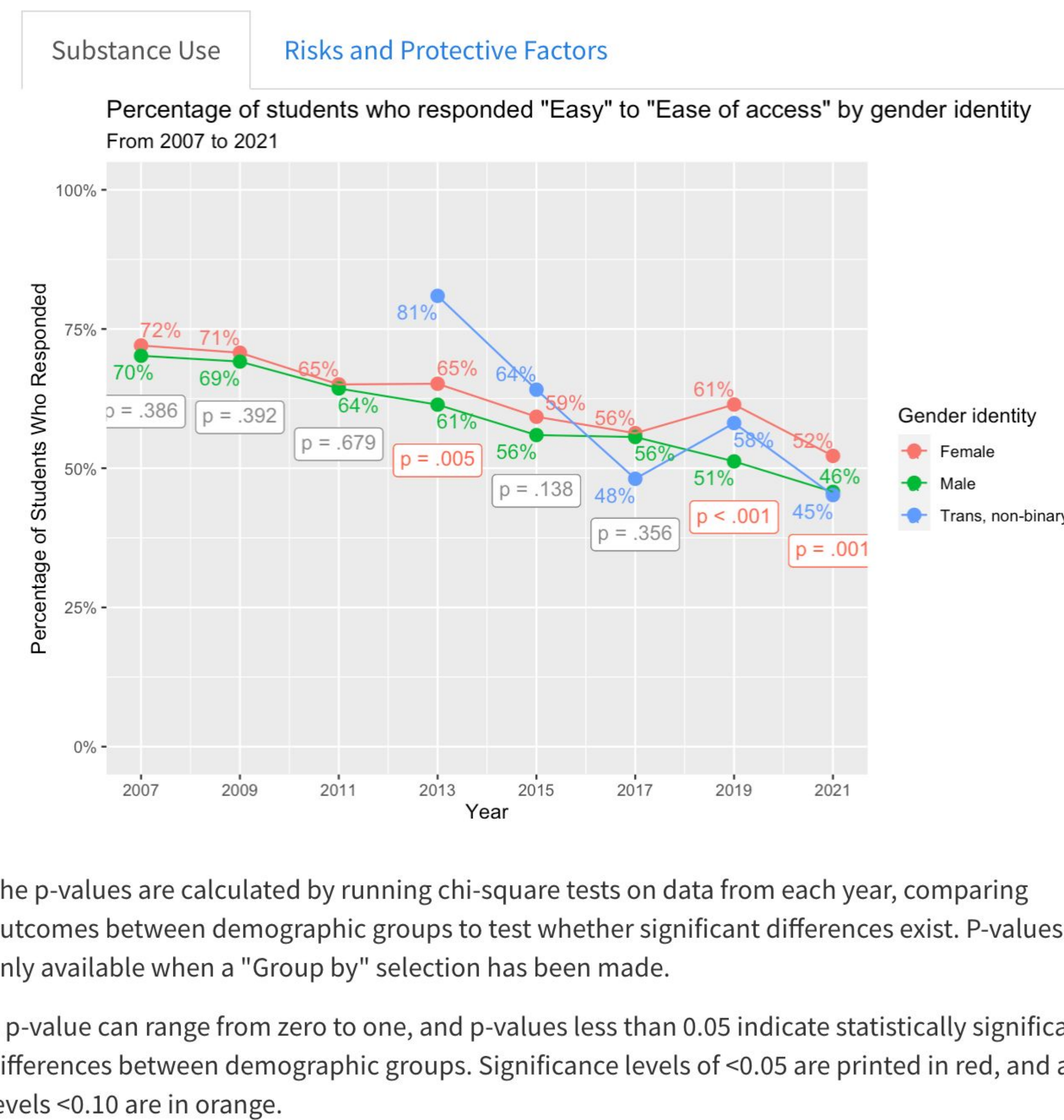


Figure 1. Substance Use Tab

Please use the options below to select data to display.

Risks and Protective Factors
Depression

Response
Yes

Group by
Race/Ethnicity

Show individual percentages

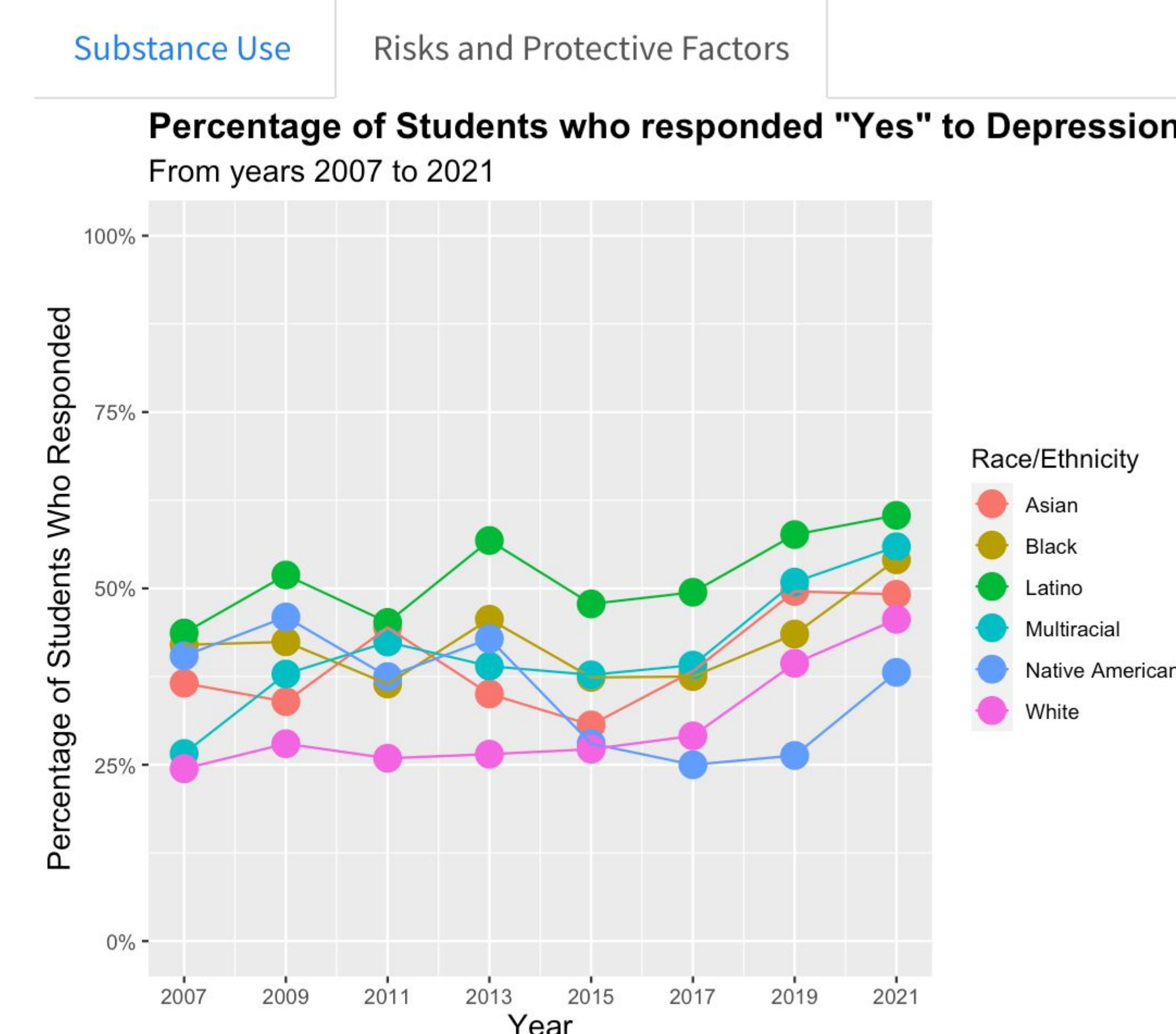


Figure 2. Mental Health and Social Support Tab

Expansion of Dashboard

- To allow for a more fine-grained analysis of the data, we added percentages for individual points and p-values for group differences for each year. Additionally, we allowed users to disaggregate racial groupings. The previous dashboard grouped races into the categories white and POGM, while the new dashboard allows the user to check which specific races they would like to see (white, black, latino, etc). The new dashboard also allows users to disaggregate when grouping by grade (ex: LGBT 8th graders vs. non-LGBT 8th graders).
- To resolve issues with visualizing district-level data, we created a district dashboard in which each district enters their own login with encrypted password in order to see their specific data. Now each district can compare their health behaviors to the whole of Hampshire County.
- To visualize trends in mental outcomes and social support measures, we added a separate tab to the dashboard with these topics. This allows for a more comprehensive analysis of health behaviors than substance use alone.
- To allow for comparison between national and local substance use rates, we added lines with national use rates when data was available.

Future Directions

Next steps for the dashboard include developing the district dashboard and mental health/social support tab further, automating the data uploading process, and styling the dashboard to improve user experience. Currently, features such as p-values, race checkboxes, and grade disaggregation are not included in the mental health and social support tab, nor the district dashboard. Future iterations of the dashboard should include these features. Additionally, we would like to automate the data uploading process so that SPIFFY team members can easily upload new data regardless of coding experience. Lastly, the website could be styled in a way that is more informative and intuitive to users.