Mental Health Trends in Tech

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Data visualization project for SDS 136. Smith College 2016.
View here: https://silenttone.github.io/MentalHealth/

Introduction

Since I combined the project for SDS 136 and SDS 293, I used the Communicating with Data segment motivate the analysis done for Machine Learning. I split this into two sections: visualizing the prevalence of mental health disorders in the technology industry, and visualizing the role companies play in encouraging good mental health practices.

The data is from a survey done by OSMI[1], a nonprofit. It has 59 questions on topics ranging from personal mental health, information about the respondent's company policies, and demographic information. I chose a few fields to visualize in order to demonstrate key facets of the data.

Technical Work

The visualizations were created in C3[2], a javascript visualization library built on D3[3]. They were hosted on a website built using HTML and CSS with the Sass[4] preprocessor and Susy[5] for formatting. The data is being read in as a json file. Everything is hosted on github[6].

Screenshots of visualizations are included, but for larger, interactive versions go to https://silenttone.github.io/MentalHealth/.

Prevalence of Mental Health Disorders in Tech

For the first section of the visualization, my goal was to demonstrate the prevalence of mental health issues in technology. The first bar chart shows a count of how many respondents self-identified as having a mental disorder. I felt this visualization showed the prevalence of mental health disorders well, as 575 people out of the 1433 respondents say they currently having a mental disorder. This is 40% of the survey population.

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[1] OSMI: https://osmihelp.org/research/
[2] C3: http://c3js.org/
[3] D3: https://d3js.org/
[4] Sass: http://sass-lang.com/
[5] Susy: http://susy.oddbird.net/
[6] Github repository: https://github.com/silenttone/MentalHealth

The next chart is a pie chart. I chose this format to easily show that an overwhelming percentage, 71%, believe that their mental disorder affects their productivity.

Lastly, in respect to attitudes surrounding mental health, I graphed the responses to "Have you observed or experienced an unsupportive or badly handled response to a mental health issue in your current or previous workplace?" 54% of the responses were either "Yes, I experienced", "Yes, I observed", or "Maybe", which indicates this is a relatively widespread problem.
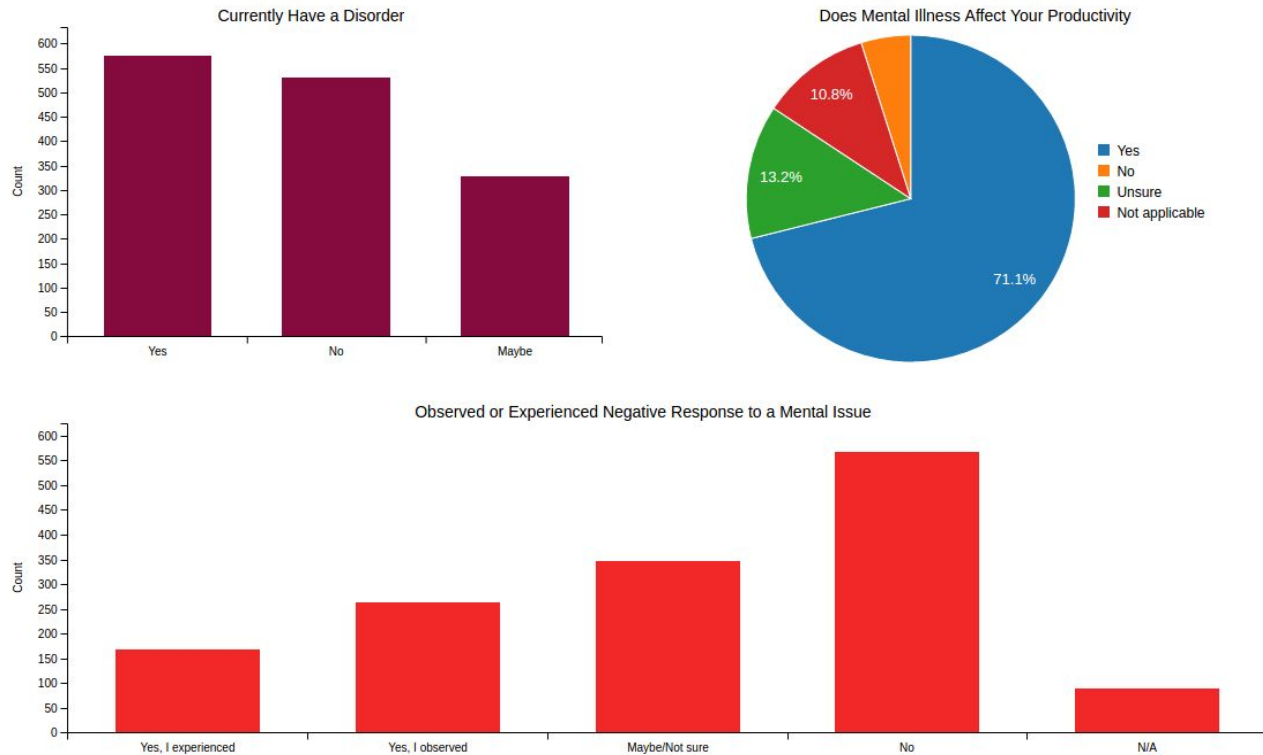
## Role of Tech Companies in Mental Health Issues

Next, I focused on the results that indicated the role that companies played in an individual's mental health, regarding both policy and company attitudes. Companies can play either a positive or a negative role in the mental health of their employees. For example, by providing insurance that covers mental health issues as well as physical health issues, companies can encourage employees to get treatment if necessary.

On the other hand, companies that discourage taking days off for mental health issues, discourage communication, and don't provide mental health benefits can have a detrimental effect on the mental health of their employees.

To examine this, I first made a pie chart showing whether the company covers mental health benefits. The format lets you easily see that under half of respondents were sure that their employer covered mental health. The second graph is a visualization of how easily employees

believe they can take time off. The bar chart format shows that responses are very mixed across the board.

Lastly, I split the response to whether the company covers mental health benefits by whether or not the respondent was receiving treatment. This revealed an interesting trend where the "no", "I don't know" and "Not eligible" responses were all fairly evenly split, but many more people who responded "Yes" were receiving treatment. Obviously, this graph is not enough to show that when given coverage, people will seek help, as it could be explained by people who sought treatment knowing whether it was covered by their plan, but it's a positive indication of benefits encouraging good mental health.
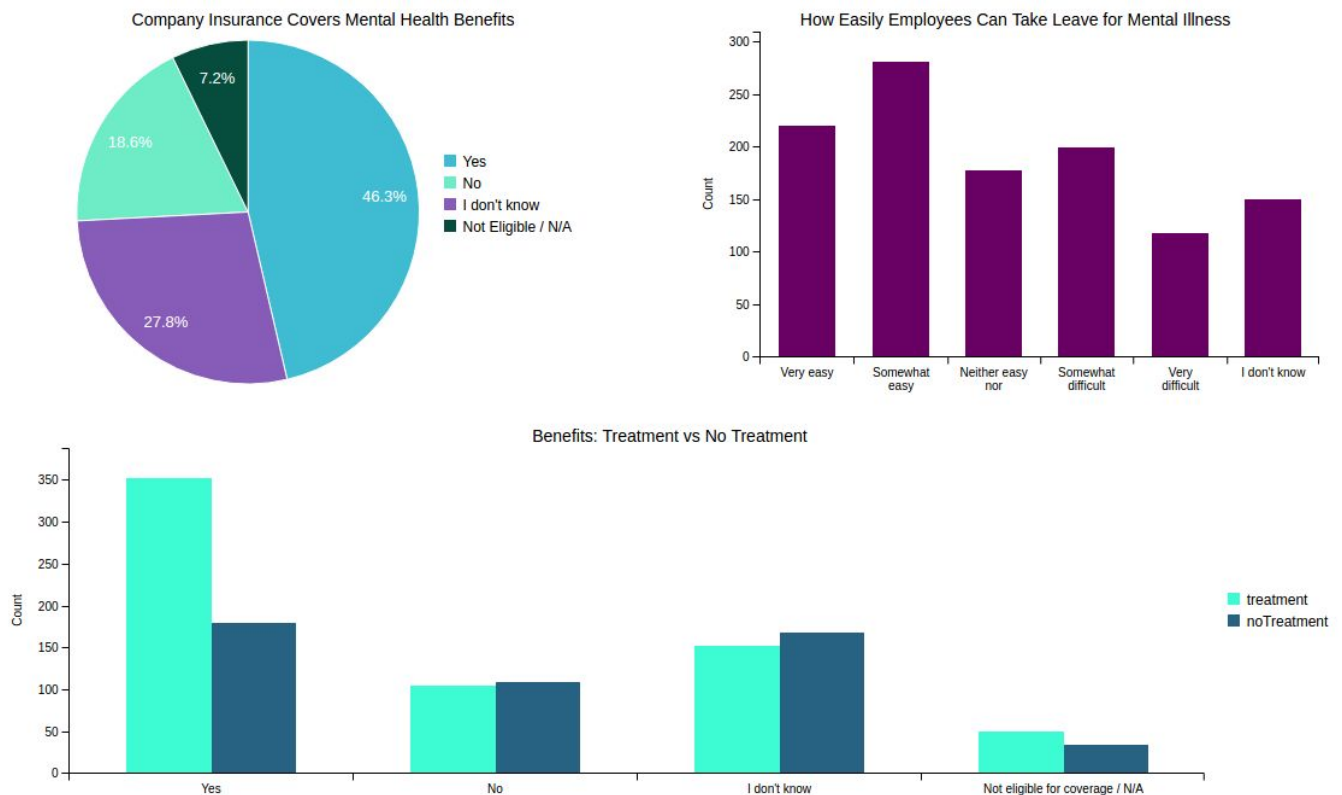
Conclusions

I believe these visualizations did exactly what I wanted them to do, which is motivate the analysis done in Machine Learning. The next section on the website dives into analyzing why people do or do not seek treatment.

I am happy with my results, as I believe my visualizations are visually appealing and clearly convey what I wanted them to show. With more time I could visualize different responses, and possibly graph some of the responses by location to look for trends. However, given the dataset only had around 1400 respondents and not all respondents answered all questions, there might not be enough data to get meaningful information.