Research Question

Are tech companies in the US concerned with their employees mental health?

1. Introduction

Stress, anxiety, depression and a range of other mental health issues in the technology industry have grown to such an extent that people working in these fields are just unable to combine a healthy and balanced lifestyle with a good work productivity. To achieve a happy and productive workplace, Tech companies must have mechanisms to help and support employees in this situation.

This report aims to evaluate how tech companies in the US are approaching this subject. The analysis is structured in two sections:

- Section 1 – Numerical analysis
- Section 2 – Categorical comparison;

2. Assumptions.

If there is a null value on column 'self_employed', I consider it as an employee. Every response is from a person that works in a different company.

To create a proper ranking for mental health patients, I defined an equation (1):

$$rating = 2 * family\ history + treatment$$

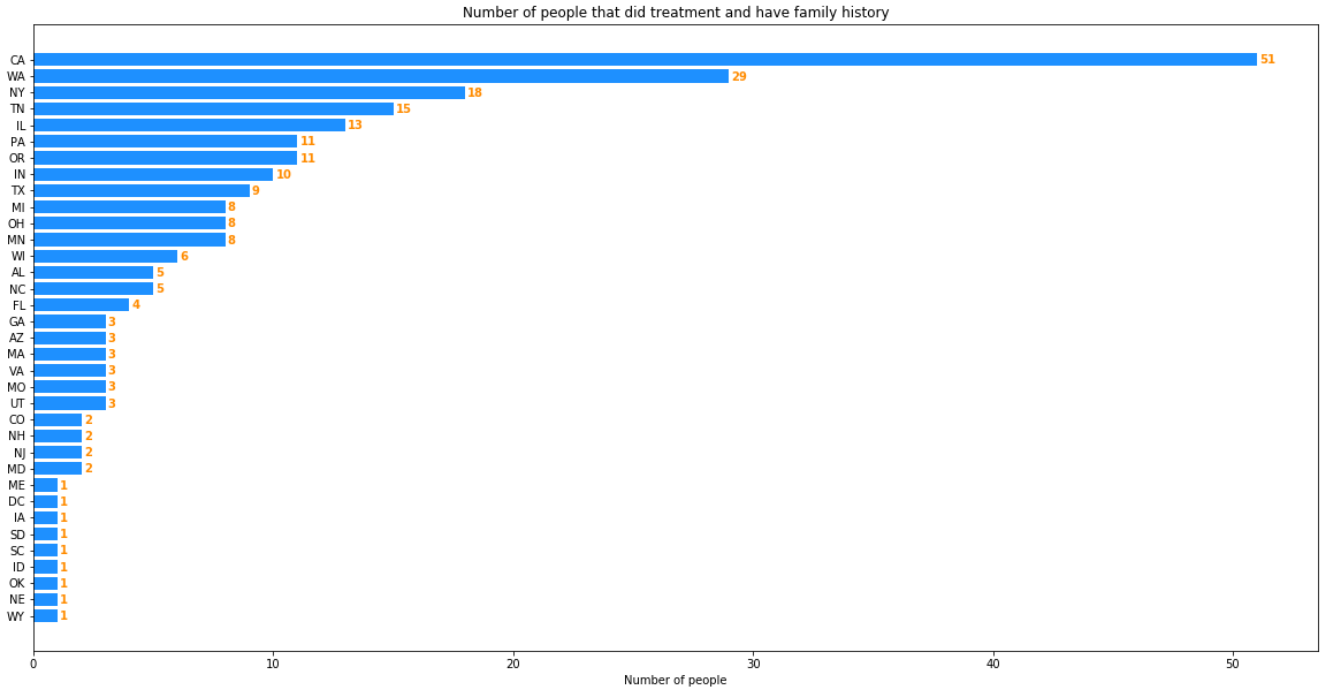
Variables are binary, i.e, can only assume value 0 or value 1. The variable 'family history' has a bigger coefficient because I assumed that, if the subject has a family history, probably, more than one element of his family that lives in the same state also has had mental health issues.

The ranking to quantify the tech companies response was based in the following equation (2):

$$rating = 3 * benefits + 2 * seek\ help + 2 * care\ options + wellness\ program$$

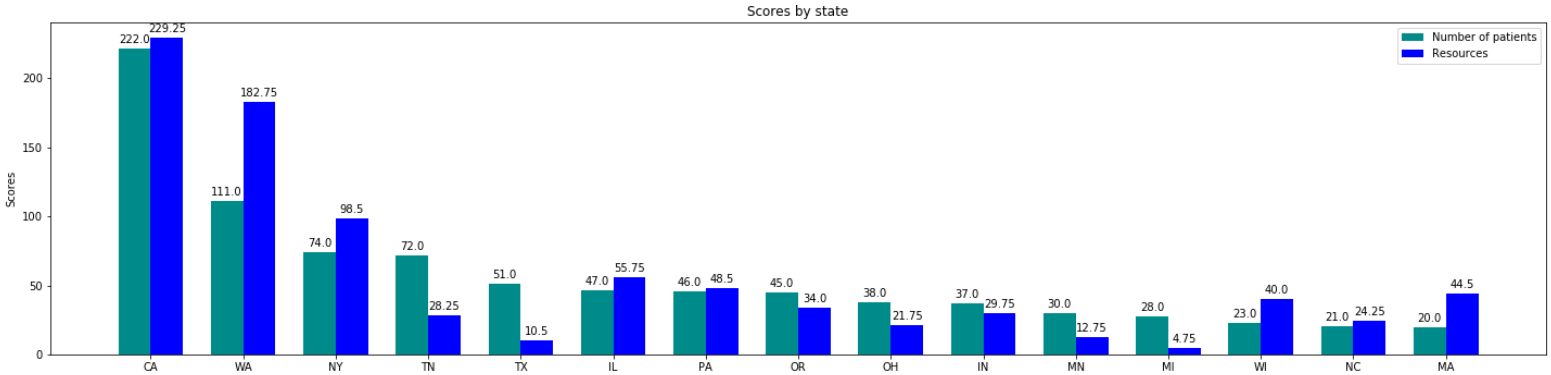
Variables can assume 3 categorical values: "Yes", "No" and "Don't know". To allow a numerical analysis, I considered "Yes" as 1, "No" as 0 and "Don't know" as -0.75. The reason why I decided to attribute a negative value to "Don't know" is because I made the assumption that if a person doesn't know, it means that their company has not been worried about informing their employees about the subject, and as consequence, they are penalized for it.

3. Section 1 - Numerical Analysis



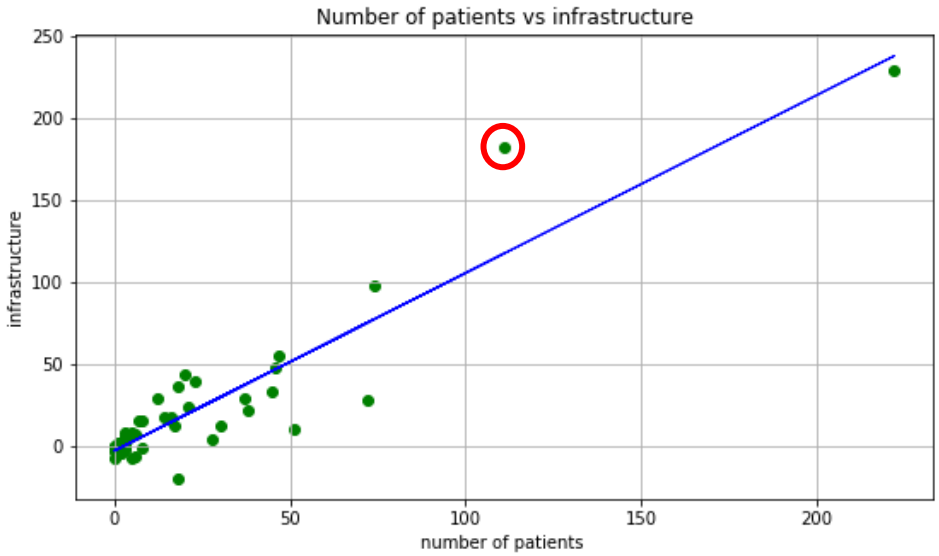
The purpose of the graph above is to quantify the number of people that have done treatment for a mental health issue and have family history per each US state. California and Washington are leading the way in mental health issues, followed by New York and Tennessee. The results obtained can be explained by two factors: these 4 are some of the most populated states in the US and they are also big hubs for big and tech companies. For example, Silicon Valley is in California and is one of the biggest technology companies hub in the world. However, in the graph above, the persons that have had a mental health issue but don't have family history and vice-versa are not included.

Defining how companies in the states with most mental health patients, like CA and NY, are responding to these issues can lead us to the answer to our research question. So, to define a clear and general quantifier for mental health patients in each state I applied equation (1). Besides quantifying mental health, I also quantified tech companies response through equation (2) and then made a comparison between results, which is represented below.



The columns in green represent the rating of mental health and the columns in blue represent the rating of companies response. Generally, all the states present a balance between the two variables. In fact, the companies that have the highest ranking on the number of mental health patients are also the companies that have the highest rank on response. However, Tennessee and Texas are not following the general trend, presenting a low ranking on response for a high ranking on number of patients. In comparison states like Illinois have a lower number of mental health patients but a higher rating on resources than Texas.

In general, companies are aware and are creating measures to attack these problems, which can be validated by the following linear regression.



We can see a relevant relation between the number of patients and the response to it. The positive slope shows that the increase on the number of patients is being followed by a development on the methods of support to employees. WA is marked in red because of it's associated error. As insight, Washington looks like is working a lot on fighting mental health on the workplace

4. Section 2 - Categorical Comparison

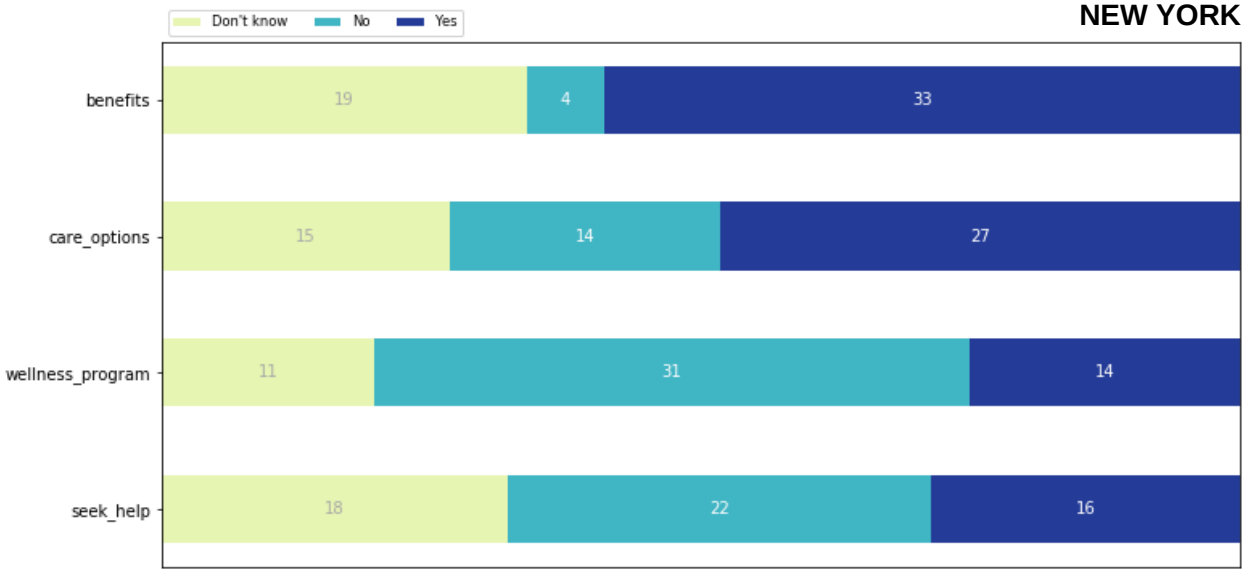
Besides being part of the most populated, New York, California and Washington are 3 of the biggest workforces in the US in the technology sector. For that reason, I decided to do a categorical comparison on the benefits, awareness and support resources for each of these 3 states with the final objective of defining the preferred methods that the companies are using to attack the issues.

The graphs are represented below. While in California and New York, companies majorly use benefits to attack these issues, in Washington there is a more balanced approach. Companies in Washington are betting more in providing resources to learn more about mental health issues and how to seek help and are discussing the subject as part of an employee wellness program.

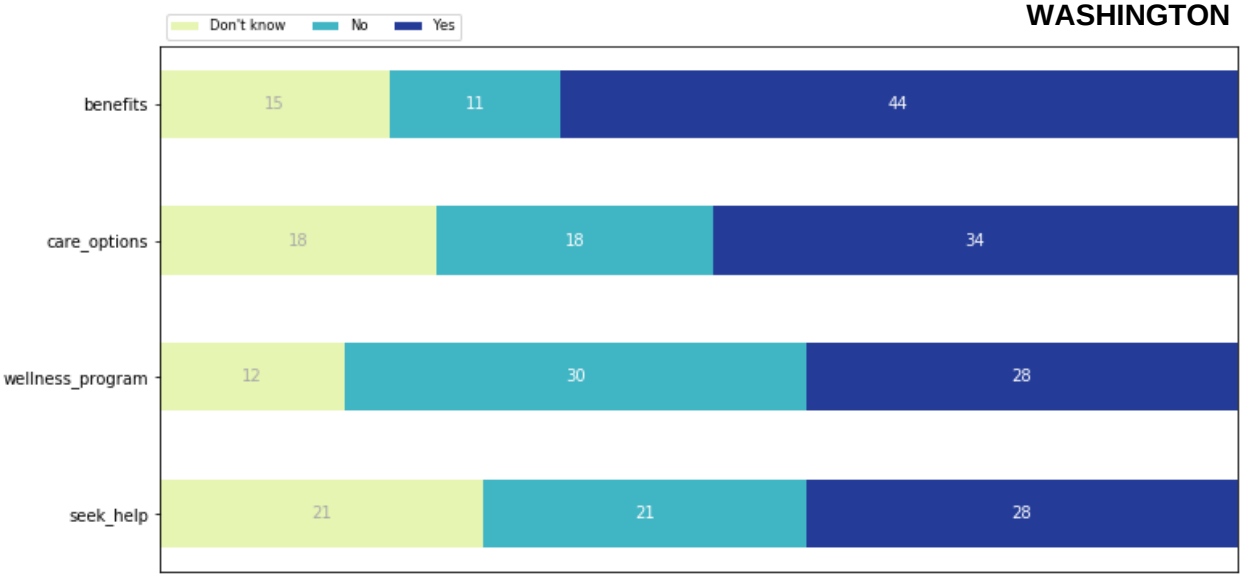
These findings explain why Washington was so above on the linear regression. They are attacking the mental health issue on the workplace in an effective and balanced manner.

CALIFORNIA

NEW YORK



WASHINGTON



5. Conclusion

In response to the research question, the data analysis proves that companies in the US are actively responding to the increase of mental health issues in the workplace. While California companies are leading on the amount of benefits provided, Washington companies are leading on the quality of the resources and in the attention and awareness that they are giving to their employees.