

MTH 650 – INTRODUCTION TO DATA ANALYTICS

Dr. Itauma Itauma

Final Project

Final Project done by:

1. Draksharam N V Priya Harshitha
2. Garimella Manoja
3. Gorla Venkata Saketh

Background

A 2014 survey that measures attitudes towards mental health and frequency of mental health disorders in the tech workplace.

Mental health issues currently affect 10.7% (2017) and has been increasing at a rate of 13%.

In the context of workplace mental health has been somewhat neglected.

Problem Statement

We aim to understand the impact of mental health issues specifically on employees working in tech companies and how to improve this situation.

How does the frequency of mental health illness and attitudes towards mental health vary?

What are the strongest predictors of mental health illness or certain attitudes towards mental health in the workplace?

Analysis

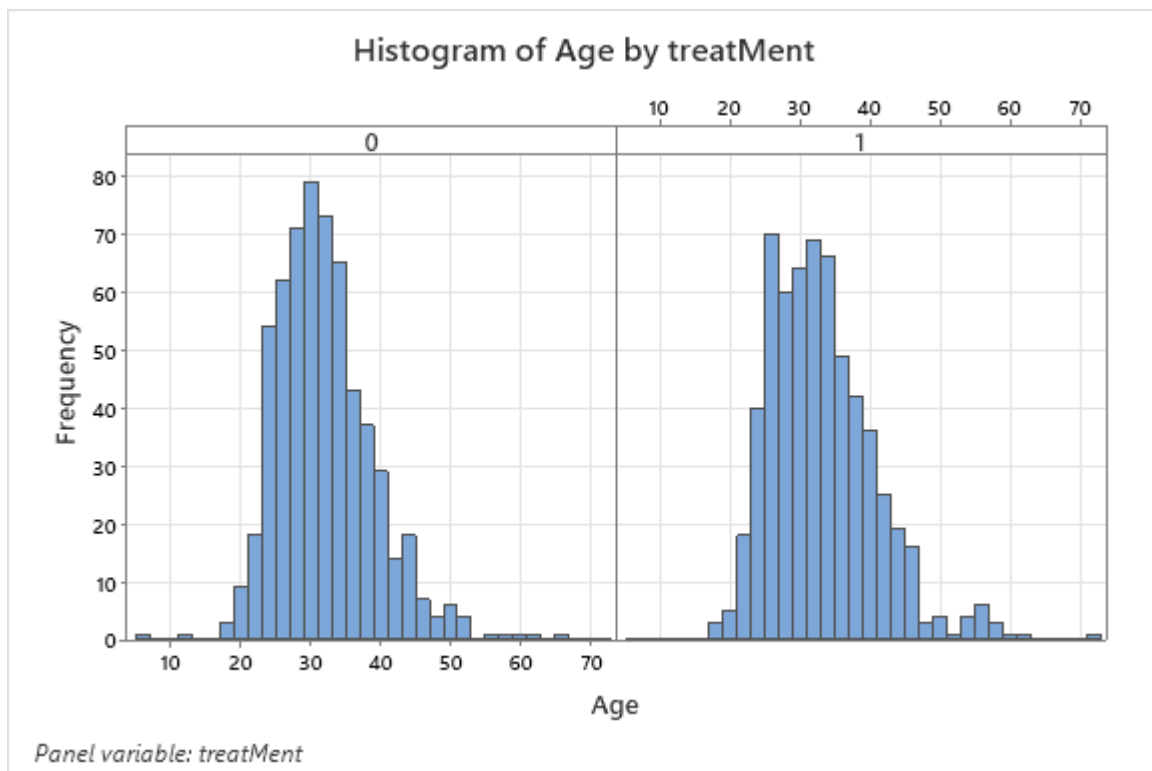
Age wise Distribution

Statistics

Variable	Treatment	Mean	SE		Variance	Minimum	Median	Maximum
			Mean	StDev				
Age	0	31.454	0.288	7.071	49.999	5.000	31.000	65.000
	1	32.686	0.309	7.595	57.690	18.000	32.000	72.000

1 - YES

0 - NO



Mental issues are more evenly distributed across ages 20 to 40 and they are more likely to occur at higher ages.

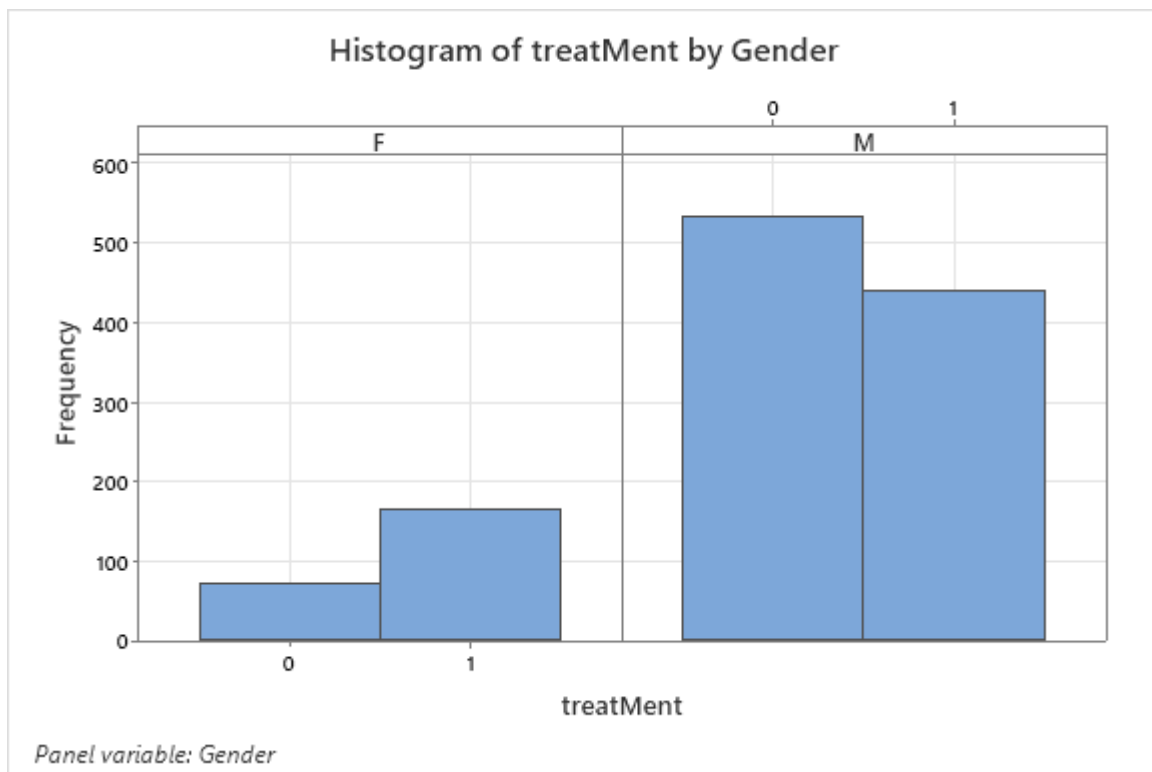
Gender wise Distribution

Statistics

Variable	Gender	SE						
		Mean	Mean	StDev	Variance	Minimum	Median	Maximum
Treatment	F	0.6975	0.0298	0.4603	0.2119	0.0000	1.0000	1.0000
	M	0.4531	0.0160	0.4981	0.2481	0.0000	0.0000	1.0000

F – Female

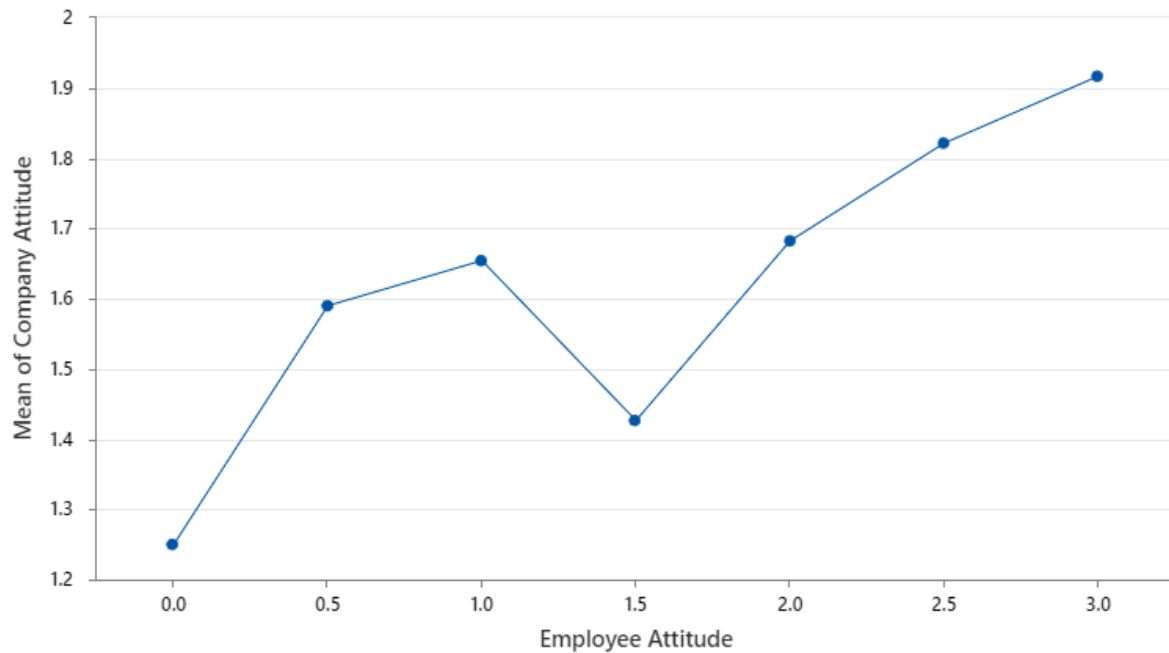
M - Male



Mental issues are more evenly distributed across ages 20 to 40 and they are more likely to occur at higher ages.

Females have significantly higher chance of mental health issues when compared to male.

Special attention should be placed on these cohorts of people.



Employees in companies with a positive and open attitude towards mental health are also open minded and less affected by mental health issues.

Employee Attitude is an indication of how open an employee is on discussing mental health issues.

Employee Attitude = mental_health_consequence + supervisor + obs_consequence.

mental_health_consequence: Do you think that discussing mental health issue with your employer would have negative consequences.

supervisor: Would you be willing to discuss a mental health issue with your direct supervisor(s)?

obs_consequence: Have you heard of or observed negative consequences for coworkers with mental health conditions in your workplace?

Company Attitude is an indication of how helpful a company is to solve mental health issues of its employees.

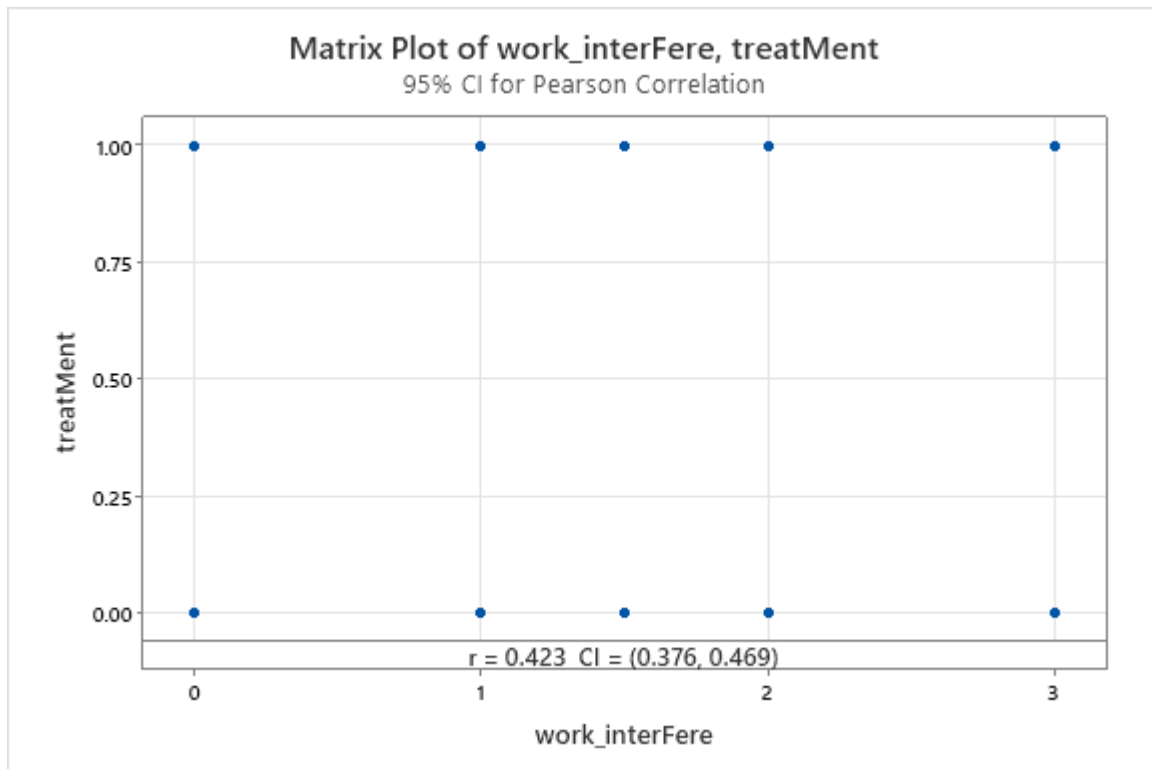
Company Attitude - beneFits + care_options + wellness_prograM' + seek_help

benefits: Does your employer provide mental health benefits?

care_options: Do you know the options for mental health care your employer provides?

wellness_program: Has your employer ever discussed mental health as part of an employee wellness program?

seek_help: Does your employer provide resources to learn more about mental health issues and how to seek help?



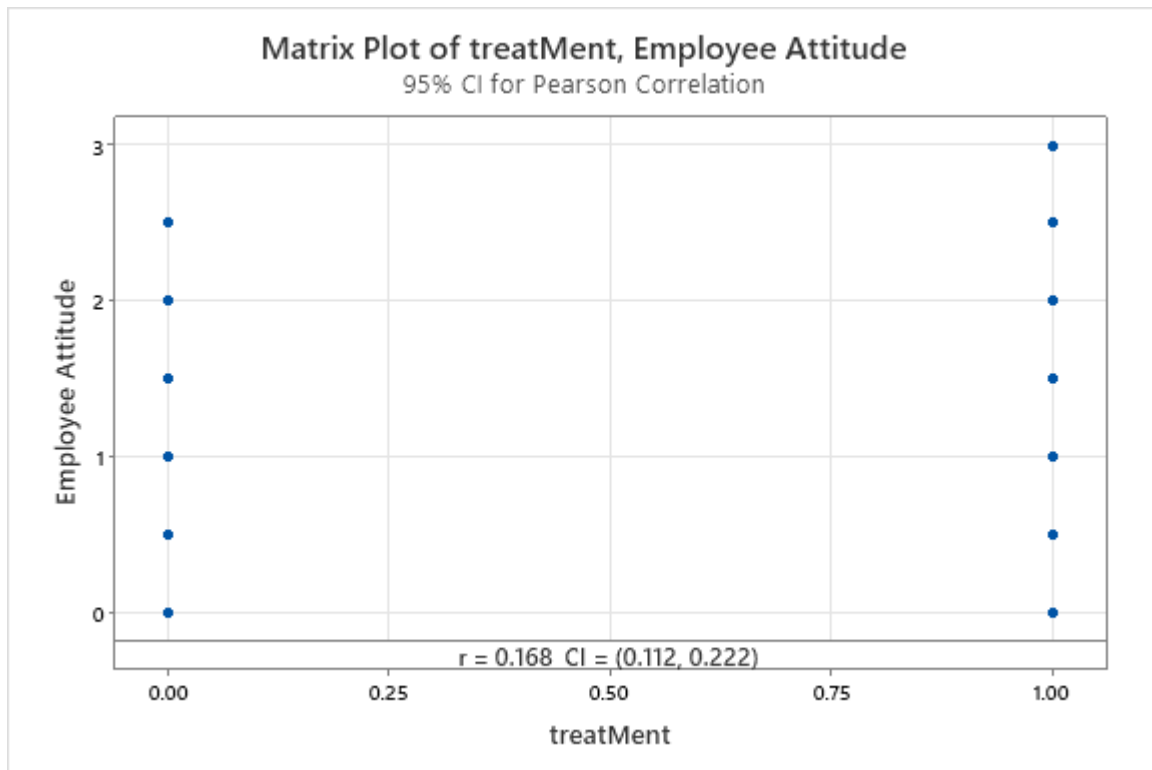
Correlations

	<u>work_interFere</u>
treatment	0.423

Work_interfere

0 – Never, 1 – Rarerly, 2 – Sometimes, 3 - Often

Those who experienced mental health issues categorically say that these issues significantly affect their productivity.



Correlations

	treatment
Employee Attitude	0.168

There is a positive correlation between employee Attitude and treatment. This indicates that a more open an employee about their mental health the greater are the chances that they take treatment and solve their issues.

Hypothesis Testing

Now a days with remote working policies being widely used, we tested the hypothesis that remote working has an impact on mental health issues.

Descriptive Statistics

				SE
Sample	N	Mean	StDev	Mean
remote	1209	0.2953	0.4564	0.0131
work				
treatment	1209	0.5012	0.5002	0.0144

Paired T-Test

Null hypothesis $H_0:$
 $\mu_{\text{difference}} = 0$

Alternative hypothesis $H_1:$
 $\mu_{\text{difference}} \neq 0$

T-Value	P-Value
-10.75	0.000

Remote working employees have more mental health issues.

We can reject the hypothesis that Remote work and Treatment are not statistically related.

Factors affecting Mental Health

Regression Equation

$$\begin{aligned}\text{treatment} = & 0.0676 + 0.340 \text{ Normalized Age} + 0.3617 \text{ Family history} \\ & + 0.1907 \text{ Company Attitude} \\ & + 0.2911 \text{ Employee Attitude}\end{aligned}$$

Coefficients

Term	Coeff	SE Coeff	T- Value	P- Value	VIF
Constant	0.0676	0.0631	1.07	0.284	
Normalized Age	0.340	0.181	1.88	0.061	1.04
Family history	0.3617	0.0274	13.22	0.000	1.04
Company Attitude	0.1907	0.0447	4.27	0.000	1.04
Employee Attitude	0.2911	0.0738	3.95	0.000	1.03

Model Summary

S	R-sq	R- sq(adj)	R- sq(pred)
0.454770	17.62%	17.34%	16.94%

From this we can reject the hypothesis that Remote work and Mental health issues are statistically related.

Occurrence of mental issues is a function of age and family history but solving these issues depends on the attitude of the employees and the companies at which they work.

Company should take policies more aligned towards solving mental health issues specifically for female employees to improve working conditions and increase productivity.

Conclusion

Through all these analyses we found a few significant areas of improvement to solve mental health issues at workplace.

To do this, companies should take policies more aligned towards solving mental health issues specifically for female employees to improve working conditions and increase productivity.

References:

Open Sourcing Mental Illness, LTD (Owner)

[Mental Health in Tech Survey | Kaggle](#)

<https://www.kaggle.com/datasets/osmi/mental-health-in-tech-survey>

GitHub Link:

<https://github.com/sakethsb7/INTRODUCTION-TO-DATA-ANALYTICS---FINAL-PROJECT>

[sakethsb7/INTRODUCTION-TO-DATA-ANALYTICS---FINAL-PROJECT: A 2014 survey that measures attitudes towards mental health and frequency of mental health disorders in the tech workplace. \(github.com\)](#)