

# Exploring determinants of mental health treatment seeking behavior: a multi-factor analysis

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# Hypothesis & Questions

**Hypothesis:** Based on resource knowledge, resource availability, consequences, level of interference, employment status, benefit availability, and family history, is a person more or less likely to seek mental health treatment?

## Questions:

- Does access to mental health benefits make a person more likely to seek mental health treatment?
- Does a person's view on how potential mental health issues could affect their work drive them to treatment?
- Do employers have an innate responsibility to provide mental health treatment options to their employees
- Is there a business benefit that could incentivise employers to offer, and promote their employees to take advantage of, mental health care?

# Dataset, Clean-up Process, & Challenges

**Dataset:** The dataset used for our analysis was sourced from the recommendations provided in the project overview

[Mental health it tech survey](#)

## Clean-up process & challenges:

- The data set was relatively clean *overall*, requiring minimal cleaning before we could begin work
- Some specific clean-up was needed as we progressed through our analysis, which was accomplished mainly by dropping N/A values from subsets of grouped data
- One of the challenges of the dataset was that the majority of the data was categorical, meaning that we had to count instances of responses before we could perform analysis
- The other major challenge of the dataset was that none of the data was linear, meaning that we were somewhat limited in the visualization we could create and the stat sig calculations we could run

# Analysis Process

[Github Repo](#)

## Analysis Process:

- Our analysis process was comprised of three main parts
  - Grouping the metrics and counting the instances of categorical responses
  - Creating bar and pie charts to visualize the data created via the grouping and counting
  - Running a chi-square test based on a crosstab created via the same dimensions/ metrics in the groupby. The test output the chi-square value, the p-value, the critical value, and whether we could reject or fail to reject the null hypothesis
- This approach allowed us to represent the data in an easy to understand visual format while also ensuring the results represented in the visualizations were statistically valid

```
# groupby 'gender' and 'treatment', and count occurrences
gender_treatment_counts = survey_data_df.groupby(['gender', 'treatment']).size().unstack().fillna(0)
```

```
# plot bar chart
ax = gender_treatment_counts.plot(kind='bar', stacked=True)
ax.set_ylabel('Number of People')
ax.set_title('Treatment Status by Gender')

# add annotations to bars within the bar chart
for p in ax.patches:
    width, height = p.get_width(), p.get_height()
    x, y = p.get_xy()
    ax.annotate(f'{height:.0f}', (x + width / 2, y + height / 2), ha='center', va='center', color='white')

# plot pie chart
fig, axes = plt.subplots(nrows=1, ncols=2, figsize=(12, 6))

for i, gender in enumerate(gender_treatment_counts.index):
    gender_data = gender_treatment_counts.loc[gender]
    axes[i].pie(gender_data, labels=gender_data.index, autopct='%1.1f%%', startangle=90)
    axes[i].set_title(f'Treatment Status for {gender}')

# show charts
plt.show()
```

```
# create a contingency table for stat calcs
contingency_table = pd.crosstab(survey_data_df['gender'], survey_data_df['treatment'])
print(contingency_table)

# perform chi-square test
chi2, p, _, expected = st.chi2_contingency(contingency_table)

# calculate critical value
alpha = 0.05 # choose your significance level
degrees_of_freedom = (contingency_table.shape[0] - 1) * (contingency_table.shape[1] - 1)
critical_value = st.chi2.ppf(1 - alpha, degrees_of_freedom)

# print results of stat calcs
print(f"Chi-square value: {chi2}")
print(f"P-value: {p}")
print(f"Critical value: {critical_value}")

# compare chi2 and critical_value for decision
if chi2 > critical_value:
    print("Reject the null hypothesis")
else:
    print("Fail to reject the null hypothesis")
```

# Analysis: Treatment Status by Care Options

## Definitions:

**Treatment Status** = Have you sought treatment for a mental health condition?

**Care Options** = Do you know the options for mental health care your employer provides?

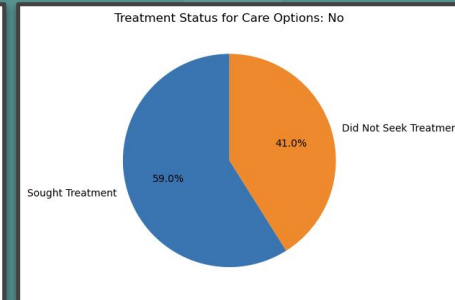
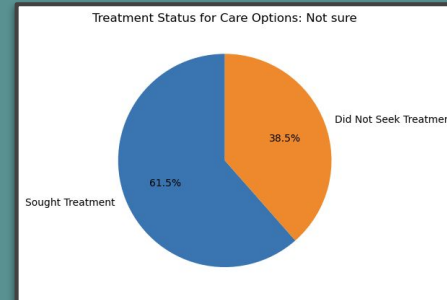
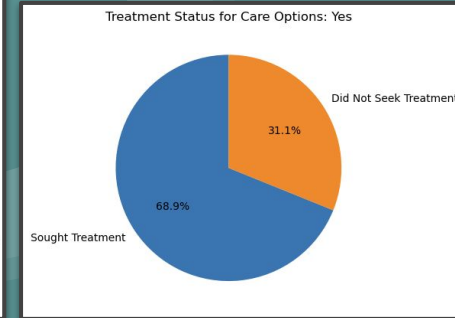
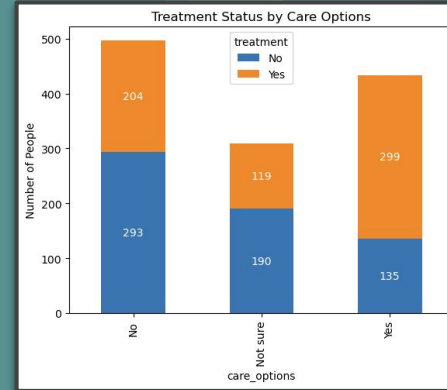
## Results:

- Chi-square value: 94.21196897021589
- P-value: 3.484423013856505e-21
- Critical value: 5.991464547107979
- Outcome: Reject the null hypothesis

## Conclusion:

Employees that understand their options for mental health care are more likely to seek mental health treatment than those that are not sure of their options or do not know their options

If employers want their employees to take advantage of mental health care, they should ensure that they know the options available to them



# Analysis: Treatment Status by Seek Help

## Definitions:

**Treatment Status** = Have you sought treatment for a mental health condition?

**Seek Help** = Does your employer provide resources to learn more about mental health issues and how to seek help?

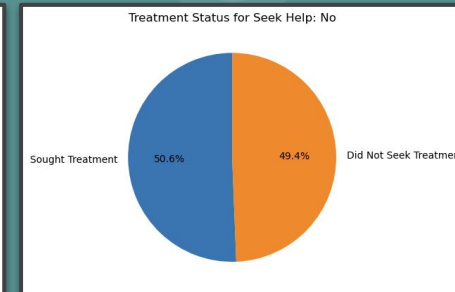
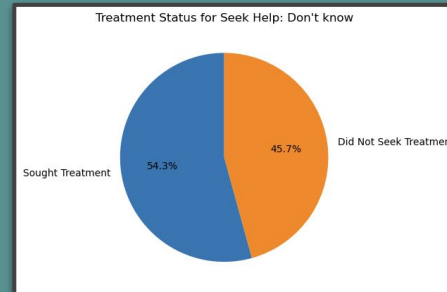
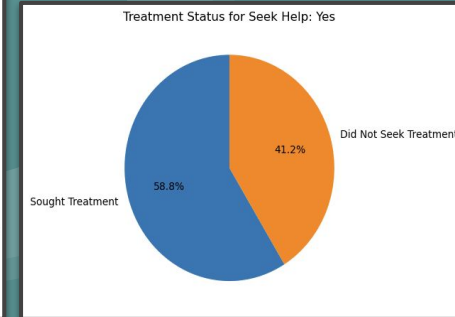
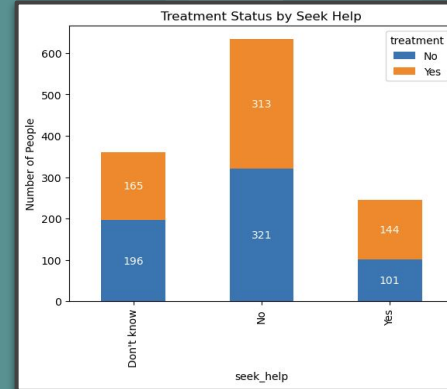
## Results:

- Chi-square value: 10.2971389336884
- P-value: 0.005807706904442143
- Critical value: 5.991464547107979
- Outcome: Reject the null hypothesis

## Conclusion:

Employees that have access to resources that enable them to learn more about mental health issues and how they can get help for potential issues are more likely to seek mental health treatment than those that are not sure of those resources or those that do not know those resources

If employers want their employees to take advantage of mental health care, they should ensure that they have access to resources to learn more about mental health issues and how individuals can see help



# Mental health seeking based on employment status

## Definitions:

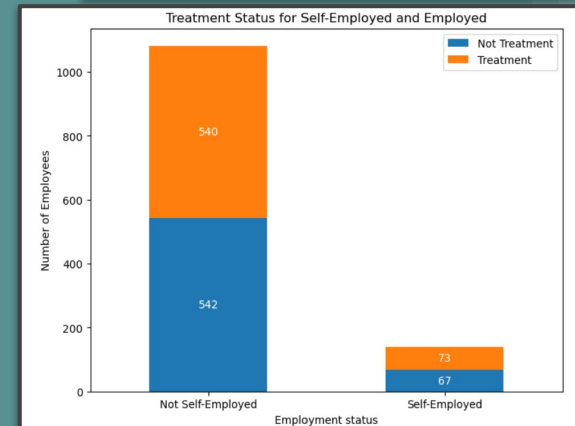
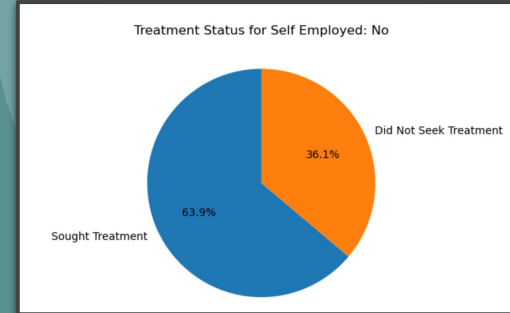
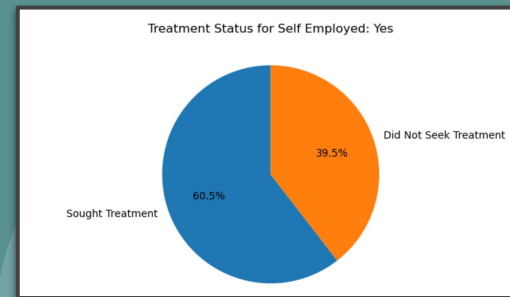
**Treatment Status** = Do self-employed report higher levels of seeking mental health treatment compared to company-employed workers?

## Results:

- Chi-square value: 0.36988800825369983
- P-value: 0.5430653195582454
- Critical value: 3.841458820694124
- Outcome: Fail to reject the null hypothesis

## Conclusion:

- Findings indicate that treatment seeking for mental health conditions is not influenced by whether the individual is employed or self-employed. Regardless of employment status, individuals are equally likely to seek treatment for mental health concerns.





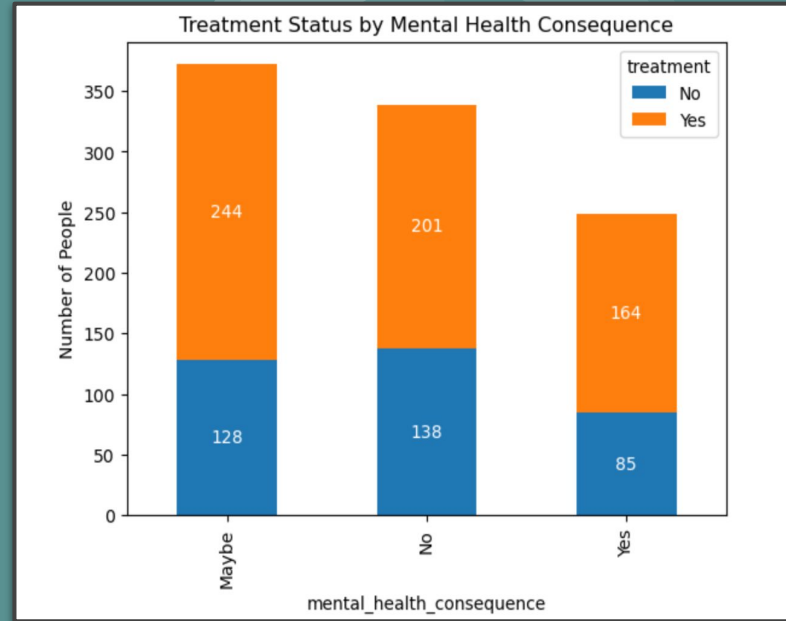
# Mental health seeking base on mental health consequence

## Definitions:

**Treatment Status** = What is people thought about being identified with a mental health issue will hurt their career?

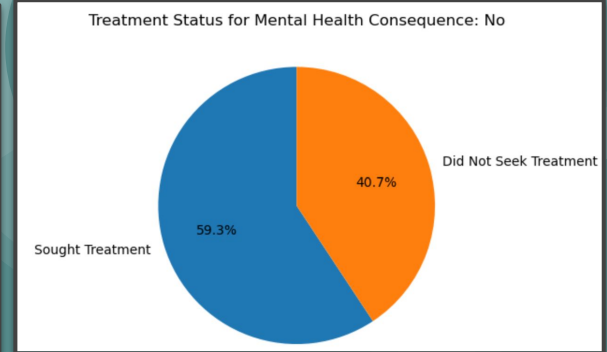
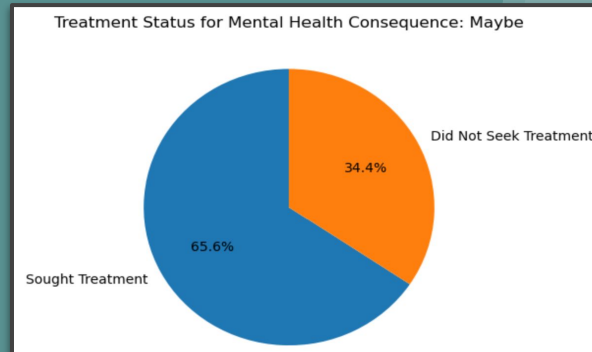
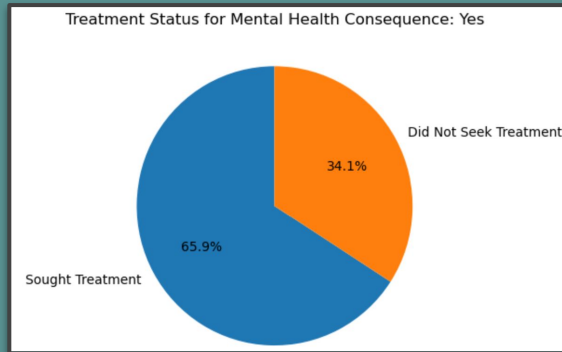
## Results:

- Chi-square value: 3.8875489368976965
- P-value: 0.1431625661138112
- Critical value: 5.991464547107979
- Outcome: Fail to reject the null hypothesis





# Mental health seeking base on mental health consequence



**Conclusion:** The data revealed a trend: regardless of concerns about potential negative consequences, employees demonstrated a willingness to seek mental health treatment. This finding challenges the alternate hypothesis that fear of repercussions from employers might deter individuals from seeking help.

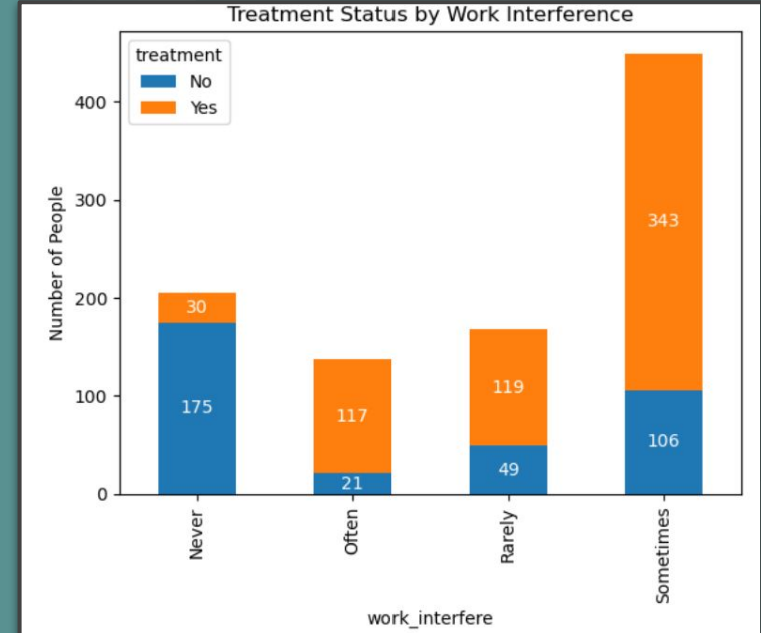
# Mental health treatment on workplace performance

## Definitions:

**Treatment Status** = If a mental health issue if being treated or not affects their performance at work?

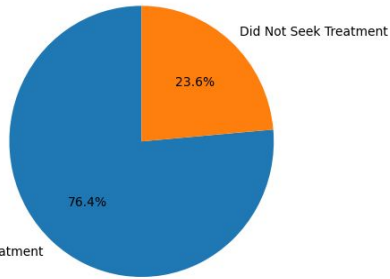
## Results:

- Chi-square value: 274.06555980185834
- P-value: 4.072519727343173e-59
- Critical value: 7.814727903251179
- Outcome: Reject the null hypothesis

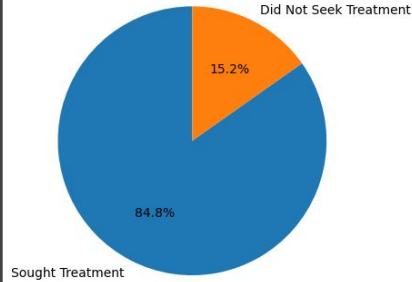


# Mental health treatment on workplace performance

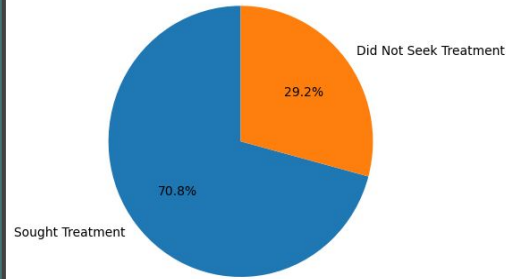
Treatment Status for Work Interference: Sometimes



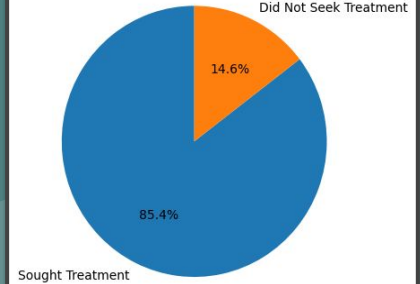
Treatment Status for Work Interference: Often



Treatment Status for Work Interference: Rarely



Treatment Status for Work Interference: Never



**Conclusion:** The analysis reveals a statistically significant relationship between work interference and treatment-seeking behavior among tech workers. The chi-square test results confirm that the observed differences in treatment-seeking behavior are unlikely to occur by chance.

# Influence of Family History on Treatment Seeking Behavior

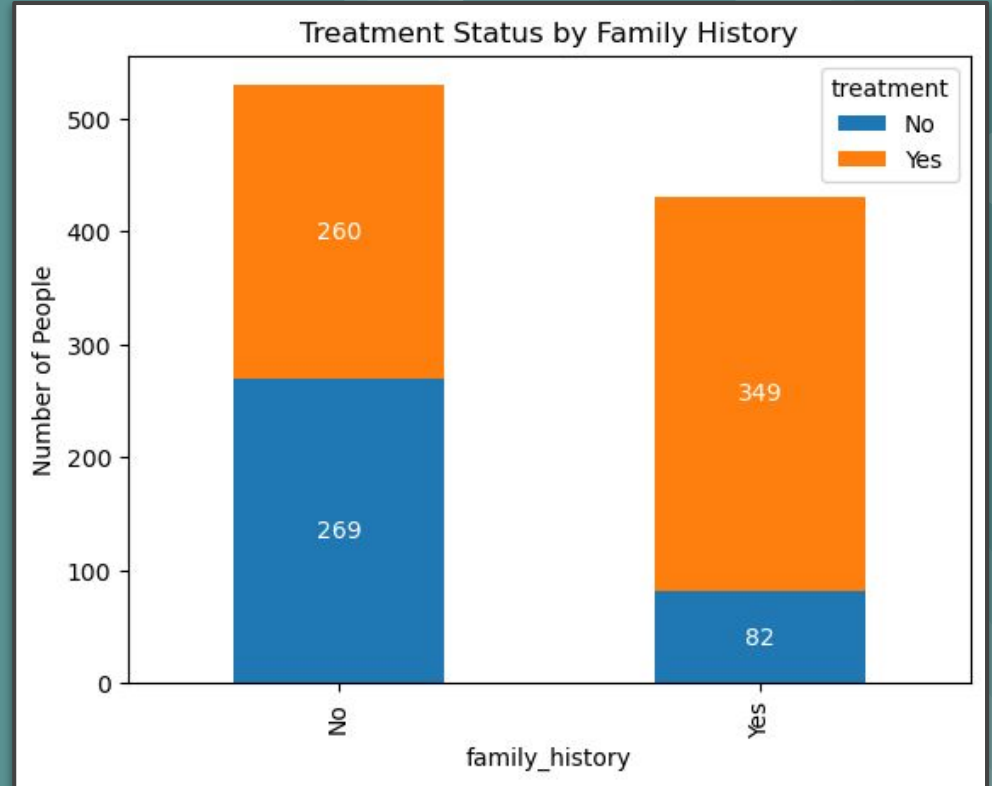
## Definitions:

**Treatment Status** = Have you sought treatment for a mental health condition?

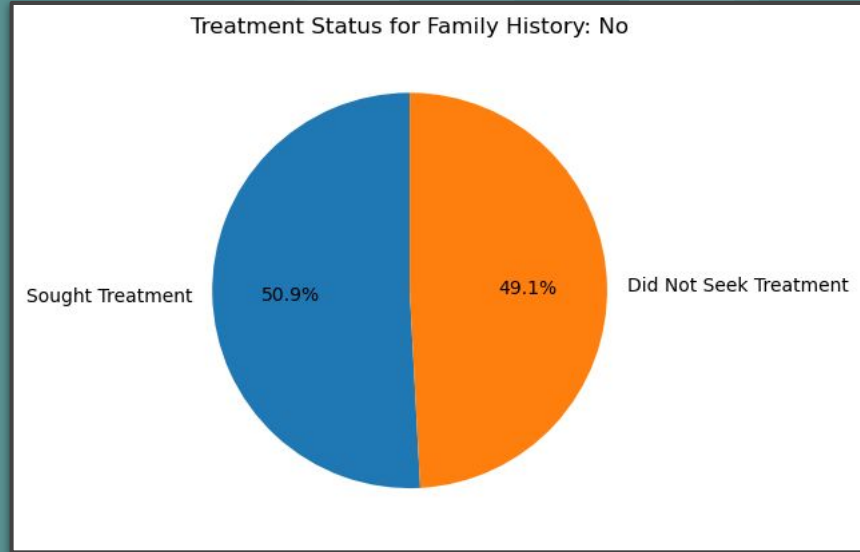
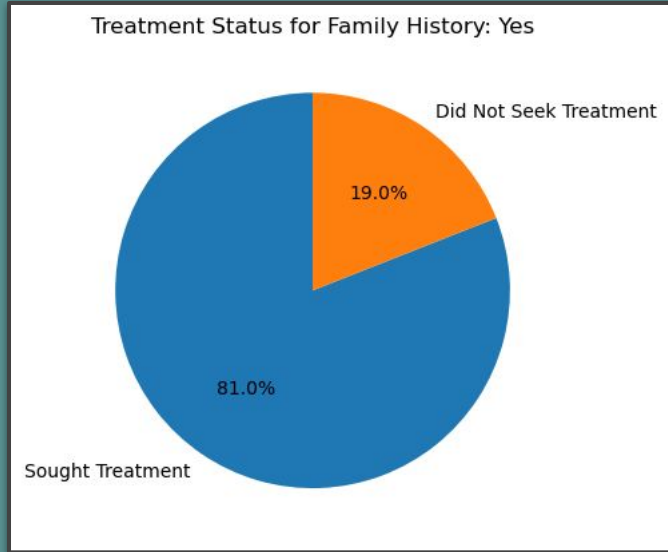
**Family History** = Do you have a family history of mental illness?

## Results:

- Chi-square value: 102.34237424051778
- P-value: 4.670932143292043e-24
- Critical value: 3.841458820694124
- Outcome: Reject the null hypothesis



# Influence of Family History on Treatment Seeking Behavior



**Conclusion:** Family history plays a significant role in an individual's behavior toward seeking treatment. Individuals with a family history of mental health conditions demonstrate a significantly higher rate to seek treatment compared to those without such history.

# Influence of Benefits on Treatment Seeking Behavior

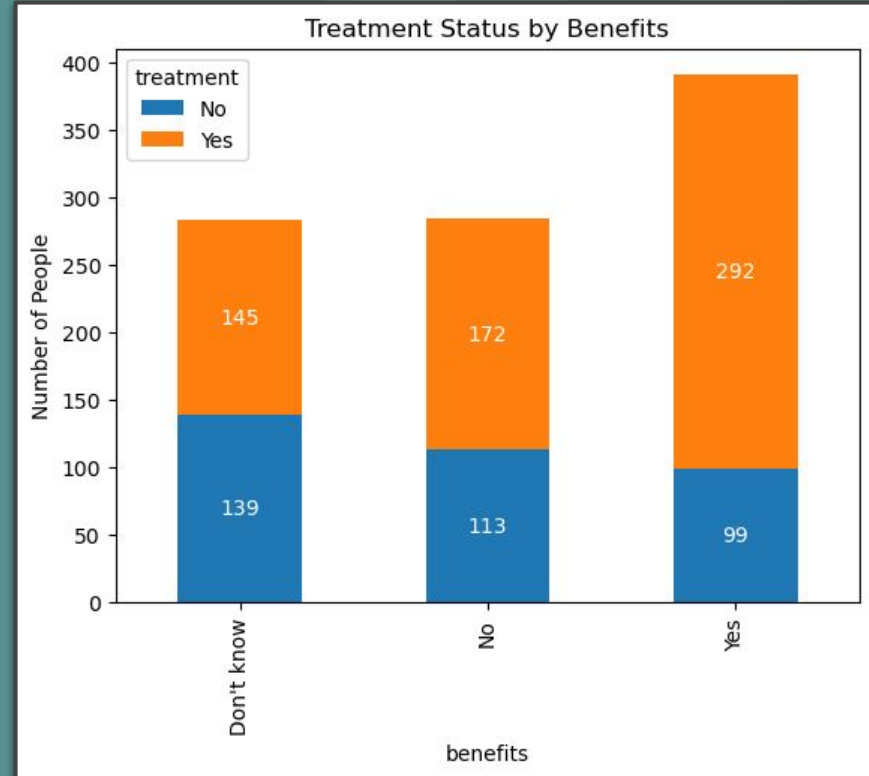
## Definitions:

**Treatment Status** = Have you sought treatment for a mental health condition?

**Benefits** = Does your employer provide mental health benefits?

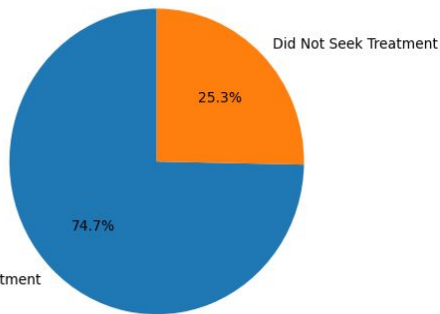
## Results:

- Chi-square value: 41.24851904464125
- P-value: 1.1040732713464184e-09
- Critical value: 5.991464547107979
- Outcome: Reject the null hypothesis

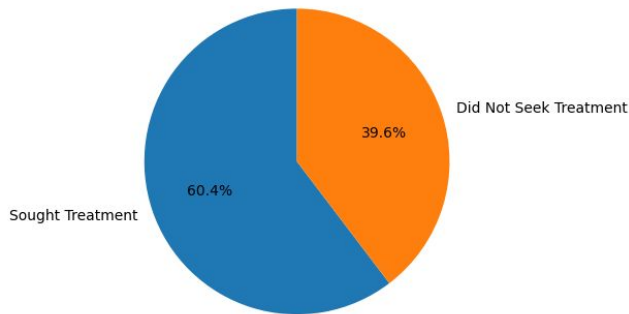


# Influence of Benefits on Treatment Seeking Behavior

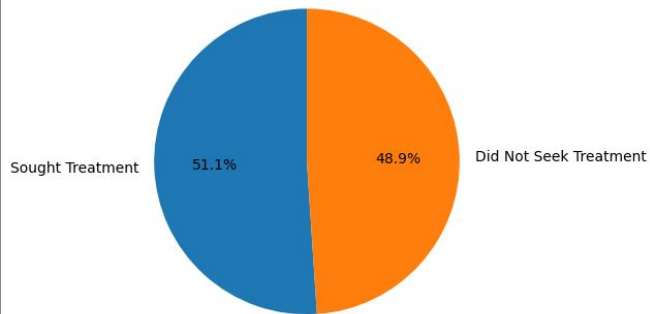
Treatment Status for Benefit Options: Yes



Treatment Status for Benefit Options: No



Treatment Status for Benefit Options: Don't know



**Conclusion:** Employees with access to mental health benefits through their employer exhibit a higher likelihood of seeking treatment. Employers should consider expanding mental health benefits and promoting awareness of available resources to enhance treatment-seeking behavior among employees.



## Summary

In this analysis, a multitude of factors influencing mental health treatment-seeking behaviors were explored. The results of this analysis suggest that by addressing stigmas and promoting awareness, employers can empower their employees to prioritize their well-being and seek help when it is needed.

As a follow up to this analysis, we suggest the execution of further research to explore if employees prioritizing mental health would lead to greater satisfaction and productivity in the workplace, ultimately leading to better business outcomes for the organization.