

Mental Health – Exploratory Data Analysis (EDA) Report

1. Introduction

This report presents an Exploratory Data Analysis (EDA) of the *Mental Health Survey* dataset. The objective is to understand patterns, trends, and attitudes related to mental health in the technology workplace using Python-based data analysis techniques.

2. Tools and Technologies Used

- **Python**
- **Pandas** – data loading and manipulation
- **NumPy** – numerical operations
- **Matplotlib & Seaborn** – data visualization
- **Jupyter Notebook / Google Colab** – analysis environment

3. Data Understanding and Preprocessing

3.1 Data Loading and Inspection

- The dataset was loaded into a Pandas DataFrame
- First few records were examined using `head()`
- Dataset structure and data types were reviewed using `info()`
- Missing values were identified using `isnull().sum()`

3.2 Data Cleaning

The following cleaning steps were performed:

- Removed invalid age values (below 18 and above 100)
- Standardized inconsistent gender responses into common categories
- Handled missing values through removal or replacement where appropriate
- Dropped irrelevant columns such as timestamps and free-text comments

Outcome: A clean and structured dataset ready for analysis

4. Univariate Analysis

4.1 Demographic Overview

- **Age Distribution:** Most respondents fall within the working-age group of 25–40 years
- **Gender Distribution:** Majority responses are from male participants, followed by female and other categories
- **Country-wise Responses:** The highest number of responses came from the United States, followed by other tech-active countries

4.2 Mental Health Context

- A significant portion of respondents reported a **family history of mental illness**
- Many respondents had **sought treatment** at some point
- Mental health was reported to **interfere with work** for a noticeable group of employees

5. Bivariate Analysis

5.1 Gender and Treatment

- Treatment-seeking behavior varies across genders
- Female respondents showed a relatively higher tendency to seek treatment compared to males

5.2 Country and Work Interference

- Some countries reported a higher percentage of employees experiencing work interference due to mental health issues

5.3 Company Size and Benefits

- Larger organizations were more likely to offer mental health benefits
- Employees in smaller companies often lacked awareness of available care options

6. Attitudes Toward Mental Health

6.1 Discussion Comfort

- Employees were more comfortable discussing mental health with **coworkers** than during **job interviews**
- Fear of judgment and career impact influenced openness

6.2 Mental vs Physical Health Perception

- Mental health is often not treated as seriously as physical health
- Perception varies based on gender and whether the employer is a tech company

6.3 Anonymity and Consequences

- Many respondents were uncertain about anonymity when seeking help
- Concern about negative consequences was higher in non-tech organizations

7. Geographic and Remote Work Insights

7.1 U.S. State-wise Patterns

- Certain U.S. states showed higher treatment rates, possibly due to better awareness and healthcare access

7.2 Remote Work Effect

- Remote workers reported slightly better comfort levels and support perception
 - Treatment rates showed noticeable differences between remote and non-remote employees
-

8. Predictive Insights

8.1 Correlation Analysis

- Correlation analysis identified relationships between treatment, work interference, and employer support

8.2 Strong Predictors (Optional)

- Factors such as family history, work interference, and employer benefits were strong predictors of treatment-seeking behavior

- **9. Key Findings**

- Mental health concerns are common in the tech industry
- Workplace support and benefits significantly influence employee well-being
- Stigma and fear remain major barriers to open discussion

10 . Conclusion

Exploratory Data Analysis using Python provided valuable insights into mental health trends in the tech workplace. The findings highlight the importance of organizational support, awareness, and proactive mental health policies to improve employee well-being.

Visualalization



