

# Mental Health in Tech: A Data-Driven Story

## Introduction

Picture a young developer in her late twenties. She's brilliant at what she does—debugging code, designing elegant algorithms—but there's a quiet, underlying struggle she battles daily: her mental health. In an industry celebrated for innovation and problem-solving, it's ironic how often the emotional well-being of its workforce is overlooked. Behind every brilliant product or breakthrough line of code is a human being balancing deadlines, interactions with supervisors, and a desire for a supportive work culture.

This report sets out to investigate a critical question: what workplace factors truly impact mental health in the tech industry? To answer this, we analyzed a mental health survey encompassing various dimensions—employee benefits, supervisor influence, remote work flexibility, and company size. The results were telling: mental health is deeply tied to workplace conditions, and the invisible strains often have visible consequences. Using a series of statistical analyses, including chi-square tests, logistic regression, and ordinal regression, we uncover and quantify these relationships.

To ensure the integrity of the data and the quality of our insights, we carried out rigorous cleaning and preparation steps:

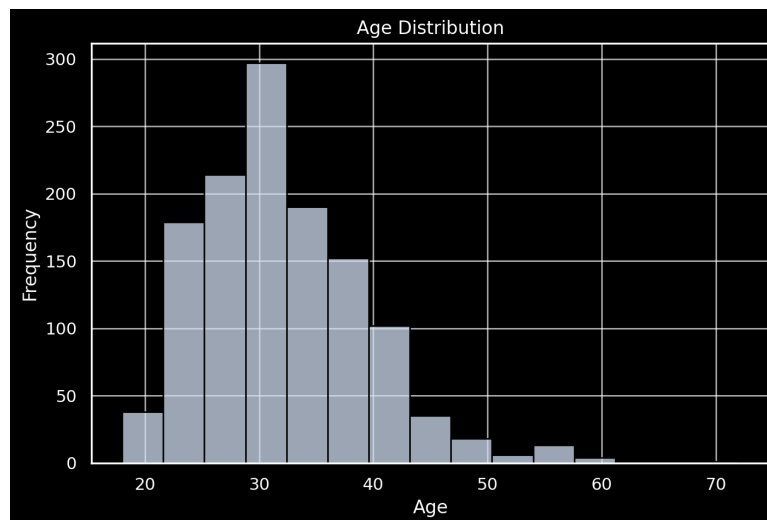
1. **Age Filtering:** Rows with unreasonable age values (under 18 or over 100) were removed, focusing the analysis on adult participants.
2. **Handling Missing Values:** Missing entries in critical fields like 'work interference' and 'self-employed' were filled with placeholders to retain data structure while highlighting uncertainties.
3. **Encoding Categorical Variables:** We encoded key variables such as employee benefits, supervisor presence, and remote work status as binary values for efficient modeling. The 'Age' column was also standardized to enable better regression analysis.
4. **Company Size Classification:** Employees were grouped into either Small (1-100 employees) or Large (more than 100 employees) categories for clearer analysis of company size effects.

These steps helped transform the dataset into a clean, reliable format, setting the stage for meaningful analysis.

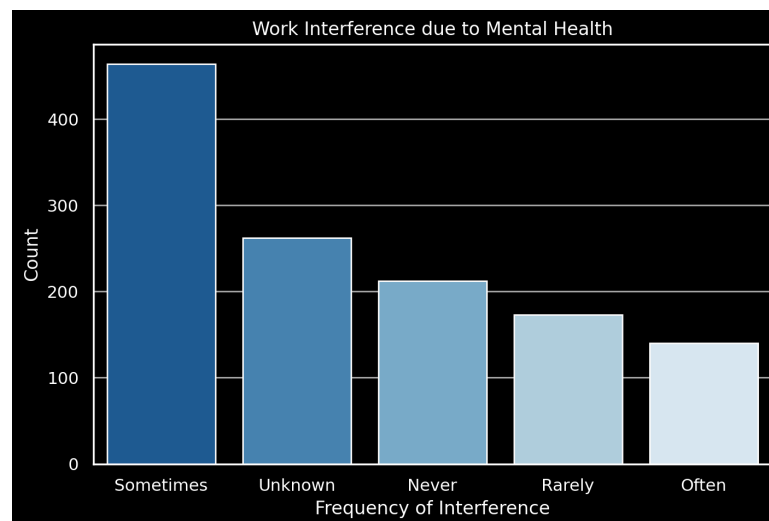
## Exploratory Data Analysis (EDA)

The goal of the EDA was to identify significant patterns and trends within the dataset, particularly regarding mental health treatment, work interference, and company culture.

- **Age Distribution:** The average age was **32 years**, with most participants between **27 and 37 years**, as highlighted by the age distribution histogram.



- **Work Interference:** A bar chart indicated that **most respondents experienced some level of work interference due to mental health**, signaling a widespread issue.



- **Self-Employment Status:** The data showed that **a significant portion of respondents were not self-employed**, potentially reflecting the high prevalence of traditional employment in tech sectors.

These visual explorations laid the groundwork for deeper statistical analysis, providing context to the significant relationships later uncovered.

## Cross-Tabulation and Chi-Square Tests

### Employee Benefits and Mental Health Treatment

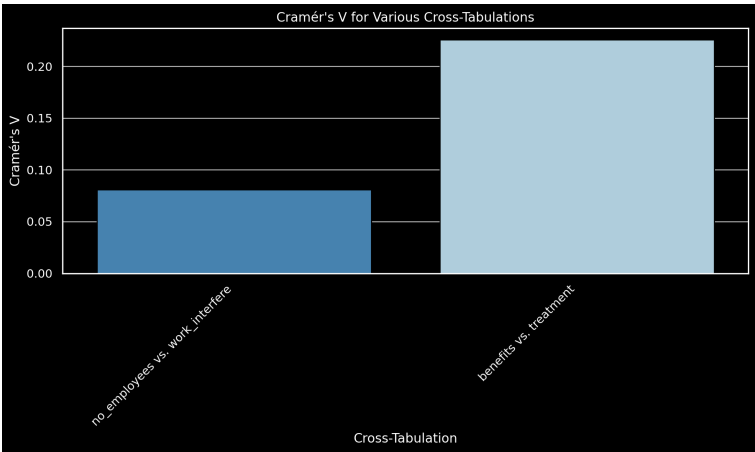
The chi-square test showed a **statistically significant relationship** between company-provided mental health benefits and the likelihood of seeking treatment ( $\chi^2 = 63.70$ , p-value = **1.47e-14**). The **moderate association** (Cramér's V = **0.226**) suggests that company policies have a tangible impact.

These findings highlight a core truth: access to resources matters. Imagine an employee working in a high-pressure startup, where mental health support is considered a “nice-to-have” rather than a necessity. Without visible benefits and active encouragement, even those struggling deeply might hesitate to seek help. Our data demonstrates that when companies actively offer mental health benefits, they lower the barriers for employees to take action—turning hesitation into proactive care.

### Company Size and Work Interference

The chi-square test between company size and work interference yielded a **test statistic of 32.54** and a **p-value of 0.038**, suggesting a weak association (Cramér's V = **0.081**).

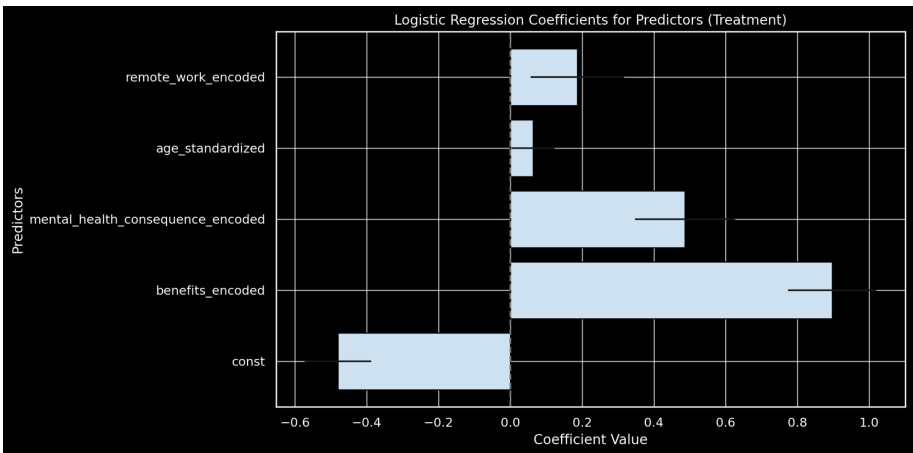
While the association is weak, it still hints at a trend: smaller companies may lack the infrastructure or policies to support employees dealing with mental health issues. For employees, this means juggling the demands of work without a safety net—leaving them vulnerable to interference in their productivity and well-being.



### Logistic Regression Analysis

#### Mental Health Treatment Predictors

A logistic regression model showed that supervisor presence had a **negative effect** on the likelihood of seeking treatment ( $p = 0.002$ ). Remote work had a positive but marginal effect ( $p = 0.097$ ).

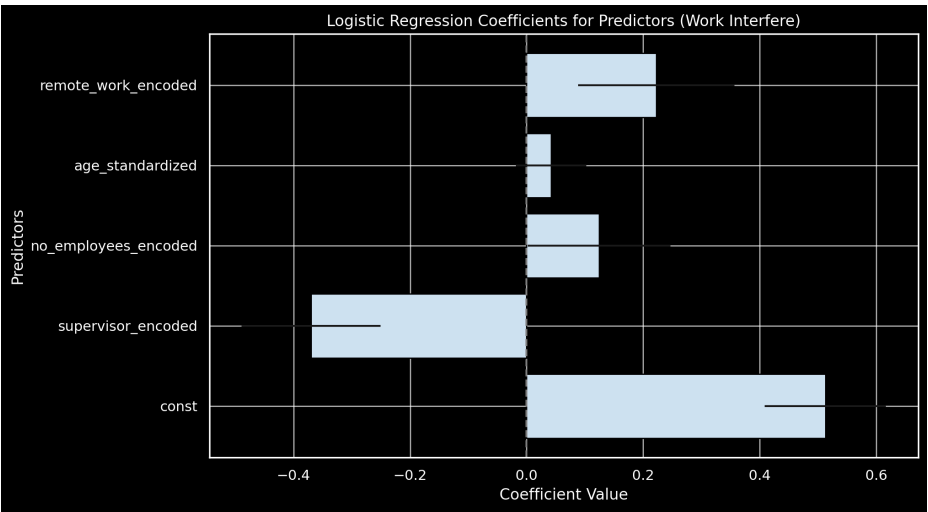


A supervisor can be both an enabler and a barrier when it comes to mental health. Effective supervision fosters trust, yet an unsupportive supervisor can elevate stress, deterring employees from seeking treatment. This dual role of supervisors highlights the importance of targeted training, equipping leaders not just with technical skills but also with the empathy needed to foster a supportive environment.

## Work Interference Predictors

Supervisor presence and remote work were both significant predictors of work interference, as seen in logistic regression analysis.

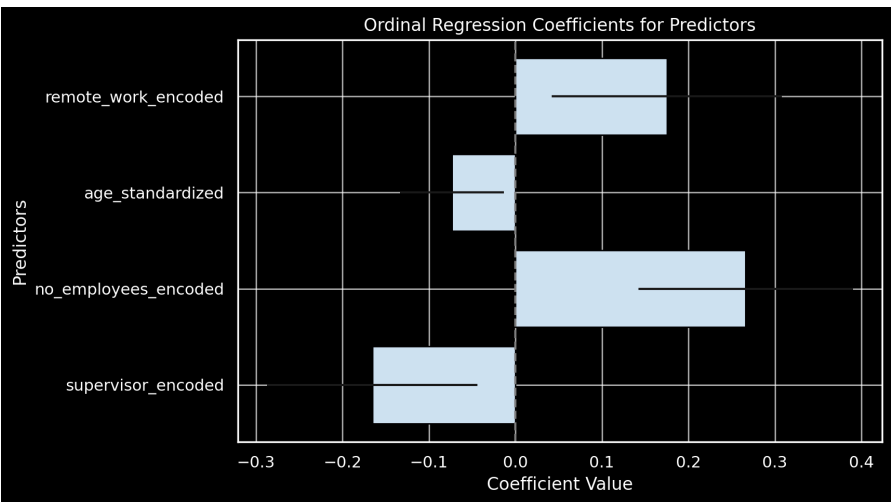
The presence of a supervisor influences work interference levels, possibly adding pressure or creating tension. Conversely, remote work offers flexibility—a chance for employees to manage their environment and mitigate stress. The data suggests that flexible work options are a critical intervention point for reducing work interference.



## Ordinal Regression Analysis

To further investigate work interference, an ordinal regression model was applied:

The ordinal regression model confirmed the influence of supervisor presence across different levels of work interference. **Remote work** also consistently showed a minor impact.



For employees, interference in work due to mental health issues is not binary—it exists on a spectrum from rarely to often. Supervisor influence plays a key role, but so does the opportunity to work remotely. When employees are empowered to manage how and where they work, they can better navigate their mental health needs, which can range from feeling rarely affected to being frequently overwhelmed.

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## Conclusion

The results presented in this report highlight significant relationships between workplace conditions and mental health outcomes. For consulting engagements in the tech industry and beyond, the implications are clear:

- **Employee Benefits:** These are moderately associated with seeking mental health treatment, emphasizing the importance of company-provided mental health support.
- **Supervisor Presence:** Supervisors play a dual role—either enabling mental health treatment through support or hindering it when perceived as unsupportive.
- **Remote Work:** Flexibility in work arrangements consistently helps mitigate mental health interference, providing employees with a measure of autonomy to manage stress.



These findings underscore that mental health in the workplace is shaped by policies, people, and environment. The numbers make a compelling case for investing in these areas, but behind every data point is a person striving to bring their best self to work—a self that needs support, understanding, and flexibility to truly thrive.