Mental Health Analysis in Tech Workplace

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Abstract

In today's environment, mental wellness is more important than ever. High stress, long hours, work pressure, building a reputation for oneself, and a work-life balance between personal and professional life are all symptoms of mental illness disorder. Mental health problems are highly prevalent among workers in the tech workplace. This research used a dataset called the mental health in tech survey, which gathered data from people all over the world. The goal of the proposed research is to determine the frequency of mental health disorders among technical employees versus non-technical employees in the workplace. We have explored what are the differences in the prevalence of mental disease and attitudes toward mental health by geographic location? What are the most powerful predictors of mental illness in the workplace, as well as specific attitudes regarding mental health? It is important detection and diagnosis of mental health conditions. This research illuminates the most effective techniques for improving employee well-being and encouraging them to seek treatment when necessary.

Keywords

Mental health illness, tech survey, work pressure, work life balance, health disorder

1. Introduction

Our emotional, psychological, and social well-being are all part of our mental health. It has the potential to influence our interactions with others, as well as our professional performance and physical wellness. The problem of mental health is receiving an increasing amount of attention these days. For persons with mental illnesses, having a positive attitude toward obtaining therapy is critical. There are a variety of elements that can influence one's attitude. Mental disease is strongly characterized in society as a shortcoming in a person, and most people are not comfortable admitting that they are suffering from mental illness. According to WHO (2005) high stress, long hours of labor, work pressure, and the desire to make a name for oneself characterize people in technical sectors. Perez and Wilkerson (1998) mentioned that stress is quickly becoming the most common cause of worker incapacity; according to a poll, stress is responsible for 40% of job turnover, and 25% of workers consider work to be their greatest source of stress.

1.1 Objectives

The goal of this study is to explore the mental health survey conducted in 2014 to learn more about the mental health of tech employees and to identify workplace measures and conditions that would help employees with mental health issues cope better and achieve their full potential at work.

2. Literature Review

Memish K. et al. (2017) proposed a systematic study to assess the quality and comprehensiveness of employer-developed guidelines for detecting, preventing, and managing mental health issues in the workplace.As part of an iterative grey literature search method, experts in psychology, public health, and mental health promotion were consulted. The results of this systematic review will help translate scientific information into practical suggestions for preventing mental health problems at work. Employers, clinicians, and policymakers will be directed to examples of best-practice standards. Kahn, J. P. et al. (2003) offered a complete guide to recognizing, understanding, preventing, and resolving individual and organizational mental health issues in the workplace. This book includes information on how to create systems and cultures that promote organizational productivity and employee mental health, as well as how to get affordable, high-quality mental health care.

Chopra P et al. (2009) a work which is Mental health and the workplace: issues for developing countries. The ability to work successfully is an important aspect of physical and mental health. Workplace productivity has been linked to common mental disorders (CMDs). Underdeveloped countries are projected to bear the brunt of this impact. Furthermore, workplace stress has been related to an increased incidence of CMDs and has a major negative impact on mental wellness. This study investigated the link between the employment environment and psychiatric morbidity. In this forum, the evidence for mental health promotion and intervention studies has been debated. They formed to advocate for workplace reform and research to improve mental health in developing-country workplaces in order to improve employee well-being and productivity.

Sasaki, N. et al. (2020) investigated the links between workplace measures implemented in response to COVID-19 with mental health and the work performance of employees in Japan. This was a cross-sectional study of a sample from a cohort study of full-time employees. Participants (n = 1448) completed an online self-report questionnaire on March 19-22, 2020. Multiple linear regression was conducted to ascertain their fear of and worry associated with COVID-19, psychological distress, and work performance. The number of workplace measures correlated positively with respondents' fear of and worry associated with COVID-19 (adjusted standardized $\beta = 0.123$, $P < .001$), negatively with psychological distress and positively with work performance (adjusted standardized $\beta = -0.068$, $P = .032$; adjusted standardized $\beta = 0.101$, $P = .002$; respectively).

GOETZEL, R. Z. et al. (2018) propose a project to declare a call to action to improve mental health in the workplace. They held a public health summit and formed an Advisory Council comprised of professionals in the fields of occupational health and safety, workplace wellness, and public policy to make recommendations on how to improve workers' health and well-being. The Advisory Council narrowed the list of ideas to four priority projects. The recommendations for action include developing a Mental Health in the Workplace 1) "How to" Guide, 2) Scorecard, 3) Recognition Program, and 4) Executive Training.

We all have the right to good and productive employment in an environment that respects our freedom, equity, security, and human dignity. Obtaining this right is especially difficult for people who have mental health issues. This research emphasized the relevance of labor in improving the economic and social integration of people with mental health issues. According to Eaton, W. et al. (2018) the moment has come to address both the low emphasis given to mental health and the stigma that persons with mental illness still face around the world. The document examined the importance of mental health in the workplace in general and suggests appropriate management for workers with mental health problems. In addition, it took a practical look at strategies to promote and sustain good mental health while highlighting examples of good practices. This important paper is intended to assist employers and employees in raising awareness of the benefits of good mental health practices and encouraging the use of initiatives to maintain a healthy workplace.

Calnan, M. et al. (2001) used a 'workforce' method in a study of job strain in primary care (general practice) in the UK. It looked at the amount of stress among general practice workers and the link between stress and job characteristics. A random sample of 81 general practices in southern England (n=81) was sent postal questionnaires. According to the GHQ-12, 23% of all respondents were suffering from mental discomfort, with practice managers

experiencing the most stress and clerical and administrative workers experiencing the least. Work qualities, as measured by Karasek's Job Content Instrument, as well as marital status and health status, were found to be significant predictors of job stress. They concentrated on the value of the job strain model for describing job stress in general practice in this research.

3. Methods

We have analyzed the dataset which is publicly available. After data analyzing some recommendations have been provided based on findings.

4. Data Collection

This dataset contains data on employee attitudes about mental health in the tech industry, as well as geographic and demographic statistics and workplace support. We can learn more about what influences people's attitudes and what we can do to change things. This data comes from a 2014 survey of an open-source mental illness platform that looked at mental health attitudes and the prevalence of mental health issues in the tech industry. The above was based on a survey research study in which 1260 participants said they had mental health difficulties. When the incident was reported, each person was requested to complete a survey so that their findings could be analyzed. This data was mostly focused on mental health reports in the tech industry. This implies they market yes to working at a tech-focused company on the poll they filled out. The dataset contains 26 columns. The study focuses on five primary areas of information. Respondents' demographic and geographic information, such as age, gender, country, state, and family history of mental illness. Basic information regarding the work environment: for example, whether you are self-employed or not, the number of employees you have, whether you work remotely or not, whether you work for a tech firm or not, and whether or not work interferes with your mental health. Some of the information contains by the data set are given below in table 1.

Table 1. some of the information of the dataset

Data	comments
Timestamp, age, gender, country	
State	Which state or territory do you live in if you live in the United States?
Self_employed:	Are you self-employed?
Family_history	Do you have a history of mental illness in your family?
Treatment:	Have you sought treatment for a mental health condition?
Work_interfere	Do you think your mental health problem is interfering with your capacity to work?
No_employees	What is the size of your company or organization's workforce?
Remote_work	Do you spend at least 50% of your time working remotely (outside of an office)?
Tech_company	Is your company/organization primarily a tech firm?
benefits:	Is your company offering mental health benefits?
care_options:	Are you aware of your employer's mental health care options?
wellness_program	Have you ever had a conversation with your boss about mental health as part of an employee wellness program?

5. Data set analysis and findings

- Age distribution of tech company employee

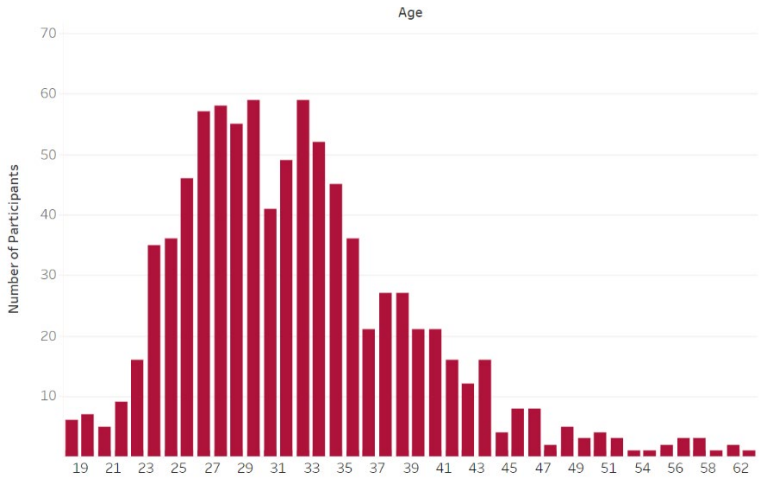

Figure 1. Global distribution of mental health data set

Figure 1 shows that the majority of the participants are between the ages of 23 and 35. The average age of the population is 31.7 years. The tech industry is still a young world

- Mental status of tech company employees

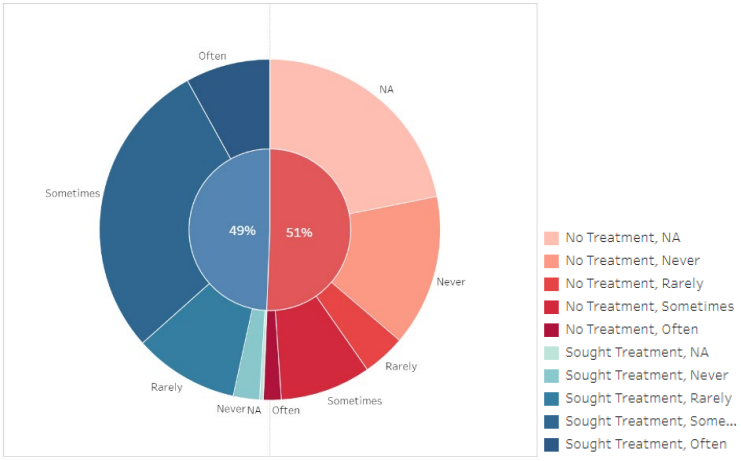

Figure 2. The mental status of tech company employees

In figure 2, question 1 (seeking therapy) is represented by the inside pie, whereas question 2 is represented by the outer rim (degree of work interfere). Although 49% of participants (blue section, n=436/883) sought therapy, signaling that they have or had a mental illness, the majority of them still suffer at work on a regular basis, ranging from rarely to frequently. There is still a group of people (14 percent, n=127/883) who suffer at work to varying degrees despite never seeking treatment (the red part).

- Global distribution of mental health data set

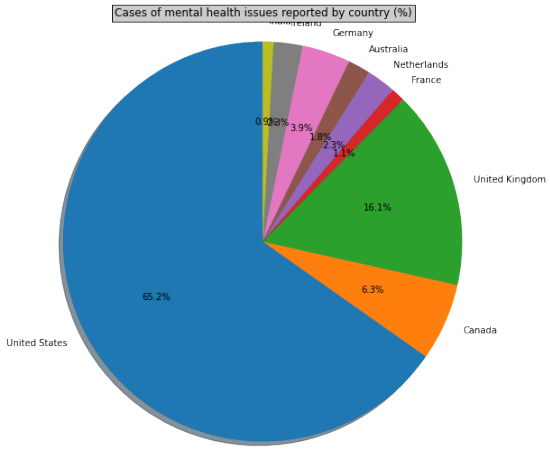

Figure 3. Global distribution of mental health data set

From figure 3, it is evident that the United States has the highest number of reported mental health concerns, accounting for more than half of all instances in this sample.

- Mental Health in the United States

In comparison to the rest of the globe, the CDC reports that the number of adults suffering from anxiety and depression has risen from 36 percent to 41 percent. The analysis that follows will be mostly focused on the US subset. Figure 4 shows a number of people that have reported mental health issues currently working at a tech-focused company. In this dataset of people who report mental health concerns in the US and work in the tech business, there is a 1 in 5 ratios of instances. Based on this dataset, 1/5 of people in the US struggle with mental health at work in the tech business.

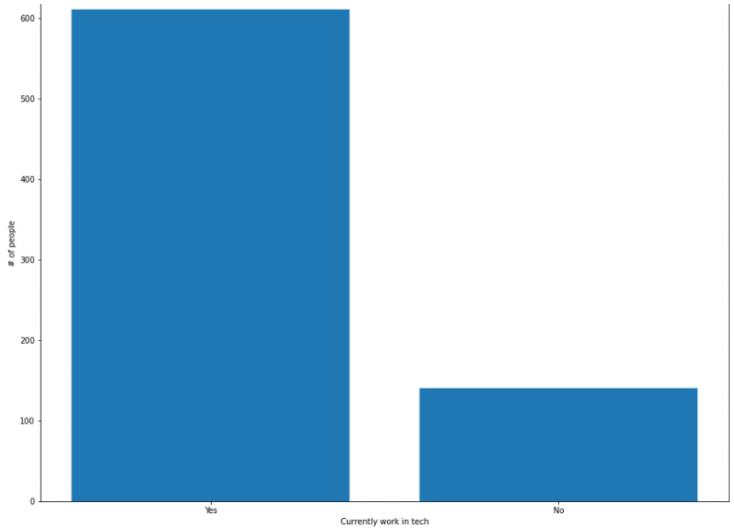

Figure 4. The number of people who reported mental health issues

- Mental health based on family history

If there is a history of mental illness in the family, is it true that people with a family history of mental illness witness more cases than those who don't? figure 5 provides the answer if there is any correlation. As you can see from the graph above, people who work in tech or do not work in tech are almost evenly split when it comes to whether they have a family history of mental illness. In the tech industry, roughly 265 persons reported they have a family history

of mental illness, compared to 346 who do not. Similarly, 65 percent of individuals who do not work in technology indicated they have no family history of mental disease, compared to 75 percent of those who do.

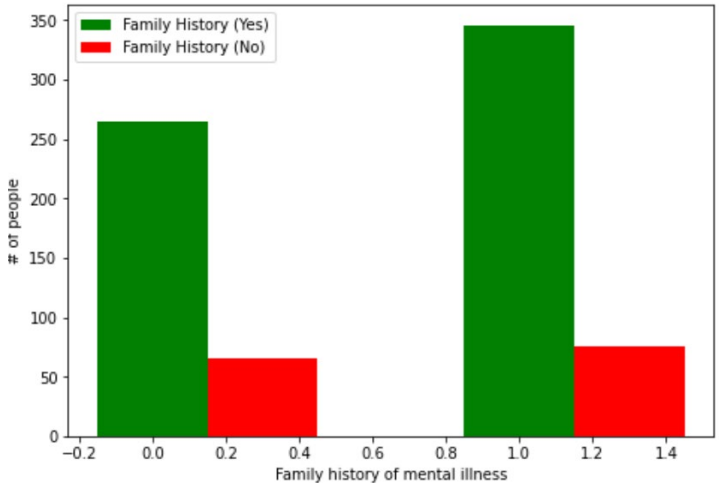

Figure 5. The number of people who have claimed to have mental health issues based on their family history

- Company care options

Some firms are integrating mental health benefits into their benefits packages, but unfortunately, many consumers are unaware that their employers cover mental health. According to figure 6, those who do not work for tech companies have a fairly even split between those who know and those who do not know if the companies they work for even offer mental health care. That can be a significant issue for people and their mental health, but it can also be costly, so knowing if it is covered can make a huge difference. It's also worth noting that many non-tech companies do not provide mental health treatment, which is a problem in and of itself. On the other side, tech-based organizations, for the most part, do a far better job of providing mental health treatment, but a big percentage of those who work in tech don't even know if mental health is covered by their employer. With technology becoming increasingly complex and demanding, there must be a significant shift in both providing more and better mental health treatment and informing employees. Tech corporations are constantly increasing their demands on their employees.

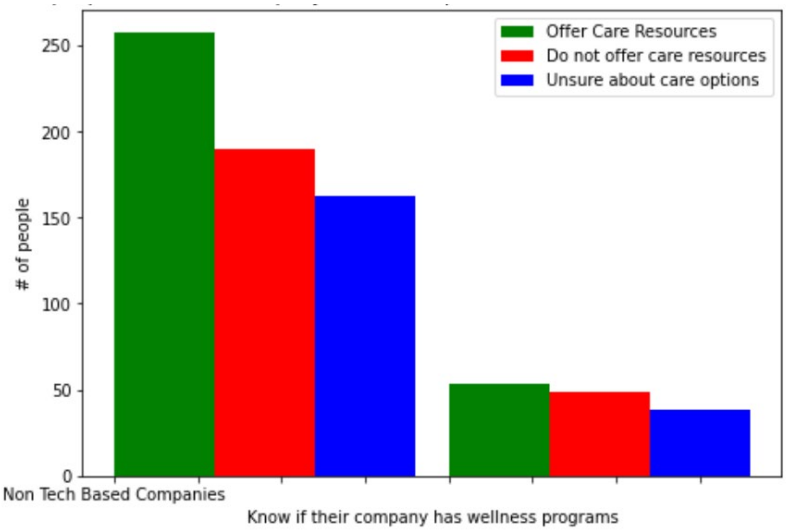

Figure 6. The number of people who have care options based on if work at tech companies

- Ask for assistance

A key component of mental health is seeking help in any shape or form and improving your mental health can be simple if individuals who suffer from mental health difficulties do so. Mental health was never discussed openly with others for most people until the last decade. You had to deal with mental health concerns on your own if you had them. Because of how vital it has become, there are so many options for seeking assistance nowadays. Most tech companies provide a wealth of resources for obtaining assistance.

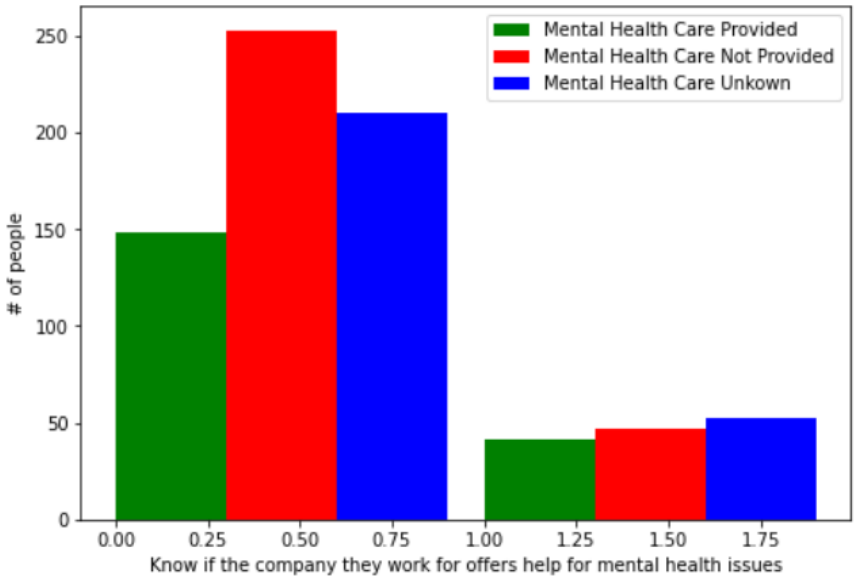

Figure. 7. The number of people who have mental health options based on if work at tech companies

Based on the previously examined data, the results of a check to see if companies provide mental health help and resources are fairly surprising. When it comes to tech firms, there is a 2 to 3 ratio of firms that do not provide mental health resources to those who do. A substantial percentage of people in the computer industry are likewise unaware that such assistance is available. According to the graph above, these are the areas where firms need to make significant improvements, as well as educate their employees about perks if they are available. When it comes to mental health difficulties in the workplace, this is one of the most common areas of failure (figure 7).

Impact of remote work

The theory is that people who work remotely have greater privacy and that this enhanced privacy encourages them to seek therapy. Do you work remotely (outside of an office) at least 50% of the time, according to the survey? According to figure 8, there were no significant differences between the three groups. Here, there is no evidence of the impact of distant work.

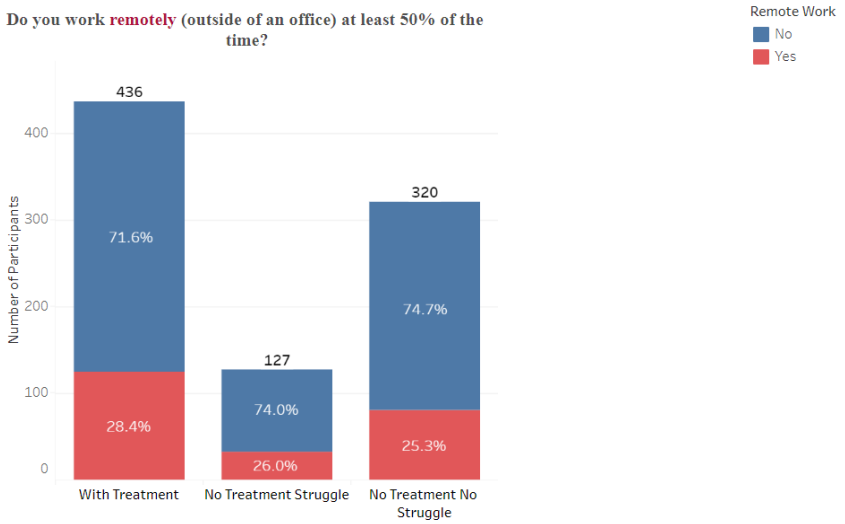

Figure 8. Impact of remote work

- Benefits and resource availability by company size

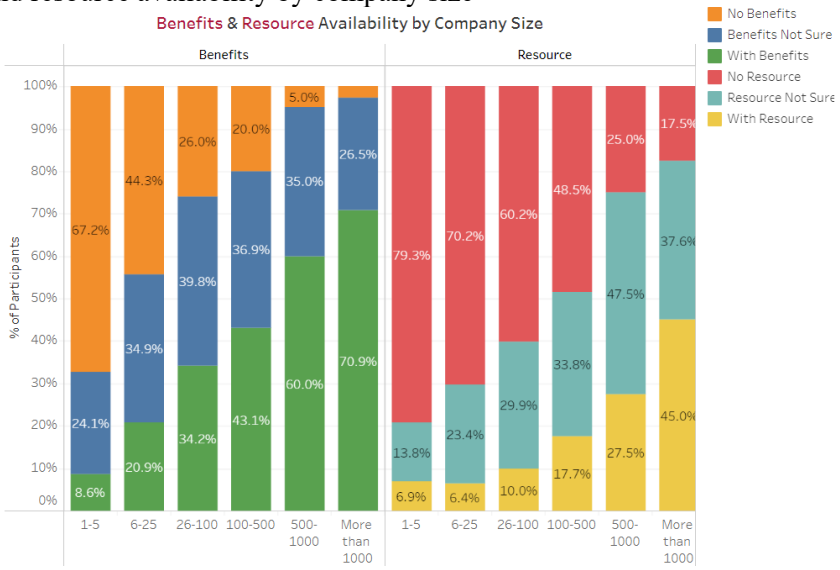

Figure 9. Benefits and resource options by company size

Figure 9 shows benefits and resource availability by company size. According to figure 9, Larger organizations, as one might think, have more mental health benefits and resources.

- Anomaly protection and leave allowance by company size

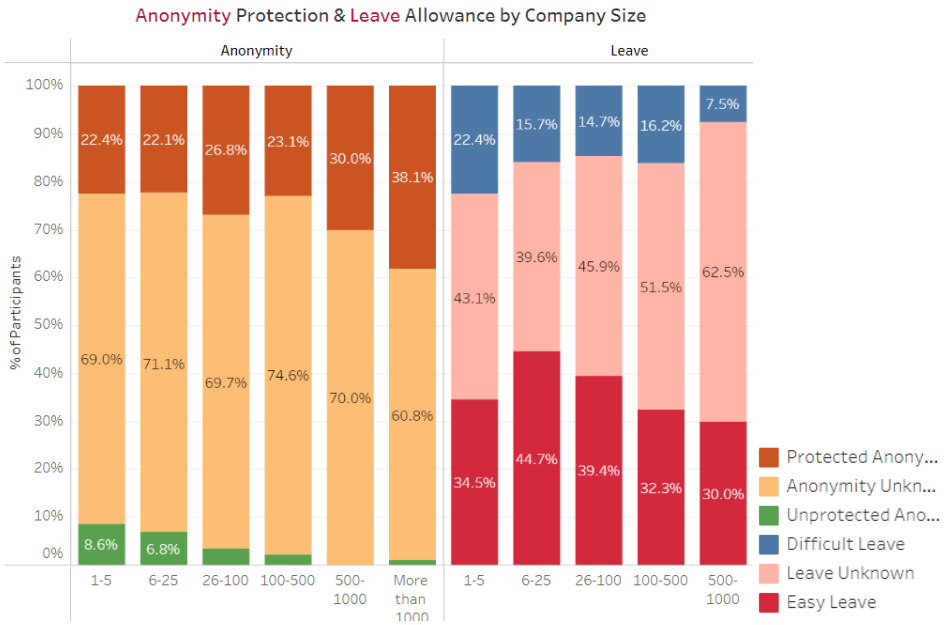

Figure 10. Benefits and resource options by company size

Large organizations (over 1000 employees) have the strongest anonymity protection, whereas smaller businesses have the worst based on the figure 10. This could be due to the fact that employees at smaller businesses are more likely to know one another. Employees are less knowledgeable about anonymity protection and leave allowances than they are about benefits and resource availability (which makes the conclusion unreliable here). However, these two elements must be acknowledged in order to have a mentally healthy workplace.

Participants who struggle mentally but do not seek treatment by company

Graph 11 displays the actual number of participants as a percentage. The worst situation is in a very small business. 20.7 percent of participants working in companies with a size of 1 to 5 employees are having mental health issues but are not seeking help. Small businesses, on the whole, have a higher percentage of suffering employees. However, the number of struggling participants grew marginally for companies with a size greater than 1000 employees. Remember that this size of firm has the greatest perks and resources available, as well as the most negative mindset and unwillingness to reveal. To put it another way, some suffering employees do not take advantage of existing advantages and resources because they are afraid of the repercussions of exposing their situation. This pattern could indicate that decreasing mental health stigma (in order to alleviate the worries and fears of struggling employees) is vital in treatment (figure 11).

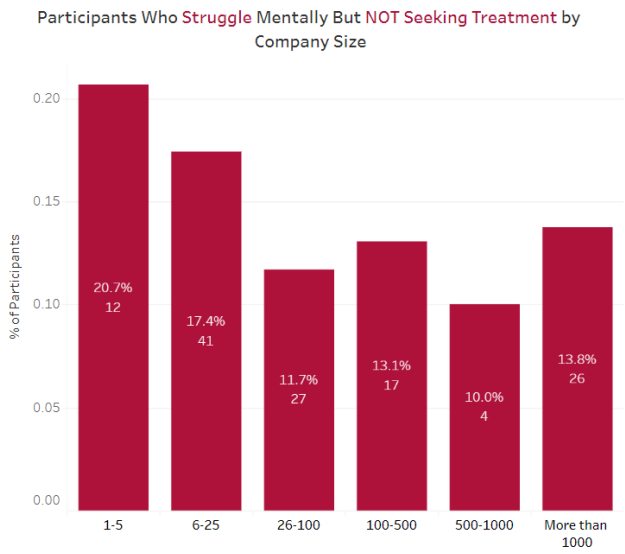

Figure 11. Benefits and resource options by company size

6. Recommendation & Summary of insight

- Participants who battle with mental illness but refuse to seek treatment had the most concerns/fears (of negative workplace consequences) about disclosing a mental illness, as well as the least availability of benefits and support resources.
- Supervisors might be trained to spot mental problems and take the initiative to reassure staff to get treatment as needed to avoid negative consequences, as they are likely to be the first to notice any issues.
- Messages/posters such as "Having a mental illness is not a shame", "having a mental illness does not mean you are weak", and "employees can still strive with managed mental illness" could be promoted in the workplace to increase positive thinking and encourage coping with mental illness, which is especially important when the company size exceeds 1000.
- Offering benefits to cover mental health treatments encourages people to seek help.
- There are fewer negative effects in the job when leave allowance and anonymity protection are provided. Many employees are unsure whether their identity is secured when utilizing mental resources, thus employers should consider stressing anonymity protection.

7. Conclusion

With mental health has been a prominent issue of conversation around the world in the last decade, one of the most significant spurts in the study has been in this area. From the fundamental causes of mental health difficulties to the signs of mental health issues and the most important element of this examination, is how people with mental health issues react to them. When comparing those who work in tech to those who do not work in tech, there was a clear majority of those who do work in tech. For individuals in the tech industry, the majority of the results were as expected. When it comes to the above-mentioned questions and answers, it's clear that there's still a lot of work to be done in terms of raising awareness and emphasizing the significance of businesses to begin taking mental health action. A startling number of people who said they had mental health concerns didn't even know if the company they worked for provided resources, care plans, or assistance for mental health.

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Biographies

Md. Milon Uddin is a graduate student in the Department of Electrical Engineering at the University of Texas at Tyler. He obtained his bachelor's degree in Electrical and Electronics Engineering and master's degree in Renewable Energy Technology from Bangladesh. During his studies, he worked as a Research Assistant at the Institute of Energy, University of Dhaka, Bangladesh. Prior to coming to the US, he worked as an Officer of SREDA, Power Division, Ministry of Power, Energy and Mineral Resources, Bangladesh. He became Inter-University Innovation Contest Champion in 2016, Bangladesh. Furthermore, he received a National Science and Technology Fellowship for his MS thesis. He has won 3 minutes Thesis (3MT) competition in 2022 arranged by the University of Texas at Tyler. His research paper was chosen for the best research paper award, and he was chosen as the best presenter by the IEEE 12th Annual Information Technology, Electronics, and Mobile Communication (IEEE UEMCON 2021). Milon has published 20 research papers (including Journals, IEEE conference papers, and book chapters). His research interests include Machine Learning, Augmented Reality (AR), and Virtual Reality (VR). He is working to develop a novel 360-degree video caching and streaming system. When he is free, he loves traveling and YouTube vlogging.

Afia Farjana, a current graduate student of Computer Science at the University of South Dakota. She is working as a Research Assistant at the department of computer science and involved with different research project utilizing Machine Learning Algorithms. She completed Bachelor of science in Computer Science from American International University of Bangladesh (AIUB), Bangladesh. She has worked for sentimental analysis which is a survey on Machine learning for emotion and mental health detection, analysis, visualization using COVID-19 Social Media data. Apart from that recently she is doing her thesis related to federated learning on lung sound analysis. Her research interest includes data privacy, analysis of customer sentiment in business sector, image processing, pattern recognitions.

Muntasir Mamun is a Graduate student of University of South Dakota in Computer Science Department. Currently, he is working as Research and Teaching Assistant in University of South Dakota. He completed his bachelor's in electrical and Electronic Engineering at American International University of Bangladesh. However, he completed his research thesis and work on Covid-19 screening using Machine learning and Deep learning methods by cough sounds. This research work is already accepted in Springer Nature conference and another review work is accepted in peer J journal (impact factor:2.98). Currently, he is doing some research work on lung cancer and heart diseases predicting model using ensemble learning techniques. Apart from that, he has some other research publications in IEEE Xplore about Nanotechnology.

Miraz Al Mamun is a recent graduate of the University of South Dakota (USD) and currently serves as Applications Support Analyst at Sanford Health under practical training. Sanford Health is a non-profit research affiliated organization with the University of South Dakota. At USD he studied Master of Science in Business Analytics. He earned bachelor's degree in business administration from North South University, Bangladesh. He also worked as a Graduate Research Assistant at the Beacom School of Business from 2019 to 2021. Under Beacom School of Business he had experience of working on different research projects on data analytics using machine learning methods. Currently, he is involved in several research utilizing machine learning models for business process automation and his research interests include financial fraud detection, customer privacy, customer churn modeling, customer sentiment analysis and business process automation.

