

Mental Health in the Tech Industry

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Abstract: An anonymous survey done by Open Sourcing Mental Health from the years 2014-2017 was used to figure out trends in the tech industry. These trends are contributing to the growing number of mental disorders diagnosed in the tech industry. 90% of workers in the tech force claim that their productivity levels have decreased due to their mental health and 50% of tech workers have been diagnosed with a mental disorder. The OSMH survey sought to answer the reason why this upward trend of mental health diagnoses exists by asking questions ranging from gender, age, and ability to discuss mental health with coworkers and employers. Most survey respondents were in their mid-40s and over 3 years, and their comfort level of talking to employers and coworkers about mental health significantly decreased, leading to a working environment where talking about mental health openly was uncommon.

Background and Summary: The tech industry is known for being competitive and not having an easy work-life balance. Over 51% of tech professionals have reported being diagnosed with a mental health illness. However, what factors exactly lead to this diagnosis is extremely difficult to figure out. Most mental health struggles in the tech industry include stress, anxiety, depression, and burnout. Facing a lot of pressure at work is a key root cause of these feelings. So many different aspects of a tech job can contribute to and exasperate these feelings.

Open Sourcing Mental Health is a non-profit corporation dedicated to raising awareness of mental health disorders in tech. Since 2014, they have conducted an online research survey consisting of well-thought-out questions that aim to gain more understanding of the tech field and its intersections with mental health. They have run the biggest survey exploring mental health in the tech industry and collected over 1200 responses in 2014. Most of their data were collected within a week of the survey opening through Google Forms. The Creative Commons Attribution License allows easy and free access to sharing and transforming the data and the rest of the survey results. The questions range from healthcare options for mental health given by workplace insurance, to family background questions, age, gender, and country. Answers from all over the world have been collected through this survey as it is open to anyone in the world in the tech industry and is easily accessible on the OSMH website. The creators of OSMH give speeches all over the world to raise awareness and recruit people all over the world to take their surveys. Over 50% of their responses are from the US and contributed to how we directly see how mental health in the tech industry has evolved in the US. From 2014-2021, the questions have more or less stayed the same but covered much more depth the potential predictors of mental health in the tech industry. Lastly, no ethical violations as the survey are completely voluntary.

Methods: First, we plan on exploring the demographics of the dataset to identify the specific population who participated in the study. We looked at the gender and age columns, which gave

us insights into the workplace distribution of the population. Looking at the correlation of gender or age versus other questions (ie the type of mental health disorder they're suffering from, their willingness to discuss mental health issues with their employers and coworkers) is another topic to look in depth on. Some of the questions we want to focus on in this research are how the awareness of mental health in tech workplaces has changed over the past few years if there is a tendency for a specific demographic to be more open about discussing mental health issues, and whether disclosing their mental health issues affected them negatively at tech workplaces. To gain insightful answers to these questions, we will conduct many cross-variable examinations to find potential correlations between different variables.

Data Cleaning: To do a comparison of data from 3 separate years, 2014, 2016, and 2017, we merged the datasets from the three years available from the source. Although they were results from surveys organized by the same collective, the questions were modified across different years of surveys. In the data cleaning process, first, we merged the three datasets into one. While merging, I modified the column names so all 3 years' datasets match. In addition to this, due to the different questioning formats and therefore the varied answer formats, we also modified the answers so that counting the number of values can be made easier. Some of the questions we picked to analyze were newly asked in 2016 and 2017 and were not asked in 2014. For this reason, some columns have missing data for one whole year. We decided to neglect these missing data points and only use the columns as supporting evidence while focusing on the analysis of other questions and relationships between different columns.

Exploratory Data Analysis:

Demographics exploration:

Gender Distribution

Male	1451
Female	615
Queer/Non-binary	26
NaN	8
Others	5

Table. 1 Gender Distribution of Survey Responders

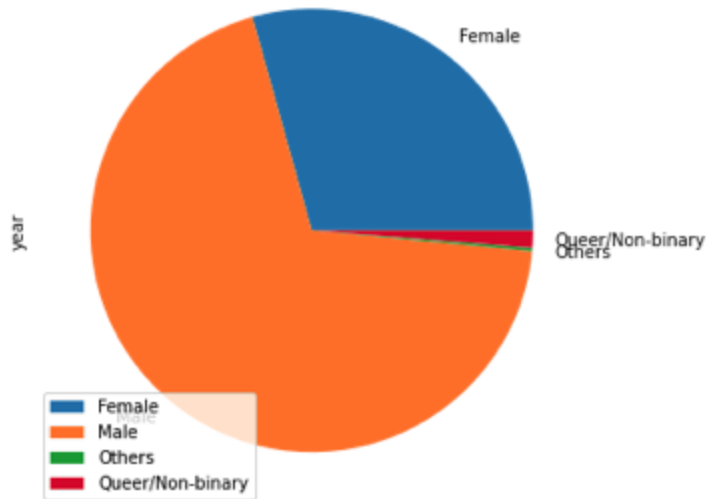


Figure 1. Percentage Gender Distribution of Survey Responders

The majority of survey responders were male. Around 69% of the survey responders from the combined dataset were male. This is an interesting statistic as it does accurately reflect the gender imbalance present in the workforce, but it also does not give us a lot of data to work with in terms of the issues females face in the workplace. The gender imbalance could play a really key role in female mental health in the tech force.

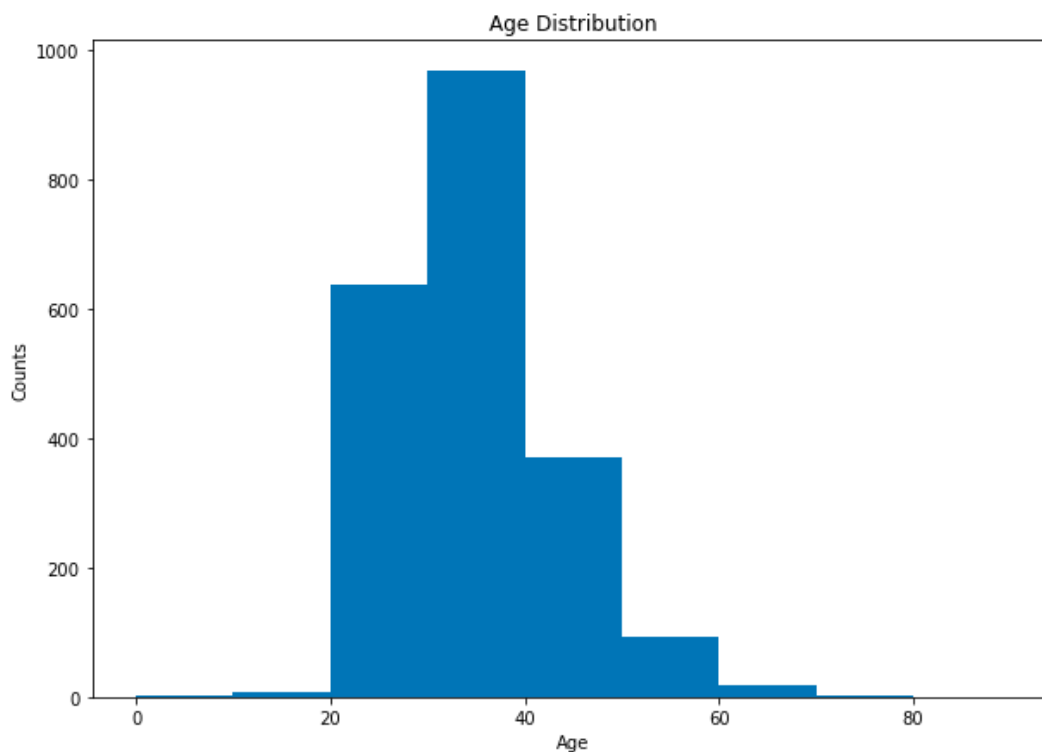


Figure 2. Age Distribution of Survey Responders

A lot of survey responders were over the age of 30 with the majority being in their late 30s. Over 53% were over the age of 30 and the majority of responders were male.

No	672
NaN	503
Sometimes	469
Yes	461

Table 2. Working Location Distribution

At the time of the survey, 54% of the survey responders had worked remotely full time or for some part of their job. This was a really interesting visualization as these numbers are definitely something that would have changed over the years, especially after COVID.

NaN	1006
Yes	720
No	379

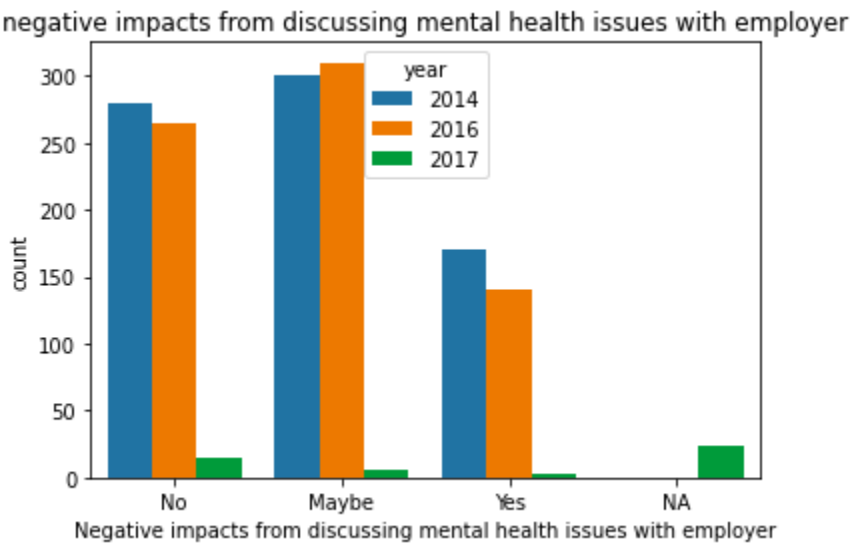
Name: Diagnosed with a mental health condition, dtype: int64

Table 3. Number of Survey Respondrs diagnosed with a Mental Health Condition

	year	2016	2017
Diagonosed with a mental health condition			
No		375	4
Yes		476	244

Table 4. Mental Health Diagnosis

65% of yes or no responses reported being diagnosed with a mental health condition. This question sought to ask whether or not the survey responder had sought outside help and treatment, leading to a diangosis of a mental health condition. It would be really interesting to see the array of mental health disorders and see which mental health disorders are the most common and see if that changes within each field of tech.



	Gender	Female	Male	Others	Queer/Non-binary
Comfortable discussing mental health issues with coworkers					
	Maybe	0.284404	0.261355	0.2	0.347826
	No	0.280734	0.255398	0.0	0.260870
	Yes	0.434862	0.483246	0.8	0.391304

Table 5. Comfort discussing mental health by Gender Distribution

We can see the gender breakdown of who is comfortable speaking to their coworkers about mental health. Males were the most likely to feel comfortable discussing mental health with coworkers with 49% of responses saying yes. Females were second at 43%, and 39% of queer/non-binary identifying people said yes.

	year	2014	2016	2017
mental health benefits by employer				
	Don't know	236	198	100
	No	117	91	69
	Yes	398	427	289

Table 6. Knowledge about Mental Health Benefit by Employer

Mental health benefits can look a lot of different ways. Mental health days, insurance for mental health related issues, and paid time off are only some of the ways that benefits can take shape. In 2014, only 52% of survey responders said they knew of the mental health benefits their employer offered. In 2016, the number increased to 60%, and in 2017 the number was was 63%. This shows an upward trend in employers and employees offering and taking use of mental health benefits.

negative impacts from discussing mental health issues with employer

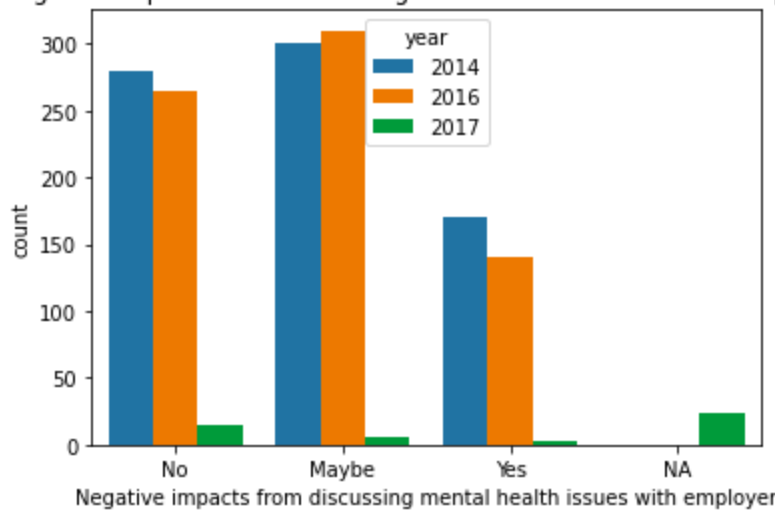


Figure 3. Negative Impacts from discussing mental health with employer

The data chronicling this question is incredibly interesting as it shows and gives an insight into just how the workplace environment feels after discussing mental health in the workplace. This graph would be even more helpful if more data was collected like what exactly in the tech field this corresponds to. A financial tech firm or a medical tech firm would probably have differing opinions and that would be an interesting data point to see.

Comfortable discussing mental health issues with coworkers

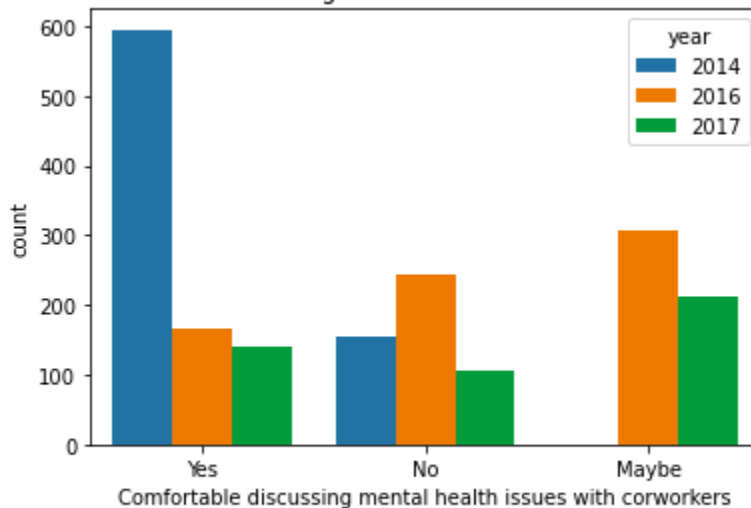


Figure 4. Comfort discussing mental health with coworkers

Comfort in starting a conversation about a tough topic is an incredibly difficult thing. This graph shows that in 2014, around 600 people were comfortable talking about mental health to their

coworkers, this number decreased in 2017 to around 150 and around 300 people said no or maybe to this question in 2017. Survey results and responses did decrease annually, but in 2016, most of the responses mentioned no or maybe for being comfortable discussing mental health with coworkers.

Literature Review: OSMH's survey is the biggest survey targeting the tech industry. Over 51% of the tech industry reported being diagnosed with a mental health disorder, therefore, the data collected in this survey has been used for a lot of projects to get to the root cause of this pressing issue. A group in the UK used this data to analyze predictors of mental health illness and how certain attitudes can contribute to this trend. This group found that the biggest link to mental health is employees' family history as well as gender and workplace care options. The biggest takeaway from their report was that the industry should focus on female tech workers and what variables lead to their mental health issues and what steps can the industry take to address them.

Conclusion: In conclusion, the relationship not being able to have a working environment where mental health can be talked about is extremely detrimental to tech force. In a population where many of the tech workers are 40 and older, mental health culture at these places is something that needs to be developed. The tech industry needs to focus more on creating a workplace environment where employers and employees are comfortable with sharing their thoughts. Team building and other activities that prevent burnout are extremely important. Workplaces should provide an on-site mental counseling department and look into their employee's history to see if mental health is something that they struggle with. Actively asking and being involved in an employee's life is something that would make a big difference and prevent a lot of future issues that could arise from a negative or toxic working environment. Nobody wants to work in a field where mental health is stigmatized and pushed aside. It is time to take action and make sure that people's well-being is put first. Some active changes that would benefit the tech industry would be to implement and act with empathy in the tech field. Feeling unconfident about work or any aspect of work life can contribute to feelings of stress and anxiety. Acting with empathy, especially from direct supervisors can create a safe and welcoming environment where mistakes are not necessarily contributing to the feeling of stress and anxiety. Another great intervention would be to promote a balance between work and life. Just encouraging professionals to work leads to burnout and less productive work sessions and less productive environments. Promoting out-of-work events and activities that could focus on personal development leads to an increase in feeling balanced, which has been shown to decrease feelings of burnout and anxiety.

The OSMH survey provides a great insight into what it is like to work in the tech field and how varying factors relate to the state of the field today. Some really interesting topics to further explore on this topic would be what interventions tech firms could make that would make the

most net good and make the most change in a field and culture where mental health has not been treated with urgency.

Some great projects would be to see the difference between these results before and after COVID to see how exactly the pandemic has affected the tech force. It forced many to work remotely full time, and to see how that changed how mental health was taken and perceived at the time would be a great visualization and incredibly insightful into how the tech force works today.

Limitations and future work:

We didn't have time to group ages into groups, which interfered with our exploring the relationships between age groups and openness to discuss mental issues. Age and mental health has a unique relationship and plays a big factor in the culture of a workplace. While we could not analyze this aspect of the data, some other really useful data points were not collected. It would be amazing to see just how gender and the gender imbalance in the tech force present themselves in the field of mental health. More research on the female perspective on this tough field would be incredibly eye-opening and useful in creating some real change.

References:

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