Mental Health in the Technology Industry Part 1

By: Adit Mahmood

**The Mental Health Crisis in the Tech Sector**

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Mental health is a serious issue that is often hidden to others because of the stigmatism of a perceived weakness. The tech industry is no exception. It is full off start-ups where many people attempt to prove the long-term success of their ideas within a tight deadline. This pressure has caused the rate of mental illnesses among tech professionals to be more than double the rate of current US adults, according to a recent survey done by OSMI. Founders are also more likely to suffer from depression, likely to get ADHD and develop substance abuse issues, among other concerns (Link 1).

This study is part one of a larger study, whose length is to be determined. The data analyzed in this study is from a 2014 survey of employees from various technology start-ups all over the world. Prior to the analysis, the dataset was split into three sections: one that contained the aggregate data, and two others that were gender specific. The analysis was composed of several parts. A profile for the male and female only participants was generated to create primary thoughts that would drive the next section of the analysis, where several models that return potential indicators were developed. These models were developed with the gender specific datasets in mind and the variables being looked at was whether employees sought help, treatment or spoke with either their co-workers or supervisors. The final step was to run predictions on each of the models to initially verify the reliability of them. After the predictions were run and the conclusions were made, a website that summarized the project was developed.

The analysis on both male and female datasets shows that technology companies should focus on steps that would decrease the level of interference that mental health struggles has on an employee’s daily tasks. Another area where supervisors can focus on to improve the workplace for their employees is to take steps to encourage co-workers to work with each other to resolve their issues. On the other hand, companies should ignore potential indicators such as age and amount of remote work as they were not significant in any of the eight models chosen through the analysis.

Analyzing the data showed that there were a few trends found in one gender and not in the other. The data showed that companies that were more focused on technology had a significant effect on how female employees were able to complete their work, but not with the male employees. It also showed that male employees would seek more help for their concerns as the number of co-workers decreased. Here, supervisors could split tasks into smaller groups to account for mental health stress. This combined, with the conclusions found in the previous paragraph should provide a blueprint for technology companies to improve mental health advancement options.

This data provided results that would create potential solutions to improving mental health response in the technology startup industry. However, the data was collected in 2014, six years prior to this specific study. Since the data was collected at one point of time and far back, recent data would have to be collected. An additional study would be able verify the results of this current study as well as expanding upon the current conclusions. There was a 2016 survey that used similar variables and therefore is relevant to the current study. Hence, this study was used as a baseline for a future study on that dataset that is currently in the pre-production stage.

**Study Purpose**

Mental health is a serious issue that is often not treated hidden to others because of the stigmatism of a perceived weakness. The tech industry is no exception. It is full off start-ups where many people attempt to prove the long-term success of their ideas within a tight deadline. This pressure has caused the rate of mental illnesses among tech professionals to be more than double the rate of current US adults, according to a recent survey done by OSMI. Founders are also more likely to suffer from depression, likely to get ADHD and develop substance abuse issues, among other concerns (Link 1).

**A Profile of the Respondents**

This section provides a profile of the respondents in terms of their age distribution, location and employment size of the company they work in. The profile is first presented for the sample as a whole and then disaggregated by gender.

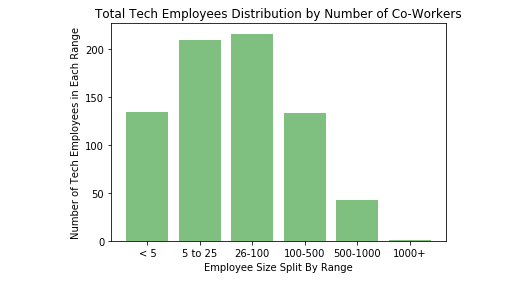
Aggregate data

Text, letter

Description automatically generatedThe dataset in its entirety reveals a few aspects of the subjects being interviewed. One aspect is the age distribution. The age of the subjects largely ranged from 27 to 36 years, i.e., 50% of the respondents belonged to this age group with the median age being 32. This means that most of the people being interviewed have had a few years of experience in the tech industry.

Almost two-thirds (61%) of the respondents came from the United States (*Table 1)*. Of these, the single largest group came from the West Coast (*Table 2)*.

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| Table 1  Chart, pie chart  Description automatically generated | Table 2 |

A potential driver of mental health issue is the size of the company, which may be proxied by the number of co-workers. Most of the respondents belonged to companies with employment in the 5-25 or the 25-100 range. This shows that most of the respondents were in mid-sized companies.

Summary data by gender

The table above shows that the female respondents were generally a bit younger and closer together in age than the male ones.

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The proportion of employees working in the United States was higher for females than for males. This had a domino effect within the rest of the distribution, with the biggest difference being in the number of participants working in the United Kingdom. The table below shows that the proportion of male participants working in the United Kingdom was double that for the female ones. Similarly, male participants from countries other than United States, United Kingdom and Canada were also almost doubled in proportion than that of the female participants.

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Tables three and four, shown below, reveals that most of the total participants came from the west coast. However, the potential effectiveness of creating different profiles of both genders from the total dataset is difficult because there are 2.5x the number of male employees than of female ones. When the participants residential coast is focused on, one could see that the biggest difference between both genders is that more female employees than men work in the east coast.

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| Table 3 | Table 4  Chart, bar chart  Description automatically generated |

**Analysis**

This section presents findings from the analysis. The main objective of the analysis was to identify factors that affected the tech company employees’ willingness to seek treatment for mental health issues and/or seek help from supervisors and co-workers. The analysis is done separately for male and female respondents to assess if gender plays any role in the above.

Basic correlations

*Men*

The correlation chart below reveals that there was no significantly strong relationship among any of the variables, whether positive or negative. Therefore, we cannot indicate any significant relationship between multiple factors that can be explored further in an audience profile. The closest relationship of significance was between whether tech employees would disclose their mental health issues to either their co-workers or supervisors, i.e., those who discussed such issues with co-workers were also likely to discuss with supervisors. This finding does provide a new light on the difference in results in the regression portion of the analysis because both of those were treated as dependent variables.

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*Females*

The correlation coefficients of the dataset, when only the female respondents were included, was similar to that of the men-only dataset because it also did not show any significant relationships, positive or negative, except that there was a moderate correlation between disclosing mental health issues to co-workers and to supervisors.

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Seeking help and treatment: determinants of employee behavior

The study used the backwards stepwise method to select the best model for each dependent variable. All factors were checked first and the least significant one was eliminated every time the significance was checked. This loop did not end until all remaining factors was significant.

Logistic regressions using the best data model for each gender revealed that the level of work interference due to any mental health struggle and whether their company has a relevant health care option are the only two indicators which had similar results for both male and female respondents. The relationship between seeking help and interference was significant (at the 90% level of confidence for female respondents and 99% level of confidence for male respondents). However, the relationship was negative, suggesting that the more mental health issues interfered with their work the less employees were likely to seek help. This result is counter-intuitive and may be ignored unless there is a good explanation for it. The relationship between getting assistance and the presence of health care options was more direct and significant at the 99% level of confidence for both groups of respondents. This means that employees were more likely to seek help if the company offered health care options.

Some findings were relevant to one category of employees but not another. For example, women employees were also likely to seek help if the company offered leave on health grounds; this factor was significant at 90% level of confidence. The availability of leave was not a significant factor for men respondents, but availability of benefits was significant at the 99% level of confidence. The models also showed that other factors such as observing negative reactions to mental health concerns or the family history should not be considered as effective areas.

The analysis of the male dataset suggests that men in the technology start-up industry would seek more help if the number of their co-workers decreased; in other words, men in smaller tech companies (size defined in terms of employment) are more likely to seek help than those in larger companies. This relationship is not replicated in the female dataset because this predictor was not proven to be significant. However, unlike the male employees, female workers will seek more help if they work in companies that are not predominantly technology focused.

|  |  |
| --- | --- |
| *Female* | *Male* |

*Accuracy of the model*

|  |  |  |
| --- | --- | --- |
| **Actual** | **Male** | **Female** |
| Did not Seek Help/Not Sure | 0.79 | 0.76 |
| Sought Help | 0.21 | 0.24 |

The models chosen were relatively accurate as the predicted values on the number of people who did not seek help was only 10% lower than the actual values and the predicted percentage of employees who sought help was 33% higher than what it was.

|  |  |  |
| --- | --- | --- |
| **Predicted** | **Male** | **Female** |
| Did not Seek Help/Not Sure | 0.72 | 0.68 |
| Sought Help | 0.28 | 0.32 |

Treatment

According to the data, employees were more likely to take treatment to resolve their own concerns as they continued to struggle with managing their issues daily. However, the number of coworkers, age, working remotely at least half the time, whether they were self-employed, or whether they work in a predominantly technology-based company did not seem to show a significant connection to establishing whether technology startup employees took treatment.

Male employees are more likely to receive treatment if there was any family history in relation to mental health, or if there were any options for health care. When it came to the female employees, the data showed that they were more likely to receive treatment if they were to receive health care benefits.

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*Predictions*

|  |  |  |
| --- | --- | --- |
| **Predicted** | **Men** | **Women** |
| Did not Seek Treatment | 0.34 | 0.09 |
| Sought Treatment | 0.66 | 0.91 |

|  |  |  |
| --- | --- | --- |
| **Actual** | **Men** | **Women** |
| Did not seek Treatment | 0.41 | 0.2 |
| Sought Treatment | 0.59 | 0.8 |

The prediction model showed that the model was more accurate when it came to guessing what percentage of men and women sought treatment because the predicted ratio was within 10% of the actual one. On the other hand, the margin between the predicted values for the ratio of employees who did not seek treatment between genders and the actual one was double the distribution between male and female employees who did seek treatment.

Talking to Co-Workers

Both models were almost identical, with whether employees can easily leave their company because of mental health reasons and if they seek treatment for any ailments as significant areas that impact whether employees talk with each other. These models also show that other factors such as whether they work in a predominantly tech company, if they observed negative consequences for any issues, any employees seeking help, working remotely, age, family history or the number of co-workers were not significant.

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| --- | --- |
| Text  Description automatically generated  *Female* | Text  Description automatically generated  *Male* |

*Predictions*

|  |  |  |
| --- | --- | --- |
| **Predicted** | **Male** | **Female** |
| Did not Talk to Coworkers | 0.20 | 0.20 |
| Talked to Coworkers | 0.80 | 0.80 |

|  |  |  |
| --- | --- | --- |
| **Actual** | **Male** | **Female** |
| Did not Talk to Coworkers | 0.54 | 0.62 |
| Talked to Coworkers | 0.46 | 0.38 |

The discrepancy between the predicted values and the actual ones show that this is not a good model to use for predictions. For the study to create better predictions on whether tech employees talk to their co-workers about their issues, either a new model would have to be created or a decision tree would have to be considered.

Talking to Supervisors

Both models defined whether employees could leave their company due to mental health disturbances, seek help, and if they talked to their co-workers as significant indicators to determine whether they would talk to their supervisors about their concerns. Like most of the prior models analyzed, factors such as the degree of prominence technology has on the company, any family history, or number of co-workers were suggested as poor indicators of any employee talking to a supervisor. In the male dataset, one more significant factor was any acknowledgment of negative behavior due to mental health issues.

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| --- | --- |
| Table  Description automatically generated  *Female* | Table  Description automatically generated  *Male* |

*Prediction*

The models chosen from the logistic regression had varying levels of accuracy. While the predicted ratio of the male data was within 10% of the actual one, the predicted distribution for the female was closer to 20-30% of the actual one.

|  |  |  |
| --- | --- | --- |
| **Prediction** | **Male** | **Female** |
| Did not Talk to Supervisor | 0.36 | 0.55 |
| Talk to Supervisor | 0.64 | 0.45 |

|  |  |  |
| --- | --- | --- |
| **Actual** | **Male** | **Female** |
| Did not Talk to Supervisor | 0.32 | 0.35 |
| Supervisor | 0.68 | 0.65 |

**Conclusion**

Technology companies should focus on taking steps that would decrease the degree of mental health interference in daily tasks if the objective is to encourage employees to seek help in multiple ways. This is perhaps, the area that most of the resources should be allocated to as it was significant in multiple male and female models that analyzed different ways to seek help such as talking to supervisors and encouraging others to receive treatment. On the other hand, companies should ignore potential factors such as age, self-employment, working remotely to improve the situation as they were not proven to be significant in any of the eight data models analyzed.

Other factors not mentioned in the previous paragraph were significant in some cases and one gender but was not in the others. For example, companies that are predominantly technology based should take more steps in preventing mental health issues interference lingering in daily work for female employees because the data showed that they would not be as likely to seek help for concerns as the predominance of technology increases in companies. On the other hand, companies should be able to encourage male employees to get needed help if they worked with smaller teams.

Companies can encourage employees to talk to each other to resolve issues by making it easier for employees to take a leave of absence or receiving treatments. This is important as supervisors have a ton of work to do and having co-workers resolve issues without their involvement would prevent issues from lingering in the long term. These are also areas where supervisors can focus on to prevent more potentially cumbersome discussions.

**Sources**

https://www.iqmetrix.com/blog/lets-talk-its-time-to-get-serious-about-mental-illness-in-tech#:~:text=According%20to%20OSMI%20data%2C%2051,National%20Alliance%20on%20Mental%20Illness.