

Mental Health in Tech Jobs

A Study of How Comfortable Employees in the
Tech Field are Discussing Mental Health with
their Employers.

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Outline

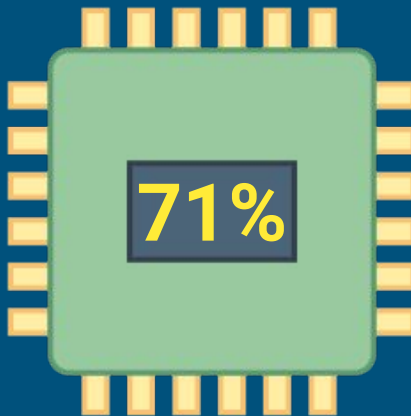
1. Overview of Project
2. Data Sets
3. Data Cleanup
4. Methodology
5. Research Questions
6. Conclusions
7. Next Steps



Mental Health and the Tech Industry



Tech Industry Employees say their employers have **not formally discussed mental health**.



Tech Industry Employees believe their **productivity is impacted by mental health**.



Tech Industry Employees feel that **being identified as a person with a mental health issue would hurt their career**.

Overview of Project

This project seeks to **determine trends and relationships** in tech industry employees' **comfort in discussing mental health** with their employers.

We will be covering:

- Demographics and Variables that may impact comfort talking to employer about mental health
- Comparing comfort discussing mental vs physical health with employers
- Level of ease requesting medical leave for mental health and factors that may impact this

Data Sets

- **OSMI Mental Health in Tech Survey**
 - 2016, 2017, 2018, & 2019
- **2958** Respondents across four surveys
- **15** Survey Questions analyzed



Survey Year	# of Responses
2016	1433
2017	756
2018	417
2019	352

Survey Questions

#	Question	#	Question
1	What is your age?	9	Would you bring up a mental health issue with a potential employer in an interview?
2	What is your gender?	10	Have you observed or experienced an unsupportive or badly handled response to a mental health issue in your current or previous workplace?
3	What country do you work in?	11	Have your observations of how another individual who discussed a mental health disorder made you less likely to reveal a mental health issue yourself in your current workplace?
4	Do you work remotely?	12	Would you feel comfortable discussing a mental health disorder with your direct supervisor(s)?
5	How many employees does your company or organization have?	13	Would you have been willing to discuss a mental health issue with your direct supervisor(s)?
6	Have you had a mental health disorder in the past?	14	If a mental health issue prompted you to request a medical leave from work, asking for that leave would be:
7	Do you currently have a mental health disorder?	15	Has your employer ever formally discussed mental health (for example, as part of a wellness campaign or other official communication)?
8	Would you be willing to bring up a physical health issue with a potential employer in an interview?		

Respondent Demographics

Survey Year	18-24	25-34	35-44	45-54	55-64	65-74
2016	123	710	442	118	31	4
2017	60	339	256	81	16	2
2018	26	187	156	36	10	2
2019	29	147	114	50	11	0
Total	238	1383	968	285	68	8
% Total	8.07%	46.88%	32.81%	9.66%	2.31%	0.27%

Age Group

Survey Year	Male	Female	Other
2016	1052	340	31
2017	502	219	18
2018	268	125	21
2019	229	100	11
Total	2051	784	81
% Total	70.34%	26.89%	2.78%

Gender

Survey Year	1-5	6-25	26-100	100-500	500-1000	1000+
2016	60	208	292	247	80	255
2017	20	86	128	203	48	158
2018	5	69	70	81	31	105
2019	7	34	45	80	26	111
Total	92	397	535	611	185	629
% Total	3.76%	16.21%	21.85%	24.95%	7.55%	25.68%

Company Size

Data Cleanup

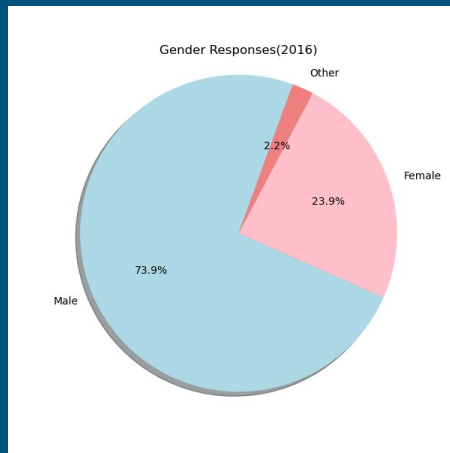
- Select Relevant Survey Questions
- Standardize Column Names
- Clean & Group Gender Data
- Clean & Group Ages into Bins (≥ 18 & ≤ 98)
- Filled Missing Values with "No Response"
- Export Cleaned CSV for each year's survey

```
##### function to find unique gender values

def find_new_genders(df):

    # list unique values from free-form answers
    unique_genders = df["original_gender"].unique()

    ## find unique responses in df
    different_responses = []
    for gender in unique_genders:
        if gender not in running_combined_gender_list:
            different_responses.append(gender)
    return different_responses
```

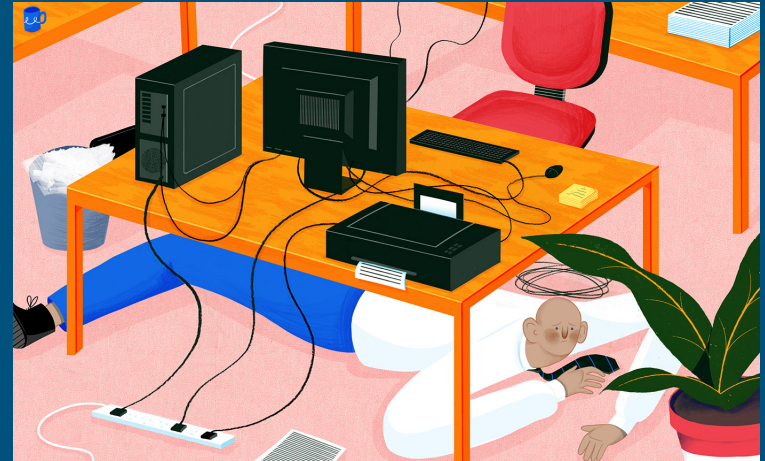


Methodology

- The **approach** our group took to achieve the project goals:
 - Picked out a smaller list of questions for initial review
 - Reviewed 2016's data since it was the largest dataset
 - Each team member completed analysis on a subset of the smaller set of questions
- **Issues** we came across:
 - Open response for gender question - sorted into gender groups
 - Inconsistency with number of responses to the OSMI survey - selected questions that appeared in all surveys
 - Inconsistency with phrasing of questions over the timeframe
 - More recent surveys didn't include a question about remote working, which we thought would be important to our research.

Research Questions

1. Which **variables** impact a technology employee's **comfort/willingness to discuss mental health** with employers?
2. Do employees feel **more comfortable** talking about **physical or mental health**?
3. What is the level of **ease for taking a leave of absence** for **mental health** in the tech industry?



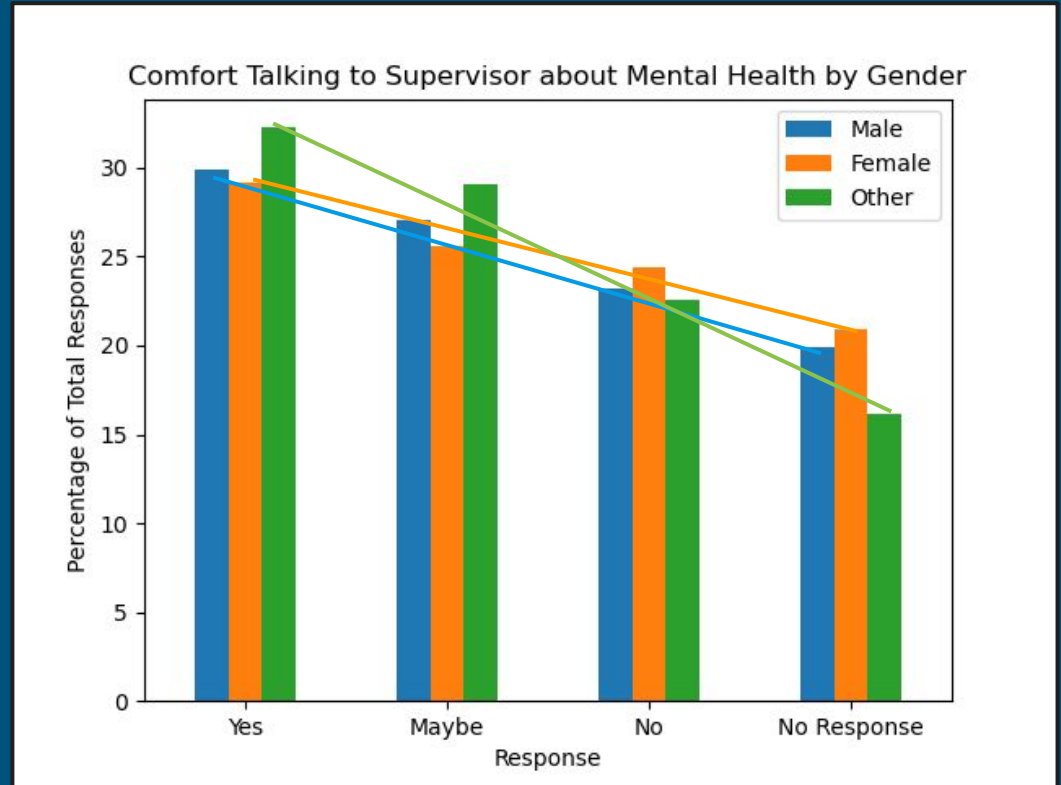
1. Which **variables** impact a technology employee's **comfort/willingness** to discuss **mental health** with employers?

Gender

Gender of respondent does not seem to have a correlation with technology employee's comfort discussing mental health with their employer.

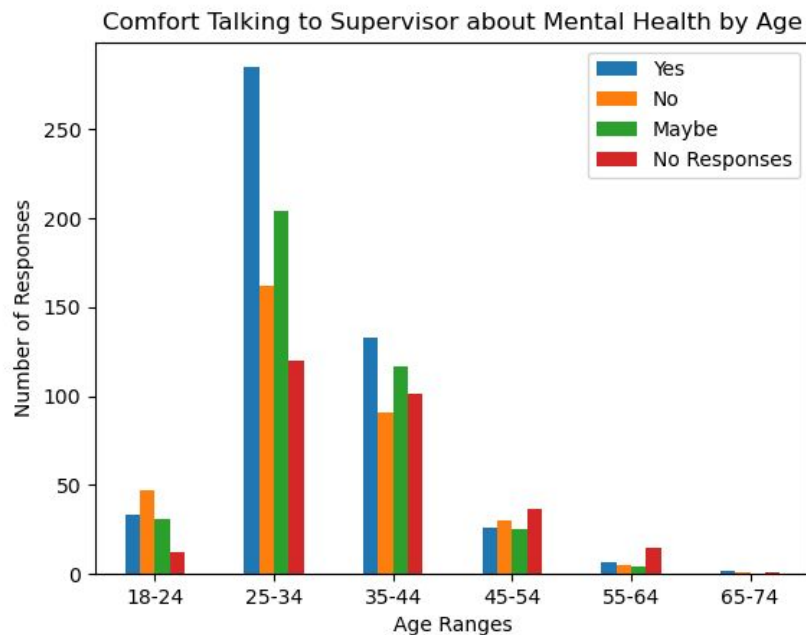
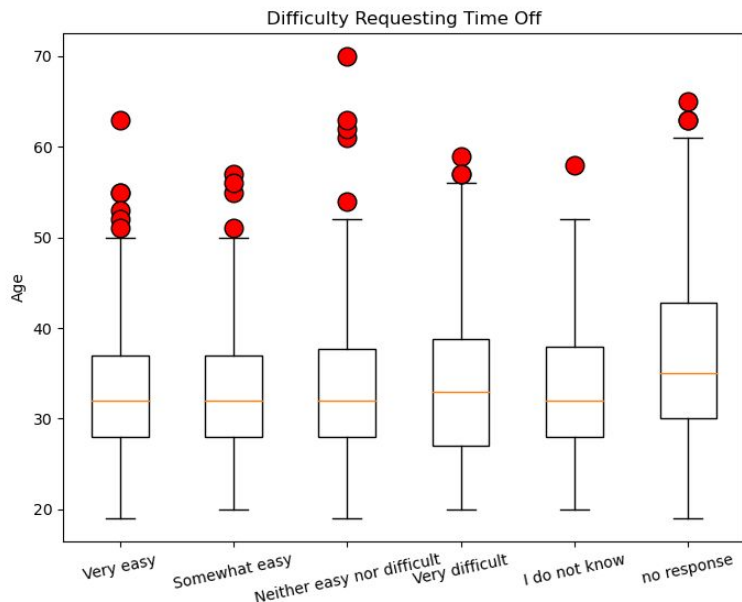
Gender	# Respondents	% Respondents
Male	1052	73.93%
Female	340	23.89%
Other	31	2.18%

Gender	% Yes	% Maybe	% No	% NR
Male	29.85%	27.09%	23.19%	19.87%
Female	29.12%	25.59%	24.41%	20.88%
Other	32.26%	29.03%	22.58%	16.13%



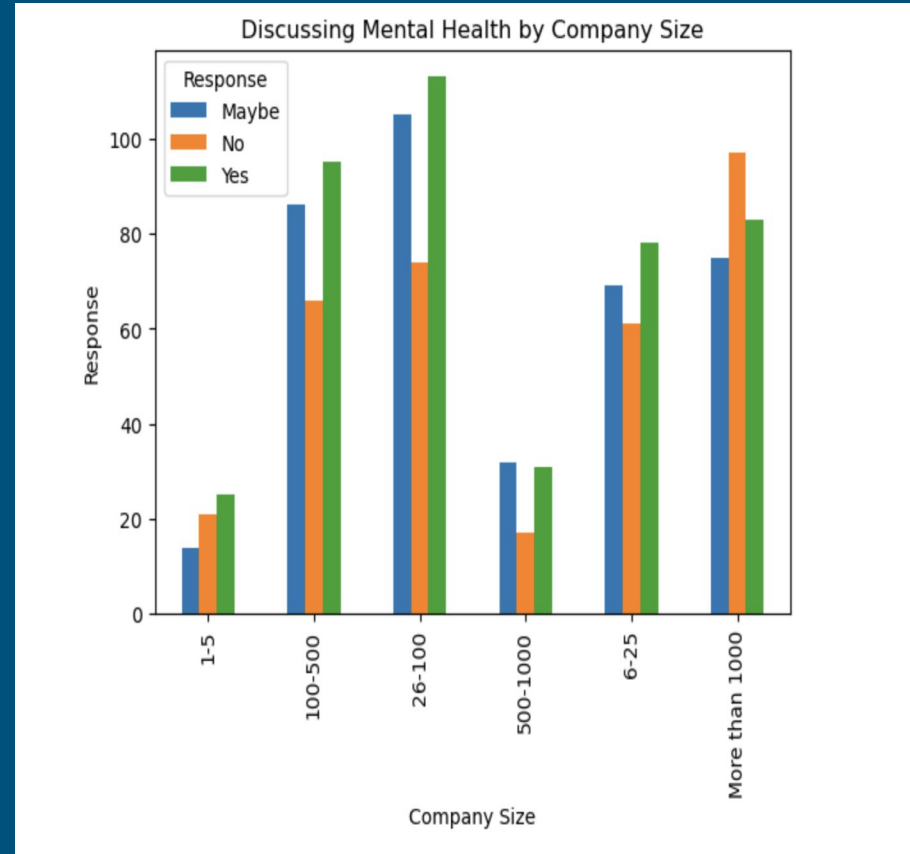
Age Range

No correlations between mental health and age were discovered



Company Size

# of Employees	Yes	No	Maybe
1-5	41.67%	35.00%	23.33%
6-25	37.50%	29.33%	33.17%
26-100	35.96%	25.34%	38.70%
100-500	38.47%	26.72%	34.82%
500-1000	38.75%	21.25%	40.00%
1000 +	32.54%	38.03%	29.41%



Country Worked In

Correlation for USA: -0.97

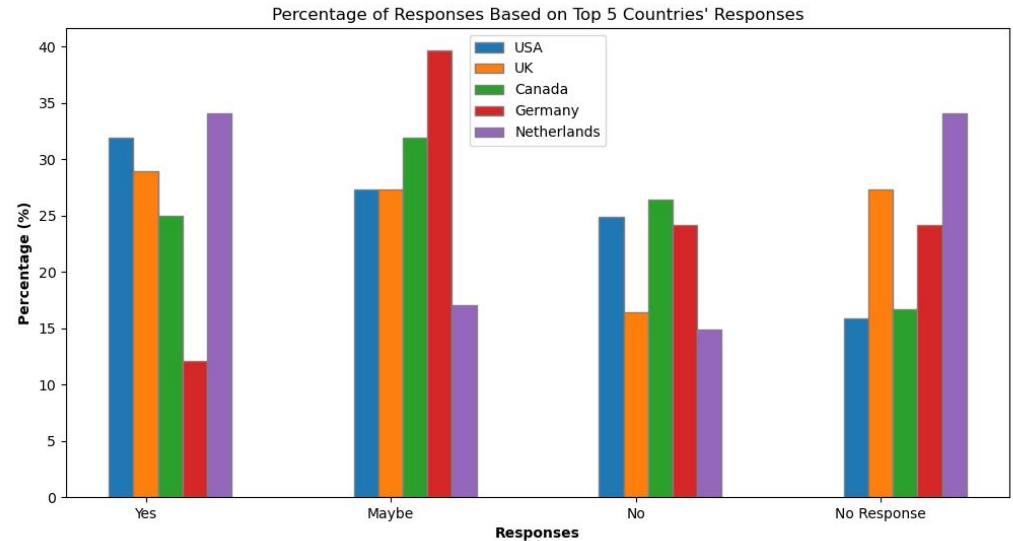
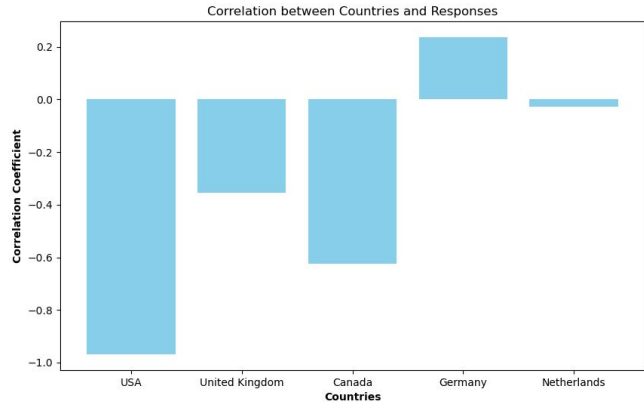
Correlation for UK: -0.35

Correlation for Canada: -0.62

Correlation for Germany: 0.24

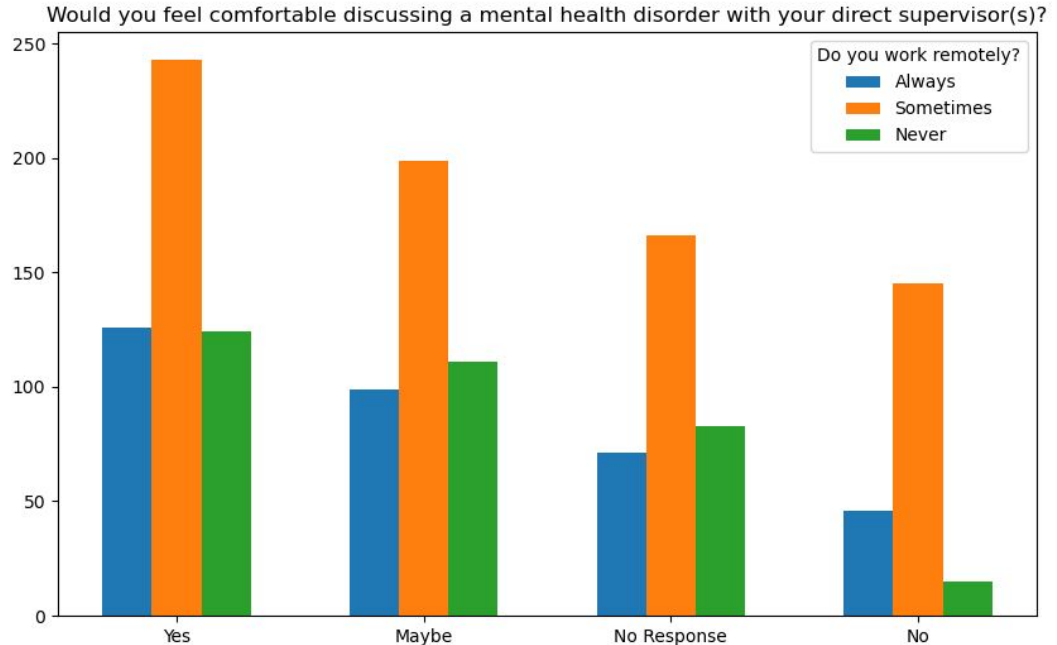
Correlation for Netherlands: -0.03

Absolute Value of r	Strength of Correlation
$r < 0.3$	None or very weak
$0.3 \leq r < 0.5$	Weak
$0.5 \leq r < 0.7$	Moderate
$r \geq 0.7$	Strong



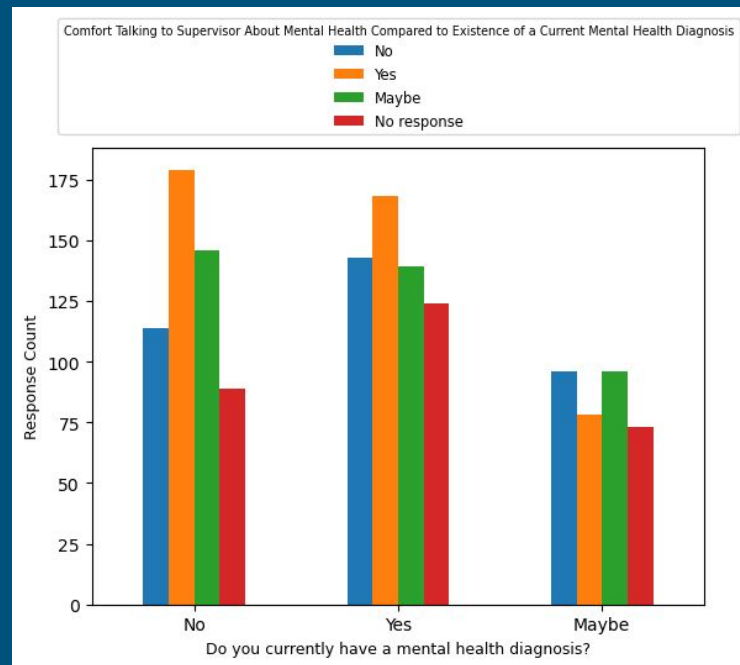
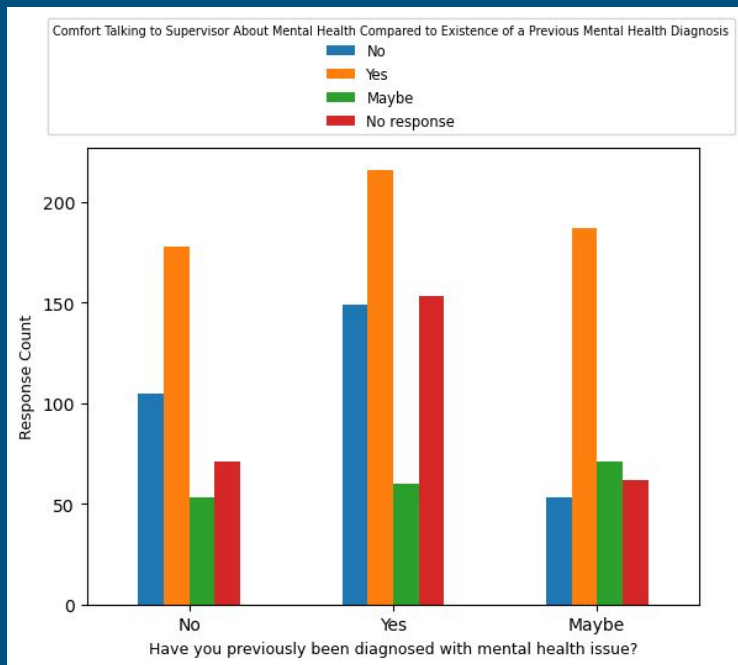
Remote

According to the data, there is not a strong correlation between working remotely and the employee's comfort/willingness to discuss mental health with employers.



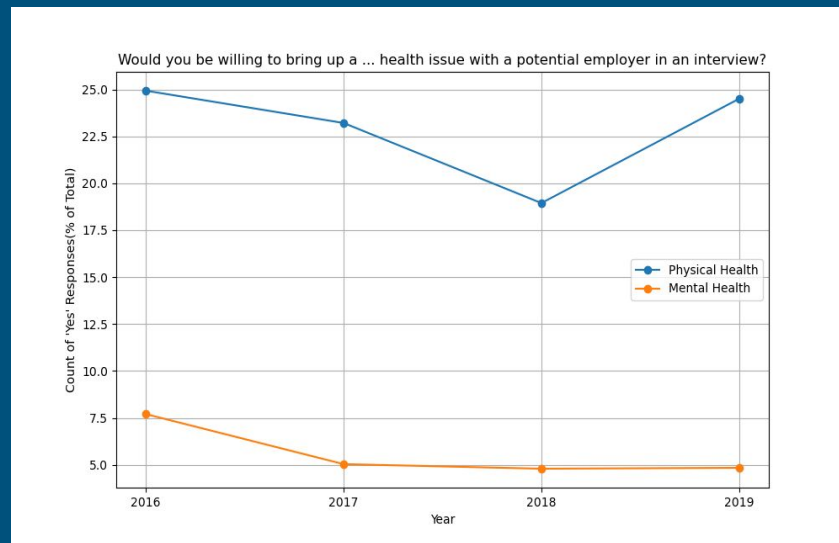
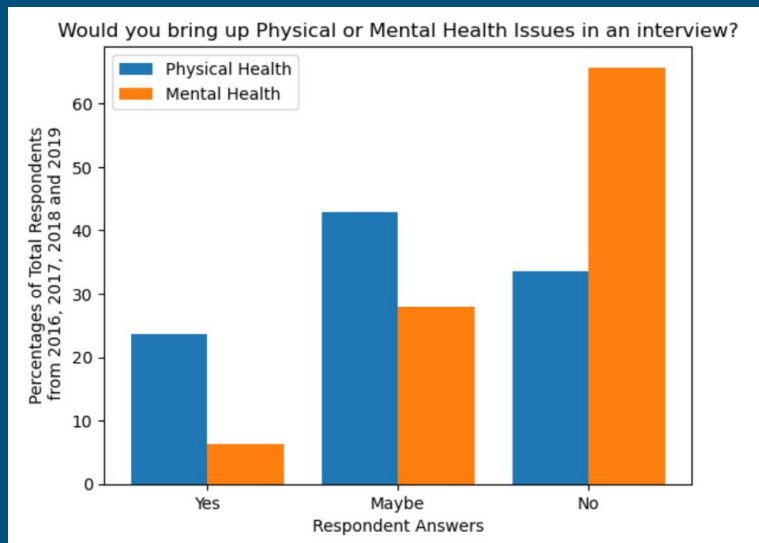
Comfort discussing a mental health issue with a previous or current diagnosis

Employees appear to be more comfortable talking with their employer if previously diagnosed with a mental health issue



2. Do employees feel more comfortable talking about **physical** or **mental** health?

Talking about Mental vs Physical Health

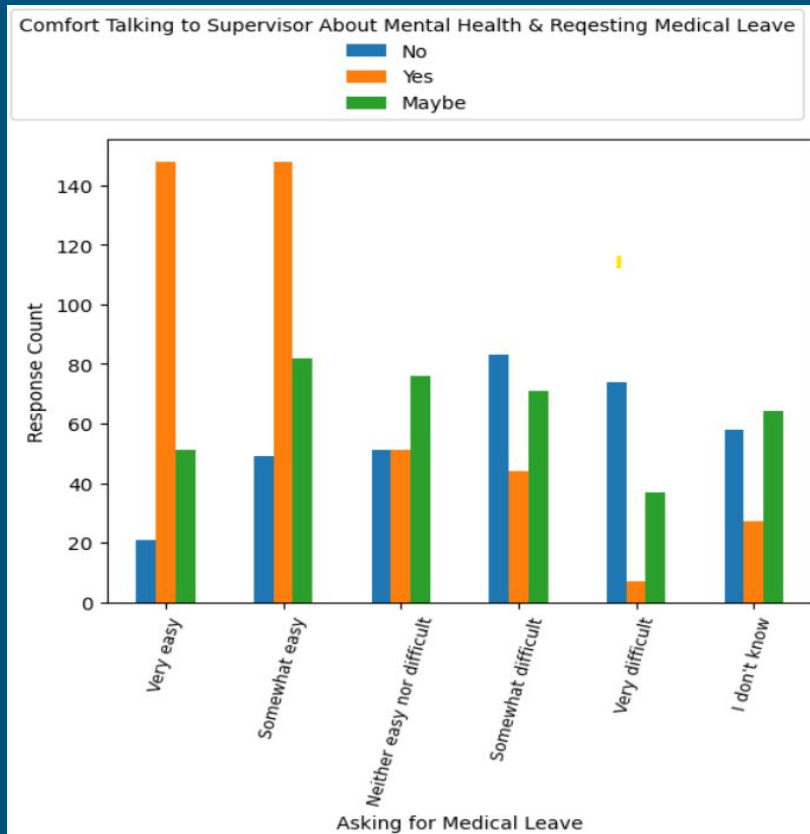


There is a distinct gap between talking about mental health vs. physical health in an interview. This stigma does not change significantly over time.

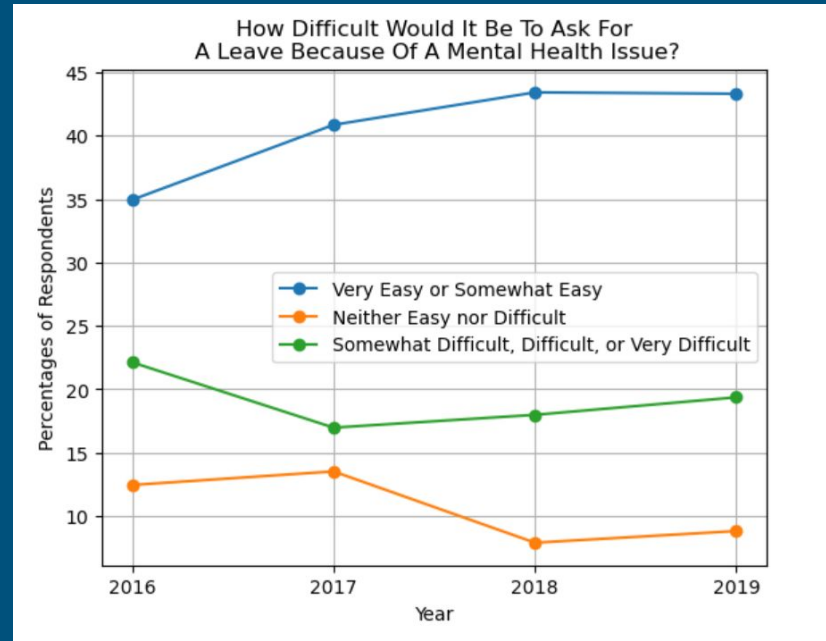
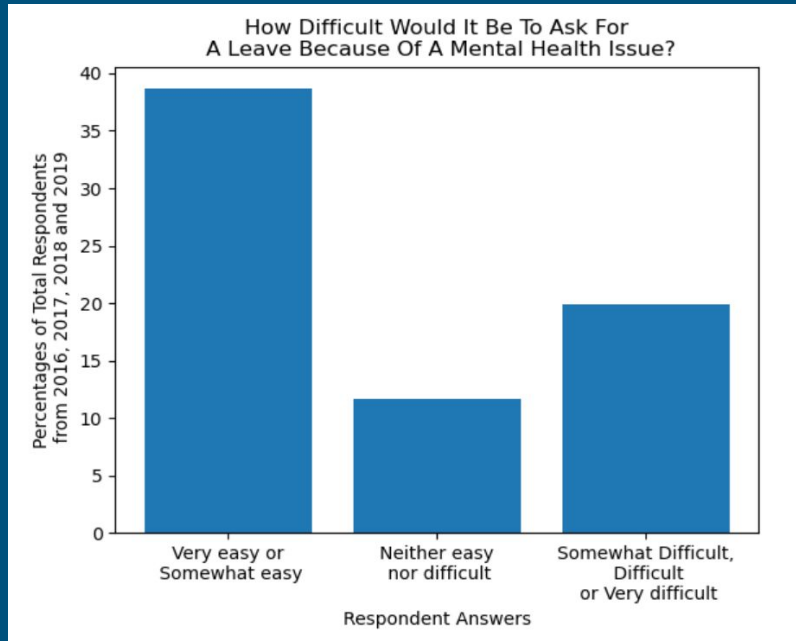
3. What is the **level of ease** for asking for a **leave of absence** for **mental health** in the tech industry?

Asking for medical leave

According to the survey, the more difficult asking for a medical leave, the less comfortable employees felt talking to their supervisor about a mental health issue.



Timeline for asking medical leave

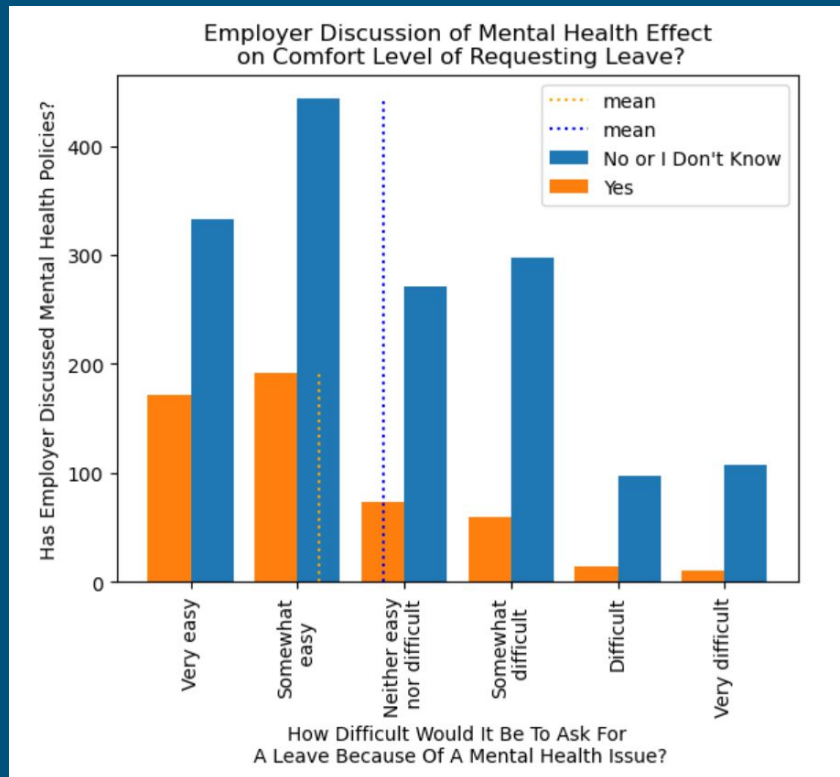


Overall, more employees find it easy to request a leave than find it difficult.

Over time, this gap widens slightly, with ease rising and difficulty lowering.

Has your employer formally discussed MH with you and does it affect comfort level of asking for a MH leave?

On average, respondents whose employers have formally discussed mental health with them are more comfortable requesting a leave of absence for a mental health issue.



Conclusions

1. Demographics and Discussing Mental Health with Employer
 - a. **Gender** - *no correlation to comfort in discussing mental health with employers.*
 - b. **Remote Work** - *no correlation to comfort in discussing mental health with employers.*
 - c. **Age Range** - *no correlation to comfort in discussing mental health with employers.*
 - d. **Company Size** - Companies with **large employee populations** tend to show a **more uncertain attitude** when discussing mental health with a superior.
 - e. **Country Worked In** - The **USA** has a **strong negative correlation**, suggesting there is **less comfort in talking to a supervisor about mental health**. The **Netherlands** had a **very weak negative correlation** on the other end of the spectrum suggesting a **very weak relationship** between country and comfort level.
 - f. **Previous/Possible Previous or Current/Possible Current Diagnosis** - appears employees with a **previous or possibly a previous diagnosis** are **more comfortable** talking to employer about mental health.

Conclusions

1. Discussing Physical v Mental Health

- a. There is a **distinct gap** between **talking about mental health vs. physical health** in an interview. This stigma **does not change significantly over time**.

2. Requesting Leave of Absence for Mental Health

- a. According to the survey, the **more difficult it is asking for a medical leave**, the **less comfortable** employees felt talking to their supervisor about a mental health issue.
- b. Overall, employees find it **more easy than difficult to request a leave** and **this gap grows slightly over time**, with **ease trending upward**.

Next Steps

- **Future research projects**
 - Impact of COVID on mental health of tech employees
 - Impacts of Return to Work mandates or lack of RtW mandates
- **Looking at other questions**
 - Analyzing the types of mental health diagnoses that showed up in later data sets and how they relate to the other questions
- **Suggestions for future surveys**
 - Add remote worker designation question back into the surveys
 - Survey should include categories for gender so analysts do not have to determine gender categories, the respondents themselves can
 - Keep the questions consistent, try to avoid changing the phrasing of the question and response options
 - Response option for choosing not to answer

Questions?

Appendix

- OSMI 2016 Survey Data
 - <https://osmi.typeform.com/report/Ao6BTw/U76z>
- Help for chart legend issues:
 - https://matplotlib.org/stable/api/_as_gen/matplotlib.pyplot.legend.html
 - <https://stackoverflow.com/questions/35992492/savefig-cuts-off-title>
- Code for help making bar chart:
 - <https://pandas.pydata.org/pandas-docs/version/0.23.3/generated/pandas.DataFrame.plot.bar.html>
- Correlation Coefficients
 - <https://realpython.com/numpy-scipy-pandas-correlation-python/>
- Gender terminology
 - [https://www.uwmedicine.org/practitioner-resources/lgbtq/lgbtq-inclusion-glossary#:~:text=Assigned%20female%20at%20birth%2FAssigned,\(assigned%20male%20at%20birth\).](https://www.uwmedicine.org/practitioner-resources/lgbtq/lgbtq-inclusion-glossary#:~:text=Assigned%20female%20at%20birth%2FAssigned,(assigned%20male%20at%20birth).)
 - <https://www.verywellmind.com/what-does-cishet-mean-5219425>

Appendix - Gender Groups

Gender Categories	Responses Included
Male	'Male', 'male', 'Male ', 'M', 'm', 'man', 'Cis male', 'Male.', 'Male (cis)', 'Man', 'Sex is male', 'cis male', 'Malr', 'Dude', "I'm a man why didn't you make this a drop down question. You should of asked sex? And I would of answered yes please. Seriously how much text can this take? ", 'mail', 'male ', 'Cis Male', 'cisdude', 'cis man', 'MALE', 'cis-male', 'Mail', 'cis hetero male', "male (hey this is the tech industry you're talking about)", 'Cis-male', 'Male, cis', 'cis male ', 'dude', 'Ostensibly Male', 'male, born with xy chromosoms', 'Male!', 'Cis-male', 'Cisgender male', 'SWM', 'Let\'s keep it simple and say "male"', 'Identify as male', 'Masculine', 'Cishet male', 'masculino', 'Make', 'CIS Male'
Female	'Female', 'female', 'I identify as female.', 'female ', 'Female assigned at birth ', 'F', 'Woman', 'f', 'Cis female ', 'Female ', 'woman', 'female/woman', 'Cisgender Female', 'fem', 'Female (props for making this a freeform field, though)', 'Female', 'Cis-woman', 'female-bodied; no feelings about gender', 'AFAB', 'fm', 'femalw', 'femail', 'female (cis)', 'My sex is female.', 'female (cisgender)', 'Female (cis) ', 'Woman-identified', 'cis-Female', 'cis female', 'F, cisgender', 'I identify as female', '*shrug emoji* (F)', 'Cis woman', 'Female (cisgender)', 'Cis-Female', 'Cisgendered woman', 'cisgender female', 'Female-identified', 'cis woman', 'femmina', 'Femile', 'Female (cis)'
Other	'Bigender', 'non-binary', 'Transitioned, M2F', 'Genderfluid (born female)', 'Other/Transfeminine', 'Female or Multi-Gender Femme', 'Androgynous', 'male 9:1 female, roughly', 'Other', 'nb masculine', 'genderqueer', 'Human', 'Genderfluid', 'Enby', 'genderqueer woman', 'mtf', 'Queer', 'Agender', 'Fluid', 'Male/genderqueer', 'Nonbinary', 'human', 'Unicorn', 'Male (trans, FtM)', 'Genderqueer', 'Genderflux demi-girl', 'Transgender woman', 'male/androgynous ', 'uhhhhhhhh fem genderqueer?', 'Non-binary', 'Agender/genderfluid', 'Male-ish', 'Contextual', 'Non binary', 'Genderqueer demigirl', 'Genderqueer/non-binary', 'nonbinary', 'Female-ish', 'trans woman', 'Transfeminine', 'Male (or female, or both)', 'Trans man', 'transgender', 'non binary', 'Female/gender non-binary.', 'She/her/they/them', 'NB', 'Nonbinary/femme', 'gender non-conforming woman', 'Trans woman', 'genderfluid', 'Demiguy', 'none', 'Trans female', 'agender', 'Questioning', 'Agender trans woman', 'Trans non-binary/genderfluid', 'Non-binary and gender fluid'