

Does the provision of mental health insurance coverage by employers improve mental health disorders among employees in the tech-related industry?

Introduction

Mental health is an integral aspect of overall well-being and productivity in the workplace (Greenberg et al., 2021). However, mental health problems are often unaddressed or undervalued due to stigma and lack of access to appropriate care (Mind the Workplace, 2022). In recent years, there has been increasing recognition and awareness of the importance of handling mental health in the workplace and providing mental health resources to employees to support mental health needs and improve productivity (Henderson et al., 2013). Furthermore, the Mental Health Parity and Addiction Equity Act (MHPAEA) has required companies with 50 or more employees to provide coverage for mental health, behavioral health, and substance-use disorders equal to physical care coverage (The Mental Health Parity and Addiction Equity Act (MHPAEA) | CMS, n.d.; Velasquez, 2022). As a result, many employers now offer mental health benefits as part of their health insurance coverage for employees.

Approximately 63% of Americans are part of the US labor force (U.S. Census Bureau, 2022), making the workplace an important setting for promoting well-being. Workplace wellness programs and healthcare can play crucial roles in identifying individuals at risk of mental health problems and connecting them to appropriate treatment and support (Mental Health in the Workplace, n.d.). Mental health difficulties in the workplace have serious consequences for workers and the enterprise, as this may lead to increased illness, absenteeism, accidents, and staff turnover (Harnois et al., 2000). Effective and timely treatment of mental health conditions can lead to improvements in work productivity, which can potentially offset the cost of treatment (Goetzel et al., 2002). Therefore, by providing access to care, health related costs for businesses and employees may be reduced. This may then contribute to overall mental health improvement and job performance.

In this fast-evolving digital era, the tech industry faces a “burnout crisis” as chronic workplace stress and exhaustion hammers IT workers (Hughes, 2022). The COVID-19 pandemic and the ongoing economic recession have exacerbated the situation due to excessive workload and job insecurity, which are main risks to mental health at work (World Health Organization: WHO, 2022). As a result, this project aims to investigate mental health issues, specifically in the tech-related industry, and find potential solutions by answering: Does the provision of mental health insurance coverage by employers improve mental health disorders (MHDs) among employees in the tech-related industry? (P: employees in the tech-related industry; I: the provision of mental health insurance coverage by employers; C: employees working in companies that do not provide mental health insurance coverage; O: employees’ MHDs).

Methods

Data Source

The data for this project was obtained from Kaggle (<https://www.kaggle.com/datasets/osmihelp/osmh-2021-mental-health-in-tech-survey-results>), which provided access to the Open Sourcing Mental Health (OSMH) Mental Health In Tech

Survey 2021 dataset. OSMH is a non-profit corporation dedicated to creating awareness, educating, and providing resources to support mental health wellness in tech communities (About OSMH, n.d.). This dataset contains survey responses from individuals working in the technology-related industry and includes information on basic demographics, mental health history, perceptions of mental health, and workplace attitudes.

Although the dataset has some strengths, like annual updates and respondents from various countries in the tech industry, it also offers limitations. For example, recruitment documentation is unavailable, and the sample size is relatively small ($N = 131$), which raises concerns about the sample's representativeness to all tech workers. Additionally, the survey is self-administered, leading to a high number of missing values and messy responses, which may impact the data's quality and should be considered when interpreting the results.

Variables and Hypothesis

The project focused on whether employers providing mental health benefits as part of their healthcare insurance affects employees' mental health outcomes. The intervention variable was derived from the survey question, "Does your employer provide mental health benefits as part of healthcare coverage?" The outcome variable was the self-reported mental health conditions among employees, obtained from the survey question "Do you *currently* have a mental health disorder? (Yes, No, Possibly, and Don't know)". While there are other questions about diagnosis and treatment, they had high missing values. Therefore, I decided to look at the higher level on respondents' self-reported perceptions of their MHDs as the outcomes.

Furthermore, I hypothesize that companies providing mental health benefits in their insurance packages will have lower rates of employees with MHDs compared to those without. The expectation was built on the assumption that access to mental health benefits would increase the likelihood of employees seeking services and receiving quality treatment, which in turn will lead to lower rates of MHDs and better outcomes among employees.

Confounders

A confounder for this dataset is the availability of resources offered by employers to increase education efforts about MHDs and support. Employees who work for companies which offer resources may have better knowledge about mental health and be more proactive in seeking services. In contrast, if employees working for companies offering mental health resources have a lower prevalence of MHDs compared to employees working for companies that don't offer such resources, this may mistakenly suggest that the provision of mental health benefits is not associated with better mental health outcomes.

Another confounder consists of whether if an employee works in the US or another country. This variable may be associated with the intervention as regulations requiring for employers to provide mental health insurance coverage may differ by country. Additionally, cultural differences and awareness across different countries could also impact mental health outcomes. For example, employees in some countries may be less likely to report mental health issues or use mental health services due to cultural taboos, which could result in an underestimation of MHDs and in turn affect the evaluated relationship.

Results

Descriptive analysis

Table 1 presents the key characteristics of the project dataset. The dataset consisted of 131 survey respondents, with a mean age of 32.88 (SD = 18.96). Most respondents were Millennials (51.1%). More than half of the respondents were from countries other than the US (62.6%) and worked outside of the US (62.6%). The majority of respondents didn't provide their race/ethnicity information (62.6%), but the most common race/ethnicity was White (26.7%) among those who responded. Most respondents were not self-employed (87.0%) and worked in companies with over 1000 employees (36.6%). More than half of the respondents worked in primarily tech companies/organizations (57.3%), and the majority had an IT role (75.6%).

Regarding mental health conditions, over half of the respondents reported having current MHDs (51.1%), and almost half reported having MHDs in the past (48.1%). More respondents reported not having a family history of mental health issues (45.0%). In terms of company's policy and environment related to mental health, two-fifths of the respondents reported that their companies include mental health in insurance coverage (41.2%), but slightly more companies do not offer mental health support resources (38.2%) than those who offer (35.1%). The easiness of requesting mental health leave varied, with about one-fifth of respondents reporting it as very easy (20.6%).

Regarding the overall perception of the work environment for mental health, almost half of the respondents considered that their work environment was not unsupportive (48.1%), while over a quarter of respondents were unsure (28.2%). The mean of the overall tech industry support score was 2.67 (SD = 1.06) out of 5, indicating that the respondents perceived the industry as neutral or somewhat supportive for mental health issues on average.

Table 1. Key characteristics

Characteristics	N (%)	Mean (SD)
Age (total)	131	32.88 (18.96)
Age group		
< 18	1 (0.7)	
Gen Z (18 – 26)	47 (35.9)	
Millennials (27–42)	67 (51.1)	
Gen X (43 – 58)	14 (10.7)	
Baby Boomers (59 – 77)	1 (0.7)	
The Silent Gen (>77)	1 (0.7)	
Country		
USA	49 (37.4)	
Outside USA	82 (62.6)	
Work Country		
USA	49 (37.4)	
Outside USA	82 (62.6)	
Race/Ethnicity		
White	35 (26.7)	
Black or African American	2 (1.5)	
Asian	11 (8.4)	
More than one	1 (0.8)	
NA	82 (62.6)	
Self-employed		
Yes	17 (13.0)	
No	114 (87.0)	
Company size		
1 – 5	4 (3.1)	
6 – 25	11 (8.4)	
26 – 100	20 (15.3)	
100 – 500	22 (16.8)	
500 – 1000	9 (6.9)	
> 1000	48 (36.6)	
NA	17 (13.0)	
In Tech company		
Yes	75 (57.3)	
No	39 (29.8)	
NA	17 (13.0)	
IT role		
Yes	99 (75.6)	
No	15 (11.5)	
NA	17 (14.0)	
<u>Mental health issues</u>		
Current mental health disorders		
Yes	67 (51.1)	
No	50 (38.2)	
I don't know	14 (10.7)	
Past mental health disorders		
Yes	63 (48.1)	
No	48 (36.6)	

I don't know	16 (12.2)	
NA	4 (3.1)	
Family history		
Yes	52 (39.7)	
No	59 (45.0)	
I don't know	20 (15.3)	
<u>Company's policy and environment</u>		
Includes mental health in insurance coverage		
Yes	54 (41.2)	
No	33 (25.2)	
I don't know	27 (20.6)	
NA	17 (13.0)	
Provides mental health resources		
Yes	46 (35.1)	
No	50 (38.2)	
I don't know	18 (13.7)	
NA	17 (13.0)	
Easiness of requesting mental health leave		
Very easy	27 (20.6)	
Somewhat easy	25 (19.1)	
Neither easy nor difficult	15 (11.5)	
Somewhat difficult	21 (16.0)	
Difficult	11 (8.4)	
I don't know	15 (11.5)	
NA	17 (13.0)	
<u>Overall Perception</u>		
Unsupportive work environment for mental health issues		
Yes	28 (21.4)	
No	63 (48.1)	
Maybe/Not sure	37 (28.2)	
Self-employed	3 (2.3)	
Tech industry overall support score	131	2.67 (1.06)
(1 Very unsupportive – 5 Very supportive)		

Unstratified Analysis

A bar chart helped visualize the relationship between mental health coverage offered by employers and the prevalence of MHDs among employees. **Figure 1** shows that companies providing mental health coverage have a higher proportion of employees with MHDs. Meanwhile, companies not providing coverage have a similar proportion of employees with MHDs than to those without MHDs.

In addition, a chi-square test was performed to determine if there is a statistically significant relationship. In **Figure 2**, a p-value of 0.02737 was obtained thus indicating that the relationship is statistically significant. Thus, further suggesting that mental health coverage provided by employers is associated with the prevalence of MHDs among employees.

Figure 1. *Employer's Provision of Mental Health Insurance Coverage and Employee's Current Mental Health Disorders (MHDs)*

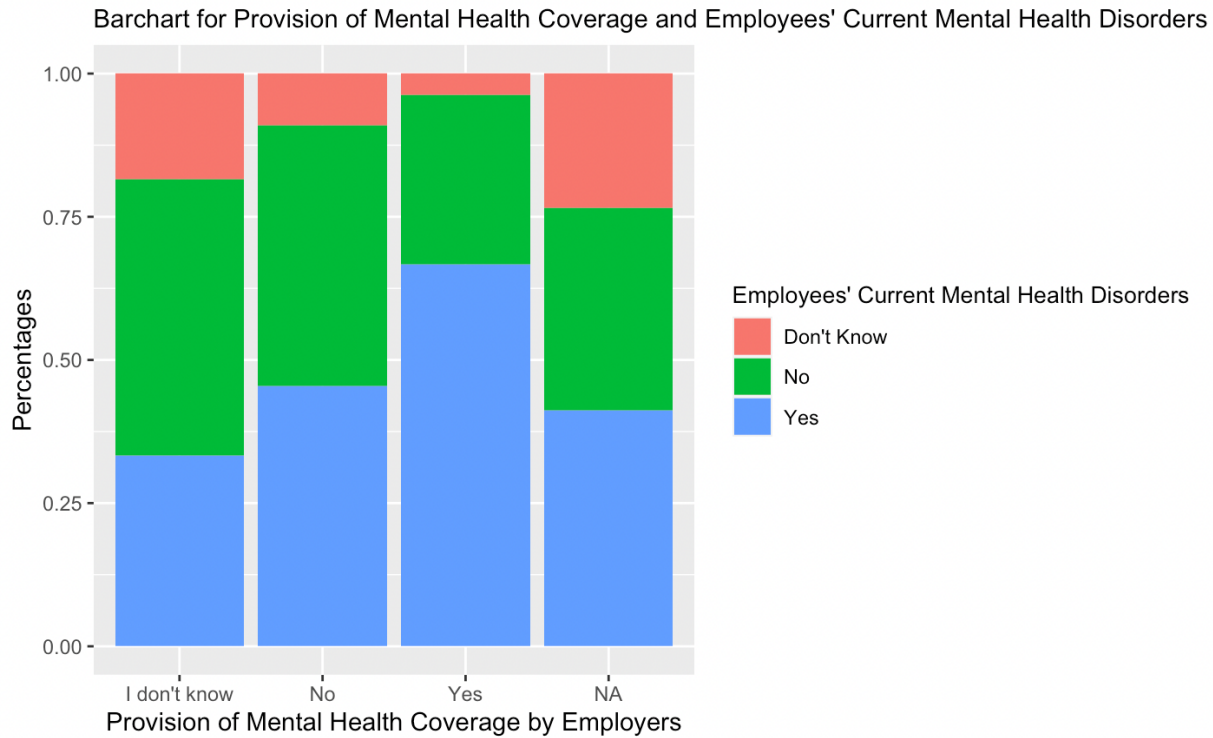


Figure 2. *Chi-square Test for the Intervention and Outcome Variables*

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Pearson's Chi-squared test

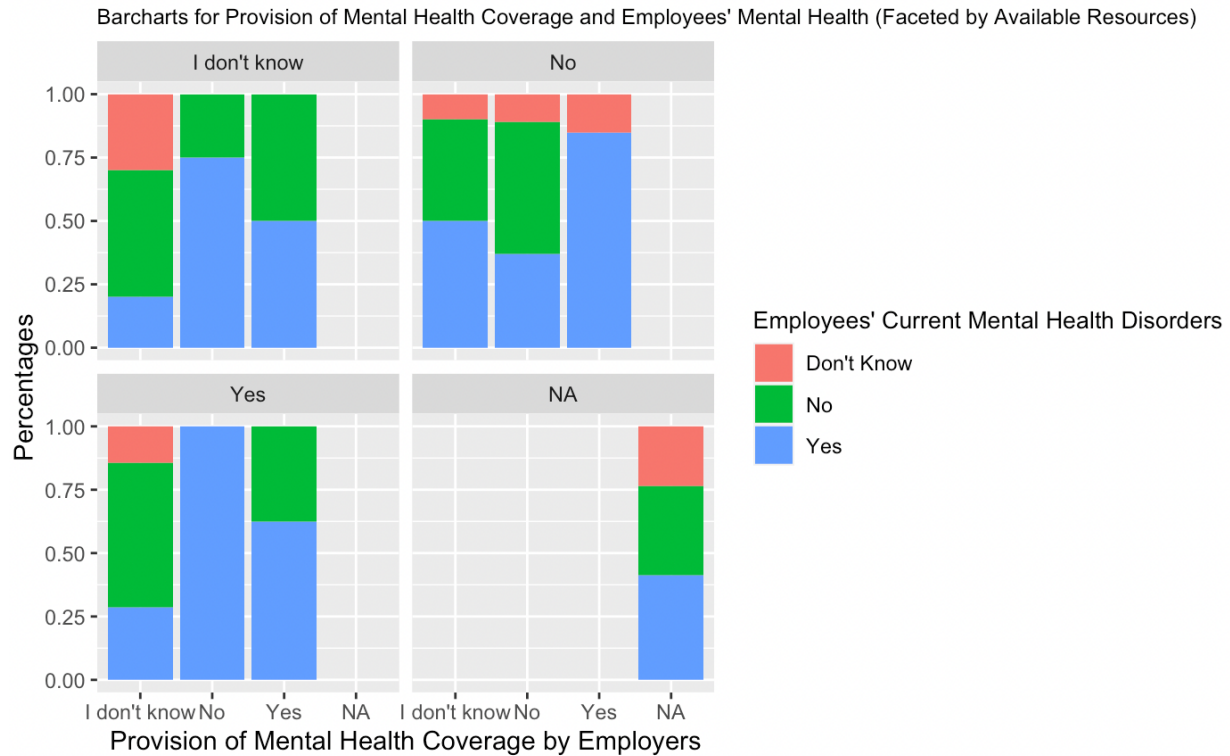
data: table(cleaned_dataset$provide_mh_coverage, cleaned_dataset$current_mh_disorder)
X-squared = 10.929, df = 4, p-value = 0.02737
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Stratified Analysis

Confounder 1

The upper-right plot in **Figure 3** shows that in the subgroup of employees where employers did not offer mental health support resources, the proportion of employees with MHDs is higher in companies that provided mental health insurance coverage compared to those that did not. Contrastingly, the bottom-left plot shows that in the subgroup of employees where employers offered mental health support resources, the proportion of employees with MHDs is lower in companies that provided mental health insurance coverage compared to those that did not. These findings suggest that the availability of supportive resources offered by employers may modify the relationship between the provision of mental health insurance coverage and employees' mental health outcomes.

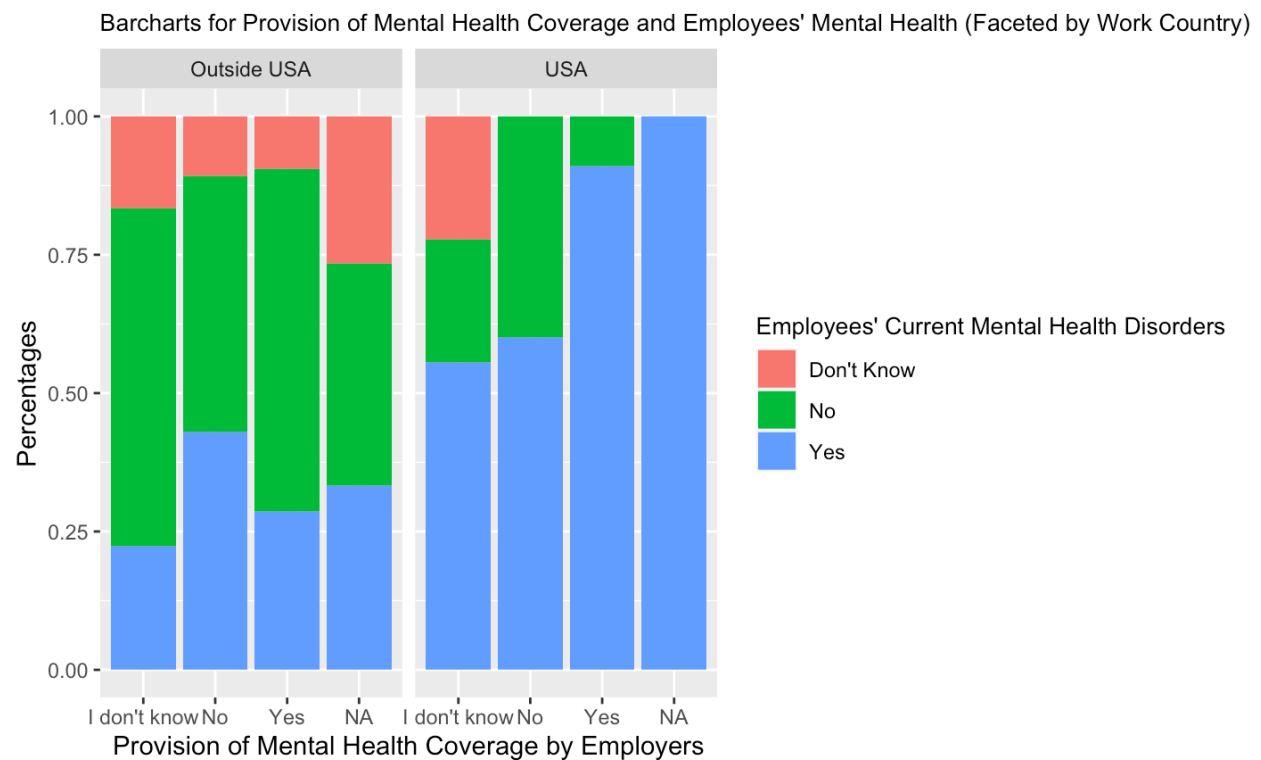
Figure 3. GGplots Stratified by Confounder 1: The Availability of Supportive Resources Offered by Employers to Learn More about Mental Health Disorders (MHDs) and Options for Seeking Help



Confounder 2

The left plot in **Figure 4** reveals that a higher proportion of employees working outside the US had MHDs in companies that did not provide mental health coverage. Contrastingly, the right plot shows that for employees working in the US, the proportion of employees with MHDs is lower in companies that did not provide mental health coverage than those who provided. These findings imply that the employees' work country is an important aspect to consider, as the relationship appears distinct when stratified.

Figure 4. GGplots Stratified by Confounder 2: Work Country



Discussion

The project aimed to examine the relationship between mental health coverage provided by employers and the prevalence of mental health disorders (MHDs) among employees, while accounting for confounders. The unstratified analysis found a statistically significant association between the intervention and outcome variables. Surprisingly, the results found that in companies that provided mental health coverage, a higher proportion of employees currently have MHDs, which is different from what I expected. This finding suggests that it is not enough for employers to help improve employees' mental health outcomes by solely providing mental health benefits as part of healthcare insurance coverage.

Additionally, the results of the stratified analysis demonstrated that the availability of supportive mental health resources offered by employers and employees' work country could modify the relationship between the intervention and outcome variables. Specifically, in companies that offered supportive mental health resources, a lower proportion of employees with current MHDs were found in companies that provided mental health insurance coverage. This finding suggests that providing mental health insurance coverage may be more effective in improving employees' mental health outcomes when sufficient support resources are available. Therefore, future policies should consider requiring employers to offer both mental health insurance coverage and supportive mental health resources (e.g., monthly workshops to raise awareness of mental health and notify employees of the mental health services available in their insurance package) to help improve mental health outcomes in the workplace. Moreover, the relationship between the

provision of mental health insurance coverage and employees' mental health outcomes was found to be modified by the employees' work country. This highlights the importance of considering cultural and societal factors when implementing workplace mental health policies and programs.

Although the project shed light on mental health issues specifically within the tech industry and provided insights for improving workplace policies regarding mental health insurance coverage and resources, it also has several limitations. Firstly, the self-administered survey nature of the dataset resulted in many missing values, as respondents were likely to skip questions they were not interested in or did not have knowledge of. Secondly, respondents might tend to underreport their mental health conditions due to the sensitive nature of mental health topics. Additionally, respondents might have underreported unsupportive work environments due to external or peer pressure. Lastly, the small sample size and unknown survey recruitment process raise concerns regarding the representativeness and generalizability of the findings to all workplaces in the tech industry. As a result, further research is necessary to confirm and extend the current findings of this project.

Conclusion

A significant association was demonstrated between mental health coverage and the prevalence of mental health disorders among employees. However, the availability of supportive mental health resources and employees' work country may modify this relationship. Future policies should consider requiring employers to offer mental health insurance coverage and supportive mental health resources to improve mental health outcomes in the workplace, while also considering cultural and societal factors.

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