



Mental health and help-seeking behavior within the United States technology industry: Investigating workplace support

Priya B. Thomas, Diane Chau & Katelyn K. Jetelina

To cite this article: Priya B. Thomas, Diane Chau & Katelyn K. Jetelina (2022) Mental health and help-seeking behavior within the United States technology industry: Investigating workplace support, Journal of Workplace Behavioral Health, 37:2, 106-121, DOI: [10.1080/15555240.2022.2032724](https://doi.org/10.1080/15555240.2022.2032724)

To link to this article: <https://doi.org/10.1080/15555240.2022.2032724>



Published online: 15 Feb 2022.



Submit your article to this journal [↗](#)



Article views: 768



View related articles [↗](#)



View Crossmark data [↗](#)



Mental health and help-seeking behavior within the United States technology industry: Investigating workplace support

Priya B. Thomas^a , Diane Chau^a, and Katelyn K. Jetelina^b

^aDepartment of Epidemiology, University of Texas Health Science Center, Austin, TX, USA;

^bDepartment of Epidemiology, University of Texas Health Science Center, Dallas, TX, USA

ABSTRACT

Mental health illness within the workplace is a growing concern nationwide. However, few studies assess behavioral factors associated with help-seeking behavior, such as employee-to-employer disclosure and perceptions of support. Moreover, currently, no studies investigate help-seeking behavior among United States technology industry employees. We employed a population health analysis in understanding technology employee perceptions of workplace support related to help-seeking behavior for mental health from 2017 to 2019. Our findings indicate that disclosing to an employer was significantly associated with help-seeking behavior (aOR = 4.0, 95% CI: 2.6, 6.1), implying that emphasis is placed on employee-centered behavior for help-seeking and mental health.

ARTICLE HISTORY

Received 31 July 2021

Accepted 18 January 2022

KEYWORDS

Mental health; help-seeking behavior; technology industry; organizational and employer support

Introduction

Mental health illnesses are among one of the most common health concerns in the United States. As of 2019, the National Institute of Mental Health estimated that roughly one in every five adults, or 51.5 million people, in the United States had an emotional, behavioral, or mental disorder (National Institute of Mental Health, 2019). Globally, the cumulative economic cost of mental health illnesses is estimated to reach \$6.5 trillion by 2030 (The Lancet Global Health, 2020). Problematically, as of 2019, only an estimated 50% of those with a mental health disorder received treatment (Substance Abuse and Mental Health Services Administration, 2020). The prevalence and burden of mental illnesses among the general population have created an urgency for policymakers, public health officials, and advocacy organizations to work toward expanding and promoting mental health awareness.

The workplace was previously identified as a major contributor to an individual's mental well-being (Leka, Jain, & World Health Organization, 2010; Stansfeld & Candy, 2006). A recent meta-review found that work-related stressors, such as high job demands, occupational uncertainty, and effort-reward imbalance, are widely associated with an increased risk of developing common mental health issues, such as depression and anxiety (Harvey et al., 2017). Furthermore, workplace stress is known to decrease productivity, increase turn-over rates, and lead to low morale and burnout (Brunner, Igic, Keller, & Wieser, 2019; Nisar & Rasheed, 2020). Although many studies are examining the psychosocial risk factors or efficacy of mental health interventions in the workplace, few investigate the characteristics of a workplace that contribute to *positive* mental health outcomes, such as the utilization of mental health resources (Azzone et al., 2009; Dimoff & Kelloway, 2019). Moreover, studies measuring improved workplace outcomes primarily focus on workplace health promotion from the leadership's perspective, emphasizing decreases in the managerial or organizational stigma surrounding mental health disorders (Dimoff & Kelloway, 2019; Montano, Reeske, Franke, & Hüffmeier, 2017). Although these recent studies have shown positive impacts from these workplace mental health interventions, they fail to measure employee-centered outcomes (Gómez et al., 2019).

Previously, research has shown that in the general population, those who exhibited help-seeking behavior for mental health problems were more likely to utilize mental health treatments in the future (Bonabi et al., 2016; Mojtabai, Evans-Lacko, Schomerus, & Thornicroft, 2016). As such, promoting help-seeking behavior would be important in maximizing mental health service utilization and adherence to treatments among the workforce, both common concerns for effective mental health treatment within this population (Andrade et al., 2014). Positive managerial support is associated with decreased mental health symptoms in employees (Gillet et al., 2019; Milligan-Saville et al., 2017; Petrie et al., 2018). Likewise, perceived organizational support leads to better employee wellness and increased job satisfaction, whereas lack of support is detrimental to mental health among workers (Kurtessis et al., 2017; Montano et al., 2017).

In 2018, the technology industry accounted for 8.8 million jobs and \$1.8 trillion of the United States' gross domestic product (Nicholson, 2020). Today, the digital economy is one of the most rapidly growing industries, projected to grow by 11.5% from 2019 to 2029—nearly double the growth rate from 2006 to 2018 (Zilberman & Ice, 2021). Stressors in this industry—short deadlines, high job demand and low job control, atypical work hours, and frequent organizational restructuring—make this workforce especially vulnerable to poor mental health outcomes in the workplace.

Earlier studies have shown that work-related stresses and employee mental health vary across occupations (Johnson et al., 2005; Shockey, Zack, & Sussell, 2017); as such, specifically targeting the employee population among the technology industry will prove valuable to understanding the underlying behavioral and psychosocial landscape within this growing industry.

The purpose of this study is to examine the association between structured workplace support and help-seeking behavior for mental health problems in the technology industry. Despite the need to understand mental health and help-seeking behavior among technology industry employees, there is a dearth of literature regarding this workplace population. Therefore, this analysis will prioritize this population (focusing on office workers) to understand the factors that contribute to workplace mental health promotion and positive behavioral outcomes. We hypothesize that participants who discuss mental health with their employers, as well as those who perceive high organizational support, are more likely to seek professional help for mental health issues. This research is the first of many needed in this population to understand the technology industry's behavioral landscape, develop targeted intervention programs, and prevent and treat mental health illnesses.

Methods

Data source and study design

Secondary analysis was performed on data obtained from the Open Sourcing Mental Illness (OSMI) Mental Health in Tech survey, an anonymous, online, cross-sectional survey geared toward individuals working within the technology industry. The data that support the findings of this study are openly available from Kaggle at <https://osmihelp.org/research>. The data was released under a Creative Commons Attribution-ShareAlike 4.0 International license.

The cross-sectional study utilized a non-probability convenience sampling frame over three survey periods pooled together. Respondents accessed the survey using a publicly available, online survey link on the OSMI website. The survey periods varied across the cross-sections: the 2017 survey was open from August 2017 to May 2018; the 2018 survey was open from May 2018 to December 2018; and the 2019 survey was open for a five-month period, dates unknown. The data were pooled to increase the precision of parameter estimates by increasing the sample size. Each dataset was appended on equivalent survey items measured at each time point.

Inclusion/exclusion criteria

Eligible individuals included in this analysis were those who resided within the United States, were 18 years or older, worked in a primary tech company, and were not self-employed ($n = 677$). In addition, participants were assumed to work in an office setting. About 14% of the initial pooled sample included self-employed individuals; since the majority of the literature on workplace help-seeking behavior emphasizes on-site settings, self-employed participants were excluded from the analysis because they usually work remotely.

Measures

The measures used in this study were designed primarily to understand behavioral factors that contribute to negative mental health outcomes among technology industry employees. To date, OSMI has the first and only repository for self-reported mental health data in the technology industry.

Outcome

Help-seeking behavior was operationalized using the question, “*Have you ever sought treatment for a mental health disorder from a mental health professional?*” Response options included “yes” or “no.”

Primary exposures

This study investigated two primary exposures of interest: (1) perceived organizational support of mental health issues within the technology industry among employees and; (2) prior experience of ever having discussed mental health with an employer.

Perceived organizational support of the technology industry for employees with mental health disorders was assessed using the question, “*Overall, how well do you think the tech industry supports employees with mental health issues?*” The scaled responses (1–5 scale for years 2017–18, and 0–10 scale for the year 2019) were converted into three categories for analysis: “poor” perceived organizational support (1–2 responses for 2017–18 and 0–3 for 2019); “fair” perceived organizational support (3 for 2017–18 and 4–6 in 2019); and “good” perceived organizational support (4–5 for 2017–2018 and 7–10 for 2019). These cut-off points were chosen based on the traditional 5-point Likert scale, in which 1–2 is negative, 3 is neutral, and 4–5 is positive; this was extrapolated to the 2019 survey which utilized a 0–10 scale (Preedy & Watson, 2010).

The question, “*Have you ever discussed your mental health with your employer?*” assessed whether or not an individual ever experienced

discussing mental health with their employer. Response options included “yes” or “no.”

Confounders

Sociodemographic information included age, gender, race, U.S. census region, and survey year. Age was treated as a continuous variable and met normality assumptions due to sufficient sample sizes. Gender was recoded from the free-response into “male” or “female” categories, with all other responses excluded due to insufficient sample size. The race was collapsed into two categories, “White” and “Other.” Census region, as defined by the U.S. Census Bureau, was derived from the participant’s current state of residence. Time was categorized by survey year. Mental health characteristics consisted of the respondent’s family history of mental illness and the presence of a current mental health issue. Current mental health disorder was indicated with “yes,” “no,” and “unsure” responses; the latter was a combination of “maybe” and “I don’t know” responses for the 2017 and 2018 surveys. Participants reported their family history of mental illness as “yes,” “no,” or “I don’t know.”

Organizational support for mental health and help-seeking behavior in the workplace

The following questions evaluated the survey respondents’ perception of the employer or organizational support for mental health in the workplace. The mental health resources provided by the employer were measured with the question, “*Does the employer offer resources to learn more about mental health disorders?*” Whether the employer formally discusses mental health at the workplace was derived from the question, “*Has your employer ever formally discussed mental health (for example, as part of a wellness campaign or other official communication)?*” These variables used the survey response options “yes,” “no,” and “I don’t know.”

Workplace support and attitudes surrounding mental health support in the workplace

These survey questions captured the participant’s perceptions of workplace support and attitudes related to mental health and help-seeking behavior.

Discussing mental health with coworkers was a binary categorical variable with “yes” or “no” categories generated from the question, “*Have you ever discussed your mental health with coworkers?*” Any experience that resulted in the deterrence of disclosing mental health issues in the workplace was assessed with the question, “*Have your observations of how another individual who discussed a mental health issue made you less likely*

to reveal a mental health issue yourself in your current workplace?” Responses included “yes,” “no,” “maybe,” and “N/A.”

Statistical analysis

Summary statistics (mean, median, standard deviations, and proportions) described the study population. Bivariate analyses (i.e., Pearson’s chi-squared test and logistic regression) were used to assess the relationship between the independent variables (age, gender, race, family history of mental illness, census region, mental health disorder, survey year, ever discussed mental health with your employer, perceived organizational support, employer formally discussing mental health, ever discussed mental health with coworkers, and employer offering resources to learn about mental health disorders) and the dependent variable (help-seeking behavior for mental health). The same bivariate approaches were used to eliminate collinear exposures (not shown). Variable inclusion for the final logistic regression models was determined by both the p -value model building approach for statistical significance and Akaike’s Information Criterion (AIC) comparison.

Multivariable logistic regression models were then built to assess the association between the independent and dependent variables although controlling for confounders. Census region was excluded from the final model due to both non-significance and lack of improvement to model fit. Additionally, AIC was not applicable in comparing the full model based on the p -value approach and the reduced model; although the AIC for the full model was lower, the estimates were biased due to shared variance between multiple exposure variables. To account for possible temporal dependence among observations and correlation among residuals over time, time was dummy-coded and standard errors were corrected by use of a robust variance/covariance matrix (Beck, 2008; Beck, Katz, & Tucker, 1998; Poirier & Ruud, 1988). Time was ultimately excluded from the final model due to statistically insignificant p -values during the model building process. Significant p -values were reported at $\alpha = 0.05$, and marginally significant p -values were reported at $\alpha = 0.10$. All statistical analyses were done with STATA/IC 15.1 software.

Results

Participant characteristics

A description of the sample population is provided in Table 1. Sixty-nine percent ($N = 677$) of individuals sought treatment from a mental health professional from 2017 to 2019. The sample population consisted of

Table 1. Pooled sample demographic characteristics of United States adults (≥ 18 years) who completed the OSMI Mental Health in Tech surveys 2017–2019 ($N = 677$)^a.

	<i>N</i> (%)
Sought mental health treatment	
Yes	467 (69.0)
No	210 (31.0)
Age [years] (mean, median, S.D.)	34.7 (34 \pm 7.9)
Gender	
Male	414 (64.3)
Female	230 (35.7)
Race	
White	585 (86.4)
Other ^b	92 (13.6)
Family history of mental illness	
Yes	361 (53.3)
No	150 (22.2)
I don't know	166 (24.5)
Census region	
Midwest	110 (16.3)
Northeast	262 (38.7)
South	119 (17.6)
West	186 (27.5)
Mental health disorder	
Yes	336 (49.6)
No	172 (25.4)
Unsure	169 (25.0)
Year	
2017	346 (51.1)
2018	205 (30.3)
2019	126 (18.6)

^aSample size and category percentages reported unless stated otherwise.^bIncludes: Asian, Black, Hispanic, I prefer not to answer, more than one of the above.

two-thirds men (64.3%); respondents were predominately White (86.4%), and were, on average, between 34 and 35 years of age. Participants were primarily from the Northeast or West census regions. Additionally, approximately half of survey participants reported a family history of mental illness (53.3%) although 49.6% reported having a mental health disorder themselves.

As displayed in Table 2, 36.6% of participants indicated having discussed a mental health issue with an employer. About 16% of participants had a good perception of organizational support for employees with mental health disorders in the technology industry although 43.13% indicated poor perceived organizational support. Fifty percent discussed their mental health with coworkers across all three time periods. Almost 60% of participants indicated that their employers did not formally discuss mental health with them in the workplace. In addition, only 14.18% of participants noted any deterrence for workplace disclosure from 2017 to 2019. Responses for employers offering resources regarding mental health disorders were evenly distributed, ranging from 30 to 36%.

Table 2. Pooled sample characteristics of United States adults (≥ 18 years) who completed the OSMI Mental Health in Tech surveys 2017–2019 ($N = 677$)^a.

	<i>N (%)</i>
Ever discussed mental health with your employer	
Yes	248 (36.6)
No	429 (63.4)
Perceived organizational support of the technology industry for employees with mental health disorders	
Poor	292 (43.1)
Fair	279 (41.2)
Good	106 (15.7)
Employer formally discusses mental health	
Yes	193 (28.5)
No	404 (59.9)
I don't know	80 (11.8)
Ever discussed mental health with coworkers	
Yes	338 (50.1)
No	337 (49.9)
Deterrence for workplace disclosure	
Yes	96 (14.2)
No	373 (55.1)
Maybe	87 (12.9)
N/A	121 (17.9)
Does the employer offer resources to learn more about mental health disorders	
Yes	226 (33.4)
No	243 (35.9)
I don't know	208 (30.7)

^aSample size and category percentages reported unless stated otherwise.

Initial factors associated with help—seeking behavior

Sociodemographic factors associated with help-seeking behavior

Among the sociodemographic variables, gender, family history of mental illness, and current mental health disorder were all significantly associated with help-seeking behavior in 2017–2019 (Table 3).

Compared to males, females had a 2.4 (95% CI: 1.6, 3.4) higher odds of seeking help for a mental health issue from a professional from 2017 to 2019. Those who had a family history of mental illness had a 7.3 (95% CI: 4.8, 11.2) higher odds for help-seeking behavior compared to those who do not have a family history of mental illness across 2017–2019. Although the census region was statistically significant per the Pearson's chi-squared test, only one region achieved statistical significance in the logistic regression model.

Primary exposures associated with help-seeking behavior

The odds of seeking help for mental health issues were 4.0 (95% CI: 2.7, 6.0) times greater among those who have ever discussed mental health issues with their employers, compared to those who have never discussed mental health issues with their employers.

The bivariate analyses indicate that perceived organizational support of the technology industry for employees with mental health disorders was not significantly associated with help-seeking behavior.

Table 3. Pooled sample bivariate analyses of help-seeking behavior for mental health illnesses with selected exposures among United States adults (≥ 18 years) who completed the OSMI Mental Health in Tech surveys 2017–2019.

	(n = 677) OR (95% CI)	χ^2
Gender		
Male	(Ref.)	20.37*
Female	2.4 (1.6, 3.4)*	
Census		
Northeast	(Ref.)	10.51*
Midwest	1.0 (0.6, 1.6)	
South	0.8 (0.5, 1.3)	
West	1.8 (1.6, 2.6)*	
Family history of mental illness		
No	(Ref.)	93.25*
Yes	7.3 (4.8, 11.2)*	
I don't know	3.0 (1.9, 4.8)*	
Mental health disorder		
No	(Ref.)	271.99*
Yes	81.8 (40.2, 166.6)*	
Unsure	3.0 (1.9, 4.7)*	
Ever discussed mental health with your employer		
No	(Ref.)	49.81*
Yes	4.0 (2.7, 6.0)*	
Perceived organizational support of the technology industry for employees with mental health disorders		
Poor	(Ref.)	1.66
Fair	0.8 (0.6, 1.1)	
Well	0.9 (0.6, 1.5)	
Employer formally discusses mental health		
No	(Ref.)	11.35*
Yes	2.0 (1.3, 2.9)*	
I don't know	1.2 (0.7, 2.0)	
Ever discussed mental health with coworkers		
No	(Ref.)	71.13*
Yes	4.5 (3.1, 6.4)*	
Perceptions of deterrence for workplace disclosure		
No	(Ref.)	17.86*
Maybe	1.2 (0.7, 2.1)	
Yes	1.4 (0.8, 2.4)	
N/A	0.5 (0.3, 0.7)*	
Does the employer offer resources to learn more about mental health disorders		
No	(Ref.)	21.71*
Yes	1.6 (1.0, 2.4)*	
I don't know	0.6 (0.4, 0.9)*	

OR: odds ratio; (Ref.): reference category; 95% CI: 95% confidence interval.

*p-Value <0.05.

Multivariable adjusted model: exposures associated with help-seeking behavior in the technology industry

Results from the multivariable logistic regression model (Table 4) show help-seeking behavior with gender, perceived organizational support for employees with mental health disorders in the technology industry, and prior experience of discussing mental health with an employer.

Individuals who discussed mental health with their employer had a 4.0 (95% CI: 2.6, 6.1) higher odds of seeking help for mental health issues compared to those who have never discussed their mental health with their

Table 4. Pooled sample adjusted odds ratio of seeking mental health treatment with selected relevant exposures among United States adults (≥ 18 years) who completed the OSMI Mental Health in Tech surveys 2017–2019.

	(<i>n</i> = 677) aOR (95% CI)	<i>p</i> -Value
Gender		
Male	(Ref.)	
Female	2.5 (1.7, 3.8)	<0.001*
Perceived organizational support of the technology industry for employees with mental health disorders		
Poor	(Ref.)	0.16
Fair	0.8 (0.5, 1.1)	0.54
Good	0.9 (0.5, 1.5)	
Ever discussed mental health with your employer		
No	(Ref.)	<0.001*
Yes	4.0 (2.6, 6.1)	

aOR: adjusted odds ratio; (Ref.): reference category; 95% CI: 95% confidence interval.

**p*-Value <0.05.

employer, adjusting for gender and perceived organizational support of the technology industry for employees with mental health disorders.

Women, compared to men, had a 2.5 (95% CI: 1.7, 3.8) higher odds of seeking help for a mental health issue from a professional when adjusting for perceived organizational support and experience in ever discussing mental health with an employer from 2017 to 2019.

Lastly, even after adjusting for gender and having discussed mental health with their employer, perceived organizational support of the technology industry for employees with mental health disorders was not significantly associated with help-seeking behavior in this sample.

Discussion

This study found that individuals who work in the technology industry were four times more likely to seek help for mental health issues from a professional if they discussed their mental health with their employer, adjusting for perceived organizational support and gender. This supports behavioral trends, as it is known that the ability to seek help within the workplace is largely mediated by both supervisor, employer, and organizational support (Attridge, 2019; Bamberger, 2009; Friedman, Carmeli, & Dutton, 2018; van der Rijt et al., 2013). Supervisors play a key role in providing support and stability to their employees; being respected by supervisors positively impacts mental health within the workplace, enhancing workplace productivity and overall health (Attridge, 2019; Friedman et al., 2018; van der Rijt et al., 2013). Other studies sampling from diverse workplaces show that those in leadership positions who were not supportive were a critical barrier to receiving help (Gayed et al., 2018; Knaak, Luong, McLean, Szeto, & Dobson, 2019; Van Eerd, Cullen, Irvin, & Pouésard, 2018). In addition, employers and others in supervisory roles who support

employees through mental health crises are more likely to positively impact their employees' overall health (Bamberger, 2009; Gayed et al., 2018; Knaak et al., 2019; Van Eerd et al., 2018).

Generally, the prevalence of help-seeking behavior at work is low and varies between workplace populations (Attridge, 2019; LaMontagne et al., 2014). Therefore, this highly positive association between discussing mental health issues with an employer and help-seeking behavior for mental health issues is an encouraging find. There may be inherent characteristics within the psychosocial landscape of the technology industry from both employee and leadership perspectives that contribute to this positive outcome. Understanding positive attitudes surrounding help-seeking, such as the ability to seek help without delay and mental health literacy within organizations could influence employees' ability to disclose in the first place (Knaak et al., 2019; LaMontagne et al., 2014; Mojtabai et al., 2016; Moll, Patten, Stuart, MacDermid, & Kirsh, 2018). Further investigation is needed to delve into interactions of factors surrounding perceived employer/supervisory support and help-seeking behavior pertaining to technology industry employees. However, this finding shows a promising start in identifying a positive association between employees' mental health disclosure and help-seeking behavior within this group.

Women have more positive attitudes surrounding help-seeking compared to men and are more likely to engage in help-seeking behavior and employee assistance programs (Attridge, 2019; Cheng, Wang, McDermott, Kridel, & Rislin, 2018; Doherty & Kartalova-O'Doherty, 2010; Mackenzie, Gekoski, & Knox, 2006). Our finding indicates that gender impacts behavioral differences within this population and is consistent with prior literature.

Finally, positive perceptions of organizational support within the technology industry were not significantly associated with help-seeking behavior for mental health issues in the pooled sample. Prior research has strongly indicated the importance of organizational support for help-seeking behavior (Attridge, 2019; Dewa & Hoch, 2015). For an individual to be able to seek help for mental health issues in the workplace, organizational structures need to be in place that offers resources and support; generally, this relies on organizational and cultural norms within the workplace (Attridge, 2019; Dewa & Hoch, 2015; Lee, 1997). Our results show that within the technology industry, employer-level support is more indicative of employees' help-seeking behavior than perceived organizational-level support. Therefore, recommendations for increasing help-seeking behavior among technology industry employees should emphasize support closer to the employee-centered level as opposed to the organizational level.

Strengths and limitations

Findings for this study come from a unique data source and study population which have not been explored in detail across the literature. As such, several limitations should be considered. Firstly, the survey questions were not generated from previously validated questionnaires; there are no validity or reliability statistics to confirm the accuracy of these measures. Furthermore, there could be misclassification of exposures present. Particularly, the measure for perceived organizational support is a proxy measure; a validated questionnaire, such as the Survey of Perceived Organizational Support would have been a more direct measurement of this predictor (Eisenberger, Huntington, Hutchison, & Sowa, 1986). In addition, each item was self-reported; therefore, estimates of the responses are not as accurate compared to measures derived either clinically or through validated instruments. However, the face validity of the survey questions and responses provide valuable, measurable assessments of mental health in the workplace for the technology industry.

Since the data were pooled, there may have been potential correlation among the residuals over time despite data independently gathered at three different time periods; however, this was adjusted for by appropriately correcting for the standard errors in the statistical models. In addition, although pooling samples increases the precision of estimates due to the larger sample size, it also increases the Type 1 error (Machlis, Dodd, & Fentress, 2010). It is also difficult to establish an assumption of homogeneity across the separate data sets; although risk estimates may vary across each section, for the measured attributes in this study, the descriptive statistics and strengths of associations were largely homogeneous between each year. Lastly, cross-sectional designs cannot imply a temporal and causal relationship between exposures and the outcome.

Employee assistance programs or other workplace interventions could be a critical factor to explore in terms of help-seeking behavior and mental health within the workplace in regards to the perceived employer and organizational support; however, those measures were not available for model refinement (Knaak et al., 2019; Moll et al., 2018). Explicit measures characterizing workplace settings (i.e., on-site, remote, or hybrid) were also not available. Remote work has a separate set of challenges compared to the office setting, which may reasonably lead to differences in predictors of behavioral outcomes (de Lucas Ancillo, del Val Núñez, & Gavrilá, 2021). In addition, the study sample was largely homogenous (White, male, average age between 34 and 35 years); thus, generalizability and interpretation are limited.

That being said, the strength of the investigation largely relies on the fact that this is the first article, in our understanding, to investigate mental

health and help-seeking behavior in the technology industry from a population health perspective. Although overarching themes of workplace needs, attitudes, and behaviors apply, each workplace and industry comprises unique populations with tailored needs and varying attitudes surrounding mental health and help-seeking behavior. By using measures that have face value in their content, we were able to model associations that impact an employee's ability to seek professional help for mental health concerns across this population.

Conclusion

Although other studies have focused on the negative impacts of poor mental health in the workplace regarding productivity, help-seeking, employee assistance programs, and other leadership-focused outcomes (Dewa & Hoch, 2015; Dimoff & Kelloway, 2019; Evans-Lacko & Knapp, 2016, 2018), this is the first study to look at factors associated with help-seeking behavior from a mental health professional specifically in the technology industry from an employee-centered, population health outlook. Our findings indicate that both gender and having discussed mental health with an employer are positively associated with seeking professional help for their mental health among employees, underscoring a need for targeted approaches to workplace mental health by occupation. Furthermore, we did not find positive perceptions of organizational support to be associated with help-seeking behavior for mental health issues. As this is a novel investigation, normative attitudes and behavioral trends among both technology industry employees and organizations regarding mental health are largely unknown, showing a need for continued research in this space.

Acknowledgments

We would like to acknowledge OSMI for the creation and administration of the surveys used in this analysis. The organization had no input regarding study design, data analysis, and the publication process for this study.

Disclosure statement

The authors have indicated no conflicts of interest.

ORCID

Priya B. Thomas  <http://orcid.org/0000-0003-2389-9197>

References

- Andrade, L. H., Alonso, J., Mneimneh, Z., Wells, J. E., Al-Hamzawi, A., Borges, G., ... Kessler, R. C. (2014). Barriers to mental health treatment: Results from the WHO World Mental Health surveys. *Psychological Medicine*, 44(6), 1303–1317. doi:[10.1017/S0033291713001943](https://doi.org/10.1017/S0033291713001943)
- Attridge, M. (2019). A global perspective on promoting workplace mental health and the role of employee assistance programs.
- Azzone, V., McCann, B., Merrick, E. L., Hiatt, D., Hodgkin, D., & Horgan, C. (2009). Workplace stress, organizational factors and EAP utilization. *Journal of Workplace Behavioral Health*, 24(3), 344–356.
- Bamberger, P. (2009). Employee help-seeking: Antecedents, consequences and new insights for future research. In *Research in personnel and human resources management*. Emerald Group Publishing Limited.
- Beck, N. (2008). Time-series-cross-section methods. In *The Oxford Handbook of Political Methodology*, 475–493.
- Beck, N., Katz, J. N., & Tucker, R. (1998). Taking time seriously: Time-series-cross-section analysis with a binary dependent variable. *American Journal of Political Science*, 42(4), 1260–1288. doi:[10.2307/2991857](https://doi.org/10.2307/2991857)
- Bonabi, H., Müller, M., Ajdacic-Gross, V., Eisele, J., Rodgers, S., Seifritz, E., ... Rüsch, N. (2016). Mental health literacy, attitudes to help seeking, and perceived need as predictors of mental health service use: A longitudinal study. *The Journal of Nervous and Mental Disease*, 204(4), 321–324. doi:[10.1097/NMD.0000000000000488](https://doi.org/10.1097/NMD.0000000000000488)
- Brunner, B., Igc, I., Keller, A. C., & Wieser, S. (2019). Who gains the most from improving working conditions? Health-related absenteeism and presenteeism due to stress at work. *The European Journal of Health Economics*, 20(8), 1165–1180.
- Cheng, H. L., Wang, C., McDermott, R. C., Kridel, M., & Rislin, J. L. (2018). Self-stigma, mental health literacy, and attitudes toward seeking psychological help. *Journal of Counseling & Development*, 96(1), 64–74. doi:[10.1002/jcad.12178](https://doi.org/10.1002/jcad.12178)
- de Lucas Ancillo, A., del Val Núñez, M. T., & Gavrila, S. G. (2021). Workplace change within the COVID-19 context: A grounded theory approach. *Economic Research-Ekonomska Istraživanja*, 34(1), 2297–2316. doi:[10.1080/1331677X.2020.1862689](https://doi.org/10.1080/1331677X.2020.1862689)
- Dewa, C. S., & Hoch, J. S. (2015). Barriers to mental health service use among workers with depression and work productivity. *Journal of Occupational and Environmental Medicine*, 57(7), 726–731.
- Dimoff, J. K., & Kelloway, E. K. (2019). With a little help from my boss: The impact of workplace mental health training on leader behaviors and employee resource utilization. *Journal of Occupational Health Psychology*, 24(1), 4–19.
- Doherty, D. T., & Kartalova-O'Doherty, Y. (2010). Gender and self-reported mental health problems: Predictors of help seeking from a general practitioner. *British Journal of Health Psychology*, 15(1), 213–228. doi:[10.1348/135910709X457423](https://doi.org/10.1348/135910709X457423)
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500–507. doi:[10.1037/0021-9010.71.3.500](https://doi.org/10.1037/0021-9010.71.3.500)
- Evans-Lacko, S., & Knapp, M. (2016). Global patterns of workplace productivity for people with depression: Absenteeism and presenteeism costs across eight diverse countries. *Social Psychiatry and Psychiatric Epidemiology*, 51(11), 1525–1537.
- Evans-Lacko, S., & Knapp, M. (2018). Is manager support related to workplace productivity for people with depression: A secondary analysis of a cross-sectional survey from 15 countries. *BMJ Open*, 8(6), e021795. doi:[10.1136/bmjopen-2018-021795](https://doi.org/10.1136/bmjopen-2018-021795)

- Friedman, A., Carmeli, A., & Dutton, J. E. (2018). When does respectful engagement with one's supervisor foster help-seeking behaviors and performance? *Journal of Vocational Behavior*, 104, 184–198. doi:[10.1016/j.jvb.2017.11.007](https://doi.org/10.1016/j.jvb.2017.11.007)
- Gayed, A., Milligan-Saville, J. S., Nicholas, J., Bryan, B. T., LaMontagne, A. D., Milner, A., ... Harvey, S. B. (2018). Effectiveness of training workplace managers to understand and support the mental health needs of employees: A systematic review and meta-analysis. *Occupational and Environmental Medicine*, 75(6), 462–470. doi:[10.1136/oemed-2017-104789](https://doi.org/10.1136/oemed-2017-104789)
- Gillet, N., Le Gouge, A., Pierre, R., Bongro, J., Méplaux, V., Brunault, P., ... Cheyroux, P. (2019). Managerial style and well-being among psychiatric nurses: A prospective study. *Journal of Psychiatric and Mental Health Nursing*, 26(7–8), 265–273.
- Gómez, M. A. L., Sabbath, E., Boden, L., Williams, J. A., Hopcia, K., Hashimoto, D., & Sorensen, G. (2019). Organizational and psychosocial working conditions and their relationship with mental health outcomes in patient-care workers. *Journal of Occupational and Environmental Medicine*, 61(12), e480–e485.
- Harvey, S. B., Modini, M., Joyce, S., Milligan-Saville, J. S., Tan, L., Mykletun, A., ... Mitchell, P. B. (2017). Can work make you mentally ill? A systematic meta-review of work-related risk factors for common mental health problems. *Occupational and Environmental Medicine*, 74(4), 301–310.
- Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of Managerial Psychology*, 20(2), 178–187. doi:[10.1108/02683940510579803](https://doi.org/10.1108/02683940510579803)
- Knaak, S., Luong, D., McLean, R., Szeto, A., & Dobson, K. S. (2019). Implementation, uptake, and culture change: Results of a key informant study of a workplace mental health training program in police organizations in Canada. *Canadian Journal of Psychiatry*, 64(1_suppl), 30S–38S. doi:[10.1177/0706743719842565](https://doi.org/10.1177/0706743719842565)
- Kurtessis, J. N., Eisenberger, R., Ford, M. T., Buffardi, L. C., Stewart, K. A., & Adis, C. S. (2017). Perceived organizational support: A meta-analytic evaluation of organizational support theory. *Journal of Management*, 43(6), 1854–1884. doi:[10.1177/0149206315575554](https://doi.org/10.1177/0149206315575554)
- LaMontagne, A. D., Martin, A., Page, K. M., Reavley, N. J., Noblet, A. J., Milner, A. J., ... Smith, P. M. (2014). Workplace mental health: Developing an integrated intervention approach. *BMC Psychiatry*, 14(1), 1–11. doi:[10.1186/1471-244X-14-131](https://doi.org/10.1186/1471-244X-14-131)
- Lee, F. (1997). When the going gets tough, do the tough ask for help? Help seeking and power motivation in organizations. *Organizational Behavior and Human Decision Processes*, 72(3), 336–363. doi:[10.1006/obhd.1997.2746](https://doi.org/10.1006/obhd.1997.2746)
- Leka, S., Jain, A., & World Health Organization (2010). *Health impact of psychosocial hazards at work: An overview*. World Health Organization.
- Machlis, L., Dodd, P. W. D., & Fentress, J. C. (2010). The pooling fallacy: Problems arising when individuals contribute more than one observation to the data set. *Zeitschrift Für Tierpsychologie*, 68(3), 201–214. doi:[10.1111/j.1439-0310.1985.tb00124.x](https://doi.org/10.1111/j.1439-0310.1985.tb00124.x)
- Mackenzie, C. S., Gekoski, W. L., & Knox, V. J. (2006). Age, gender, and the underutilization of mental health services: The influence of help-seeking attitudes. *Aging & Mental Health*, 10(6), 574–582.
- Milligan-Saville, J. S., Tan, L., Gayed, A., Barnes, C., Madan, I., Dobson, M., ... Harvey, S. B. (2017). Workplace mental health training for managers and its effect on sick leave in employees: A cluster randomised controlled trial. *The Lancet. Psychiatry*, 4(11), 850–858. doi:[10.1016/S2215-0366\(17\)30372-3](https://doi.org/10.1016/S2215-0366(17)30372-3)

- Mojtabai, R., Evans-Lacko, S., Schomerus, G., & Thornicroft, G. (2016). Attitudes toward mental health help seeking as predictors of future help-seeking behavior and use of mental health treatments. *Psychiatric Services*, 67(6), 650–657.
- Moll, S. E., Patten, S., Stuart, H., MacDermid, J. C., & Kirsh, B. (2018). Beyond silence: A randomized, parallel-group trial exploring the impact of workplace mental health literacy training with healthcare employees. *The Canadian Journal of Psychiatry*, 63(12), 826–833. doi:10.1177/0706743718766051
- Montano, D., Reeske, A., Franke, F., & Hüffmeier, J. (2017). Leadership, followers' mental health and job performance in organizations: A comprehensive meta-analysis from an occupational health perspective. *Journal of Organizational Behavior*, 38(3), 327–350. doi:10.1002/job.2124
- National Institute of Mental Health (2019). *Mental Illness*. Retrieved March 21, 2021, from <https://www.nimh.nih.gov/health/statistics/mental-illness>
- Nicholson, J. R. (2020). *New digital economy estimates*. U.S. Bureau of Economic Analysis, Department of Commerce.
- Nisar, S. K., & Rasheed, M. I. (2020). Stress and performance: Investigating relationship between occupational stress, career satisfaction, and job performance of police employees. *Journal of Public Affairs*, 20(1), e1986. doi:10.1002/pa.1986
- Petrie, K., Gayed, A., Bryan, B. T., Deady, M., Madan, I., Savic, A., ... Harvey, S. B. (2018). The importance of manager support for the mental health and well-being of ambulance personnel. *PLOS One*, 13(5), e0197802. doi:10.1371/journal.pone.0197802
- Poirier, D. J., & Ruud, P. A. (1988). Probit with dependent observations. *The Review of Economic Studies*, 55(4), 593–614. doi:10.2307/2297407
- Preedy, V. R., & Watson, R. R. R. (2010). *Handbook of disease burdens and quality of life measures* (p. 6). Springer.
- Shockey, T. M., Zack, M., & Sussell, A. (2017). Health-related quality of life among US workers: Variability across occupation groups. *American Journal of Public Health*, 107(8), 1316–1323. doi:10.2105/AJPH.2017.303840
- Stansfeld, S., & Candy, B. (2006). Psychosocial work environment and mental health—A meta-analytic review. *Scandinavian Journal of Work, Environment & Health*, 32(6), 443–462. doi:10.5271/sjweh.1050
- Substance Abuse and Mental Health Services Administration (2020). *Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55)*. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>
- The Lancet Global Health (2020). Mental Health Matters. *The Lancet Global Health*, 8(1), e1352. doi:10.1016/S2214-109X(20)30432-0
- van der Rijt, J., Van den Bossche, P., van de Wiel, M. W., De Maeyer, S., Gijssels, W. H., & Segers, M. S. (2013). Asking for help: A relational perspective on help seeking in the workplace. *Vocations and Learning*, 6(2), 259–279. doi:10.1007/s12186-012-9095-8
- Van Eerd, D., Cullen, K., Irvin, E., & Pouésard, M. (2018). 545 Workplace practices and policies to support workers with depression.
- Zilberman, A., & Ice, L. (2021). Why computer occupations are behind strong STEM employment growth in the 2019–29 decade. In *Beyond the numbers: Employment & unemployment*, Vol. 10. U.S. Bureau of Labor Statistics.