Title: COVID-19 and Worker Mental Distress

Authors:

Reka Sundaram-Stukel, PhD (corresponding author)
Honorary Research Fellow
University of Wisconsin-Madison, Department of Economics
7415 Social Sciences
Madison Wisconsin 53703
rsundara@wisc.edu

Pelin Kesebir, PhD
Honorary Fellow
Center for Healthy Minds
University of Wisconsin, Madison
kesebir@wisc.edu

Regina Vidaver, PhD
Section Manager
Chronic Disease Prevention & Cancer Control
Wisconsin State Department of Health Services–Division of Public Health
1 West Wilson St. Rm 218
Madison Wisconsin 53703
Regina.Vidaver@dhs.wisconsin.gov

Richard J Davidson, PhD
William James and Vilas Professor of Psychology and Psychiatry
Center for Healthy Minds, Founder and Director
325 West Washington Street
Madison, WI 53703
rjdavids@wisc.edu

Conflict of Interest Disclosures:

Co-author Richard Davidson has the following disclosures:

Funding: National Center for Complementary and Integrative Health Grant U24AT011289-01 (RJD)
Other Grants: National Institutes of Health, National Center for Complementary and Alternative Medicine (NCCAM) grant P01AT004952 (RJD)
National Institutes of Health, National Institute of Mental Health (NIMH) grant R01-MH43454 (RJD)
National Institutes of Health, National Institute of Mental Health (NIMH) grant P50- MH084051 (RJD)
All other authors have no conflict of interest to disclose.
COVID-19 and Worker Mental Distress

Abstract

Background

This analysis posits that worker mental distress may be different for those continuously employed and for those who faced temporary job loss.

Methods

Mental distress during COVID-19 is characterized using two nationally representative surveys, the American Trend Panel (ATP) and the Household Pulse Survey (HPS). A mental distress scale is created. Using a probit model, we examine workplace perceptions for the mentally distressed in the ATP sample. We use graphical analysis to identify barriers to seeking mental healthcare using the 2021-2022 HPS sample.

Results

In October 2020, the probability of mental distress increased between 7.1 and 9.1 percentage points in response to worsening work-life balance, lowered job security, lowered work-productivity, and lowered work-satisfaction. Workers’ perception of advancement denial and poor connectivity with coworkers increased the probability of mental distress by 3.0 to 5.8 percentage points. In October 2021, over 40 percent of workers who had experienced job-loss reported mental distress as compared to 20 percent of those with jobs. Only 25 percent of those with mental distress sought counseling. These high levels of mental distress continued into October 2022.

Conclusions

Worker mental health mitigation strategies should include prosocial nudges, attention to employment history, managerial sensitivity and worker resilience training.
COVID-19 and Worker Mental Distress

Introduction

Little is known about how COVID-19-related mental distress shapes worker perceptions of job and performance.\textsuperscript{1-5} The American Psychological Association 2023 Work in America Survey (APA-2023-WAS) concluded that mental health among workers is a high priority. The results from their survey show that 77\% of workers reported work-related stress, 57\% experienced burnout symptoms such as emotional exhaustion (31\%), lowered desire to be prosocial (25\%), desire to quit (23\%), and lowered productivity (20\%). In the same study, 19\% described their workplace as toxic, 30\% experienced harassment, and 22\% experienced verbal abuse.\textsuperscript{6}

Against the background of persistent elevated worker mental distress discussed in the APA-2023-WAS, this paper brings attention to worker mental distress among the continuously employed during COVID-19, from the October 2020 to October 2021 time period. The APA-2023-WAS study found that 26\% of workers felt isolated and lonely at their workspaces, even if the workers had frequent contact with coworkers and clients. Specifically, 35\% of workers engaged in customer/client/patient services reported feelings of loneliness versus 23\% in office work, or 22\% in manual labor.\textsuperscript{6,7} For those who may have suffered job-loss, there is scant evidence of their sense of loneliness, isolation, anxiety, or depression. A recent commentary suggests that pro-sociality should be a public health priority for those who are vulnerable to feelings of isolation and loneliness.\textsuperscript{8} Investments in developing non-clinical pathways that improve the sense of belonging and feeling supported in workplaces might improve mental health outcomes.\textsuperscript{6-8} Related literature argues that mental distress may limit a worker’s ability to maintain healthy emotions, thus leading to conditions like absenteeism or presenteeism.\textsuperscript{9-12} Additionally, workers in mental distress may experience cognitive fatigue and these effects may
have enduring effects on employment. Thus, simple interventions like creating a culture of caring, training managerial staff to be sensitive to post-pandemic workplace conditions, short breaks of kindness/compassion mindfulness practice, or promoting friendly competition among work-based teams may restore a sense of connection to work.

Using two nationally representative surveys, this paper investigates how mental distress varied for the employed and unemployed during COVID-19, a year, and two years after the pandemic. It explores a rear-view perspective into the potential sources of mental distress among employed and pandemic related unemployed workers.

Methods

The analysis uses two nationally representative surveys that address different dimensions of mental health to explain COVID-19-related worker mental distress. The American Trend Panel (ATP, N = 10,332) data collected October 13 – 19, 2020, by the Pew Research Center has four measures of mental health (loneliness, social support, optimism, and stress). It is an online survey that includes adults 18 or older, recruited via email, phone, or mail. For the panel analyzed, the response rate was 88% and offered regional variation. The Household Pulse Survey was collected September 29 – October 11, 2021 (HPS, N = 49,523) and October 5 – October 17, 2022 (HPS, N = 36,484) by the Census. The Household Pulse Survey ran continuously from April 2020, originally designed as weekly surveys. As the pandemic progressed, the intervals between survey weeks increased but the name “weekly release” remained. Figure 1 presents a timeline for the surveys. We chose the October wave in 2021 and 2022, given our interest in understanding the degree of mental distress among Americans one and two years after the ATP survey. The HPS survey selects census addresses at random and invites the household members to participate by mail. It had a response rate of 5 to 6%, where each wave of the survey, a million
people were invited, and approximately 50,000 participated per survey period. The HPS analysis can be done at the US state level. The mental health variables in the HPS survey measure anxiety and depression.

In the ATP survey, those who responded having full-time or part-time employment were classified as employed; the unemployed included retired workers as well as those currently not employed. Four ATP questions about the respondents’ post-COVID-19 outbreak feelings measure loneliness (for questions, see Appendix QA1a to QA1e), social support (QA1b), optimism (QA1c), and level of stress or anxiety (QA1e). We calculated the arithmetic mean to form an ATP-mental health scale with a Cronbach reliability of 0.69. On this scale, scores less than 2 convey healthier mental states, and scores above 2 convey unhealthy mental states. Given that some level of unhealthy mental states during the pandemic would be natural, we wanted to focus on the group for whom the negative emotionality was more chronic and exceeded the “some of the time” threshold. Respondents with mental health scores greater than 2.5 tip over to experiencing mental distress “most of the time”, and they were categorized as mentally distressed (MD, where ‘i’ is the respondent).

Responses to ATP questions on full-time worker experiences of job security (Appendix QA2a), flexibility (QA2b), work-life balance (QA2c), hours (QA2d), productivity (QA2e), satisfaction (QA2f), advancement (QA3a), connectivity (QA3b), and supervisor appraisal (QA3c) post-COVID-19 define exogenous independent covariates. The control variables were age, education, and sex. In the absence of a true baseline, these questions directly elicit COVID-19 work experience. Our probit model is given by
\[ MD_i(x) = \begin{cases} 
0, & x < 2.5 \\
1, & x \geq 2.5 
\end{cases} \]

where the independent variable \( MD_i(x) \) is our constructed binary variable indicating mental distress.

Our estimation equation is then given by:

\[ MD_i = \alpha_0 + \beta_1 X_{ri} + \beta_2 X_{pi} + \beta_3 \text{ age group} + \beta_4 \text{ education level} + \beta_4 \text{ gender} + \epsilon_i \]

Where the dependent variables \( X_{ri} \) and \( X_{pi} \) = 1 if respondent ‘i’ has experienced a negative state, and = 0 if has experienced same or positive state. We present the marginal effects of a unit change of covariates on the probability of being mentally distressed.\(^{18-19}\) Results with p-values less than 0.05 are considered statistically significant.

The Household Pulse Survey (HPS) mental health measures were developed in response to COVID-19 in partnership with the Centers for Disease Control (CDC). In the HPS survey two binary questions help determine employment status: 1) if anyone in the household experienced job loss; and 2) if the respondent had worked for pay in the past seven days (Appendix Q4A).

The mental health questions on HPS are taken from validated psychometric scales, specifically the PHQ-Patient Health and GAD-Generalized Anxiety Disorder Questionnaire. For rapid administration, these scales have been truncated to the 2-item scale of depressive disorder (PHQ-2; Appendix QA4: interest and down) and generalized anxiety (GAD2; QA4: anxious and worry). These four questions asked about the number of days in a week a respondent had these feelings for each question. Responses to the PHQ-2 and GAD-2 were combined to create a 4-item HPS-mental distress scale with a Cronbach reliability value of 0.92. Respondents with scores greater than 2.5 were categorized as mentally distressed because they tipped a person just over experiencing symptoms some of the days. This measure served to measure persistence in
mental distress. The term persistence here connotes the aggregate levels of mental distress present among the US population, a year, and two years after the ATP survey. Since the respondents in these surveys are not the same, they should be viewed as representative individuals of overall mental health in the US. Additionally, the HPS measure of mental distress captures anxiety and depression levels and not aspects of emotional well-being that are captured in ATP. In the HPS 2020 survey two questions characterized use of and access to mental health services: 1) did you receive counselling or therapy from a mental health professional; and 2) in the last 4 week did you need counseling or therapy online or by phone and did not get it (Appendix Q4A). These questions were not asked in HPS survey October 2022. Admittedly, these measures are not comparable, but they do give us insights into the overall mental and emotional well-being among the US population for the three time points October 2020 with ATP survey, 2021, and 2022 with HPS survey. Together, the two surveys capture different dimensions of mental health that permit an investigation into workplace mental wellbeing.

Results

Of the ATP respondents, 46% were fully employed, 12% were employed part-time, 26% were retired, and 15% were unemployed. Simple differences in means t-testsof mental distress scores, for respondents with scores greater than or equal to 2.5, showed that the employed were healthier compared to the unemployed where the t-statistic was 4.6 with a df = 0.05 (p <0.001; see Appendix Table A2a). The mental distress scores for the unemployed in age groups 18 to 29, 30 to 49, and 50 to 64 were statistically significant and higher than the employed in the same age groups. There was no difference in mental distress scores for the employed and unemployed for ages 65 and over. Within race categories, the unemployed respondents who identified as whites
and ethnicity Hispanic had significantly higher mental health scores as compared to the
employed within the same racial groups (Appendix Table 2a). Lower differences in mean
mental health scores among Asians and Blacks could be a function of smaller numbers surveyed
and under-reporting of mental distress, especially, if they were unemployed It was not possible to
separate out COVID-19-related unemployment, retirement, or underemployment. Additionally,
in a t-test using ATP data, the mentally distressed workers were less likely to experience work
satisfaction than mentally healthy workers where the t-statistic 11.8 was with df = 0.085
(p<0.001; not in table).

Figure 1 (Appendix Table A3) presents the probit results for full-time worker mental
health and their work-related COVID-19 perceptions and experiences as compared to before the
pandemic. Overall, real or perceived worsening of work conditions increased mental distress. For
instance, the probability of mental distress increased by 7.4 percentage points with worsening
work-life-balance (95% CI: 4.4%, 10.4%; p < 0.001), by 9.1 percentage points with less job-
security (95% CI: 5.7%, 12.4%; p < 0.001), by 7.9 percentage points with lower work-
productivity (95% CI: 4.4%, 11.4%; p < 0.001), and by 7.1 percentage points with less work-
satisfaction (95% CI: 4.0%, 10.3%; p < 0.001). A worker’s perception of being denied
advancement increased the probability of mental distress by 5.8 percentage points (95% CI:
2.2%, 9.5%; p < 0.002), and lower levels of connectivity with coworkers increased mental
distress by 3.0 percentage points (95% CI: 0.2%, 5.7%; p < 0.036).

In October 2021, 42% of HPS respondents who lost a job experienced mental distress for over
half the days of the week. Among those with a job, 16.7% experienced anxiety or depressive
symptoms for over half the days of the week, as compared to 41.8% among those with a job-loss
(Figure 3). There was a significant difference in mental distress scores between the employed and the unemployed respondents, with t-statistic of 11.69 with df = 0.15 (p < 0.001; Table A2b). Over 35.8% of those without a job and mentally distressed did not have access to mental health services, and less than 25% of them sought counseling (see Figure 3). As of October 2022, 22% reported three or more days of the week in mental distress. Among those with a job loss, 45% experienced mental distress, whereas this number was 20% among those with a job (Figure 3).

Significant differences in mental distress score between the employed and unemployed persisted in 2022 with a t-statistic of 10.57 with a df = 0.17 (p < 0.001; Table A2c). Data on utilization of mental health services was not collected in October 2022. All unemployed adults, including potentially retired, 18 and above, in HPS surveys in October 2021 and 2022, have a significantly higher mental distress score as compared to employed adults. However, in 2021, unemployed adults 49 and younger showed higher scores for mental distress than the employed. This trend changes slightly in October 2022, where unemployed adults ages 18 to 29 and ages 50 to 64 show higher mental distress scores as compared to the employed in the same age group (Table A2c).

Discussion

Main findings of the study

The results showed that for the employed, negative appraisals of workplace conditions were associated with statistically significant increases in mental distress (between 8.5 and 11.6 percentage points). Negative perceptions of workplace conditions were associated with mental distress increases of 5.4 to 6.1 percentage points. While these results for employed workers are significant, the unemployed ATP respondents’ mental distress scores significantly higher by 0.05 points. HPS results showed significant differences in mental distress scores between the
employed and the unemployed with a difference of 0.15 in 2021 and a difference of 0.17 in 2022 and few sought counseling. The increased levels of mental distress among the unemployed and employed populations are persistent across all three years and two surveys. These effects are across all ages and race-ethnicity classifications, which means addressing mental distress among the US adult population is a public health priority. The AWS survey results from July 2023 offer support to our findings by showing that mental distress (anxiety, depression, loneliness, social support, sense of belonging, and coworker cohesion) has worsened because of COVID-19.

Because the worsening of mental health for unemployed workers may have downstream undesirable consequences to their physical health and work life, a potential solution may be for employers to allocate resources to alleviate employee mental distress. The government, as well as philanthropic organizations, may also need to help unemployed populations.

What is already known on this topic

Mental distress may limit a worker’s capacity to live with healthy emotions, thus leading to conditions like absenteeism, presenteeism, and poor quality of life. Finding the right cures for mental distress is often challenging for clinicians because they require identification of the causes of mental distress, which gets revealed over time. When mental distress is coupled with changing worker environments, job switches, or unemployment, the sources and effects of mental distress may be different and nuanced. The pandemic added its own layer of environmental causes to attenuate preexisting or new onset of mental distress. We know from APS-2023-WAS that a significant proportion of the US population reports experiencing mental distress across all occupations—and that mental well-being is a public health priority for the US and globally. Related studies also point to public health attention to mental distress among the US working population.
We discuss how mental distress may be different for the temporarily or permanently unemployed. Our insight reflecting on this period is that not all workers may respond to worker psychological well-being initiatives in the same way. This analysis uses two nationally representative survey data to offer a snapshot historical view into the causes, variation, and persistence of mental distress over the period of two years post-COVID-19 public health crisis. Its main contributions are 1) using the ATP survey to explain the potential sources of mental distress among continuously employed workers, 2) illustrating mental distress among workers with job-loss across ATP and HPS surveys, 3) using the HPS survey to illustrate the use of and access to mental health services conditional on reporting mental distress in 2021, and 4) illustrating the level of mental distress in the US was persistent in October 2022. We conclude by suggesting that investments in social and community support for displaced workers focused on the prevention of mental distress could facilitate faster reemployment and reduce long-term government spending. Additionally, the paper recommends offering workplace mental health support to continuously employed workers. Because COVID-19 affected both continuously employed and disrupted workers, public health agents and communities should understand how to provide resilience counseling across these different worker experiences.

This study suffers from several limitations. First, we did not have a baseline pre-COVID-19 measure for worker health. Second, we cannot analyze workplace conditions for the disrupted worker. This study emphasizes the need for collecting additional data on worker history (i.e., did they experience any job switches or task switches due to COVID-19?), and worker mental health
history to help raise public health awareness, guide governmental and community-based

counties with mental distress, as well as mitigate mental distress. Third, we needed to use two surveys
to characterize the nature of mental distress across key dimensions of mental health: loneliness,
social support, optimism, stress, anxiety, and depression. While the surveys were nationally
representative, we did not have the same covariates across surveys and survey time periods
consequently, this analysis can point to the seriousness of mental distress but falls short of
offering causal analysis. Fourth, we know workers have made changes to their work
environment, such as increasing the number of hours worked remotely and switching to different
jobs or roles if these switches came because of COVID-19, but we do not currently have data
that inquiries explicitly into work history and how that affects worker mental health and
performance. Future work could focus on developing more robust surveys that could identify the
differences in mental distress workers experience, and offer potential solutions for managerial
oversight and sensitivity, external pathways to mental well-being, or a combination of the two.
Acknowledgements

We express gratitude to David Sundaram-Stukel and Scott Cunningham, Arin Dube, John Mullahy, Christopher Taber, and Ivan Werning for helpful comments.

References


The figure walks the reader through the sequencing of COVID-19 public policies in April 2020, the snapshot views the ATP, October 2020, and HPS survey analyzed October 2021, 2022. The end point in this figure shows the Work in America Survey conducted in April 2023.
Figure 2: Employee Mental Distress and Workplace Conditions

(Independent binary variable ATP-mental distress [0,1])

<table>
<thead>
<tr>
<th>Covariates</th>
<th>Marginal Effects (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 Consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Work Flexibility</td>
<td>0.05 (0.01 to 0.09)</td>
<td>0.019</td>
</tr>
<tr>
<td>Lower Work Hours</td>
<td>-0.02 (-0.06 to 0.01)</td>
<td>0.204</td>
</tr>
<tr>
<td>Worsening Work-Life Balance</td>
<td>0.07 (0.04 to 0.10)</td>
<td>0.000</td>
</tr>
<tr>
<td>Less Job Security</td>
<td>0.09 (0.06 to 0.12)</td>
<td>0.000</td>
</tr>
<tr>
<td>Lower Productivity</td>
<td>0.08 (0.04 to 0.11)</td>
<td>0.000</td>
</tr>
<tr>
<td>Less Work Satisfaction</td>
<td>0.07 (0.04 to 0.10)</td>
<td>0.00</td>
</tr>
<tr>
<td>Perceived COVID-19 Consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Supervisor Appraisal</td>
<td>0.02 (-0.02 to 0.05)</td>
<td>0.392</td>
</tr>
<tr>
<td>Lower co-worker connectivity</td>
<td>0.03 (0.00 to 0.06)</td>
<td>0.036</td>
</tr>
<tr>
<td>Denied Advancement</td>
<td>0.06 (0.02 to 0.10)</td>
<td>0.002</td>
</tr>
<tr>
<td>Overall Effect</td>
<td>0.43 (0.14 to 0.75)</td>
<td></td>
</tr>
</tbody>
</table>


This figure plots the individual effects of the probit regression of MD$_i$ on the covariates. The overall effect sums each individual effect. It should be interpreted with as if a worker experienced each of these then their cumulative workplace experience would be worse by 43% points.
Figure 3. Job Loss, Mental Health Status, Access to Mental Health, and Visits to Mental Health Services (Household Pulse Survey October, 2021, N=49,523 and October 2022, N=33,598)

A) Job Loss

<table>
<thead>
<tr>
<th>Year</th>
<th>Job Yes</th>
<th>Job No</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>88.8%</td>
<td>11.2%</td>
</tr>
<tr>
<td>2022</td>
<td>92.0%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

B) Mental Distress

<table>
<thead>
<tr>
<th>Year</th>
<th>Distressed</th>
<th>Healthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>16.7%</td>
<td>83.3%</td>
</tr>
<tr>
<td>2022</td>
<td>20.4%</td>
<td>79.6%</td>
</tr>
</tbody>
</table>

C) Mental Health Visits, October, 2021

<table>
<thead>
<tr>
<th>Job Status</th>
<th>Visit</th>
<th>No Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Yes</td>
<td>24.4%</td>
<td>75.6%</td>
</tr>
<tr>
<td>No Job</td>
<td>22.9%</td>
<td>77.1%</td>
</tr>
</tbody>
</table>

D) Mental Health Access, October 2021

<table>
<thead>
<tr>
<th>Job Status</th>
<th>Access</th>
<th>No Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Yes</td>
<td>31.7%</td>
<td>68.3%</td>
</tr>
<tr>
<td>No Job</td>
<td>35.8%</td>
<td>64.2%</td>
</tr>
</tbody>
</table>

Source: Household Pulse Survey waves October 2021 (week 39) and October 2022 (week 50). Mental health scale was calculated as \( \sum (\text{anxious} + \text{worry} + \text{interest} + \text{down})/4 \). Respondents were classified as mentally distressed if their scores were greater than 2.5 as it tips a person over experiencing mental disturbances some of the time. In week 39, there were questions about utilization of mental health services and access to mental health services; the week 50 survey did not ask the same questions.