Inequality in Household Job Insecurity and Mental Health: Changes During the COVID-19 Pandemic

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Abstract
Using nationally representative data from the Household Pulse Survey (April 2020-March 2021), we examined how associations between household job insecurity and mental health changed throughout the first year of the COVID-19 pandemic in the United States (n = 1,248,043). We also documented changes in the unequal distribution of job insecurity by race/ethnicity and educational attainment over time. We find that job insecurity was strongly associated with depression and anxiety throughout the study period, and the associations strengthened as the pandemic continued, especially in fall 2020. Moreover, racial/ethnic minorities with lower levels of educational attainment had the greatest risk of job insecurity, and educational disparities in job insecurity changed over time. Psychological distress

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**Keywords**
mental health, COVID-19, job insecurity, inequalities

Substantial evidence indicates that mental health worsened during the COVID-19 pandemic; rates of depression and anxiety in the United States were four times higher in April-June 2020 compared to a similar period in 2019 (Czeisler et al., 2020; Ettman et al., 2020). High rates of unemployment (Bureau of Labor Statistics, 2020; Kochar, 2020) and acute economic uncertainty during the pandemic likely increased concerns of future job loss in the U.S. population. Ample evidence demonstrates that perceived job insecurity can be stressful and detrimental to the mental health of workers (Burgard, Brand, & House, 2009; Cheng & Chan, 2008; De Witte, Pienaar, & De Cuyper, 2016; Kim & von dem Knesebeck, 2016). However, the association between job insecurity and mental health may change depending on the sociopolitical context. This is especially likely during the COVID-19 pandemic as circumstances surrounding the pandemic evolved quickly—a possibility not tested in prior research.

The present study uses novel, nationally representative data from the United States Household Pulse Survey to document the association between job insecurity and mental health between April 2020 and March 2021, with attention to how the mental health consequences of job insecurity changed throughout the first year of the pandemic. We further examine changes in the unequal exposure to job insecurity by race/ethnicity and educational attainment over time, while considering the implications for population disparities in mental health. Indeed, the stress process model (Aneshensel, 2009; Pearlin et al., 2005) suggests that the unequal exposure to stress (e.g., job insecurity) contributes to mental health disparities in the population. If pandemic-related work stressors like job insecurity are not experienced equally, this sets the stage for substantial disparities in mental health. We consider job insecurity at the household level because work-related experiences tend to have ramifications beyond the individual and stress is often shared within families (Brand, 2015; Pearlin, 2010; Probst, 2005). We emphasize that the tremendous job insecurity during the COVID-19 pandemic extends beyond individuals and likely has extensive consequences for the mental health of family members.
Job insecurity provides a nuanced understanding of socioeconomic insecurity during the COVID-19 pandemic that is not documented in federal government data on unemployment and labor force participation. Importantly, job insecurity is a stressor that adults may experience while employed that could have substantial implications for their health and well-being. Moreover, an examination of job insecurity may be an entry point to understanding unequal work-related experiences during the pandemic and the mental health consequences therein. Findings of the present study are important given that mental health challenges can undermine quality of life for individuals and have the potential to erode physical health and increase the risk of premature mortality over time (Chapmen, Perry, & Strine, 2005; Kiecolt-Glaser et al., 2002; Walker, McGee, & Druss, 2015). As such, psychological distress during the pandemic, including disparities therein, must be considered a public health priority.

**Background**

**Inequality in Household Job Insecurity During the COVID-19 Pandemic**

A substantial number of American households experienced income loss during the COVID-19 pandemic due to job loss, a reduction of work hours, and wage cuts (e.g., Brenan, 2020; Bureau of Labor Statistics, 2020; Cajner et al., 2020; Department of Labor, 2020; Modestino, 2020). At the same time, many households likely feared future income loss during the first year of the pandemic—a form of job insecurity—as the pandemic continued to impact the U.S. economy. Scholars note that the COVID-19 pandemic amplified existing inequalities in employment and work quality (e.g., Blustein et al., 2020); as such, existing inequalities in job insecurity prior to 2020 likely parallel experiences of job insecurity during the pandemic. Workers in the United States have experienced a growing sense of insecurity since the 1970’s (e.g., Kalleberg, 2018; Fullerton & Wallace, 2007; Saad, 2013) and racial/ethnic minorities and adults with less education are more likely to experience job insecurity than their White and more educated counterparts (e.g., Burgard & Lin, 2013; Fullerton & Wallace, 2007; Kalleberg, 2018; Virtanen et al., 2013). Moreover, adults with more education tend to work in jobs where they can work remotely (Eldridge & Pabilonia, 2009; Golden, 2008), which provides them with greater flexibility and, in the case of the COVID-19 pandemic, greater job security. Given these existing inequalities in work, we expect that inequities in exposure to job
insecurity by race/ethnicity and educational attainment would be apparent during the first year of the COVID-19 pandemic.

However, it is possible that the magnitude of disparities in job insecurity changed over the course of the first year of the pandemic as socioeconomic and political circumstances shifted. One possibility is that disparities in job insecurity widened when the national unemployment rate was high, given that an increase in national unemployment may signal more economic instability. In this way, periods of high labor market instability may exacerbate existing inequalities in job insecurity, further disadvantaging racial/ethnic minorities and those with lower levels of education. An additional possibility is that disparities in job insecurity widened at times when the public health context changed, such as the threat of new COVID-19 waves that could raise concerns about subsequent layoffs. Nevertheless, this possibility has not been examined in prior research. In the present study, we examine how disparities in job insecurity by race/ethnicity and educational attainment changed throughout the first year of the pandemic. Therefore, we test the following specific hypothesis:

Hypothesis 1. Disparities in job insecurity by race/ethnicity and educational attainment will be widest at the start of the first year of the pandemic.

**Job Insecurity and Mental Health Throughout the Pandemic**

Perceived job insecurity has well-documented adverse consequences for mental health (for reviews, see: Benach et al., 2014; Cheng & Chan, 2008; De Witte et al., 2016; Kim & von dem Knesebeck, 2016), even after adjustment for experiences of unemployment (Burgard et al., 2009). For example, job insecurity can lead to feelings of hopelessness and a lack of personal control among workers (Benach et al., 2014; Glavin, 2013), which predict psychological distress (Mirowsky & Ross, 2003). A worker who fears losing their job may also worry about future financial strain or the loss of health insurance coverage and other benefits. Indeed, the mental health consequences of job insecurity may persist after adjustment for unemployment experiences because the threat of job loss is often a chronic source of stress for which there are no clear resources (Burgard et al., 2009). During the COVID-19 pandemic, experiences of job insecurity likely contributed to high rates of depression and anxiety in the population. For instance, prior research documents associations between perceived job insecurity and mental health during the first months of the pandemic (e.g., Ganson et al., 2021; Wilson et al., 2020).
However, linkages between job insecurity and mental health may not be stable throughout the pandemic—a consideration that has not been tested in prior research. The mental health consequences of job insecurity could have become more severe as the pandemic progressed. The social norm of insecurity hypothesis indicates that the mental health penalties of job insecurity are weaker when unemployment rates are high, perhaps because job insecurity becomes more normative, less stigmatized, and ultimately less distressing (Glavin & Young, 2017). As such, the association between job insecurity and mental health might be weaker when unemployment was highest early in the pandemic (i.e., April-June 2020) compared to when unemployment was lower (i.e., fall 2020-winter 2021).

The political context of fall 2020 may have also exacerbated linkages between job insecurity and mental health. Fall 2020 marked several months since the passage of the initial pandemic relief bill (the Coronavirus Aid, Relief, and Economic Security (CARES) Act) with turbulent and unpredictable discussions of a second stimulus package that ultimately was not passed until December 2020. The lack of a robust social safety net during fall 2020 could exacerbate the mental health consequences of job insecurity. Moreover, for families experiencing prolonged financial insecurity since the start of the pandemic, job insecurity during fall 2020 (and beyond) could be particularly stressful and could lead to heightened depression and anxiety. Taken together, the social, economic, and political environments may be important contextual factors that shape linkages between job insecurity and mental health, especially during a public health crisis like the COVID-19 pandemic. The present study, then, builds on prior research on job insecurity and mental health by examining whether associations between household job insecurity and mental health change over time. Specifically, we test the following hypothesis:

Hypothesis 2: Household job insecurity will be more strongly associated with mental health as the pandemic progressed (i.e., fall 2020-winter 2021) compared to the early months of the pandemic.

We situate findings from the present study within the context of notable inequities by race/ethnicity and educational attainment. If racial/ethnic minorities and less educated adults are more likely than their White, higher educated counterparts to experience job insecurity during the COVID-19 pandemic, the greater risk of job insecurity may add to well-documented disadvantages in mental health by race/ethnicity (Miranda et al., 2008; Sternthal, Slopen, & Williams, 2011; Williams, 2018) and educational attainment (Bjelland et al., 2008; Lorant et al., 2003). The stress process model provides
the conceptual foundation for this supposition by explicating that stress is most likely to impinge on those who have the least privilege and power, and this process contributes to inequalities in health and well-being (Pearlin et al., 2005). Taken together, inequalities in exposure to job insecurity during the first year of the COVID-19 pandemic may create an unequal burden of depression and anxiety that has the potential to add to existing mental health disparities by race/ethnicity and educational attainment.

We consider job insecurity at the household level in the present study because work-related experiences tend to have ramifications beyond the individual. Indeed, scholars call for more consideration of how individuals are embedded within families and communities, especially if multiple family members perceive job insecurity (Burgard, 2021). Moreover, stress is often shared within families. The stress process emphasizes stress proliferation, whereby one stressor (e.g., job loss) gives rise to additional stressors over time (e.g., economic hardship, family conflict) (Pearlin et al., 1981). Stress is thus likely to spread or proliferate between major life domains, such as work and family (Pearlin, 2010). The stress from job insecurity likely reverberates through families and may result in more relationship strain or conflict with spouses or children (e.g., Brand, 2015; Probst, 2005). We emphasize that tremendous job insecurity during the COVID-19 pandemic extends beyond individuals and likely has extensive consequences for the mental health of family members.

Methods

Data

Data for the present study come from the Household Pulse Survey, a national survey administered by the U.S. Census Bureau in partnership with multiple other federal agencies. The 20-min online survey was created to assess the social and economic impacts of the COVID-19 pandemic on individuals in the United States. The present study relies on Phases 1-3 of the Household Pulse Survey, which were collected from April 23 through July 21, 2020 (Phase 1), August 19 through October 26, 2020 (Phase 2), and October 28, 2020 through March 29, 2021 (Phase 3). Data were collected weekly in Phase 1 (12 surveys total) and biweekly in Phase 2 (5 surveys total) and Phase 3 (10 surveys total). In Phase 1, each household could remain in the sample for up to three weekly interviewing periods, but most respondents (80%) only completed one survey. Because this design was not carried forward in Phases 2-3, we included only the first observation from
participants who were enrolled for two or three weeks in Phase 1. Therefore, we rely on data that are cross-sectional.

Given the focus on job insecurity, we restricted the analytic sample to respondents aged 25 to 65. We also excluded respondents with missing data on the dependent variables—depression and anxiety—about 13% of the sample. We then used listwise deletion to exclude respondents missing data on any of the covariates included in the models, which excluded 7% of the sample. The final analytic sample comprises 1,248,043 respondents. As a sensitivity test, we multiply imputed missing covariates, and the pattern of results was the same.

**Measures**

*Mental Health Outcomes.* The Household Pulse Survey gathered information regarding symptoms of depression and anxiety. Depression was measured using a validated version of the two-item Patient Health Questionnaire (PHQ-2; Gilbody et al., 2007). The questions asked how often in the past seven days respondents had been bothered by 1) having little interest or pleasure in doing things and 2) feeling down, depressed, or hopeless. Anxiety was measured using the validated two-item Generalized Anxiety Disorder scale (GAD-2; Kroenke et al., 2007). The questions asked how often in the past seven days respondents had been bothered by 1) feeling nervous, anxious, or on edge and 2) not being able to stop or control worrying. Response options for each question were assigned numerical values as follows: not at all (0), several days (1), more than half the days (2), and nearly every day (3). Each of the scale’s two responses were subsequently added together. Past research establishes that a sum of three or greater on the PHQ-2 or GAD-2 is associated with diagnoses of major depressive disorder and generalized anxiety disorder, respectively (Gilbody et al., 2007; Kroenke et al., 2003, 2007). Thus, we classified scores of three or more on the PHQ-2 as indicative of depressive disorder and, similarly, a score of three or more on the GAD-2 as indicative of anxiety disorder. We used these validated categorizations to generate dichotomous measures of depression and anxiety.

*Household Job Insecurity*

To assess household job insecurity, respondents were asked: “do you expect that you or anyone in your household will experience a loss of employment income in the next 4 weeks because of the coronavirus pandemic?” Individuals who responded affirmatively were coded as 1 (reference: no). This question wording in the Household Pulse Survey differs slightly from
measures of perceived job insecurity in other surveys, which tend to ask respondents whether they expect to lose their job, rather than employment income. The wording of the question in the Household Pulse Survey likely intended to capture any income loss in light of large numbers of households experiencing wage reductions and reduced work hours during the pandemic (e.g., Brenan, 2020; Cajner et al., 2020) in addition to high rates of unemployment (Bureau of Labor Statistics, 2020; Kochar, 2020). Despite the difference in wording, we suspect that the question used in the present study taps into perceptions of future job-related insecurities within households.

Covariates

We included several sociodemographic covariates that may be associated with household job insecurity and mental health. Covariates included gender (1 = female), age (in years), race/ethnicity (non-Hispanic White (reference); non-Hispanic Black; Hispanic; other race/ethnicity), educational attainment (less than high school diploma; high school diploma or GED, some college, or associate’s degree (reference); bachelor’s degree; graduate degree), household income (scale), marital status (married (reference); widowed; divorced or separated; never married), and number of people in the household. We also account for the loss of employment income since March 13, 2020 (1 = yes). We assess time using dummy variables for the week of the survey (range: 1–27).

Analytic Approach

To examine changes in disparities in job insecurity by race/ethnicity and educational attainment over time (Hypothesis 1), we first assess variation in the risk of household job insecurity by race/ethnicity and educational attainment. We estimate a logistic regression model predicting job insecurity, including all sociodemographic covariates and the interaction of race/ethnicity and educational attainment. We present the predicted probability of job insecurity based on estimates from this model, and the full table is available in the appendix. Then, to test Hypothesis 1, we include the interaction of survey week with race/ethnicity and with educational attainment in separate models to assess whether disparities in job insecurity fluctuate over time. We estimate the following model: \[ \text{Logit}(J_i) = \alpha + \beta t_i + \beta e_i + \beta(t_i e_i) + \beta X_i, \] where \( J_i \) is job insecurity, \( t_i \) is the week of interview, \( e_i \) is educational attainment, \( t_i e_i \) is the interaction of time with educational attainment, and \( X_i \) is a set of covariates. We test the same equation using race/ethnicity instead of educational attainment. To illustrate these results, we
present the predicted probability of job insecurity over time by educational attainment.

To examine whether the association between job insecurity and mental health changed over time (Hypothesis 2), we first establish the extent to which household job insecurity is associated with mental health outcomes using logistic regression models predicting depression and anxiety, including sociodemographic covariates. To examine whether associations between job insecurity and mental health outcomes changed over the study period, we added the interaction of job insecurity with time (i.e., survey week). We estimate the following model: \( \text{Logit}(D_i) = \alpha + \beta t_i + \beta j_i + \beta (t_j i) + \beta X_i \), where \( D_i \) is depression (or anxiety), \( t_i \) is the week of interview, \( j_i \) is job insecurity, \( t_j i \) is the interaction of time with job insecurity, and \( X_i \) is a set of covariates. For ease of interpretation, we present the predicted probability of depression and anxiety among adults experiencing household job insecurity over the study period. All analyses were conducted using Stata-14 and applied person-level weights and replicate weights as recommended by the HPS (Household Pulse Survey, 2020).

**Results**

**Descriptive Results**

Weighted descriptive statistics for the sample are presented in Table 1 for the overall sample and by exposure to household job insecurity. Notably, over a quarter (28%) of respondents reported symptoms of depression and over a third (36%) reported symptoms of anxiety. The high prevalence of depression and anxiety aligns with previously reported data from the first months of the pandemic (Czeisler et al., 2020; Donnelly & Farina, 2021; Ettman et al., 2020). Experiencing job insecurity was common: on average, 31% of respondents expected to lose household employment income in the next four weeks. The prevalence of job insecurity decreased in a non-linear pattern over the study period (April 2020-March 2021), declining from a high of over 40% of households in April/May 2020 to just under 20% of households in March 2021 (Appendix A). The prevalence of job insecurity trended back up to 40% in July 2020 and again to 34% in November-December 2020. These spikes in job insecurity may reflect the economic insecurity when COVID-19 cases began to rise in the late summer and again in the winter.

Demographic characteristics differ between respondents experiencing household job insecurity and those not experiencing insecurity. Compared to adults in households that did not report job insecurity, adults in households
with job insecurity were more likely to be non-White, to have lower levels of education and income, to be unmarried, to have larger households, and to meet the threshold for depression and anxiety.
Inequalities in Household Job Insecurity

To understand the overall distribution of household job insecurity, we regressed household job insecurity on the interaction of race/ethnicity and educational attainment, including sociodemographic covariates (Appendix B). From these estimates, we present the predicted probability of job insecurity in Figure 1. We emphasize three key findings from this figure. First, Figure 1 shows that an educational gradient existed for adults of each racial/ethnic group in which higher levels of education decreased the likelihood of household job insecurity. Second, the magnitude of the educational gradient differed across race/ethnicity, especially for Hispanic and “other” racial/ethnic adults. For example, higher levels of education seemed to be more protective against job insecurity for Hispanic adults and “other” racial/ethnic adults compared to non-Hispanic White adults, as evidenced by the steeper educational gradient (Figure 1). Finally, Figure 1 illustrates the compounding effects of race/ethnicity and educational attainment such that non-Hispanic Black, Hispanic, and “other” racial/ethnic adults with lower levels of education had the greatest likelihood of household job insecurity. In fact, highly educated non-Hispanic Black and Hispanic adults had similar risk of job insecurity as less education non-Hispanic White adults.

**Figure 1.** Predicted probability of job insecurity by race/ethnicity and educational attainment.

*Note.* Predicted probabilities presented with 95% confidence intervals; NH: Non-Hispanic; HS: High School. Logistic regression models include the following covariates: gender, age, race/ethnicity, educational attainment, household income, marital status, household size, dummy variable for week.

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After establishing disparities in the risk of household job insecurity, we explored whether differences in the prevalence of job insecurity by race/ethnicity and educational attainment changed during the study period (April 2020-March 2021). To do so, we included an interaction of time (i.e., survey week) with race/ethnicity and with educational attainment. We found that racial/ethnic disparities in the prevalence of job insecurity remained relatively stable over time (Appendix C), whereas the disparity in job insecurity by educational attainment fluctuated over time. Figure 2 shows that the educational disparity was wider during the start of the pandemic, late June/early July 2020, and in November/December 2020. As evidenced by Figure 2, these three time periods reflect when household job insecurity was highest during the study period. That is, when the prevalence of job insecurity increased in the population, higher levels of education seemed to be more protective for adults. Findings provide partial support for Hypothesis 1 such that disparities in job insecurity by educational attainment—but not race/ethnicity—widened at the start of the pandemic, as well as during two other key points of the first year of the pandemic.

**Figure 2.** Predicted prevalence of household job insecurity over time by educational attainment (April 23, 2020-March 29, 2021).

Note. Logistic regression models include the following covariates: gender, age, race/ethnicity, educational attainment, household income, marital status, household size, dummy variable for week, and the interaction terms for educational attainment and week.

After establishing disparities in the risk of household job insecurity, we explored whether differences in the prevalence of job insecurity by race/ethnicity and educational attainment changed during the study period (April 2020-March 2021). To do so, we included an interaction of time (i.e., survey week) with race/ethnicity and with educational attainment. We found that racial/ethnic disparities in the prevalence of job insecurity remained relatively stable over time (Appendix C), whereas the disparity in job insecurity by educational attainment fluctuated over time. Figure 2 shows that the educational disparity was wider during the start of the pandemic, late June/early July 2020, and in November/December 2020. As evidenced by Figure 2, these three time periods reflect when household job insecurity was highest during the study period. That is, when the prevalence of job insecurity increased in the population, higher levels of education seemed to be more protective for adults. Findings provide partial support for Hypothesis 1 such that disparities in job insecurity by educational attainment—but not race/ethnicity—widened at the start of the pandemic, as well as during two other key points of the first year of the pandemic.

**Household Job Insecurity and Mental Health**

We next turned to the association between job insecurity and mental health, with attention to changes in the association over time. First, we considered
how job insecurity was associated with depression (Panel A) and anxiety (Panel B) during the pandemic (Table 2). In Model 1 (Panel A), we find that respondents who reported job insecurity had about 70% greater odds of depression compared to respondents who did not report job insecurity ($p < .001$), net of covariates. Panel A also shows that women, younger adults, White respondents, less educated adults, adults with lower income, unmarried respondents, respondents living in smaller households, and respondents who experienced income loss during the pandemic had greater odds of depression. Notably, the lower odds of depression among non-Hispanic Black and Hispanic adults only emerged with the inclusion of income, income loss, and job insecurity in the models.

Model 2 (Panel B) shows a similar pattern for anxiety. Respondents who experienced job insecurity had about 80% greater odds of anxiety ($p < .001$) compared to respondents who did not experience job insecurity, net of
covariates. Results also show that women, younger adults, White respondents, adults with lower income, unmarried adults, respondents in smaller households, and respondents who experienced income loss during the pandemic had greater odds of anxiety. Higher levels of educational attainment were not protective against anxiety. Again, non-Hispanic Black and Hispanic adults experienced greater odds of anxiety until the inclusion of income, income loss, and job insecurity.

For the odds of depression and anxiety, job insecurity and income loss were both statistically significant, suggesting that income loss is not driving the associations between job insecurity and mental health outcomes. Moreover, these independent associations suggest elevated rates of depression and anxiety for individuals experiencing job insecurity and/or income loss in their household. Overall, these results confirm prior pre-pandemic research on job insecurity and mental health.

We considered whether the associations between job insecurity and depression and anxiety changed over time (April 2020-March 2021) by adding interactions of job insecurity and time (i.e., survey week) to the models with all covariates. For ease of interpretation, we show the predicted probability of depression and anxiety among adults who experienced household job insecurity over time, net of covariates. Results in Figure 3 show that job insecurity had a stronger association with depression (Panel A) from mid-September to mid-November 2020 and a stronger association with anxiety (Panel B) from mid-August to December 2020 and in some weeks in early 2021 compared to earlier in the pandemic (Appendix D). In Figure 3, the mental health penalties from household job insecurity increased as the pandemic progressed, peaking in late fall 2020. Results generally

**Figure 3.** Predicted probability of depression and anxiety among adults experiencing household job insecurity over time (April 23, 2020-March 29, 2021). Note. Logistic regression models include the following covariates: gender, age, race/ethnicity, educational attainment, household income, marital status, household size, dummy variable for week, job insecurity, and the interaction terms for week and job insecurity.
demonstrate the strengthening associations between job insecurity and mental health outcomes over time, providing support for Hypothesis 2.

**Discussion**

Elevated rates of depression and anxiety during the COVID-19 pandemic (Czeisler et al., 2020; Ettman et al., 2020) provide evidence that the United States is experiencing a mental health crisis alongside the pandemic. Because job insecurity undermines mental health (Burgard et al., 2009; Cheng & Chan, 2008; De Witte et al., 2016; Kim & Knesebeck, 2016), experiences of job insecurity during the pandemic could contribute to high rates of depression and anxiety during this time. However, the risk of exposure to job insecurity and the mental health consequences of job insecurity may have changed over the course of the pandemic as social, political, and economic circumstances evolved. Prior research has not considered this possibility. An examination of changing associations between job insecurity and mental health is necessary to provide further insight into the experiences of depression and anxiety during the COVID-19 pandemic. Using national survey data from April 2020 through March 2021, the present study examined the experience of job insecurity over the course of the first year of the pandemic in the United States as an entry point to understanding unequal work-related experiences during the pandemic and the consequences for mental health. We highlight two main themes from the present study.

First, we emphasize the unequal distribution of household job insecurity, and the changing nature of these disparities, during the first year of the pandemic in the United States. We found that racial/ethnic minorities with lower levels of educational attainment had the greatest risk of job insecurity during this period. This pattern aligns with research prior to the pandemic documenting the greater burden of job insecurity among racial/ethnic minorities and less educated adults (Burgard & Lin, 2013; Fullerton & Wallace, 2007; Kalleberg, 2018; Virtanen et al., 2013). We build on this existing research by identifying striking disparities in the likelihood of experiencing job insecurity based on intersections of race/ethnicity and socioeconomic status during the COVID-19 pandemic—a historic time period of unprecedented economic and social changes. We emphasize the compounding effects of race/ethnicity and educational attainment, pointing to less educated racial/ethnic minorities as a particularly vulnerable population during the first year of the pandemic. We further address a gap in the literature by demonstrating fluctuations in the disparate exposure to job insecurity by educational attainment over time. We found that the disparity was wider during the start of the pandemic, in late June/early July 2020, and in November/December 2020. These time periods correspond to points when the prevalence of job
insecurity was high, which may suggest that periods of high labor market instability (or perceived instability) exacerbate disparities in job insecurity by educational attainment. We emphasize, then, that racial/ethnic minorities and adults with less education can experience periods of heightened vulnerability. The changing disparities in job insecurity are often overlooked, and the social safety net in the United States is not equipped to mitigate these disparities.

Second, findings from the present study underscore changes in the mental health consequences of job insecurity over the course of the first year of the pandemic. We found that associations between job insecurity and depression and anxiety strengthened as the pandemic continued, especially in fall 2020. This finding aligns with prior research suggesting that job insecurity tends to have weaker associations with mental health when unemployment rates are high compared to when unemployment rates are lower (Glavin & Young, 2017). Indeed, we confirmed this pattern in supplemental analyses, finding a stronger mental health penalty of job insecurity when monthly national unemployment rates were lower (Appendix E). Thus, we hypothesize that the mental health penalty of job insecurity may have increased as unemployment rates started to decline following the peak in April and May 2020. However, other factors likely contributed to fluctuations in the mental health consequences of job insecurity over time. For example, the socio-political environment in fall 2020 in the United States could have enhanced the psychological costs of job insecurity. Economic uncertainty, financial insecurity, and political turbulence surrounding a much-needed second stimulus package likely created a precarious environment for households, especially households experiencing job insecurity. We do not empirically test this possibility in the present study, and future research should consider how the macro-level context shapes vulnerability to job insecurity. An important consideration is that differential selection into job insecurity may occur over time if the labor force becomes more select—a possibility we cannot test with cross-sectional data—and this could affect changes in the association between job insecurity and mental health. However, given the mental health advantages of a more select workforce and the overall declining unemployment rate in fall 2020, selection likely does not fully explain these findings.

Findings from the present study have implications for inequities in depression and anxiety by race/ethnicity and socioeconomic status. To this end, the present study points to considerable vulnerabilities among adults with less education and racial/ethnic minorities. We found that adults with lower educational attainment were more likely to experience job insecurity and were more likely to report depression compared to higher educated adults. Prior research documents a similar mental health gradient prior to the pandemic (Bjelland et al., 2008; Lorant et al., 2003), and our findings suggest that unequal work-related experiences during the pandemic may sustain or widen this existing disparity.
Although we found a mental health advantage among non-Hispanic Black and Hispanic adults in the present study, this advantage only emerged when including socioeconomic and work-related measures in the models such as household income, income loss during the pandemic, and perceived job insecurity. Thus, the greater risk of job insecurity among non-Hispanic Black and Hispanic adults seems to be partially explaining the mental health disadvantage of racial/ethnic minorities. Not only does the greater burden of stress among Black Americans erode mental health, but it also contributes to significant disparities in physical health and mortality (Sternthal et al., 2011; Boen, 2020). Thus, the elevated risk of job insecurity among racial/ethnic minorities during the pandemic may have long-term implications for health and mortality risk in the future. Taken together, we emphasize that the unequal distribution of job insecurity suggests a greater burden of depression and anxiety among certain households during the COVID-19 pandemic. Future research should aim to test the extent to which job insecurity acts as a mediator between status characteristics and mental health.

This study attends to the largely unexplored question of whether linkages between job insecurity and mental health outcomes changed throughout the first year of the COVID-19 pandemic; however, limitations should be noted. A first limitation is that the Household Pulse Survey does not include pertinent details about the nature of job insecurity. For example, we are unable to determine which member of the household expected a loss of employment income or how concerned or worried the respondent is about the possibility of income loss. Associations with mental health may vary depending on these circumstances and more details are needed to contextualize results in the present study. Second, because of the cross-sectional nature of the study, we cannot account for baseline levels of depression and anxiety; as such, we cannot explore within-person changes in job insecurity and mental health over time. Similarly, we cannot account for the length of time a household has experienced job insecurity, and prior research documents that chronic job insecurity is especially pernicious (Burgard et al., 2009).

The unprecedented level of unemployment and job insecurity during the COVID-19 pandemic causes great concern for the mental health and well-being of Americans. In the present study, we emphasize that disparate experiences of job insecurity across race/ethnicity and socioeconomic status further exacerbates concerns about mental health disparities in the population. Moreover, given linkages between mental health and physical health (Chapman et al., 2005; Kiecolt-Glaser et al., 2002; Walker et al., 2015), disparities in the rates of depression and anxiety during the pandemic could fuel future disparities in physical morbidities. The COVID-19 pandemic has amplified existing inequalities in daily life, and future policies and interventions should target the most vulnerable Americans to reduce the detrimental effects that job insecurity has on the health and well-being of families.
Appendix

Appendix A. Weighted Prevalence of Job Insecurity over Time (April 23, 2020-March 29, 2021).

Appendix B. Weighted Odds Ratios from Logistic Regression Model Regressing Household Job Insecurity on the Interaction of Race and Educational Attainment (n = 1,248,043).

|                        | Estimate | 95% CI         |
|------------------------|----------|----------------|
| Gender                 | .853***  | [.839–.868]    |
| Age                    | 1.002*** | [1.001–1.003]  |
| Race/ethnicity (ref = Non-Hispanic White) | | |
| Non-Hispanic Black     | 1.322*** | [1.268–1.377]  |
| Hispanic               | 1.684*** | [1.632–1.737]  |
| Other race/ethnicity   | 1.592*** | [1.540–1.645]  |
| Educational attainment (ref = High Schol/Associate’s) | | |
| Less than high school  | 1.092**  | [1.023–1.165]  |
| College degree         | .830***  | [0.810–0.851]  |
| Graduate degree        | .754***  | [.736–.772]    |
| Income                 | .841***  | [.837–.845]    |
| Marital status (ref = married) | | |
| Widowed                | .840***  | [.780–.904]    |
| Divorced/separated     | 1.102*** | [1.076–1.130]  |
| Never married          | 1.043**  | [1.014–1.073]  |
| People in household    | 1.122*** | [1.115–1.128]  |
| Race*Educational Attainment | | |
| NH Black*Less than HS  | .955     | [.820–1.111]   |
| NH Black*College degree | .963     | [.905–1.024]   |

(continued)
Appendix B. Continued.

|                          | Model 1               | Model 2               |
|--------------------------|-----------------------|-----------------------|
| NH Black*Graduate degree | .983 ± 0.058          | [.927–1.042]          |
| Hispanic*Less than HS    | 1.230*** ± 0.045      | [1.121–1.350]         |
| Hispanic*College degree  | .894** ± 0.039        | [.834–.957]           |
| Hispanic*Graduate degree | .873*** ± 0.038       | [.816–.933]           |
| Other race*Less than HS  | 1.167 ± 0.022         | [.985–1.382]          |
| Other race*College degree| .866*** ± 0.021       | [.814–.921]           |
| Other race*Graduate degree| .718*** ± 0.019     | [.678–.760]           |

Dummy variable for week ✓

Note. *p < 0.05, **p < .01, ***p < .001; NH: Non-Hispanic; HS: High School.

Appendix C. Predicted Prevalence of Household Job Insecurity over Time by Race/ethnicity (April 23, 2020-March 29, 2021).

Note. NH: Non-Hispanic; Logistic regression models include the following covariates: gender, age, race/ethnicity, educational attainment, household income, marital status, household size, dummy variable for week, and the interaction terms for race/ethnicity and week.

Appendix D. Weighted Odds Ratios from Logistic Regression Models Regressing Depression and Anxiety on Interaction of Household Job Insecurity with Week (n = 1,248,043)

|                          | Panel A: Depression | Panel B: Anxiety |
|--------------------------|---------------------|------------------|
|                          | Model 1             | Model 2          |
| Household Job Insecurity | 1.951*** [1.772–2.148] | 1.988*** [1.835–2.154] |
| Gender                   | 1.157*** [1.136–1.179] | 1.431*** [1.405–1.457] |

(continued)
### Appendix D. Continued.

|                  | Panel A: Depression | Panel B: Anxiety |
|------------------|---------------------|------------------|
|                  | Model 1             | Model 2          |
| **Age**          | .986*** [.985-.986] | .983*** [.982-.984] |
| **Race/ethnicity (ref = Non-Hispanic White)** |          |                  |
| Non-Hispanic Black | .826*** [.799-.854] | .735*** [.711-.760] |
| Hispanic          | .792*** [.771-.812] | .794*** [.774-.813] |
| Other race/ethnicity | .955** [.929-.982] | .805*** [.784-.827] |
| **Educational attainment (ref = High School/Associate’s)** |          |                  |
| Less than high school | .978 [.942–1.015] | .919*** [.878-.961] |
| College degree    | .840*** [.825-.854] | .990 [.974-.1.007] |
| Graduate degree   | .765*** [.748-.783] | 1.017* [1.000–1.033] |
| **Income**        | .867*** [.863-.871] | .897*** [.893-.902] |
| **Marital status (ref = married)** |          |                  |
| Widowed           | 1.513*** [.1.418–1.615] | 1.278*** [.1.202–1.360] |
| Divorced/separated | 1.427*** [.1.381–1.475] | 1.308*** [.1.269–1.347] |
| Never married     | 1.403** [.1.361–1.446] | 1.217*** [.1.180–1.256] |
| **People in household** | .991** [.985–.998] | 1.002 [.996–1.008] |
| **Household Job Insecurity*Week** |      |                  |
| Job Insecurity*Week 2 | .886 [.729–1.077] | .865 [.716–1.045] |
| Job Insecurity*Week 3 | .939 [.804–1.097] | 1.040 [.904–1.196] |
| Job Insecurity*Week 4 | 1.021 [.891–1.170] | 1.048 [.929–1.183] |
| Job Insecurity*Week 5 | .931 [.823–1.052] | 1.034 [.915–1.168] |
| Job Insecurity*Week 6 | .889 [.770–1.027] | .889 [.770–1.027] |
| Job Insecurity*Week 7 | .991 [.867–1.132] | 1.116 [.978–1.274] |
| Job Insecurity*Week 8 | .956 [.839–1.090] | 1.038 [.913–1.179] |
| Job Insecurity*Week 9 | .999 [.866–1.153] | 1.067 [.945–1.205] |
| Job Insecurity*Week 10 | .944 [.815–1.093] | .968 [.869–1.077] |
| Job Insecurity*Week 11 | 1.074 [.930–1.242] | 1.108 [.964–1.273] |
| Job Insecurity*Week 12 | 1.004 [.866–1.165] | 1.039 [.916–1.178] |
| Job Insecurity*Week 13 | 1.059 [.932–1.204] | 1.119 [.997–1.257] |
| Job Insecurity*Week 14 | 1.054 [.935–1.188] | 1.140* [.1.027–1.265] |
| Job Insecurity*Week 15 | 1.132 [.991–1.292] | 1.186** [.1.046–1.344] |
| Job Insecurity*Week 16 | 1.178* [.1.035–1.340] | 1.199** [.1.064–1.351] |
| Job Insecurity*Week 17 | 1.134 [.999–1.287] | 1.176** [.1.066–1.297] |
| Job Insecurity*Week 18 | 1.255** [.1.062–1.483] | 1.222** [.1.082–1.381] |
| Job Insecurity*Week 19 | 1.065* [.923–1.228] | 1.148* [.1.023–1.288] |
| Job Insecurity*Week 20 | 1.042 [.911–1.191] | 1.157** [.1.040–1.288] |

(continued)
Appendix D. Continued.

| Job Insecurity*Week   | Panel A: Depression | Panel B: Anxiety |
|-----------------------|---------------------|------------------|
|                       | Model 1             | Model 2          |
| Job Insecurity*Week 21| 1.081* [.936–1.247] | 1.109 [.979–1.257] |
| Job Insecurity*Week 22| 1.016 [.883–1.168]  | 1.097 [.977–1.232] |
| Job Insecurity*Week 23| 1.028 [.899–1.175]  | 1.143* [1.005–1.299] |
| Job Insecurity*Week 24| 1.108 [.952–1.288]  | 1.110 [.990–1.243] |
| Job Insecurity*Week 25| 1.069 [.925–1.234]  | 1.146 [.996–1.318] |
| Job Insecurity*Week 26| 1.068 [.916–1.245]  | 1.116 [.975–1.278] |
| Job Insecurity*Week 27| 1.154* [1.019–1.305] | 1.261*** [1.116–1.424] |

Dummy variable for week ✓✓

Note. *p < 0.05, **p < .01, ***p < .001

Appendix E. Predicted Probability of Depression (Panel A) and Anxiety (Panel B) by Job Insecurity and National Unemployment Rate (April 23, 2020-March 29, 2021).

Note. Logistic regression models include the following covariates: gender, age, race/ethnicity, educational attainment, household income, marital status, household size, monthly unemployment rate, job insecurity, and the interaction terms for unemployment rate and job insecurity.

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