

# Mothering and Stress during COVID-19: Exploring the Moderating Effects of Employment

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## Abstract

Using primary data from the Assessing the Social Consequences of COVID-19 study, the authors examined how the pandemic affected the stress levels of women with and without coresiding minor children (mothers vs. nonmothers), paying special attention to the moderating role of employment status. The ordinary least squares regression results show that following the pandemic outbreak, among full-time working women, mothers reported smaller stress increases than nonmothers. In contrast, among part-time and nonemployed women, mothers and nonmothers experienced similar stress increases. Also, full-time working mothers reported smaller stress increases than women with most other mothering and employment statuses. Changes in women's employment status, following pandemic onset, had limited impacts on the patterns of stress change. This study contributes to research on parenting and health by showing that during times of crisis, full-time employment may be protective of mothers' mental health but may not buffer the mental health deterioration of women not raising children.

## Keywords

COVID-19, parenting, women, stress, employment

The coronavirus disease 2019 (COVID-19) pandemic has disrupted the lives of individuals and families to levels unseen by most contemporary adults (Pew Research Center 2020a, 2020b). Worrying about their health and economic well-being, adults report higher levels of stress compared with prepandemic periods (Fitzpatrick, Harris, and Drawve 2020; Salari et al. 2020). These stressful feelings have been exacerbated by the complete overhaul of people's daily routines by lockdown measures that aimed to curb the spread of the virus (Ingram, Maciejewski, and Hand 2020). Using primary data from the Assessing the Social Consequences of COVID-19 (ASCC) study, we examine how the pandemic has affected the stress levels of adult women caring and not caring for minor household children (whom we refer to as "mothers" and "nonmothers"). Specifically, we explore how mothers' and nonmothers' stress levels changed during the early days of the COVID-19 pandemic relative to prepandemic periods, paying special attention to how the association between mothering and changes in stress levels during the pandemic varied by women's employment status.

Despite ideals of shared work and egalitarian family roles, women continue to do most housework and childcare (Bianchi et al. 2000, 2012; Negraia, Augustine, and Prickett 2018). Prior to the pandemic, women can reduce their feelings of time pressure and stress by outsourcing domestic work (Craig and Churchill 2018; Craig et al. 2016). During the pandemic, when life is mostly confined to home and the ability to outsource housework and childcare is severely curtailed, women are likely to juggle more responsibilities and experience significant stress increases. However, mothers and nonmothers may have experienced different levels of

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stress changes following the pandemic outbreak. Prepandemic studies suggest that mothers enjoy certain child care activities but also report greater stress than women not raising children (Glass, Simon, and Andersson 2016; Musick, Meier, and Flood 2016; Negraia and Augustine 2020; Nomaguchi and Milkie 2017; Umberson, Pudrovska, and Reczek 2010). During the pandemic, mothers may experience greater stress increases than nonmothers because of school closures and increased child care demands (Heggeness and Fields 2020). However, the opposite may also be true if mothers enjoy spending more meaningful time at home with children, whereas nonmothers are stressed by social isolation and decreased sources of emotional support (Gallagher and Gerstel 2001; Kalmijn 2012; Nomaguchi and Milkie 2003).

We pay special attention to how women's paid work hours and employment status moderate the relationship between mothering and stress changes during the pandemic. Prior work has shown that before the pandemic, full-time employment is beneficial to women's mental health (Caputo, Pavalko, and Hardy 2020; Frech and Damaske 2012; Meier et al. 2016; Pavalko and Smith 1999; Ross and Mirowsky 1995). But long working hours and limited work schedule control can fuel work-family conflicts, hence affecting the stress levels of women raising children (Carrillo et al. 2017; Marshall and Tracy 2009; Milkie, Nomaguchi, and Schieman 2019; Roxburgh 2012). Therefore, changes in women's work and family lives during the pandemic are likely to have distinct effects on the stress levels of mothers and nonmothers with different employment statuses.

We focus on women's stress levels because stress is a predictor of other mental health outcomes such as anxiety and depression (Hammen 2005; Pearlin 1999; Wheaton and Montazer 2009). Stress indicators have also been widely used to study the impacts of mothering and employment on women's well-being (for a review, see Nomaguchi and Milkie 2020), making our results comparable and informative to previous findings.

Using primary data collected during the early days of the pandemic, our study provides empirical evidence on how the pandemic has influenced the stress levels of women with different motherhood and employment statuses. This knowledge contributes to our understanding of the mental health consequences of the COVID-19 restrictions and informs efforts to protect women's mental health during times of crisis. Also, changes in women's work and family lives during the pandemic provide opportunities to better explore the costs and benefits of mothering, and understand how paid employment influences women's feelings of stress.

## Background

### *Linkages between Parenting and Stress*

*Prepandemic Studies on Parenting and Stress.* Despite popular beliefs among U.S. adults that raising children brings

fulfillment and happiness to people's lives (Hansen 2012), empirical research depicts the parenting role as a "mixed bag" of both "demands and rewards" for adults' well-being (Nomaguchi and Milkie 2020). Parenting can be a source of positive self-worth and happiness in adults' lives in part because parenting offers adults opportunities to pursue valuable goals such as providing care and education to children (Nelson, Kushlev, and Lyubomirsky 2014). Children can also be enjoyable to be around. Recent time-use and well-being research has found that parents perceive their time with children as meaningful and the happiest part of their day (Musick et al. 2016; Nelson et al. 2013; Offer 2014). However, parenting also brings about demands and challenges, linked to the emotional, time, and financial commitments of raising children, which can be a source of stress (Negraia and Augustine 2020; Pollmann-Schult 2014). On average, both mothers and fathers fare worse than adults not raising children across dimensions of mental health outcomes such as stress, fatigue, depression, and overall life satisfaction (Glass et al. 2016; Margolis and Myrskylä 2011; McLanahan and Adams 1987; Negraia and Augustine 2020; Umberson et al. 2010). The costs of parenting to adults' emotional well-being are higher for mothers than for fathers (Musick et al. 2016; Offer 2014) because women continue to be the primary caregivers and take on more stressful activities like routine child-care (i.e., feeding, bathing, and dressing) than men do (Musick et al. 2016; Negraia, Yavorsky, and Dukhovnov 2020). Furthermore, the ideologies of "intensive mothering" and "concerted cultivation" also make mothering increasingly stressful. By emphasizing mothers' formative role in children's development and well-being, these mothering ideologies encourage activities that demand high levels of energy and time such as organizing children's extracurricular activities, providing emotional support to children, and making sacrifices to meet children's needs (Gunderson and Barrett 2017; Hays 1996; Lareau 2011; Nomaguchi and Milkie 2020; Rizzo, Schiffrin, and Liss 2013).

*Parenting and Stress during COVID-19.* Recent studies have observed an increase in stress during the COVID-19 pandemic within the general population and among adults raising children (Gassman-Pines, Ananat, and Fitz-Henley 2020; McGinty et al. 2020). However, little is known about whether and how the impacts of the pandemic on women's stress levels may vary between mothers and nonmothers. Because mothering role is associated with both rewards and demands for adults' well-being, the abrupt changes to individuals' daily routines brought on by the COVID-19 pandemic may differentially affect the stress levels of mothers and nonmothers.

For mothers, the closures of care facilities and schools can lead to growing demands of childcare and home schooling, which may cost mothers more time and energy, potentially leading to greater stress for them. Mothers spending more time with children may also increase opportunities for parent-child conflicts (Evans et al. 2020). However, it is also

possible for the pandemic to amplify the fulfillment and happiness that mothering brings because spending more meaningful time at home with children during social distancing may shelter mothers from social isolation related stress (Evans et al. 2020; Heggeness and Fields 2020; Kochhar 2020). Furthermore, some of the stressors associated with intensive mothering practices such as chauffeuring, attending children's events, and arranging play dates may decline as extracurricular activities, social events, and gatherings come to a halt.

Women not raising children do not experience the stress of growing childcare demands during the pandemic. Yet they may still experience greater stress increases relative to mothers because of the lack of family and social support. Parenting enables adults to strengthen their ties with extended family members and neighbors who can provide help in times of need (Gallagher and Gerstel 2001; Kalmijn 2012; Nomaguchi and Milkie 2003). Therefore, compared with mothers, the pandemic and stay-at-home orders may set more restrictions on the emotional and social support available to nonmothers. Moreover, during prepandemic periods, nonparents enjoyed more leisure time (which is a source of positive emotions) than parents (Claxton and Perry-Jenkins 2008; Sayer 2016). However, because the pandemic closed restaurants and entertainment venues and put limits on outings with friends, nonmothers may have fewer sources of positive emotions.

### *Linkages among Mothering, Employment, and Stress*

*Prepandemic Studies on Parenting, Employment, and Stress.* Participating in paid employment is found to benefit women's mental health by providing a source of income, space to develop one's social network, and a sense of self-worth (Caputo et al. 2020; Frech and Damaske 2012; Pavalko and Smith 1999; Ross and Mirowsky 1995). But employment types and job characteristics matter. Jobs characterized by low control, such as most part-time jobs, or high demands such as self-employment may reduce feelings of self-efficacy and increase stress (Davis et al. 2008; Melchior et al. 2007). By contrast, full-time jobs can usually provide more resources such as higher pay, more autonomy, and schedule flexibility, all of which bring about more benefits for women's long-term well-being (Frech and Damaske 2012).

Among women raising children, evidence on associations between employment type and stress is mixed. Some studies have found that employed mothers report lower stress than nonemployed mothers (Buehler and O'Brien 2011; Meier et al. 2016; Nomaguchi and Brown 2011; Nomaguchi and Johnson 2016). However, employment is also a source of stress for mothers. In the United States, the hegemonic motherhood ideology and ideal worker norm position employment and motherhood as contradictory to each other (Blair-Loy 2003; Dow 2016; Hays 1996; Moen and Roehling

2005). Parenting and working are, therefore, competing for mothers' limited resources, leading to work-family conflicts. Long work hours, blurred boundaries between work and nonwork time, and limited control over work schedules all result in high stress for mothers (Carrillo et al. 2017; Kelly et al. 2014; Milkie et al. 2019; Roxburgh 2012).

*Parenting, Employment, and Stress during COVID-19.* The COVID-19 pandemic has triggered significant changes in women's work and family life. Many employed women, especially those who were employed full-time in high income jobs, are now working remotely from home (Pew Research Center 2020b). Working from home may to some extent alleviate work-family conflicts caused by long commutes and schedule conflicts between mothers and children. Transitioning into remote working during the early days of the pandemic may have also temporarily decreased mothers' workloads, allowing them to spend more time with their children. However, as children spend more time at home, mothers are likely to struggle even more to find a balance between their competing responsibilities, which now include not only their own job, housework, and childcare but also home schooling. During early days of the pandemic, about 37 percent of mothers parenting children younger than 12 found it difficult to handle childcare responsibilities (Pew Research Center 2020a). This percentage is likely to be higher for mothers who continued working for pay during the pandemic. Yet, as mentioned above, paid employment, especially full-time employment, can provide women with material, psychological, and social resources that benefit their mental health. These resources may help working mothers cope with the sudden life changes and stress increases brought by the pandemic.

For nonmothers, working during the pandemic may be more stressful compared with the prepandemic era if they can no longer tap into the social support and leisure activities that they used to rely on for coping with work-related stress. Yet not working or experiencing reduced work hours during the pandemic may also exacerbate nonmothers' feelings of social isolation, hence increasing their stress levels.

Despite the rapid increase of remote working, not all jobs can be done at home. People with lower education and income are less likely to work from home than their more privileged counterparts (Pew Research Center 2020b). This means that many women, especially those doing low-skilled part-time jobs, may still need to be physically present at the workplace and bear the risk of infection. Furthermore, the unemployment caused by social distancing has largely affected sectors and occupations disproportionately held by women (Alon et al. 2020; Landivar et al. 2020). In direct response to the pandemic, many mothers also left jobs or reduced their work hours to cope with increasing domestic and childcare demands (Collins et al. 2021; Landivar et al. 2020). Experiencing financial loss because of reduced work hours or working with

high infection risks may cause greater stress increases for mothers than for nonmothers because besides worrying about themselves and family members' well-being, mothers also face the emotional toll of not providing for children's needs and putting children's health in danger.

### The Present Study

We set out to examine the impacts of the COVID-19 pandemic on women's stress levels at the intersection of parenting and employment status. Drawing on the previous literature, we anticipate that both mothers' and nonmothers' stress levels have changed following the onset of the pandemic. We expect changes in the level of stress mothers and nonmothers have experienced to vary by their employment status. However, we remain agnostic about the expected direction of these changes because, as discussed above, the impacts of the pandemic on mothers' and nonmothers' work and family lives are complex, ongoing, and yet to be fully understood. For this reason, we do not formulate formal hypotheses but raise the following research questions:

1. Have stress levels of adult women raising minor children, and those not raising minor children, changed during the COVID-19 pandemic compared with pre-COVID-19 periods? If so, how?
2. Does the association between mothering and change in stress during the COVID-19 pandemic vary by women's employment conditions?

## Data and Methods

### Data

We used data from the second wave of the ASCC study, which is part of a larger project that collects information on Americans' social behaviors and attitudes before, during, and after the COVID-19 pandemic. Respondents were recruited using Prolific (www.prolific.co), a crowdsourcing platform used by scholars and market analysts to recruit study participants. Although the sample is not nationally representative, a self-administered online survey using a crowdsourcing platform allowed us to collect data immediately following the pandemic outbreak when people's lives were disorganized and conventional ways of data collection were disrupted. Also, Prolific has been found to produce high-quality data using traditional metrics such as satisficing and attention checks and the sample's ability to reproduce well-documented effects in prior studies (Peer et al. 2017).

The second wave of ASCC collected data from 3,108 respondents between April 7 and May 15, 2020. We restricted the sample to women aged 18 to 49 years ( $n = 1,581$ ) to limit the share of nonmothers who might be empty nesters (i.e.,

having grown children living outside the home; a limitation shared by other studies on mothers' well-being such as Glass et al. 2016). We also tested two different sample specifications, one limited to women aged 18 to 44 years and one limited to women aged 18 to 39 years. Results were similar across all three sample specifications. The variables we used had a small amount of missing data (ranging from 0.06 percent to 2.40 percent). Applying the listwise deletion method and using the multiple imputation technique with five replicates of the data set generated similar results (Allison 2001). We present the results using the listwise deletion method. The final study sample consisted of 1,505 women: 365 women living with their own minor children (mothers) and 1,140 women who did not coreside with their own minor children (nonmothers).

### Measures

**Dependent Variables: Women's Stress Levels.** We used three outcome measures to capture respondents' self-reported stress levels prior to the COVID-19 pandemic and during the COVID-19 pandemic and the change in stress levels between these two periods. The ASCC study adopted the stress measurement method used since 2007 by the American Psychological Association's annual Stress in America survey (APA 2021). Respondents were asked,

On a scale of 0 to 10, with 0 being no stress and 10 being the worst stress possible, what number best describes your level of stress prior to the COVID-19 pandemic (Time 1) and currently (during the COVID-19 pandemic, Time 2)?

Using these two measures of respondents' stress levels, we then calculated an indicator for the changes in women's stress levels after the pandemic outbreak (time 2 – time 1); positive values indicated an increase in women's stress levels. Because of data limitations, prepandemic stress levels could be obtained only through retrospection.<sup>1</sup> Respondents' retrospective reports of prepandemic stress might be influenced by their experience during the pandemic (Mill, Realo, and Allik 2016). This is a limitation faced by many studies that explore COVID-19's impacts on mental health (e.g., Adams et al. 2021; Uehara, Fujii, and Kobayashi 2021). However, because in the ASCC, respondents reported their prepandemic and during-pandemic stress levels at the same time, the data should be able to capture their own perceptions of how their stress levels have changed following the pandemic onset, which is the key focus of this study. Also, consistent with existing studies' findings on social determinants of stress

<sup>1</sup>Wave 1 of the ASCC data was collected prior to the pandemic, but its measure of stress was not comparable with that of wave 2. The wave 1 data had 407 respondents, only 213 of whom were reinterviewed in wave 2 (among them, 42 were mothers coresiding with their children).



(Turner and Turner 2005; Turner, Wheaton, and Lloyd 1995), we found that respondents reported significantly lower pre-pandemic stress when they were men, older, married, not parenting children younger than 18, and had higher household income (results not presented). Therefore, the retrospective reports of stress should still reflect respondents' stress levels before the pandemic outbreak.

**Independent Variables.** Our first key independent variable was women's parenting status, operationalized as 1 = mothers if women reported living with nonadult children of their own and 0 = nonmothers if they reported not living with minor children of their own during the pandemic. The second independent variable was women's employment conditions, captured first using a categorical measure of weekly work hours during the pandemic: 0 = 35 hours or more (working full-time), 1 = 1 to 34 hours (working part-time), and 2 = 0 hours (not working for pay). We also used an indicator of women's employment status during the pandemic, coded into five mutually exclusive categories: 1 = full-time, 2 = part-time, 3 = self-employed, 4 = furloughed, and 5 = unemployed or not in the labor market (including retired, disabled, stay-at-home, and unemployed or not in the labor force). The weekly work hour variable had the advantage of capturing women's actual workloads during the pandemic, particularly among self-employed women. But it might not distinguish the difference between working 0 hours per week because of being furloughed and nonemployed or the ways full-time, part-time, and self-employed jobs differed in benefits, autonomy, and schedule flexibility, as discussed earlier. The employment status variable provided a complementary measure of women's employment conditions. However, because of the small sample size of mothers who were self-employed ( $n = 30$ ) and furloughed ( $n = 22$ ), the results needed to be interpreted with caution. We therefore used both weekly work hours and employment status to measure women's employment. We also constructed a variable measuring the change in women's work hours after the pandemic outbreak, on the basis of the difference between women's weekly work hours before and during the pandemic: 1 = always worked full-time, 2 = always worked part-time, 3 = always nonemployed, 4 = from full-time to part-time or nonemployed,<sup>2</sup> 5 = from part-time to nonemployed, and 6 = from part-time or nonemployed to full-time employed. We did not present results for the last category because the small sample size of this group (26 nonmothers and 5 mothers) made the validity of the results questionable.

**Covariates.** Models included relevant covariates for women's age and race/ethnicity (White, Hispanic, Black, Asian, and other), as age is negatively associated with stress (Turner and

Turner 2005) and mothers in the sample were older than nonmothers (Table 1). Also, compared with White women, women of color are more negatively affected by the pandemic and experience greater increases in stress (Laster Pirtle and Wright 2021; Stockman, Wood, and Anderson 2021). Because socioeconomically disadvantaged people are found to suffer disproportionately from mental health problems during the pandemic (Bambra et al. 2020; Manville et al. 2020), we also controlled for women's prepandemic employment status (full-time, part-time, self-employed, furloughed, and unemployed or not in the labor force), years of education, annual household income (<\$20,000, \$20,000–\$60,000, \$60,000–\$100,000, and >\$100,000), change in family income following the pandemic outbreak (decreased, stayed the same, and increased), home ownership (own with mortgage, own in full, and rented or occupied), and occupation.<sup>3</sup> We also controlled for women's marital status before and during the pandemic (married or not married), the number of children they have aged 0 to 5, 6 to 12, and 13 to 17 years,<sup>4</sup> whether women coresided with a spouse or partner, parents or siblings, or roommates, friends, or others (yes or no), as well as spouse's or partner's employment status (coded as no spouse or partner when women did not have spouses or partners) before and during the pandemic.

The second wave of ASCC did not directly ask whether respondents could work remotely or from home during the pandemic. But about 65 percent of the respondents completed time-use diaries. On the basis of this time-use information, we created a measure of work from home coded as 0 = did not work from home (spent <20 percent of paid employment time at home), 1 = worked from home (spent  $\geq$ 80 percent of paid employment time at home), or 2 = no information (cases for which no time-use data were available or no paid employment time was reported). Information on working from home was available for 47 percent of the sampled employed women, of whom about 78 percent of nonmothers and 81 percent of mothers reported being able to work from home. These estimates are slightly higher than the 71 percent reported by the Pew Research Center in October 2020 (Parker, Horowitz, and Minkin 2020).

### Analytic Strategies

The first aim of this study was to compare how mothers' and nonmothers' stress levels changed during the COVID-19 pandemic relative to prepandemic periods. To do so, we ran ordinary least squares (OLS) regression models with women's parenting status as the key independent variable. We ran

<sup>2</sup>We combined change from full-time to part-time and change from full-time to nonemployed because the results were similar for these two groups.

<sup>3</sup>Occupation is dummy-coded as management, professional, service, sales, administrative work, farming or fishing, construction, maintenance, production, transportation, others, and not working for pay.

<sup>4</sup>Respondents reported only the number of children they have. Information on how many children they coresided with during the pandemic was not available.

**Table 1.** Descriptive Characteristics (Means and Percentages) of Sampled Women by Mothering Status ( $n = 1,505$ ).

	Unweighted		Weighted	
	Nonmothers	Mothers	Nonmothers	Mothers
Pre-COVID-19 stress	5.78 (2.13)	4.42 (2.32)	4.60 (2.47)	4.50 (1.78)
During-COVID-19 stress	5.68 (2.32)	5.33 (2.58)	5.62 (2.88)	5.45 (1.95)
Stress change	.90 (2.27)	.91 (2.51)	1.02 (2.51)	.95 (1.86)
During-COVID-19 weekly work hours (%)				
$\geq 35$	29.0	30.4	30.8	25.9
1–34	26.8	25.8	17.9	21.6
0	44.1	43.8	51.3	52.5
During-COVID-19 employment status (%)				
Full-time	29.0	32.6	30.8	25.9
Part-time	15.4	16.2	10.4	14.3
Self-employed	9.4	8.2	7.7	7.8
Furloughed	9.7	6.0	9.6	5.6
Unemployed/not in the labor force	34.2	37.0	41.6	46.5
Employment status change (%)				
Always full-time	27.3	29.3	30.2	24.5
Always part-time	15.9	14.0	8.2	11.7
Always nonemployed	17.6	17.3	32.2	29.0
From full-time to part-time/nonemployed	21.1	25.2	22.6	22.8
From part-time to nonemployed	15.8	12.9	6.2	10.2
Part-time/nonemployed to full-time or nonemployed to part-time	2.3	1.4	.7	1.9
Age (years)	28.06 (7.50)	34.86 (6.49)	32.39 (9.88)	35.88 (5.46)
Race (%)				
White	60.4	73.2	63.2	69.5
Hispanic	6.8	6.6	2.7	6.6
Black	8.5	5.8	21.1	13.1
Asian	12.6	4.7	5.5	2.7
Others	11.8	9.9	7.6	8.2
Years of education	15.03 (2.17)	15.10 (2.13)	14.30 (2.32)	14.30 (1.51)
Pre-COVID-19 employment status (%)				
Full-time	42.9	46.0	44.6	38.0
Part-time	23.7	14.3	11.0	12.9
Self-employed	10.4	10.7	8.8	9.5
Furloughed	1.1	0	2.9	0
Unemployed/not in the labor force	22.0	29.0	32.7	39.7
Household income (%)				
<\$20,000	16.1	11.2	16.7	15.3
\$20,000–\$60,000	38.3	35.3	37.9	38.3
\$60,000–\$100,000	23.7	33.4	25.4	25.0
>\$100,000	22.0	20.0	20.0	21.5
Household income change (%)				
Decreased	46.5	45.5	48.4	41.9
Stayed the same	45.9	47.9	42.9	53.0
Increased	7.6	6.6	8.7	5.1
Home ownership (%)				
Own with mortgage	33.3	58.1	35.1	54.9
Own in full	11.3	9.3	11.5	7.8
Rented or occupied	55.4	32.6	53.4	37.4
Spent $\geq 80\%$ paid work time at home (%)				
No	6.1	4.7	6.4	6.6
Yes	21.1	20.0	18.0	16.2
Information not available/not employed	72.9	75.3	75.6	77.2

(continued)

**Table 1. (continued)**

	Unweighted		Weighted	
	Nonmothers	Mothers	Nonmothers	Mothers
Married during COVID-19 (%)	18.3	68.0	40.7	58.9
Live with spouse/partner during COVID-19 (%)	38.7	83.3	54.4	78.0
Live with parents/siblings during COVID-19 (%)	34.0	10.4	32.8	13.4
Live with roommates/friends/others during COVID-19 (%)	23.1	8.0	13.7	8.7
Number of children aged 0–6 years	.02 (.18)	.83 (.80)	.07 (.39)	.77 (.61)
Number of children aged 7–12 years	.02 (.16)	.75 (.86)	.03 (.23)	.75 (.67)
Number of children aged 13–17 years	.01 (.09)	.32 (.63)	.01 (.13)	.37 (.52)
Spouse/partner's employment status during COVID-19 (%)				
Full-time	37.7	70.1	39.9	61.3
Part-time	8.4	5.2	6.9	5.2
Self-employed	3.4	5.2	3.8	4.0
Furloughed	.5	.6	7.1	5.3
Unemployed/not in the labor force	9.4	6.3	8.4	7.1
No spouse/partner	40.5	12.6	33.9	17.1
<i>n</i>	1,140	365	1,140	365

Note: Values in parentheses are standard deviations. COVID-19 = coronavirus disease 2019.

the models three times to predict each of our dependent variables: (1) women's stress levels before the pandemic, (2) women's stress levels during the pandemic, and (3) the change in women's stress levels after the pandemic outbreak. The second aim of this project was to explore how the association between mothering and stress changes varied by women's employment status. We did so by including interaction terms between women's mothering status and their (1) weekly work hours, (2) employment status during the pandemic, and (3) change in work hours after the pandemic outbreak in three separate OLS regression models. The analysis was conducted in Stata 17.

To make the ASCC sample more representative of the U.S. population, we used the iterative proportional fitting (raking) method (Kolenikov 2014) to weight the ASCC data on the basis of the age, race, education level, marital status, employment status, and household income of mothers and nonmothers in the nationally representative 2018 General Social Survey (GSS) (see Table A1 in the Appendix for sample characteristics of the GSS and the unweighted and weighted ASCC). The results of unweighted and weighted analysis were similar. We present the unweighted models in the "Results" section. The weighted models are in the Appendix and discussed in the text.

## Results

### Descriptive Statistics

Table 1 presents unweighted and weighted descriptive statistics. Without controls described above, mothers reported lower stress levels than nonmothers before and during the pandemic, likely because mothers were older and more socioeconomically

advantaged compared with nonmothers. The levels of stress increases that mothers and nonmothers experienced during the pandemic were similar. Regarding employment conditions, when unweighted, the work hours and employment status of mothers and nonmothers during the pandemic were similar. The weighted statistics show that mothers were less likely to work full-time and more likely to work part-time or be unemployed or out of the labor force than nonmothers during the pandemic. We also found from the unweighted statistics that about 61 percent (about 70 percent if weighted) of mothers and nonmothers maintained prepandemic employment status, and about 35 percent (about 30 percent if weighted) of them switched from working full-time to working part-time or not working or from working part-time to not working.

Compared with the nationally representative 2018 wave of the GSS, women in the ASCC study were less likely to be mothers and were more highly educated and likely to work for pay before the pandemic outbreak (Table A1). Furthermore, the ASCC sample captured a smaller proportion of Black women but a larger proportion of women from other racial minority groups than the GSS sample. Finally, nonmothers in the ASCC were, on average, about four years younger and less likely to be married relative to those in the GSS. The weighted ASCC sample shared similar sociodemographic characteristics with the GSS sample (Table A1).

### Mothering and Stress Changes during the COVID-19 Pandemic

Results from the unweighted (models 1 and 2 in Table 2) and weighted (models 1 and 2 in Table A2) OLS regression

models show no significant differences between the stress levels of mothers and nonmothers before or during the pandemic.<sup>5</sup> When using the change in women's stress levels following the pandemic outbreak as the dependent variable, we still found no significant difference between mothers and nonmothers in unweighted (model 3 in Table 2) and weighted (model 3 in Table A2) models.

<sup>5</sup>We found the prepandemic stress difference between mothers and nonmothers was conditioned by employment status. Among full-time working women, mothers reported greater stress than nonmothers. Among women with other employment statuses, the stress levels of mothers and nonmothers were similar (see Figure A1).

### ***Mothering, Employment, and Stress Changes during the COVID-19 Pandemic***

Next, we tested if the relationship between women's mothering status and their levels of stress change was conditioned by employment status. First, we show results from the unweighted OLS regression model in which we included an interaction term between women's mothering status and weekly work hours during the pandemic (model 1 in Table 3). To better present the different stress changes that women with different mothering statuses and weekly work hours had experienced, we calculated predicted means (Figure 1). Among women whose weekly work hours were 35 or more (working full-time) during the pandemic, mothers experienced a 0.29-unit increase in stress compared with the

**Table 2.** Predicted Stress Levels before and during the COVID-19 and the Change in Stress Levels after the COVID-19 Outbreak by Mothering Status ( $n = 1,505$ , Unweighted).

	Model 1		Model 2		Model 3	
	Pre-COVID-19		During-COVID-19		Change	
Mothers (reference: nonmothers)	.248	(.239)	.098	(.263)	-.148	(.258)
Pre-COVID-19 employment status (reference: full-time)						
Part-time	.002	(.167)	-.007	(.225)	.189	(.221)
Self-employed	-.452*	(.211)	-.254	(.393)	.461	(.386)
Furloughed	-.374	(.681)	-.665	(.759)	-.183	(.745)
Unemployed/not in the labor force	-.221	(.232)	.251	(.311)	.634*	(.306)
During-COVID-19 employment status (reference: full-time)						
Part-time			.062	(.249)	-.167	(.245)
Self-employed			.093	(.421)	-.187	(.413)
Furloughed			-.079	(.288)	.014	(.283)
Unemployed/not in the labor force			.005	(.256)	-.155	(.252)
Age	.004	(.010)	.002	(.011)	-.001	(.010)
Race (reference: White)						
Hispanic	-.554*	(.229)	-.722**	(.252)	-.150	(.248)
Black	-.232	(.219)	-.619**	(.240)	-.347	(.235)
Asian	-.253	(.194)	-.568**	(.212)	-.269	(.209)
Others	.040	(.183)	-.158	(.200)	-.194	(.197)
Years of education	-.014	(.031)	.003	(.034)	.025	(.034)
Household income (reference: <\$20,000)						
\$20,000–\$60,000	-.158	(.183)	.087	(.194)	.288	(.191)
\$60,000–\$100,000	-.353+	(.189)	-.064	(.218)	.183	(.214)
>\$100,000	-.377+	(.210)	-.261	(.232)	.027	(.227)
Household income change (reference: decreased)						
Stayed the same			-.671***	(.147)	-.513***	(.145)
Increased			-1.109***	(.250)	-1.402***	(.246)
Home ownership (reference: own with mortgage)						
Own in full	.022	(.197)	-.429*	(.216)	-.441*	(.212)
Rented or occupied	.203	(.138)	.055	(.151)	-.200	(.148)
Spent ≥80% paid work time at home (reference: no)						
Yes			.248	(.297)	-.073	(.292)
Information not available/not employed			.121	(.284)	-.262	(.279)
Married pre-COVID-19 (reference: not married)	-.470*	(.184)				
Married during COVID-19 (reference: not married)			-.022	(.202)	.305	(.198)

(continued)



**Table 2. (continued)**

	Model 1		Model 2		Model 3	
	Pre-COVID-19		During-COVID-19		Change	
Live with spouse/partner pre-COVID-19 (reference: no)	.656**	(.199)				
Live with spouse/partner during COVID-19 (reference: no)			-.170	(.225)	-.610**	(.221)
Live with parents/siblings pre-COVID-19 (reference: no)	.510**	(.171)				
Live with parents/siblings during COVID-19 (reference: no)			.158	(.185)	-.320+	(.182)
Live with roommates/friends/others pre-COVID-19 (reference: no)	.377*	(.159)				
Live with roommates/friends/others during COVID-19 (reference: no)			.285	(.182)	-.017	(.179)
Number of children aged 0–6 years	-.243+	(.146)	-.227	(.161)	.034	(.158)
Number of children aged 7–12 years	-.079	(.132)	-.073	(.145)	.006	(.143)
Number of children aged 13–17 years	-.311+	(.189)	-.309	(.207)	-.011	(.204)
Constant	5.768***	(.673)	6.715***	(.787)	1.036	(.773)
R <sup>2</sup>	.057		.063		.051	

Note: Results are regression coefficients from ordinary least squares models, with standard errors in parentheses. Each model also controlled for occupation and spouse's or partner's employment status, but we omit the coefficients to conserve space. COVID-19 = coronavirus disease 2019. + $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

prepandemic era, which was significantly lower than the 1.11-unit increase that nonmothers experienced. Compared with full-time working women, the stress changing patterns for women who worked fewer than 35 hours per week (working part-time) or did not work for pay during the pandemic were significantly different. Among them, mothers and nonmothers experienced similar increases in stress following the pandemic onset. Similar results were observed in the weighted model (model 1 in Table A3). Also, the stress increase that full-time working mothers reported was significantly smaller than that of mothers with other employment statuses and marginally significantly smaller ( $p = .087$ ) than that of nonmothers who did not work for pay (model 1 in Table A4).

We also ran the model with an interaction term between women's mothering status and a more detailed measure of employment status, contrasting women who were full-time employed, part-time employed, self-employed, furloughed, or unemployed or not in the labor force. The results were similar to those obtained from the model examining the effects of weekly work hours. The unweighted model (model 2 in Table 3 and Figure 2) shows that full-time employed mothers reported significantly smaller increases in stress during the pandemic than full-time employed nonmothers. A similar stress changing pattern was observed among furloughed mothers. In contrast, among women who were part-time employed, self-employed, or unemployed or not in the labor force, mothers and nonmothers experienced similar increases in stress. Results were similar when using the

weighted data for analysis (model 2 in Table A3), but the stress changing pattern for self-employed women was instead similar to that of full-time employed and furloughed women. Because of the small sample size of mothers who were self-employed ( $n = 30$ ) and furloughed ( $n = 22$ ), the results should be interpreted with caution.

Last, we present results from models in which we examined the effects of the change in women's work hours before and during the pandemic, more specifically among women who always worked full-time, always worked part-time, were always nonemployed, changed from full-time to part-time or nonemployed, and changed from part-time to nonemployed. Using the unweighted data (model 3 in Table 3 and Figure 3), we found that mothers who worked full-time both before and during the pandemic experienced a 0.27-unit increase in stress, which was significantly smaller than among their peers not raising children (1.13 units). A similar pattern was observed among women who shifted from full-time to part-time or not working following the pandemic onset. In contrast, among women who worked part-time or did not work for pay both before and during the pandemic, as well as those who changed from part-time working to not working during the pandemic, mothers and nonmothers reported similar increases in stress. The weighted model (model 3 in Table A3) shows similar results. Furthermore, among women with different mothering and employment statuses, mothers who worked full-time both before and during the pandemic fared relatively better and faced smaller stress increases than women in most other groups (model 3 in Table A4).

**Table 3.** Predicted Stress Level Changes after the COVID-19 Outbreak by Mothering and Employment Statuses ( $n = 1,505$ , Unweighted).

	Model 1		Model 2		Model 3	
Mothers (reference: nonmothers)	-.816*	(.330)	-.757*	(.322)	-.857*	(.334)
During-COVID-19 weekly work hours (reference: $\geq 35$ )						
1–34	-.303	(.196)				
0	-.211	(.216)				
Mothers $\times$ during-COVID-19 weekly work hours						
Mothers $\times$ 1–34	.963*	(.380)				
Mothers $\times$ 0	.987**	(.345)				
During-COVID-19 employment status (reference: full-time)						
Part-time			-.343	(.232)		
Self-employed			-.079	(.279)		
Furloughed			.000	(.291)		
Unemployed/not in the labor force			-.175	(.231)		
Mothers $\times$ during-COVID-19 employment status						
Mothers $\times$ part-time			.985*	(.433)		
Mothers $\times$ self-employed			1.013+	(.552)		
Mothers $\times$ furloughed			.044	(.603)		
Mothers $\times$ unemployed/not in the labor force			1.090**	(.351)		
Employment change (reference: always full-time)						
Always part-time					-.450+	(.236)
Always nonemployed					-.101	(.348)
Full-time to part-time/nonemployed					-.291	(.216)
Part-time to nonemployed					-.279	(.261)
Mothers $\times$ employment change						
Mothers $\times$ always part-time					1.214**	(.461)
Mothers $\times$ always nonemployed					1.364**	(.441)
Mothers $\times$ full-time to part-time/nonemployed					.611	(.391)
Mothers $\times$ part-time to nonemployed					1.383**	(.477)
Age	-.000	(.010)	-.000	(.010)	-.001	(.010)
Race (reference: White)						
Hispanic	-.163	(.247)	-.162	(.247)	-.148	(.247)
Black	-.290	(.234)	-.318	(.234)	-.254	(.235)
Asian	-.261	(.208)	-.268	(.208)	-.247	(.209)
Others	-.154	(.197)	-.167	(.197)	-.152	(.196)
Years of education	.009	(.033)	.012	(.033)	.009	(.033)
Household income (reference: $< \$20,000$ )						
\$20,000–\$60,000	.208	(.189)	.203	(.190)	.193	(.190)
\$60,000–\$100,000	.133	(.213)	.117	(.214)	.128	(.213)
$> \$100,000$	-.043	(.226)	-.054	(.228)	-.040	(.227)
Household income change (reference: decreased)						
Stayed the same	-.471***	(.138)	-.478***	(.141)	-.494***	(.140)
Increased	-1.373***	(.243)	-1.353***	(.244)	-1.354***	(.246)
Home ownership (reference: own with mortgage)						
Own in full	-.399+	(.211)	-.418*	(.212)	-.382+	(.211)
Rented or occupied	-.235	(.148)	-.225	(.149)	-.230	(.149)
Spent $\geq 80\%$ paid work time at home (reference: no)						
Yes	.020	(.289)	-.025	(.292)	.004	(.289)
Information not available/not employed	-.164	(.279)	-.212	(.279)	-.192	(.275)
Married during COVID-19 (reference: not married)	.375+	(.197)	.389*	(.198)	.370+	(.199)
Live with spouse/partner during COVID-19 (reference: no)	-.548*	(.222)	-.562*	(.222)	-.547*	(.223)
Live with parents/siblings during COVID-19 (reference: no)	-.273	(.182)	-.248	(.183)	-.277	(.183)

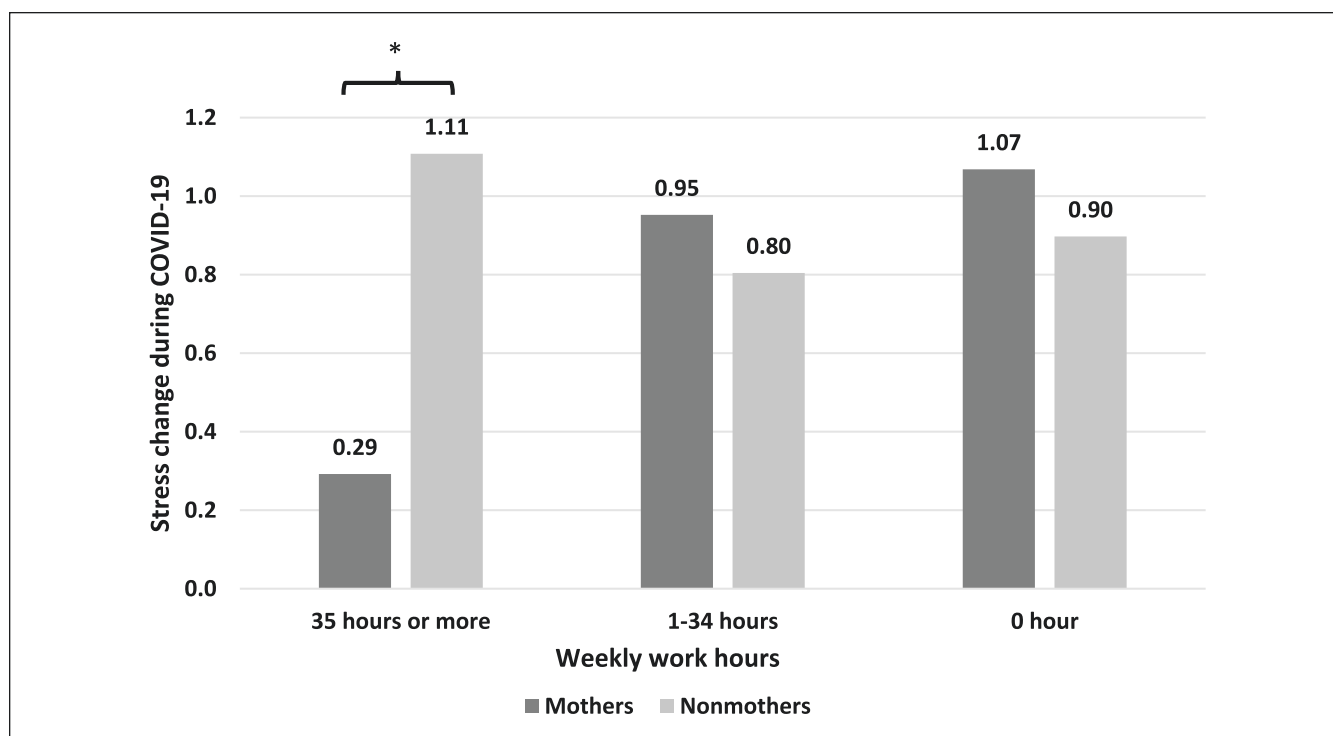
(continued)

**Table 3. (continued)**

	Model 1		Model 2		Model 3	
Live with roommates/friends/others during COVID-19 (reference: no)	.018	(.179)	.003	(.179)	.024	(.179)
Number of children aged 0–6 years	.031	(.158)	.024	(.158)	-.003	(.159)
Number of children aged 7–12 years	-.004		.017	(.143)	-.006	(.143)
Number of children aged 13–17 years	.051	(.205)	.014	(.207)	.038	(.206)
Constant	1.626*	(.736)	1.546*	(.744)	1.524+	(.796)
R <sup>2</sup>	.056		.059		.062	

Note: Results are regression coefficients from ordinary least squares models, with standard errors in parentheses. Each model also controlled for occupation and spouse's or partner's employment status, but we omit the coefficients to conserve space. COVID-19 = coronavirus disease 2019.

+ $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



**Figure 1.** Predicted means of stress level changes after the COVID-19 outbreak by mothering status and work hours during the COVID-19 ( $n = 1,505$ , unweighted).

Note: Results are predicted probabilities from ordinary least squares models (model 1 in Table 3). COVID-19 = coronavirus disease 2019.

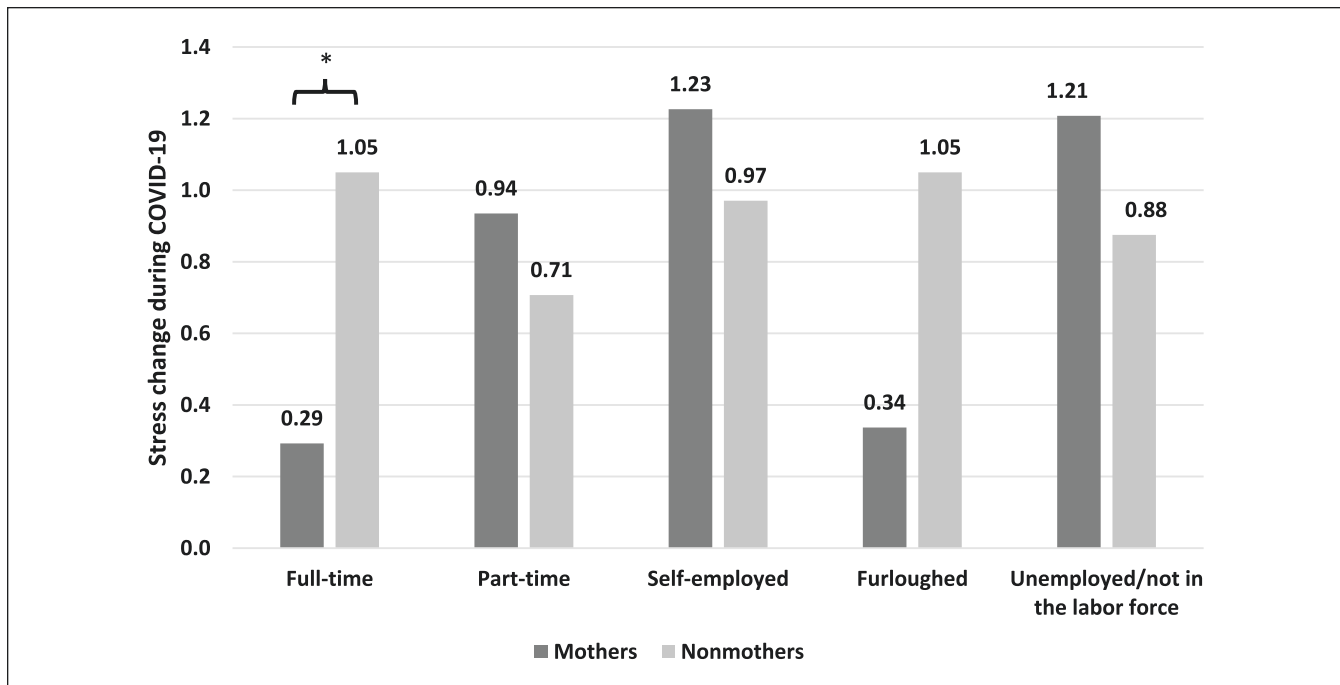
\* $p < .05$ .

## Discussion

Using primary data from the second wave of ASCC study, we found evidence that the association between women's mothering status and stress increases during early days of the pandemic was conditioned by weekly work hours and employment status. Specifically, among women who worked full-time during the pandemic, mothers experienced smaller increases in stress following pandemic onset compared with nonmothers. In contrast, among part-time employed and nonemployed women, mothers and nonmothers reported similar increases in stress levels. Full-time working mothers also experienced smaller increases in stress than women with

most other mothering and employment statuses. Furthermore, work hour reduction following the pandemic outbreak seemed to have limited impacts on changes in women's stress. Mothers who worked full-time before the pandemic reported smaller stress increases than their peers not raising children, regardless of whether they continued working full-time during the pandemic or not. Among women who worked part-time before the pandemic, mothers reported similar levels of stress increase as nonmothers regardless of stopping work after the pandemic outbreak or not.

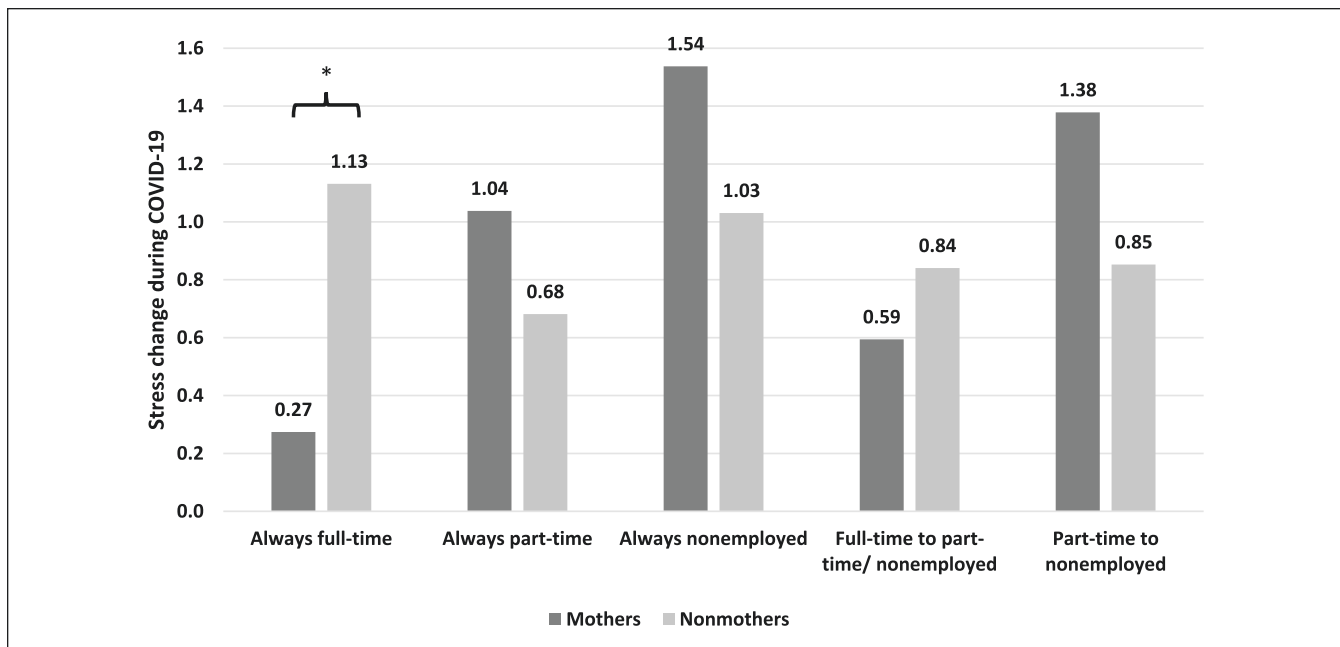
Although women generally experienced stress increases during the pandemic, full-time working mothers fared relatively better and faced smaller stress increases, especially



**Figure 2.** Predicted means of stress level changes after the COVID-19 outbreak by mothering status and employment status during the COVID-19 ( $n = 1,505$ , unweighted).

Note: Results are predicted probabilities from ordinary least squares models (model 2 in Table 3). COVID-19 = coronavirus disease 2019.

\* $p < .05$ .



**Figure 3.** Predicted means of stress level changes after the COVID-19 outbreak by mothering status and the change of work hours after the COVID-19 outbreak ( $n = 1,505$ , unweighted).

Note: Results are predicted probabilities from ordinary least squares models (model 3 in Table 3). COVID-19 = coronavirus disease 2019.

\* $p < .05$ .



compared with part-time and nonemployed mothers and full-time employed nonmothers. A potential explanation for this finding is that following the closure of schools and day care facilities in response to the pandemic, children have been spending most of their time at home. Children being at home can increase mothers' burden from childcare and home schooling (Heggeness and Fields 2020; Kochhar 2020). Yet it may also eliminate some of the schedule conflicts between mothers and their children and reduce the number of activities associated with intensive mothering such as chauffeuring, attending children's extracurricular events, and arranging activities and play dates, all of which can be sources of stress for mothers, particularly full-time working mothers (Gunderson and Barrett 2017; Milkie et al. 2019; Nomaguchi, Milkie, and Bianchi 2005; Rizzo et al. 2013). Furthermore, in the early days of the pandemic, many full-time employed mothers may have experienced a temporary decrease in paid work hours and workloads because of the transition to remote working (Collins et al. 2021; Landivar et al. 2020). Reducing employment workloads to make space for increasing domestic demands and childcare responsibilities during the pandemic may have also become more acceptable in the workplace compared with prepandemic times. These may relieve some of the work-family conflicts that full-time employed mothers face, allowing them to engage more with children and perhaps get more sleep and leisure, which are found to be effective in reducing mothers' parental stress (Bianchi 2011; Kelly et al. 2014; Marshall and Tracy 2009; Milkie et al. 2019; Schnittker 2007). During the early days of the pandemic, when these data were collected, the mental health of full-time employed mothers, especially their stress levels might still be benefiting from the temporary reduction of work-family conflicts. The rewards of mothering might also be amplified as mothers spent more meaningful time engaged with their children (Musick et al. 2016; Negraia and Augustine 2020; Offer 2014). We also found that it is mainly among women with coresiding spouses or partners that full-time employed mothers experienced smaller stress increases than women in other groups. Among women without coresiding spouses or partners, the stress changes of women with different mothering and employment statuses were similar. However, the triple interaction of mothering status, employment status, and the presence of coresiding spouses or partners was not significant (results not presented). Because only 61 mothers reported not having coresiding spouses or partners during the pandemic (18 working full-time, 4 working part-time, and 29 not working), the validity of the results is questionable. Therefore, we cannot rule out the possibility that full-time working mothers experience smaller stress increases than women with other mothering and employment statuses only when having a coresiding spouse or partner to provide childcare, employment, and emotional support. But to what extent this is true requires further analysis.

Compared with mothers employed full-time, similarly employed nonmothers were less likely to reduce their work hours during the pandemic because of domestic responsibilities (Heggeness and Fields 2020; Landivar et al. 2020). Many

of them may have even taken extra workloads because of the layoffs and reduced hours of other workers and hence experienced more work-related stress than before the pandemic. Although potentially facing great stress from work, nonmothers may not receive as much emotional and social support during the pandemic as mothers do. Prior work shows that parenting can strengthen adults' ties with extended family members and neighbors who can provide help in times of difficulty (Gallagher and Gerstel 2001; Kalmijn 2012; Nomaguchi and Milkie 2003). This means that compared with mothers, women not raising children may have fewer people to rely on during the pandemic. Besides, the cancellation of social events and the closure of entertainment venues following the pandemic onset may have also restricted nonmothers' access to friends and leisure activities that they used to rely on for coping with stress before the pandemic. Therefore, working long hours without the usual leisure outlets during the pandemic may have been especially stressful for nonmothers.

Other possible explanations for the small increase in stress among full-time employed mothers during the pandemic include their high prepandemic stress levels and stress coping abilities. We found that before the pandemic onset, full-time employed mothers tended to report higher levels of stress than nonmothers, and mothers of other employment statuses (see Figure A1). Full-time employed mothers, who during nonpandemic times need to juggle many responsibilities in order to meet the demands of full-time employment and mothering, may be better equipped via their previous experience to deal with the sudden increase of stressors during a crisis such as the COVID-19 pandemic. Despite the complex relationship between employment and mothers' mental well-being, existing studies do generally show that maternal employment can provide economic, psychological, and social resources that are beneficial to mothers' emotional well-being (Blair-Loy 2003; Meier et al. 2016; Nomaguchi and Brown 2011; Nomaguchi and Johnson 2016; Nomaguchi and Milkie 2020). Therefore, having more already established strategies and resources for coping with stress in situations of crisis may also be a reason why full-time employed mothers' feelings of stress increased less following the onset of the pandemic than most women with other mothering and employment status.<sup>6</sup> This same mechanism may also explain why among women who shifted from working full-time to working part-time or not working after the pandemic

<sup>6</sup>Another possible explanation is that full-time working mothers started out with higher stress than women in other groups before the pandemic, leaving them a smaller room for stress increase during the pandemic. However, full-time employed mothers' during-COVID-19 stress level (5.57) was close to the sample average (5.59) and lower than the upper limit of 10 for the stress measure (Figure A1). Therefore, we believe that full-time employed mothers' smaller stress increases during the pandemic were unlikely to be caused by not having enough room for stress increases. Their prepandemic experience in dealing with stressful events and better coping abilities is a preferable explanation.

outbreak, mothers still experienced smaller stress increases than nonmothers.

Economic difficulties and perceived financial strain may also be one of the reasons why part-time and nonemployed mothers experienced greater increases in stress than full-time working mothers during the pandemic. Prior literature shows that employment can benefit women's well-being through a variety of mechanisms, one of which is by providing economic security (Frech and Damaske 2012; Marshall and Tracy 2009; Pavalko and Smith 1999; Ross and Mirowsky 1995; Schnittker 2007). Thus, employed women may be less vulnerable to the financial difficulties caused by the pandemic than women who are unemployed or out of the labor force. Similarly, among employed women, those working part-time may have encountered greater financial difficulties compared with full-time employed women given that, in the United States, part-time jobs tend to pay lower wages, provide fewer benefits, and have higher risks of termination than full-time jobs (Frech and Damaske 2012; Kalleberg, Reskin, and Hudson 2000). Although we argued earlier that spending time with children may play a protective role for mothers' mental health in times of crisis, this may only be valid for mothers who have full-time jobs. For part-time and nonemployed mothers, the fear of encountering financial difficulties and not being able to provide for children's needs may increase their feelings of stress. However, the level of stress increase that furloughed mothers reported was as low as that of full-time working mothers. This may be because people still expected a fast recovery from the pandemic in April and May 2020. The expectations that jobs and income will return in the near future may make furloughed mothers worry less about long-term financial difficulties and enjoy their time with children at home. The seasonal fluctuation of mothers' employment is also relevant. Before the pandemic, mothers' employment rates decreased between June and September (Heggeness et al. 2021). For mothers who leave their jobs in June and return in September every year, being furloughed in April and May 2020 might not cause financial-related stress if they expected the pandemic to end by September.

The results of this study suggest that during times of crisis such as a pandemic outbreak, full-time employment may protect mothers' mental health, possibly by providing financial security and sufficient childcare resources, offering mothers capabilities to cope with the stress caused by sudden life changes, and giving them meaningful things to do (paid work and spending time with children) to take

their minds off the threat of the pandemic. However, full-time employment and long paid working hours did not seem to benefit nonmothers' mental health during the pandemic.

Certain limitations of this study are worth noting. First, the mental health consequences of the COVID-19 pandemic that we observed in this study may only be short-term, because the data we used were collected during the early months of the pandemic (April 7 to May 15, 2020). For example, the long-term consequences of reduced work hours on mothers' and nonmothers' mental well-being may not have shown up at the early stages of the pandemic, when people still hoped for a fast rebound and government financial support. Second, constrained by data limitations and the small sample size of mothers parenting minor children ( $n = 365$ ), we cannot conduct more detailed analyses to explore, for example, whether the impacts of mothering and employment statuses on stress vary by occupational characteristics, marital status, and living arrangement. Future research should explore these questions systematically. Third, as mentioned earlier, the retrospective reports of prepandemic stress levels are prone to bias. Fourth, the ASCC data are not nationally representative. We weighted the data on the basis of the sociodemographic characteristics of mothers and nonmothers in the nationally representative 2018 GSS data but remained cautious about the generalizability of the results to the U.S. population.

Despite these limitations, our research makes key contributions to the study of the COVID-19 pandemic's impacts on U.S. women's mental health. To our knowledge, the ASCC study is the only available data set collected during the early days of the pandemic which contains measures of both pre- and during-pandemic stress, parenting, and employment status, and for whom it can be determined if respondents were able to work from home. This study is also among the first to provide empirical evidence that the mental health consequences of the COVID-19 pandemic on American women vary depending on their parenting and employment statuses. Because mothering was associated with smaller stress increases during the pandemic only when combined with full-time employment, we call for more financial, child care, and emotional support for part-time working and nonemployed mothers. Also, as a growing share of women delays or opts out of parenting (Lesthaeghe 2010), we call for more family and social support to shelter women not raising children from the negative mental health consequences of the pandemic.

## Appendix

**Table A1.** Comparisons between the Sample of Unweighted and Weighted ASCC Study and the 2018 GSS.

	Unweighted ASCC		Weighted ASCC		GSS	
	Nonmothers	Mothers	Nonmothers	Mothers	Nonmothers	Mothers
Age (years)	28.06 (7.50)	34.86 (6.49)	32.39 (9.88)	35.88 (5.46)	32.53 (8.71)	35.44 (8.46)
Race (%)						
White	60.4	73.2	63.2	69.5	62.9	69.9
Black	8.5	5.8	21.1	13.1	21.5	12.8
Others	31.1	21.1	15.7	17.4	15.6	17.3
Married (%)	18.3	68.0	40.7	58.9	40.7	58.9
Years of education	15.03 (2.17)	15.10 (2.13)	14.30 (2.32)	14.30 (1.51)	14.09 (2.69)	13.70 (3.01)
Pre-COVID-19 weekly work hours (%)						
≥35	48.4	54.5	52.7	47.3	51.8	46.8
1–34	32.8	28.0	14.9	23.3	14.8	23.0
0	18.8	17.4	32.4	29.5	33.4	30.2
Household income (%)						
<\$20,000	16.1	11.2	16.7	15.3	16.8	15.1
\$20,000–\$60,000	38.3	35.3	37.9	38.3	38.5	39.0
\$60,000–\$100,000	23.7	33.4	25.4	25.0	25.0	24.8
>\$100,000	22.0	20.0	20.0	21.5	19.7	21.2
<i>n</i>	1,140	365	1,140	365	390	294

Note: ASCC = Assessing the Social Consequences of COVID-19; COVID-19 = coronavirus disease 2019; GSS = General Social Survey.

**Table A2.** Predicted Stress Levels before and during the COVID-19 and the Change in Stress Levels after the COVID-19 Outbreak by Mothering Status (*n* = 1,505, Weighted).

	Model 1		Model 2		Model 3	
	Pre-COVID-19		During-COVID-19		Change	
Mothers (reference: nonmothers)	.321	(.300)	-.075	(.348)	-.456	(.283)
Pre-COVID-19 employment status (reference: full-time)						
Part-time	-.282	(.340)	-.656	(.437)	-.024	(.350)
Self-employed	-.826*	(.331)	-.737	(.712)	.253	(.645)
Furloughed	-.374	(.677)	-3.104**	(1.186)	-2.511*	(1.078)
Unemployed/not in the labor force	-.925*	(.465)	-.235	(.581)	.836+	(.460)
During-COVID-19 employment status (reference: full-time)						
Part-time			.413	(.494)	-.116	(.362)
Self-employed			.076	(.707)	.027	(.732)
Furloughed			-1.092*	(.481)	-.220	(.418)
Unemployed/not in the labor force			-.140	(.476)	-.165	(.422)
Constant	6.606***	(1.180)	7.607***	(1.161)	1.903+	(1.006)
<i>R</i> <sup>2</sup>	.050		.142		.138	

Note: Results are regression coefficients from ordinary least squares models, with standard errors in parentheses. All covariates were also controlled, but we omit the coefficients to conserve space.

+*p* < .10. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

**Table A3.** Predicted Stress Level Changes after the COVID-19 Outbreak by Mothering and Employment Statuses ( $n = 1,505$ , Weighted).

	Model 1		Model 2		Model 3	
Mothers (reference: nonmothers)	-1.411***	(.407)	-1.133**	(.416)	-1.436***	(.418)
During-COVID-19 weekly work hours (reference: $\geq 35$ )						
1-34	-.718*	(.314)				
0	-.432	(.311)				
Mothers $\times$ during-COVID-19 weekly work hours						
Mothers $\times$ 1-34	1.803***	(.521)				
Mothers $\times$ 0	1.344**	(.448)				
During-COVID-19 employment status (reference: full-time)						
Part-time			-.765*	(.360)		
Self-employed			-.172	(.394)		
Furloughed/stay at home			-.247	(.457)		
Unemployed/not in the labor force			-.320	(.367)		
Mothers $\times$ during-COVID-19 employment status						
Mothers $\times$ part-time			1.426*	(.599)		
Mothers $\times$ self-employed			.786	(.707)		
Mothers $\times$ furloughed			-.003	(.755)		
Mothers $\times$ unemployed/not in the labor force			1.192*	(.475)		
Employment change (reference: always full-time)						
Always part-time					-1.191**	(.368)
Always nonemployed					.002	(.416)
Full-time to part-time/nonemployed					-.383	(.335)
Part-time to nonemployed					-.212	(.393)
Mothers $\times$ employment change						
Mothers $\times$ always part-time					2.323***	(.571)
Mothers $\times$ always nonemployed					1.860***	(.529)
Mothers $\times$ full-time to part-time/nonemployed					.914	(.546)
Mothers $\times$ part-time to nonemployed					1.220*	(.600)
Constant	2.193*	(.915)	2.232*	(.954)	1.629+	(.963)
$R^2$	.125		.120		.142	

Note: Results are regression coefficients from ordinary least squares models, with standard errors in parentheses. All covariates were controlled, but we omit the coefficients to conserve space.

+ $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table A4.** Predicted Stress Level Changes after the COVID-19 Outbreak by Mothering and Employment Statuses ( $n = 1,505$ , Unweighted).

	Model 1		Model 2		Model 3	
Motherhood and during-COVID-19 weekly work hours (reference: mothers $\geq 35$ )						
Mothers 1-34	.663*	(.331)				
Mothers 0	.774*	(.317)				
Nonmothers $\geq 35$	.804*	(.329)				
Nonmothers 1-34	.498	(.335)				
Nonmothers 0	.586+	(.342)				
Motherhood and during-COVID-19 employment status (reference: mothers full-time)						
Mothers part-time			.660+	(.376)		
Mothers self-employed			.909+	(.489)		
Mothers furloughed			.069	(.553)		
Mothers unemployed/not in the labor force			.910**	(.324)		

(continued)

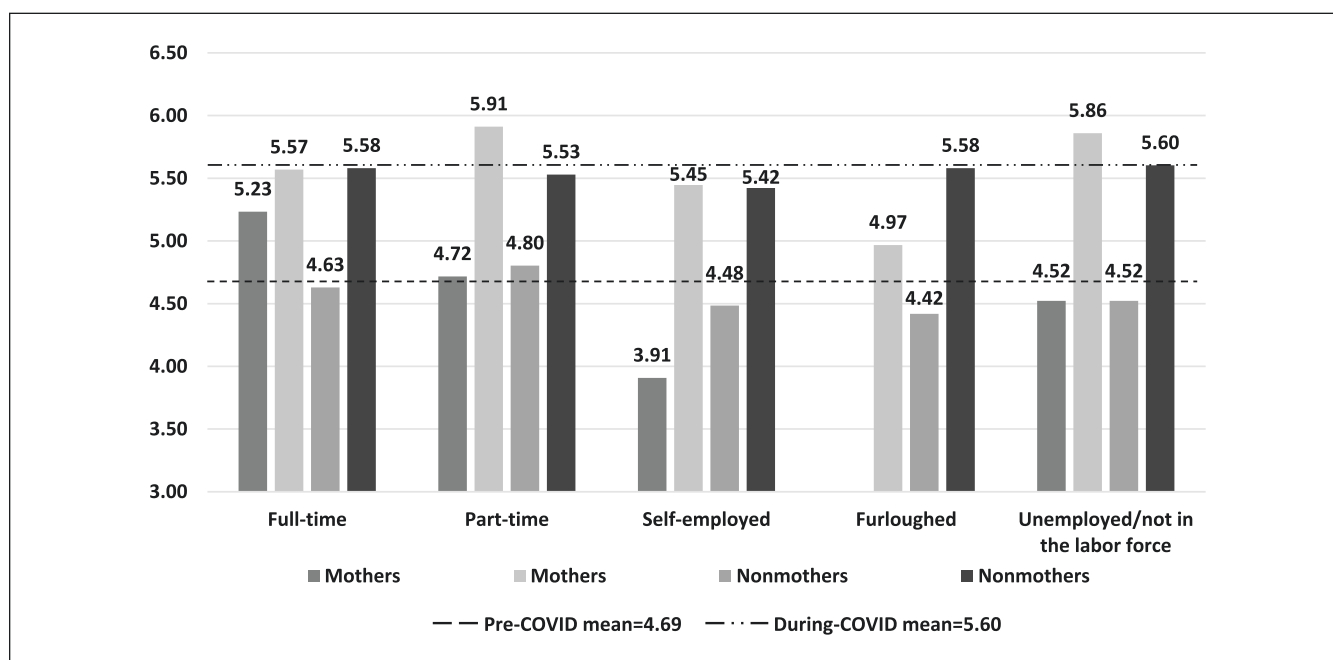


**Table A4.** (continued)

	Model 1	Model 2	Model 3
Nonmothers full-time		.743* (.321)	
Nonmothers part-time		.417 (.353)	
Nonmothers self-employed		.656+ (.380)	
Nonmothers furloughed		.755+ (.391)	
Nonmothers unemployed/not in the labor force		.563 (.346)	
Motherhood and employment change (reference: mothers always full-time)			
Mothers always part-time			.753+ (.404)
Mothers always not employed			1.260** (.448)
Mothers full-time to part-time/nonemployed			.339 (.340)
Mothers part-time to nonemployed			1.099* (.430)
Nonmothers always full-time			.848* (.334)
Nonmothers always part-time			.400 (.359)
Nonmothers always not employed			.751+ (.436)
Nonmothers full-time to part-time/nonemployed			.545 (.345)
Nonmothers part-time to nonemployed			.557 (.374)
Constant	.857 (.781)	.838 (.781)	.697 (.835)
R <sup>2</sup>	.053	.056	.060

Note: Results are regression coefficients from ordinary least squares models, with standard errors in parentheses. All covariates were controlled, but we omit the coefficients to conserve space.

+ $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .



**Figure A1.** Predicted means of women's pre- and during-COVID-19 stress levels by mothering and employment statuses ( $n = 1,505$ , unweighted).

Note: COVID = coronavirus disease 2019.

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