



**Published:** December 31, 2023

**Citation:** Armstrong-Mensah E, Karim M, et al., 2023. COVID-19 and the Mental Health of Working Mothers as Caregivers in Georgia, USA: Causes, Outcomes and Coping Mechanisms, Medical Research Archives, [online] 11(12). <https://doi.org/10.18103/mra.v11i12.5025>

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**DOI:** <https://doi.org/10.18103/mra.v11i12.5025>

**ISSN:** 2375-1924

RESEARCH ARTICLE

## COVID-19 and the Mental Health of Working Mothers as Caregivers in Georgia, USA: Causes, Outcomes and Coping Mechanisms

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### ABSTRACT

**Objective:** The study examined the mental health conditions experienced by working mothers as caregivers in Georgia, United States during the COVID-19 pandemic, the causes and outcomes of the mental health conditions experienced, and the coping mechanisms they employed.

**Methods:** A mixed methods cross-sectional study design was used to collect data from 132 working mothers in Georgia across six domains using Qualtrics. Quantitative data was analyzed using SPSS and SAS. Qualitative data was analyzed using a thematic approach.

**Results:** Working mothers experienced depression and anxiety while providing care during the pandemic. The lack of access to childcare and family support (12.5%), home schooling (18.1%), and juggling work and family (25.6%) contributed to the mental health conditions experienced, which led to anger (12.5%), aggression towards partners (11.3%), and the inability to sleep (18.8%). Coping mechanisms employed were drinking (1.3%), smoking (5.6%) and arguing with a spouse (8%).

**Conclusion:** While the pandemic affected the mental health of many adults in the US, working mothers providing care were among the population hardest hit. Although the immediate threat of COVID-19 has abated, its impact on mental health cannot be overlooked. By focusing primarily on the mental health of working mothers as caregivers during the pandemic, the study draws attention to, and underscores the need for targeted interventions and policies to be put in place to respond to the mental health needs of this population in the event of a future global health emergency.

**Keywords:** COVID-19, Mental Health, Working Mothers, Caregivers, Georgia, USA

## Introduction

Sweeping across the globe between 2019 and 2022, the coronavirus disease of 2019 (COVID-19) disrupted the livelihoods and routines of many individuals and families. The introduction of temporary control measures such as the closure of schools and childcare centers, and the shifting of a significant portion of workforce operations to reduced or remote work from home<sup>1</sup> to contain the pandemic, negatively impacted the mental health of many<sup>2</sup> leading to conditions such as anxiety, depression, and insomnia among adults.<sup>3</sup> According to the Centers for Disease Control and Prevention (CDC),<sup>4</sup> in June 2020, there was a significant increase in self-reported cases of mental health symptoms, with about 31% of those cases associated with anxiety or depression, and 11% associated with thoughts of suicide. In January 2021, self-reported cases of anxiety and depressive disorders rose to 41% among adults in the US. These statistics were almost double that of pre-pandemic times.<sup>5</sup>

Among adults most impacted by mental health conditions during the COVID-19 pandemic in the United States (US), were working mothers. Accounting for about 13% of the American labor force,<sup>6</sup> almost one in 10 mothers quit their jobs in 2021. The share of mothers who left the workforce was higher among single mothers (17%) than among married mothers or mothers with a partner (9%).<sup>7</sup> For mothers who remained employed, time and financial pressures were particularly acute, on top of caregiving responsibilities — especially for those with children and those living with an elderly or disabled family member. These mothers had to simultaneously juggle paid work with caregiving demands.<sup>8</sup> When schools, childcare programs, and family-based arrangements such as grandparents taking care of their grandchildren were unavailable, and when care arrangements (bathing, dressing, feeding) for family members with disabilities, and the elderly were either closed or inaccessible, working mothers had no choice but to take on additional responsibilities that were often unequally shared with their partners.<sup>9-10</sup> A survey conducted by The New York Times in April 2020, found that among parents with children under 12 years old, women consistently reported spending more time home schooling and providing childcare than men.<sup>11</sup> In the bid to meet the unprecedented and indeterminate demands and burden of caregiving, most working mothers compromised and sacrificed time to tend to their own mental and emotional needs.<sup>12</sup> While studies have been conducted on COVID-19, very few have focused on its effects on the mental health of working mothers as caregivers. The study examined the mental health conditions experienced

by working mothers as caregivers in Georgia, US during the COVID-19 pandemic, the causes and outcomes of the mental health conditions experienced, and the coping mechanisms they employed. While the immediate threat of COVID-19 has abated, its impact on the mental health of working mothers as caregivers cannot be overlooked. The study's findings draws attention to and underscores the need for targeted interventions and policies to respond to the mental health needs of this population and the need to provide flexible work arrangements, family support, and access to mental health services for this population in the event of a future global health emergency.

## Methods

### SAMPLING, SETTING, AND DATA COLLECTION

We conducted a mixed methods cross-sectional study of working mothers in Georgia, US, who served as caregivers to children, elderly family members, or persons with a disability in 2020 and 2021 during the COVID-19 pandemic. Mothers were informed and invited to participate in the study through social media such as email, SMS texting, and WhatsApp during the fall of 2022. Mothers who volunteered to participate in the study provided their consent by completing a one-time electronic questionnaire created in Qualtrics. To uphold study participants confidentiality and privacy, no personally identifiable information was collected. The Georgia State University Institutional Review Board (IRB) approved the study.

### VARIABLES AND MEASUREMENTS

The data collection instrument consisted of 15 multiple choice and open-ended questions across six domains: i) demographic information, ii) caregiving, iii) mental health conditions experienced, iv) causes of mental health condition(s), v) outcomes of mental health conditions experienced, and vi) coping mechanisms. The demographic information domain focused on working mothers age, race, county of residence, employment, marital status, and number of children. The caregiving domain focused on the individuals (children, the elderly, and the disabled) working mothers provided care to during the pandemic. The mental health conditions experienced domain focused on the mental health conditions working mothers experienced prior to and during the pandemic. The causes of mental health conditions domain focused on perceptions of the causes of the mental health conditions experienced during provision of care during the pandemic. The outcomes of the mental health conditions experienced domain focused on the extent to which the mental health conditions working mothers experienced while giving care during the pandemic affected their mental health, and the

coping mechanism domain focused on how the mothers coped with the outcome(s) of the mental health condition(s) they experienced while giving care.

### STATISTICAL ANALYSIS

Data collected in Qualtrics was cleaned and exported to the Statistical Package for Social Sciences (SPSS) version 26 and the Statistical Analysis System (SAS) version 9.4 for analysis. Descriptive analysis was conducted to summarize data and bivariate and multivariate analyses were conducted to assess the relationship between variables. Missing quantitative data were excluded from calculations. Qualitative data were manually extracted from the SPSS database and themes were established using a thematic approach. Analyzed qualitative data is presented verbatim (in italics) to convey exactly what study participants said in explanation to certain questions.

## Results

### UNIVARIATE ANALYSIS

#### Demographics

A total of 132 mothers participated in the survey.

The majority (86.7%) were within the 31 years and above age group. When it came to race, 38.8% of the study participants were African American and Asian or Pacific Islander, 14.9% were White, 0.7% were Hispanic or Latino, and 6.7% were from "other" races. Most of the participants (87.9%) were married, others were not married (10.6%), divorced (0.8%) or were widowed (0.8%). Nearly all participants (96.2%) said they have children. Of those who have children, 23.4% had one child, 53.9% had two, 18.0 had three, and 4.7% had four or more. Many of the participants (75.6%) were employed in 2020. This percentage increased to 78.8% in 2021. The kind of jobs participants held in 2021 included being an entrepreneur (6.9%), nurse (13.0%), and teacher (7.6%). Other jobs listed included administrator, epidemiologist, faculty, customer service representative, laboratory manager, mental health associate, project manager, researcher recruiter, and grant and contract officer. Geographically, 13.7% of the participants said they lived in Cobb County, 12.6% in DeKalb, 21.9% in Forsyth, 5.0% in Fulton 8.7% in Gwinnett, and 1.9% lived in Henry County (Table 1).

**Table 1.** Demographic Characteristics of Participants

Variables	Sample Size, n	Percentage, %
<b>DEMOGRAPHIC INFORMATION</b>		
<b>Age</b>		
18-24 years	5	3.7
25-30 years	13	9.6
31+	117	86.7
Total	135	100.0
<b>Race</b>		
African American	52	38.8
Asian or Pacific Islander	52	38.8
Hispanic or Latino	1	0.7
White	20	14.9
Other	9	6.7
Total	134	100.0
<b>Geographic location in Georgia</b>		
Region 1	1	0.8
Region 2	37	31.4
Region 3	70	59.3
Region 4	3	2.5
Region 5	7	5.9
Region 6	0	0.0
Region 7	0	0.0
Region 8	0	0.0
Total	118	100
<b>Did you have a job in 2020?</b>		
Yes	99	75.6
No	32	24.4
Total	131	100.0
<b>Did you have a job in 2021?</b>		
Yes	104	78.8
No	28	21.2

Variables	Sample Size, n	Percentage, %
Total	132	100.0
<b>Type of job</b>		
Entrepreneur	9	6.9
Nurse	17	13.0
Teacher	10	7.6
Others	79	60.3
I do not work	16	12.2
Total	131	100.0
<b>Marital status</b>		
Married	116	87.9
Not married	14	10.6
Divorced	1	0.8
Widowed	1	0.8
Total	131	100.0
<b>Do you have children?</b>		
Yes	126	96.2
No	5	3.8
Total	131	100.0
<b>If yes, how many?</b>		
1	30	23.4
2	69	53.9
3	23	18.0
4+	6	4.7
Total	128	100.0

### Caregiving

Study participants were asked about their care giving responsibilities in 2020 and 2021 during the COVID-19 pandemic. Most of the participants (82.5%) indicated that they were the primary caregivers of a child or children. Of this number, 34.0% said they took care of one child, 49.1% reported taking care of two children, 13.2% reported taking care of three children, and 3.8%

reported taking care of four or more children. When it came to the elderly, 15.9% of the participants said they were the primary caregivers of an elderly family member, while 5.6% said they were sometimes the primary caregiver. Some of the participants (9.8 %) took care of a person with disabilities. The number of persons with a disability they took care of ranged from 1(66.7%) to more than 4 (16.7%) (Table 2).

**Table 2.** Caregiving

<b>II CAREGIVING</b>		
<b>Were you the primary caregiver of child/children during COVID-19 (2020-2021)?</b>		
Yes	104	82.5
No	22	17.5
Total	126	100.0
<b>If yes, how many children?</b>		
1	36	34.0
2	52	49.1
3	14	13.2
4+	4	3.8
Total	106	100.0
<b>Were you the primary caregiver of elderly family member(s) during COVID-19 (2020-2021)?</b>		
Yes	20	15.9
No	99	78.6
Sometimes	7	5.6
Total	126	100.0
<b>Were you the primary caregiver of a person with disability during COVID-19 (2020-2021)?</b>		
Yes	12	9.8
No	111	90.2
Total	123	100.0

<b>II CAREGIVING</b>		
<b>If yes, how many?</b>		
1	8	66.7
2	2	16.7
3	0	0.0
4+	2	16.7
Total	12	100.0

### **Mental Health Conditions Experienced**

Prior to the COVID-19 pandemic, 17.6% of the study participants reported that they experienced mental health conditions such as depression, anxiety, bipolar disorder when giving care to their children, the elderly, or a family member with a disability. This percentage rose to 36.8% between

2020 and 2021 during the pandemic. Specifically, in 2020 and 2021, 23.1% of the participants reported having experienced anxiety, 16.9% depression, 1.90% eating disorder, 0.60% schizophrenia, and 1.3% postpartum depression (Table 3).

**Table 3.** Mental Health Conditions Experienced

<b>III. MENTAL HEALTH CONDITIONS EXPERIENCED</b>		
<b>Did you experience a mental health condition(s) prior to COVID-19?</b>		
Yes	22	17.6
No	103	82.4
Total	125	78.1
<b>Did you experience a mental condition(s) while giving care during COVID-19 (2020-2021)?</b>		
Yes	46	36.8
No	79	63.2
Total	125	100.0
<b>If yes, what mental health conditions did you experience while giving care during COVID-19 (2020-2021)? Multiple</b>		
Anxiety	37	23.1
Depression	27	16.9
Eating Disorder	3	1.9
Drug Addiction	0	0.0
Bipolar Disorder	0	0.0
Schizophrenia	1	0.6
Post Partum Depression	2	1.3
Other	3	1.9
None	33	20.6

### **Causes of the Mental Health Condition(s)**

Study participants were asked about their perception of what they thought was the cause of the mental health conditions they experienced while giving care in 2020 and 2021. Some participants (13.1%) reported that it was the change in their work schedule. Others (14.4%) reported the lack of access to childcare and family support (12.5%), having to home school (18.1%), juggling work and family responsibilities (25.6%), lack of time for themselves (30.6%), and financial insecurity (13.8%). About 6.3% of the participants reported media and generational trauma, postpartum depression and worry about the future as “other” causes of the mental health conditions they experienced. Participants were asked the extent to which they felt their mental health had been affected while giving care in 2020 and 2021. Some (61.2%) said very little, and others (22.4%) said very much (Table 4).

### **Outcomes of Mental Health Conditions Experienced**

According to study participants, the outcomes of the mental health conditions they experienced while giving care included the exhibition of aggression towards their partner (11.3%) and child/children (6.3%), suicidal tendencies (0.6%), loss of interest in their job (11.3%), the inability to sleep (18.8%), anger (12.5%), reduced appetite (5.0%), burn out (30.0%), confusion (6.3%), and mood swings (20.6%). “Other” outcomes included panic attacks, sciatica, sickness, and tiredness (Table 4).

### **Coping Mechanisms**

When it came to how they coped with the outcomes of the mental health conditions they experienced while giving care, 24.4% of the study participants said they engaged in physical exercise, 25.0% said reliance on social support that was available, 4.4% reported drinking alcohol, 1.3% reported smoking,

5.6% said taking medications, and 8% said arguing with their spouse. In addition, 29.4% reported praying, 3.8% did nothing, and 4.4% turned to

meditation, reading, podcasts, rest, therapy, and cooking (Table 4).

**Table 4.** Causes, Outcomes and Coping Mechanisms of Mental Health Conditions Experienced

<b>IV. CAUSES OF THE MENTAL HEALTH CONDITIONS EXPERIENCED</b>		
<b>Causes of the mental health condition(s) you experienced while giving care during COVID-19 (2020-2021). Multiple</b>		
Change in work schedule	21	13.1
Lack of access to childcare	23	14.4
Lack of access to family support	20	12.5
Having to home school	29	18.1
Lack of access to elderly care	0	0.0
Juggling work and family responsibilities	41	25.6
Lack of time for myself	49	30.6
Financial Insecurity	22	13.8
Others	10	6.3
<b>V. OUTCOMES OF THE MENTAL HEALTH CONDITIONS EXPERIENCED</b>		
<b>Extent to which to COVID-19 affected your mental health while giving care (2020-2021)</b>		
Not at all	19	16.4
Very little	71	61.2
Very much	26	22.4
Total	116	72.5
<b>Outcomes of the mental health conditions you experienced while giving care during COVID-19 (2020-2021). Multiple</b>		
Aggression towards	18	11.3
Aggression towards my child/children	10	6.3
Suicidal tendencies	1	0.6
Lost interest in my job	18	11.3
Inability to sleep	30	18.8
Anger	20	12.5
Reduced appetite	8	5.0
Burned out	48	30.0
Confused	10	6.3
Mood swing	33	20.6
Other	7	4.4
<b>VI. COPING MECHANISMS</b>		
<b>How did you cope with the outcome(s) of the mental health condition(s) you experienced while giving care during the COVID-19 pandemic (2020-2021)?</b>		
Physical exercise	39	24.4
Reliance on social support systems	40	25.0
Drink alcohol	7	4.4
Smoke	2	1.3
Take medication	9	5.6
Argue with my souse	12	7.5
Pray	47	29.4
Nothing	6	3.8
Other	7	4.4

**Recommendations for Handling Mental Health Conditions**

Regarding what they thought could have been done to help working mothers who provided care in 2020 and 2021 during the pandemic to handle the mental health conditions they experienced, study participants provided various recommendations (n=32). Themes that emerged from the recommendations included mental health assistance (cited 7 times), support and assistance (cited 15

times), awareness creation (cited 3 times), job flexibility (cited 6 times) and other (cited 1 time). When it came to mental health assistance, study participants specifically said:

*“Create a sisterhood via social media where they can socialize/relate to one another”*

*“Free virtual mental healthcare”*

*“Having more conversations about the impact of the pandemic on mental health.*



*We tend to sweep a lot of important conversations under the rug”*

*“Require health insurers to cover costs for a wide range of mental health services*

With regards to support and assistance they said:

*“Accessibility to childcare and adequate income from the government”*

*“Allow spouses to be present at doctor’s appointments. Provided post-partum care, eg doulas or nurses, that are trained on disease prevention to provide in-home support visits”*

*“Support groups, paid leave from work, better health insurance”*

On the issue of financial assistance, they said:

*“Better insurance coverage for mental health services like therapy/counseling.”*

*“Better social support from state programs. The use of state tax dollars are not being used appropriately to help working mothers. Providing subsidized childcare or a monthly stipend would have been amazing”*

*“Support with childcare/stipends or breaks in childcare payments when it closed (had to keep paying to “keep our spot” but also had to keep working to keep the job...)”*

*“Free meditation apps, financial support, better access to homeschool support and resources”*

Regarding job flexibility, they said:

*“More flexibility by employers to working mothers”*

*“More flexibility with family leave for employees”*

*“Understanding and empathizing employers”*

*“Work support”*

*“Additional protected leave options”*

*“Shorten their day by one or two hours per week”*

## BIVARIATE AND MULTIVARIATE ANALYSIS

### **Bivariate**

We conducted bivariate analysis to examine the relationship between the mental health conditions study participants had prior to COVID-19 and the kind of job they did. We found no significant relationships between participants who were working in 2020 (p-value = 0.9357) and 2021 (p-value = 0.7986) and their mental health conditions prior to COVID-19. When it came to mental health conditions experienced while giving care during COVID-19 and the type of job study participants did, there was also no significant relationship between participants who worked in 2020 (p-value = 0.2747) and those who worked in 2021 (p-value = 0.4239). Furthermore, there was no significant relationship between participants who were married, or not married and mental health conditions experienced prior to COVID-19 (p-value = 0.9196). There was, however, a significant relationship between the number of children participants had prior to COVID-19 and mental health conditions experienced (p-value = 0.0313) (Table 5A). No significant relationship was found between the provision of care to a child/children and mental health conditions prior to COVID-19 (p-value = 0.2483). None was also found between the number of children participants had (p-value = 0.1283), and the provision of care to elderly family members (p-value = 0.4923) or a person with a disability (p-value = 0.3908).

Regarding mental health conditions experienced by marital status while giving care during COVID-19, we found no significant relationship (p-value = 0.4729). We also did not find a significant relationship between married or unmarried study participants who were the primary caretakers of their children (0.3074), elderly family members (p-value = 0.6598), or a person with a disability (p-value = 0.7177) and mental health during COVID-19.

**Table 5A.** Bivariate analysis of did you experience a mental health condition(s) prior to COVID-19 by what kind of job you do and number of children

	Yes n (%)	No n (%)	p-value
<b>What type of job do you do?</b>			
Entrepreneur	0 (0.00)	7(100.0)	0.0378
Nurse	1(6.25)	15(93.75)	
Teacher	5(50.00)	5(50.00)	
Other	13(17.11)	63(82.89)	
I do not work	3(20.00)	12(80.00)	
<b>If you have children, how many?</b>			
1	10(37.04)	17(62.96)	0.0313
2	9(13.85)	56(86.15)	
3	3(13.64)	19(86.36)	
4+	0(0.00)	6(100.0)	

There was a significant relationship between eating disorder and marital status among study participants who were giving care during COVID-19 (p-value = 0.001) (Table 5B), and between participants who were primary caregivers of children during COVID-19 (p-value = 0.0231) (Table 5B). Significant relationships also existed between participants who were the primary

caregivers of children during COVID-19 and the lack of time for oneself (p-value = 0.0283) (Table 5C), as well as between participants who had a job in 2020 and financial insecurity (p-value = 0.0486) (Table 5D). Looking at the relationship between participants who had a job in 2021 and aggression towards a partner, we found a significant relationship (p-value = 0.0095) (Table 5E).

**Table 5B.** Bivariate analysis of eating disorder experienced while giving care during COVID-19 (2020-2021) by marital status and were you the primary caregiver of a child/children during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Are you married?</b>			
Yes	2(1.72)	114(98.28)	<0.0001
No	0(0.00)	14(100.0)	
Divorced	0(0.00)	1(100.0)	
Widowed	1(100.0)	0(0.00)	
<b>Were you the primary caregiver to a child/children during COVID-19 (2020-2021)?</b>			
Yes	1(0.96)	103(99.04)	0.0231
No	2(9.09)	20(90.91)	

**Table 5C.** Bivariate analysis of lack of time for myself by were you the primary caregiver of a child/children during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Were you the primary caregiver of child/children (2020-2021)?</b>			
Yes	45(43.27)	59(56.73)	0.0283
No	4(18.18)	18(81.82)	

**Table 5D.** Bivariate analysis of financial insecurity by did you have a job in 2020

	Yes n (%)	No n (%)	p-value
<b>Did you have a job in 2020?</b>			
Yes	13(30.13)	86(86.87)	0.0486
No	9(29.13)	23(71.88)	

**Table 5E.** Bivariate analysis of aggression towards a partner by did you have a job in 2021

	Yes n (%)	No n (%)	p-value
<b>Did you have a job in 2021?</b>			
Yes	10(9.52)	94(90.38)	0.0095
No	8(28.57)	20(71.43)	

Significant relationships were additionally found between participants who were primary caregivers of children during COVID-19 and the ability to sleep (p-value = 0.0195) (Table 5F), primary caregivers of children during COVID-19 who had no jobs in 2020 (p-value = 0.0207) and 2021 (p-value = 0.0492), and anger (Table 5G). There was

a significant relationship between participants who were primary caregivers during COVID-19, and mental health, specifically anger (p-value = 0.0447) (Table 5H), primary caregivers who had a job in 2020 (p-value = 0.0461) and in 2021 (p-value = 0.0271) and burn out (Table 5I).



**Table 5F.** Bivariate analysis of inability to sleep by were you the primary caregiver of child/children during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Were you the primary caregivers of child/children during COVID-19 (2020-2021)?</b>			
Yes	29(27.88)	75(72.1)	0.0195
No	1(4.55)	21(95.45)	

**Table 5G.** Bivariate analysis of anger by did you have a job in 2020 and 2021

	Yes n (%)	No n (%)	p-value
<b>Did you have a job in 2020?</b>			
Yes	20(20.20)	79(79.80)	0.0207
No	13(40.63)	19(59.38)	
<b>Did you have a job in 2021?</b>			
Yes	22(21.15)	82(78.85)	0.0492
No	11(39.29)	17(60.71)	

**Table 5H.** Bivariate analysis of anger and were you the primary caregiver of child/children during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Were you the primary caregiver of child/children in 2020-2021?</b>			
Yes	31(29.81)	73(70.19)	0.0447
No	2(9.09)	20(90.91)	

**Table 5I.** Bivariate analysis of burn out and did you have a job in 2020 and 2021?

	Yes n (%)	No n (%)	p-value
<b>Did you have a job in 2020?</b>			
Yes	41(41.41)	58(58.59)	0.0461
No	7(21.88)	25(78.13)	
<b>Did you have a job in 2021?</b>			
Yes	42(40.38)	62(59.62)	0.0271
No	5(17.86)	23(82.14)	

There was a significant relationship between participants who had jobs in 2020 and the reliance on social support systems such as family, friends, and pastor (p-value = 0.0140) (Table 5J). When it came to coping mechanisms, there was a significant relationship between providing care to an elderly family member and the reliance on a social support system (p-value = 0.0381) (Table 5K), primary caretakers of people with disability and social

support (p-value = 0.0445) (Table 5L), drinking alcohol and taking care of an elderly family member during COVID-19 (p-value = 0.0207) (Table 5M), having a job in 2020 (p-value = 0.0305) and taking of medication (Table 5N), and arguing with one's spouse and being the primary caregiver to a person with a disability (p-value = 0.0007) (Table 5O).

**Table 5J.** Bivariate analysis of reliance on social support by did you have a job in 2020

	Yes n (%)	No n (%)	p-value
<b>Did you have a job in 2020?</b>			
Yes	35(35.35)	64(64.65)	0.0140
No	4(12.50)	28(87.50)	

**Table 5K.** Bivariate analysis of reliance on social support by were you the primary caregiver of elderly family member during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Were you the primary caregiver of elderly family member during COVID-19 (2020-2021)?</b>			
Yes	10(50.00)	10(50.00)	0.0381
No	26(26.26)	73 (73.74)	
Sometimes	4(57.14)	3(42.86)	

**Table 5L.** Bivariate analysis of reliance on social support by were you the primary caregiver of a person with disability during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Were you the primary caregiver of a person with disability during COVID-19 (2020-2021)?</b>			
Yes	7(58.30)	5(41.67)	0.0445
No	33(29.73)	78(70.27)	

**Table 5M.** Bivariate analysis of drinking alcohol by were you the primary caregiver of an elderly family member(s) during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Were you the primary caregiver of an elderly family member(s) during COVID-19 (2020-2021)?</b>			
Yes	0(0.00)	20(100.0)	0.0207
No	1(1.01)	98(98.99)	
Sometimes	1(14.29)	6(85.71)	

**Table 5N.** Bivariate analysis of having a job in 2020 by taking medication to cope with mental health conditions experienced while giving care during the COVID-19 pandemic (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Did you take medication to cope with mental health conditions experienced while giving care during the COVID-19 pandemic (2020-2021)?</b>			
Yes	6(6.06)	93(93.94)	0.0305
No	6(18.75)	26(81.25)	

**Table 5O** Bivariate analysis of arguing with spouse by were you the primary caregiver to a person with a disability during the COVID-19 pandemic (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Were you the primary caregiver to a person with a disability during the COVID-19 pandemic (2020-2021)?</b>			
Yes	10(83.33)	2(16.67)	0.0007
No	37(33.33)	74(66.67)	

Regarding mental health conditions experienced prior to COVID-19, we found no significant relationship by age, however, we found a significant relationship by race (p-value = 0.0080) (Table 5P). Regarding the causes of mental health conditions experienced while providing care during

COVID-19 in 2020 and 2021, there was a significant relationship between change in work schedule and race (p-value = 0.0366) (Table 5Q), lack of access to family support and race (p-value = 0.0084) (Table 5R), and lack of time for myself and race (p-value = 0.0262) (Table 5S).

**Table 5P.** Bivariate analysis of race by did you experience a mental health condition prior to COVID-19

	Yes n (%)	No n (%)	p-value
<b>Did you experience a mental health condition prior to COVID-19?</b>			
African American	7(13.73)	44(86.27)	0.0080
Asian/Pacific Islander	6(12.50)	42(87.50)	
Other/Hispanic/Latino	1(11.11)	8(88.89)	
White	8(47.06)	9(52.94)	

**Table 5Q.** Bivariate analysis of race and change in work schedule by did you experience a mental health condition(s) while giving care during COVID-19 in 2020 and 2021

	Yes n (%)	No n (%)	p-value
<b>Did you experience a mental health condition(s) while giving care during COVID-19 in 2020 and 2021?</b>			
African American	4(7.69)	48(92.31)	0.0366
Asian/Pacific Islander	9(17.31)	43(82.69)	
Other/Hispanic/Latino	1(10.00)	9(90.00)	
White	7(35.00)	13(65.00)	

**Table 5R.** Bivariate analysis of race by lack of access to family support as a cause of mental health condition(s) experienced while giving care during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Would you say the lack of family support was a cause of the mental health condition(s) you experienced while giving care during COVID-19 (2020-2021)?</b>			
African American	5(9.62)	47(90.38)	0.0084
Asian/Pacific Islander	6(11.54)	46(88.46)	
Other/Hispanic/Latino	1(10.00)	9(90.00)	
White	8(40.00)	12(60.00)	

**Table 5S.** Bivariate analysis of race by lack of time for myself as a cause of the mental health condition(s) experienced while giving care during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Would you say the lack of time for myself was a cause of the mental health condition(s) you experienced while giving care during COVID-19 (2020-2021)?</b>			
African American	14(26.92)	38(73.08)	0.0262
Asian/Pacific Islander	19(36.54)	33(63.46)	
Other/Hispanic/Latino	3(30.00)	7(70.00)	
White	13(65.00)	7(35.00)	

Concerning outcomes of mental health conditions experienced while giving care during COVID-19 in 2020 and 2021, there was a significant relationship between burnout and race (p-value = 0.0074) (Table 5T). For coping mechanism, we found no significant relationship by age and race

physical exercise, usage of recreational substances, reliance on social support system, smoke, argue with spouse and pray. However, there was a significant relationship exists between coping mechanism and smoking by race (p-value = 0.0039) (Table 5U).

**Table 5T.** Bivariate analysis of race by burnout as an outcome of the mental health conditions experienced while giving care during COVID-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Did you experience burnout as an outcome of the mental health conditions experienced while giving care during COVID-19 (2020-2021)</b>			
African American	18(34.62)	34(65.38)	0.0074
Asian/Pacific Islander	12(23.08)	40(76.92)	
Other/Hispanic/Latino	5(50.00)	5(50.00)	
White	13(65.00)	7(35.00)	

**Table 5U.** Bivariate analysis of race by smoking as an outcome of the mental health conditions experienced while giving care during Covid-19 (2020-2021)

	Yes n (%)	No n (%)	p-value
<b>Did you smoke as an outcome of the mental health conditions experienced while giving care during COVID-19 (2020-2021)</b>			
African American	3(5.77)	49(94.23)	0.0039
Asian/Pacific Islander	1(1.92)	51(98.08)	
Other/Hispanic/Latino	0(0.00)	10(100.0)	
White	5(25.00)	15(75.00)	

### Multivariate Analysis

After controlling for age, race, and type of employment, we found that those who had jobs as nurses were 91.7% less likely to experience mental health conditions prior to COVID-19 (AOR 0.083, 95% CI 0.005-1.275, p-value =0.0741) (Table 3A). Study participants who were teachers were 78.8% more likely to have experienced anxiety

than study participants who were unemployed (AOR 1.788, 95% CI 0.242-13.198, p-value=0.5690). Study participants who had a job in 2020 were 8.9% less likely to have experienced mental health conditions prior to COVID-19 (AOR 0.911, 95% CI 0.173-4.794, p-value=0.9127) than those who did not have jobs. Those who had jobs in 2021 were 56.3% more likely to have

experienced mental health conditions prior to COVID-19 (AOR 1.563, 95% CI 0.265-9.219, p-value=0.6217) than those who did not have jobs (Table 6A). Study participants who were the primary caregivers of a child or children during COVID-19 in 2020 and 2021 were 3.36 times more likely to have a mental health condition than those who were not primary caregivers prior to COVID-19 (AOR 3.361, 95% CI 0.511-22.085, p-value=0.2069) Table 3A). Study participants who were between the ages of 18 and 30 years were 2.84 times more likely to have a mental health condition prior to COVID-19 compared to those

who aged 31 years and above (AOR 2.843, 95% CI 0.635-12.731, p-value=0.172). African Americans were 88.6% less likely than Whites to have a mental health condition prior to COVID-19 (AOR 0.114, 95% CI 0.027-0.485, p-value=0.0033). Asian and Pacific Islanders were 92% less likely than Whites to have a mental health condition prior to COVID-19 (AOR 0.080, 95% CI 0.017-0.380, p-value=0.0015). Hispanic or Latino and “others” were 84.1% less likely than whites to have a mental health condition prior to COVID-19 (AOR 0.159, 95% CI 0.015-1.717, p-value=0.01298) (Table 6A).

**Table 6A.** Multivariate analysis of did you experience a mental health condition(s) prior to COVID-19

	Adjusted Ratio	Odds	95% Confidence Interval (CI)	p-value
<b>What kind of job do you do?</b>				
I do not work (Reference)	1.00			
Entrepreneur/Other	0.285		0.050-1.624	0.1572
Nurse	0.083		0.005-1.275	0.0741
Teacher	1.788		0.242-13.198	0.5690
<b>Did you have a job in 2020?</b>				
No (Reference)	1.00			
Yes	0.911		0.173-4.794	0.9127
<b>Did you have a job in 2021?</b>				
No (Reference)	1.00			
Yes	1.563		0.265-9.219	0.6217
<b>Were you the primary caregiver of a child/children during COVID-19 (2020-2021)?</b>				
No (Reference)	1.00			
Yes	3.361		0.5110- 22.085	0.2069
<b>Age</b>				
31+ (Reference)	1.00			
18-30	2.843		0.635-12.731	0.1720
<b>Race</b>				
White (Reference)	1.00			
African Americans	0.114		0.027-0.485	0.0033*
Asian/Pacific Islanders	0.080		0.017-0.380	0.0015*
Other/Hispanic/Latino	0.159		0.015-1.717	0.1298

After controlling for age, race, and type of employment, we found that study participants who had jobs as nurses were 59.4% less likely to experience mental health conditions while giving care during COVID-19 in 2020 and 2021 (AOR 0.406, 95% CI 0.073-2.250, p-value =0.3019). Participants who were teachers were 7.8% less likely to have experienced a mental health condition while giving care during COVID-19 in 2020 and 2021 (AOR 0.932, 95% CI 0.156-5.572, p-value =0.9388) (Table 6B).

For study participants who had a job in 2020, they were 33.6% less likely to have experienced mental health conditions while giving care during COVID-19 in 2020 and 2021 (AOR 0.664, 95% CI 0.195-2.262, p-value=0.5129) and for those who had

jobs in 2021, they were 47.7% more likely to have experienced mental health conditions while giving care during COVID-19 in 2020 and 2021 (AOR 1.477, 95% CI 0.375-5.822, p-value=0.5129). Study participants who were the primary caregiver of a child or children during COVID-19 in 2020 and 2021 were 84.5% more likely to have a mental health condition than those who were not primary caregivers during COVID-19 in 2020 and 2021 (AOR 1.845, 95% CI 0.515-6.614, p-value=0.3472) (Table 3B). Study participants who were between the ages of 18 and 30 years and who were the primary caretakers of a child or children during COVID-19 in 2020 and 2021 were 42.5% more likely to have a mental health condition compared to those who aged 31 years and above (AOR 1.425, 95% CI 0.402-5.046, p-

value=0.5835). Study participants who were African Americans were 82.6% less likely than Whites to have a mental health condition while providing care during COVID-19 in 2020 and 2021 (AOR 0.174, 95% CI 0.050-0.600, p-value=0.0057). Asian and Pacific Islanders were 72.9% less likely than Whites to have a mental health condition while giving care during COVID-19

in 2020 and 2021 (AOR 0.271, 95% CI 0.075-0.985, p-value=0.0473). Hispanic or Latino and “others” were 39.3% less likely than Whites to have a mental health condition while providing care during COVID-19 in 2020 and 2021 (AOR 0.607, 95% CI 0.106-3.487 p-value=0.05758) (Table 6B).

**Table 6B.** Multivariate analysis of did you experience a mental health condition(s) while giving care during COVID-19 (2020-2021).

	Adjusted Odds Ratio	95% Confidence Interval (CI)	p-value
<b>What kind of job do you do?</b>			
I do not work (Reference)	1.00		
Entrepreneur/Other	0.261	0.068-1.008	0.0154
Nurse	0.406	0.073-2.250	0.3019
Teacher	0.932	0.156-5.572	0.9388
<b>Did you have a job in 2020?</b>			
No (Reference)	1.00		
Yes	0.664	0.195-2.262	0.5129
<b>Did you have a job in 2021?</b>			
No (Reference)	1.00		
Yes	1.477	0.375-5.822	0.5776
<b>Were you the primary caregiver of a child/children during COVID-19 (2020-2021)?</b>			
No (Reference)	1.00		
Yes	1.845	0.515-6.614	0.3472
<b>Age</b>			
31+ (Reference)	1.00		
18-30	1.425	0.402-5.046	0.5835
<b>Race</b>			
White (Reference)	1.00		
African Americans	0.174	0.050-0.600	0.0057*
Asian/Pacific Islanders	0.271	0.075-0.985	0.0473*
Other/Hispanic/Latino	0.607	0.106-3.487	0.57528

## Discussion

The study examined the mental health conditions experienced by working mothers as caregivers in Georgia, United States during the COVID-19 pandemic, the causes and outcomes of the mental health conditions experienced, and the coping mechanisms they employed. Findings suggest that most of the study participants compared to their male counterparts were the primary caregivers to children, an elderly family member, or an individual with a disability during the pandemic. According to Conway, decisions about who was to be the caregiver for children or elderly adults during the pandemic in households in the US, was primarily based on who earned a higher income and could purchase health insurance for the family.<sup>13</sup> In the US, men earn higher salaries than women, thus, some working mothers had to give up their jobs or scale back their work hours. Consequently, over 2 million women in the US left the workforce at the start of the pandemic, sending their unemployment rate skyrocketing.<sup>14</sup> Of this demographic, African

American, Hispanic, and single mothers were the hardest hit.<sup>15</sup> Per the United States Bureau of Labor, in 2022, the labor force participation rate for all mothers with children under the age of 18 was 72.9% while the participation rate for fathers was 92.9%.<sup>6</sup> Married mothers were less likely to participate in the labor force in 2022 than mothers who had never married, were widowed, divorced, or separated. Married fathers were more likely to participate in the labor force than fathers who had never married, were widowed, divorced, or separated.<sup>6</sup> The fact that some women had to leave the workforce or scale back during the pandemic to provide care based on Conway’s observation, draws attention to the need for the US government to implement policies that promote equal pay for women and men for equal work done, so that in case of a public health emergency in the future, women will not automatically have to be the ones to leave the workforce or scale back their hours to provide care. It will be a shared responsibility based on who is available when care is needed.



Study findings show that perceptions of the main causes of the mental health conditions (depression, anxiety, and bipolar disorder) working mothers experienced while providing care during the pandemic include changes in work schedule, lack of access to childcare and family support, home schooling, juggling work and family responsibilities, lack of time for self, and financial insecurity. This finding is consistent with Conway's work which noted that working mothers were mentally overwhelmed during the COVID-19 pandemic owing to trying to balance the role of caregiver, with that of professional and parent simultaneously.<sup>13</sup> Confirming Conway's findings, Calarco et al., reported that the strain on working mothers of school-aged and younger children during the COVID-19 pandemic, coupled with simultaneously juggling employment, and increased domestic responsibilities in the absence of stable childcare and schooling options, led to the onset of anxiety, depression, and the exacerbation of other existing mental health conditions.<sup>16-17</sup> While the pandemic affected the mental health of most Americans, the added stress for many working mothers providing care was magnified.<sup>13</sup> Per the 2022 Harris Poll data commissioned by CVS Health, more working mothers were diagnosed with anxiety and or depression (42%) than the general population (28%), their coworkers without kids (25%) and even working fathers (35%).<sup>18</sup> Working mothers were also more likely to report that their mental health had worsened in the last year (33%). While experiencing higher rates of mental health conditions, working mothers were also the least likely of any group to seek help for their mental health condition.<sup>18</sup> The implementation of the Biden Administration's child-related earned income tax credits for low to moderate-income workers in 2021 helped to improve maternal mental health outcomes in both dual and single parent households.<sup>19</sup> The American Jobs Plan introduced on March 31, 2021, which included a proposal to create more childcare facilities in high-need areas and to build on-site childcare facilities at places of work, also sought to provide some flexible childcare options for mothers in need.<sup>20</sup>

Some outcomes of the mental health conditions experienced by study participants while giving care during the pandemic include the exhibition of anger and aggression towards partners and child/children, mood swings, and the inability to sleep. As noted by Mental Health America, anger can fester and become explosive if not resolved.<sup>21</sup> It can have extremely maladaptive effects on behavior and can lead to serious consequences<sup>22</sup> such as resentment, abusive acts towards elderly care recipients, and the provision of poor-quality

care.<sup>23-24</sup> Thus, treating underlying conditions such as anxiety and mood swings can help to address anger issues among caregivers. In a study conducted to identify predictors of elderly abuse and neglect, caregivers who reported physical abuse displayed higher depression scores, and those who reported neglect reported higher anxiety scores.<sup>25</sup> A National Research Council report on elderly mistreatment concluded that depression is a characteristic of perpetrators of elderly abuse.<sup>26</sup> An analysis of the relationship between depression, resentment, and aggressive caregiving strategies indicated that there is an increased risk for potentially harmful caregiver behavior particularly when depressed caregivers are resentful about their caregiving responsibilities.<sup>26</sup> Consistent with study findings that participants who provided care during the pandemic had difficulty sleeping, Chen et al found that individuals with shorter sleep duration had a higher odds ratio of having depressive symptoms.<sup>27</sup> Reducing the barriers that potentially limit sleep, may contribute significantly to improving the depression and anxiety symptoms of caregivers.<sup>28</sup>

To cope with the mental health conditions they experienced as a result of providing care during COVID-19, Study participants relied on social support that was available, drank alcohol, smoked, prayed, or did nothing. This is consistent with a study conducted by Carver et al which identified denial, mental disengagement, behavioral disengagement, and the use of alcohol as strategies used by caregivers to cope with mental health conditions. In their study on caregiving, Sen et al. found that religion and spirituality were promotive of mental health during the pandemic. According to Sen et al., disasters such as the pandemic take away a sense of normalcy and disrupt daily routine. However, beliefs and practices associated with religion and spirituality provide a familiar structure and help to frame negative events in a positive light, thereby helping individuals and caregivers to handle overwhelming and unprecedented global health events.<sup>29</sup> Understanding the relationship between religion, spirituality and mental health, and the possible mechanisms underlying this relationship, is important for clinical intervention for caregivers.

### Study Limitations

Not as many working mothers who were providing care during the pandemic participated in the study. This may be because recruitment was done electronically with no contact with participants owing to the pandemic. A larger sample size would have allowed for the identification of relationships that can be generalized to the population of working mothers as caregivers in Georgia, US.



Future studies on this topic should recruit a larger sample size so as to address this limitation.

## **Conclusion**

While the pandemic affected the mental health of many adults in the US, working mothers who provided care during the pandemic in Georgia were among the population hardest hit. Scaling back on their jobs and juggling professional work with informal caregiving took a toll on their mental health and resulted in outcomes that were

associated with the mental health conditions they experienced. In order to reduce the mental health conditions experienced by working mothers during a global health emergency, it is important for men and women to share the responsibility of care giving in a way that does not negatively impact one partner.

## **Conflicts of Interest Statement**

The authors have no conflicts of interest to declare.

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