

# Impacts of the COVID-19 pandemic on the productivity of academics who mother

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## Abstract

The aim of the study is to document how academics who mother have reorganized work and childcare since the beginning of the coronavirus (COVID-19) pandemic in the United States, how those shifts have affected their academic productivity, and solutions proposed by academics living these experiences. We collected data via an online survey and, subsequently, by conducting qualitative interviews with a subsample of participants. From June to August 2020, 131 female-identified academics who mother were recruited via a Facebook group, *Academic Mamas*, and participated in our online survey. Twenty participants were then interviewed via phone or Zoom to explore more deeply the experiences of academics who mother. Results of our research suggest that since the start of the COVID-19 pandemic, the pressure on academics who mother is immense. Analysis of the qualitative data revealed three major themes: (1) inability to meet institutional expectations; (2) juggling work and family life; and (3) proposed solutions. Our results suggest that significant efforts must be made by academic institutions to acknowledge and value the childcare responsibilities of academics who mother and to create solutions that fully address the challenges they face in meeting the academic expectations and requirements that largely remain unmodified despite the pandemic.

## KEYWORDS

academia, academics who mother, COVID-19 pandemic, productivity

## 1 | INTRODUCTION

Since the birth of their child/children, academics who mother<sup>1</sup> are losing ground in comparison to others, including their childless counterparts and academics who father, with regard to the number of research publications that appear in peer-reviewed journals (Hunter & Leahey, 2010; Krapf et al., 2017; Lutter & Schröder, 2020). Available literature suggests that because academics who mother tend to carry out a disproportionately larger household and childcare workload, it may result in diminishing their time and energy devoted to research and inhibit publication productivity (Hunter & Leahey, 2010; Jolly, et al., 2014; Schiebinger & Gilmartin, 2010). Previous studies also found that the number of children and ages of children may have significant impact on the research productivity of academics who mother. For instance, Fox (2005) found that female academics with preschool children published more than their counterparts with school-aged children. Furthermore, evidence suggests that research productivity decreases with increasing number of children. Krapf et al. (2017) found that female academics with two or three children on average lose between 2.5 and 4 years of research output by the time their children have reached adolescence as compared to their childless counterparts.

The stay-at-home orders and state shutdowns due to the coronavirus (COVID-19) pandemic of 2020 seem to be exacerbating, overall, existing gender disparities in the division of housekeeping chores between male and female parents in cisgender couples. Available literature suggests that following the closure of schools and childcare centers, mothers are taking over a larger share of increased childcare and home-based schooling responsibilities (Andrew et al., 2020; Del Boca et al., 2020; Hupkau & Petrongolo, 2020). Adams-Prassl et al. (2020) found that in April 2020 in the United States, mothers were spending about 1 h more on home-based schooling and caring for children regardless of their employment status, as compared to fathers. This sizable gender gap in active time spent on caregiving and home-based schooling may result in a significant negative impact on mothers, including academics who mother. Several studies assessed the impact of the COVID-19 pandemic on productivity of academics and found that the pandemic is amplifying the existing gender inequalities in academic publishing (Amano-Patiño et al., 2020; Dolan & Lawless, 2020; Gabster et al., 2020; King & Frederickson, 2020; Vincent-Lamarre et al., 2020). However, most of these studies are published in the “grey” literature (e.g., reports, working papers, briefing notes, etc.) and have not yet been peer-reviewed; there is a need for more peer-reviewed publications which document the impact of a surge in housekeeping and caregiving work due to the pandemic on work performance of academics who mother. Moreover, more research is needed to explore how the pandemic has affected not only academic publishing but also overall academic job responsibilities including teaching and service. Thus, the aim of the present research was to document patterns of the reorganization of childcare and work due to the COVID-19 pandemic, how the reorganization of childcare and work has affected the productivity of academics who mother in the United States, and to explore solutions grounded in their experiences that will support them to remain valued members of their academic institutions while also recognizing that expectations to remain as productive as before the pandemic are unrealistic and require adjusting. This research contributes to two important areas: the literature on experiences of mothers in the academy and the effects of the COVID-19 pandemic on work and family life.

## 2 | MATERIALS AND METHODS

### 2.1 | Theoretical perspective

The neoliberal theory guides this research. Neoliberalism is often referred to as a market-oriented ideology that supports limiting state interference in the economy and promotes the application of market mechanisms based on competition, free enterprise, and pricing based on supply and demand (Manzetti, 2009). Neoliberal ideology has been widely incorporated within workplaces in the United States, including higher education and academic

institutions. According to Saunders (2010), over the past several decades, academics and students have modified their goals and identities, and higher education and academic institutions have adapted their organization and economics to better align with neoliberal systems and values. In these institutions, examples of neoliberal policies and practices include a focus on the number of research publications, competition for promotion and grants, consideration of academics as commodities, and consumerist orientation on the part of students (Newson, 2004; Saunders, 2010).

Neoliberalism has benefited from the feminist movement because it falls in line with its objectives of aiming to “free” women from the home and integrate them into the economy as workers and consumers (Whiley et al., 2020). Several neoliberal ideas and practices have exerted a significant impact on female academics, in general, and academics who mother in academia, in particular. For example, according to the neoliberal worldview, all academics are considered equal (Brabazon, 2021). However, the available literature suggests that female academics shoulder a disproportionately large academic service workload compared to their male counterparts. For instance, Guarino and Borden (2017) noted that female academics reported, on average, 0.6 h more academic service per week than male academics, controlling for race, ethnicity, rank, and discipline. The neoliberal assumption that all academics are equally positioned to perform their professional responsibilities means that policies and practices in higher education and academic institutions do not acknowledge the needs and challenges of academics who mother. For example, Drew and Marshall (2020) demonstrated that academics who mother lacked proper support from their institutions, including childcare and assistance to help them to maintain the same level of productivity that they exhibited prior to the birth of their child.

Since neoliberalism emphasizes the importance of productivity, academics are being rewarded for their scientific output, such as research publications that appear in peer-reviewed journals and grants obtained. At the same time, the work of academics who focus on such nonresearch academic areas as teaching, mentoring, and supporting students is undervalued (Saunders, 2010; Slaughter et al., 2004). Previous research found that female academics tended to carry less prestigious academic activities such as teaching and public engagement and spent less time on research than their male counterparts. Moreover, evidence suggests that female academics are less likely to submit research proposals as the primary investigators than male academics (Gibney, 2017; Rissler et al., 2020). Unfortunately, female academics' fewer research grant submissions and increased focus on teaching and other non-research-related responsibilities could lead to delays in their promotions.

Finally, according to the neoliberal view, academic research is considered desirable when its findings meet market needs and result in revenue generation (Slaughter et al., 2004). Since the beginning of the COVID-19 pandemic, higher education and academic institutions have generally supported COVID-19-related studies, frequently at the expense of other research areas. It is estimated that lack of support from higher education and academic institutions and other barriers (e.g., travel restrictions) will cause the research productivity of academics to decline by 50%–70% (Brabazon, 2021). Obviously, this productivity decline will not affect all academics equally. Evidence suggests that since the beginning of the pandemic, female academics have not been submitting publications at the same pace as male academics (Amano-Patiño et al., 2020; Dolan & Lawless, 2020; Gabster et al., 2020; King & Frederickson, 2020; Vincent-Lamarre et al., 2020). Moreover, Pinho-Gomes et al. (2020) found that female academics accounted for only a third of all authors who published COVID-19-related articles since January 2020 and women's representation was lower for both first and last authorship positions.

## 2.2 | Participants and data gathering strategies

We applied a mixed-methods design for this exploratory study. Data collection occurred via an online survey (June–July 2020) with academics who mother during the COVID-19 pandemic and follow-up qualitative interviews (August 2020) with a subsample of interested participants. The online survey questionnaire was hosted on Qualtrics. The link to the survey was posted on the social media *Facebook* group, titled *Academic Mamas*, a diverse online

group of academics who identify as mothers. The group was created on November 23, 2015. As of June 29, 2020, there were 11,226 members; two coauthors of this article are members of this group. The potential participants had access to the questionnaire during a 2-week period. The eligibility criteria included: (1) being a full- or part-time faculty member at a US-based institution, (2) having a child aged 10 or younger<sup>2</sup>; and (3) identifying as a person who mothers. Participants took between 10 and 15 min to complete the questionnaire. Survey questions included demographic information, information about the division of childcare and schooling responsibilities, and the average time allocated to work and family responsibilities before and during the COVID-19 pandemic. Although the primary focus of our study was research productivity of academics who mother, we also explored how the COVID-19 pandemic has affected the participants' responsibilities related to teaching and service.

We collected qualitative data through open-ended questions on the online survey as well as through structured one-on-one interviews. A free text section was included at the end of the survey that asked participants to describe the two most important challenges they have faced during the COVID-19 pandemic, particularly in terms of meeting their institutions' expectations of their work performance. After the survey closed, we conducted interviews with a sub-sample of interested participants via Zoom or Google Voice. Eighty-one participants indicated willingness to be contacted for a qualitative interview and they provided either their email address or phone number. The first author reached out to each person to confirm their availability for an interview during August 2020. Twenty-two participants responded affirmatively, 20 of them were interviewed and two participants were unable to participate. The participants were interviewed by the first author via phone or video conference at a mutually agreeable time and focused on two main questions: (1) in what ways has the COVID-19 pandemic affected participants' ability to meet their institution's expectations related to researching, teaching, and service; and (2) what support is needed to help academics who mother during the COVID-19 pandemic to fulfill their job responsibilities. To ensure the most efficient use of participants' time, the interview questions were sent via email to participants before the interview to give them time to think about the questions in advance. Ethical approval for the study was obtained from the Ball State University' institutional review board.

### 2.3 | Data management and analysis

Quantitative data were analyzed with descriptive statistics using STATA 13 (StataCorp, 2013). The qualitative interviews were audio recorded with participant consent and, after qualitative data collection finished, audio files were transcribed verbatim by Temi (2020). Thematic content analysis was carried out using the analytic procedures proposed by Braun and Clarke (2006). Independent coding of the first seven transcripts was completed by the authors and a graduate student research assistant, then we reviewed individual codes and combined them into subthemes and themes. The first author applied the developed subthemes and themes during analysis of the remaining transcripts. We applied the same approach during analysis of data from the qualitative section of the online questionnaire. To organize the qualitative data for analysis, we used Microsoft Excel.

## 3 | RESULTS

### 3.1 | Quantitative results

Our sample consisted of 131 female-identified academics who mother. Table 1 shows their selected characteristics. The sample consisted mostly of White (92%) participants. At the same time, 7% of participants identified as Hispanic or Latinx, 2% were Black or African American, and 2% were Asian. They ranged in age from 27 to 50 years. Participants in our sample had, on average, two children aged 10 and under. Most of the participants worked full-time (97%) and had a tenure track position (78%). Associate professors formed the largest group (40%); 38% of

TABLE 1 Selected characteristics of the participants ( $n = 131$ )

| Characteristic   | <i>n</i> (%) / Mean ( <i>SD</i> ) |
|--|-----------------------------------|
| Age ( $n = 117$ )  | 40 (4)                            |
| Ethnicity ( $n = 130$ )  |                                   |
| Hispanic or Latinx   | 9 (7%)                            |
| Not Hispanic or Latinx   | 121 (93%)                         |
| Race ( $n = 130$ )   |                                   |
| White  | 119 (92%)                         |
| Asian  | 3 (2%)                            |
| Other  | 3 (2%)                            |
| Black or African American  | 2 (2%)                            |
| American Indiana or Alaska native  | 1 (1%)                            |
| American Indiana or Alaska native, White   | 1 (1%)                            |
| White, other   | 1 (1%)                            |
| Number of children aged 10 or younger  | 2 (1)                             |
| Academic position  |                                   |
| Associate professor  | 52 (40%)                          |
| Assistant professor  | 50 (38%)                          |
| Other (e.g., adjunct, visiting professor)  | 17 (13%)                          |
| Full professor   | 9 (7%)                            |
| Research or clinical track professor   | 3 (2%)                            |
| Primary academic field   |                                   |
| Social sciences (anthropology, archeology, economics, gender and sexuality, cultural and ethnic studies, geography, political science, psychology, sociology, social work) | 64 (49%)                          |
| Applied science (agriculture, architecture, business, journalism, education, environmental studies, engineering and technology, library, medicine, health sciences)        | 27 (21%)                          |
| Natural sciences (biology, chemistry, earth sciences, space sciences, physics)   | 18 (14%)                          |
| Humanities (arts, history, language and literature, law, philosophy, theology)   | 16 (12%)                          |
| Formal science (computer sciences, mathematics, statistics, logic, systems science)  | 3 (2%)                            |
| Other  | 3 (2%)                            |
| Type of employment   |                                   |
| Full-time  | 127 (97%)                         |
| Part-time  | 3 (2%)                            |
| Other  | 1 (1%)                            |
| Tenure track position  |                                   |
| Yes  | 102 (78%)                         |
| No   | 29 (22%)                          |

participants were assistant professors, and 7% were full professors. The remaining positions (i.e., research, clinical track professor, or other) made up about 15% of all academics. In terms of participants' disciplines, almost half of them (49%) were from the social sciences. The proportion of participants representing applied science, natural sciences, and humanities were 21%, 14%, and 12%, respectively.

A breakdown of how participants described the division of childcare and schooling responsibilities is shown below in Table 2; 48% of participants indicated that during the COVID-19 pandemic, they were mostly responsible for childcare and 51% of them pointed out that they were mostly responsible for schooling. At the same time, the proportion of participants who equally shared childcare and schooling responsibilities with their partners were 33% and 21%, respectively. Only six (5%) academics answered that their partner was mostly responsible for childcare and schooling responsibilities.

Results of our research in Table 3 suggest that the pressure on participants' time is immense. Since the start of the COVID-19 pandemic, during a regular day on average participants were doing child caregiving for 8.3 h and performing other domestic responsibilities 3.5 h. By contrast before the COVID-19 pandemic, participants did 4.4 h of childcare and 1.8 h of domestic work on a regular day. The allocated daily time for home-based schooling also increased from 0.8 to 2.7 h.

## 3.2 | Qualitative results

In total, 109 participants completed the free text section of the survey and 20 participants were interviewed. Analysis of the participants' responses and interviews revealed three major themes: (1) inability to meet institutional expectations; (2) juggling work and family life; and (3) proposed solutions. Table 4 provides definitions for each theme, and the section that follows describes the meaning of the identified themes and subthemes in greater detail.

### 3.2.1 | Inability to meet institutional expectations

Participants described the major challenges they have faced during the COVID-19 pandemic. This theme included four subthemes: (a) decline in research productivity; (b) difficulties adjusting to working and teaching online; (c) insufficient support from institutional administration; and (d) changes in service-related obligations.

#### *Decline in research productivity*

The participants acknowledged that since the beginning of the pandemic, circumstances have eroded their research productivity. Closures of daycare facilities and schools have significantly increased childcare as well as both virtual and live home-based schooling; as a result, the participants reported having little to no time to conduct research, draft and publish manuscripts, and continue pursuing research funding. Representative statements from the free write section in the survey and qualitative interviews included:

- “No time to work on manuscripts or grants due to childcare and homeschooling.”
- “[M]y research and writing were halted. I do not have the time or cognitive space to engage with that kind of work.”
- “I haven't had an opportunity to think about scholarship for more than 5 h total since mid-March.”
- “It's impossible. I can't get my research done at all while managing childcare and schooling. Nothing is working.”
- “Time—there is simply not time during the working day to complete work-related tasks while caring for 3 children under the age of 6.”

TABLE 2 Division of childcare and schooling responsibilities during the COVID-19 pandemic ( $n = 126$ )

| Responsibility  | $n$ (%)  |
|---|----------|
| <b>Childcare</b>  |          |
| I am mostly responsible for childcare   | 60 (48%) |
| My partner is mostly responsible for childcare  | 6 (5%)   |
| The majority of childcare is performed by non-parental caregiver(s)/other                   | 5 (4%)   |
| I share childcare equally with my partner   | 42 (33%) |
| I share childcare equally with non-parental caregiver(s)/other                              | 2 (2%)   |
| Other   | 11 (9%)  |
| <b>Schooling</b>  |          |
| I was mostly responsible for schooling responsibilities                                     | 64 (51%) |
| My partner was mostly responsible for schooling responsibilities                            | 6 (5%)   |
| The majority of schooling responsibilities were performed by nonparental caregiver(s)/other | 2 (2%)   |
| I shared schooling responsibilities equally with my partner                                 | 27 (21%) |
| I shared schooling responsibilities equally with my nonparental caregiver(s)/other          | 1 (1%)   |
| Other   | 7 (6%)   |
| Does not apply  | 19 (15%) |

TABLE 3 Average number of hours spent on work and domestic responsibilities during the regular workday

| Responsibility  | Before the COVID-19 pandemic<br>Mean (SD)/ $n$ | During the COVID-19 pandemic<br>Mean (SD)/ $n$ |
|---|--|--|
| Teaching  | 3.5 (2.0)/( $n = 108$ )                        | 2.7 (2.0)/( $n = 103$ )                        |
| Researching (i.e. actions taken to carry out the research itself, including IRB, data collection, analysis, etc.) | 2.6 (1.8)/( $n = 109$ )                        | 1.6 (1.5)/( $n = 79$ )                         |
| Manuscript developing (i.e. time taken to prepare and submit manuscripts, revise and resubmit)                    | 1.4 (1.0)/( $n = 100$ )                        | 1.1 (1.0)/( $n = 63$ )                         |
| Performing other university-related expectations  | 2.1 (1.2)/( $n = 110$ )                        | 2.1 (1.7)/( $n = 100$ )                        |
| Child caregiving  | 4.4 (2.2)/( $n = 116$ )                        | 8.3 (3.0)/( $n = 117$ )                        |
| Schooling   | 0.8 (0.9)/( $n = 45$ )                         | 2.7 (1.5)/( $n = 83$ )                         |
| Performing other domestic responsibilities  | 1.8 (1.2)/( $n = 115$ )                        | 3.5 (2.0)/( $n = 116$ )                        |

Participants also pointed out that a lack of access to research labs and necessary campus resources has decreased their scholarly output: "Research labs are closed and can't finish collecting data," "Not being able to get into my lab to run experiments," "I have not touched my research since April, and a lot of that is because I am a biologist, and we could no longer access our lab facilities. ... So, anyone in the sciences or with research that required on-campus equipment has been unable to conduct the research." Lastly, participants who conducted human subjects-related research stated that COVID-19 restrictions had halted their in-person data collection: "I do human subjects research with a vulnerable population, and that in-person data collection has been stopped and will

TABLE 4 Themes and subthemes of participants' responses and interviews

| Theme   | Subthemes   |
|---|---|
| 1. Inability to meet institutional expectations: Participants described the major challenges they have faced during the COVID-19 pandemic   | 1. a Decline in research productivity<br>1. b Difficulties adjusting to working and teaching online<br>1. c Insufficient support from institutional administration<br>1. d Changes in service-related obligations |
| 2. Juggling work and family life: Participants described their difficulties with navigating work, housework, caregiving and schooling at home responsibilities during the COVID-19 pandemic | 2. a Lack of accessible childcare<br>2. b Mental and physical exhaustion  |
| 3. Proposed solutions: Participants proposed solutions to help academics who mother during the COVID-19 pandemic to fulfill their job responsibilities                                      | 3. a Acknowledgment<br>3. b Flexibility<br>3. c Childcare and leave policies  |

not be able to resume soon," "From March until early August, we could not do research on human subjects. So that has been hugely impactful in terms of meeting grant deadlines and cost expenditures."

The participants acknowledged that the loss of research productivity due to the COVID-19 pandemic would have long-term negative implications for their career. For example, one response reflected a sobering look into the future: "For many of us, the impacts will not [be] immediate ... [they] will be cumulative but more noticeable in a year or two or beyond." Participants admitted that since the start of the COVID-19 pandemic, some important opportunities for career advancement had been missed. For example:

The other thing that has been hard is coming to terms with missing opportunities because of COVID. For example, there was a special issue that I really wanted to submit to, but due to COVID, I am three months behind and learned the due date will not be extended. It's not the end of the world, but I wonder how many other mother academics out there are also having to [f]orgo other valuable career opportunities.

Participants also voiced their concerns that the observed decrease in research output among academics who are engaged in active mothering may exacerbate gender inequality in academia. One of the participants put it this way:

For me, one of the things I am most frustrated by is that there is [a difference]. This is impacting female academics differently than male academics. Even with the same number of children living at home, or even with the same job, that is frustrating, and I do not know how to get around that or how to mediate for that. ... This one year is going to have trickle impacts on a lot of us for our future publications and our presentations and everything that we do. ... It just feels like that is going to have ... a long-term negative impact on career paths, and that is worrisome and frustrating.

Another participant stated, "I think that this is going to set women back a significant amount ... and I am concerned about that."

#### *Difficulties adjusting to working and teaching online*

The next subtheme related to difficulties adjusting to working and teaching online. Participants described their challenges while working from home and simultaneously caring for and schooling their child/children. They acknowledged that technological limitations at home and unreliable Internet service affected their work significantly. Participants also pointed out that they did not have a dedicated and quiet workspace at home, where they



could work without interruptions, record video lectures, concentrate, and focus on completing work-related tasks. For example:

We have a small place, so there is not the luxury of ... having a dedicated room to even close the door. ... I was maybe working three hours a day, maybe on a good day, and that was ... just maintenance and replying to emails.

Other comments included such observations as “no longer having a quiet place to work where I will not be interrupted,” “no physical space to work effectively (no office, desk, etc.—had to work while sitting on bed),” “I find it very difficult to work among domestic noise. I am unable to focus and concentrate, so things take longer or don't get done.”

Participants who had teaching responsibilities emphasized that teaching preparation and delivery for online classes was more time-consuming than for in-person classes. Some of their descriptions of the difficulties included the following: “Everything being conducted online, that is always harder because you end up having to write everything down and send it in an email, and then they [participant's students] are doing more writing, which means you are doing more reading,” as well as “Teaching online is exponentially more prep/work” and “Teaching is taken up [with] a lot more than it usually would.” Some of the participants had never taught classes online before, so they had to restructure their courses for online settings and learn how to work with the necessary online platforms. Despite their efforts, some of the participants perceived the delivery of online classes was of insufficient quality. One stated, “I can get my instruction online, but it's not my best work, and I feel my students suffer.” Other participants similarly indicated: “I don't have enough time to run my classes online effectively while my kids are home” and “[I feel] guilt about not providing for my students the same experience that they originally signed up [for].”

#### *Insufficient support from institutional administration*

Participants mentioned the problem of insufficient support from institutional administration while requiring them to fully meet expectations related to researching, teaching, and services. They lamented the lack of accommodations for academics who had to engage in mothering when schools and daycare facilities were closed due to the pandemic. The following examples speak to some of their frustrations:

So, basically, the implicit message [of the institution's administration] is not slow down to take care of your children, you need to work around the clock.

Leadership and our hospital ... made a lot of comments about ... we can all use this opportunity to submit tons of grants and get tons of publications out. ... [They] really don't seem to be appreciating that not everyone is just kind of sitting at their computer all day and have the ability to do a ton of really productive writing.

We were supposed to teach without our kids present. I have three kids and live in a ... house with two bedrooms ... Where were the kids supposed to go?

Most institutions actually are expecting us to do much, much, much more work to prepare for online teaching and attend more training and more meetings and offer more access and resources to our students. Even though we have less time to work than we have probably ever had in our careers.

#### *Changes in service-related obligations*

Since the pandemic began, some of the participants reported changes in service workload, including the increase in number and duration of service-related meetings. For example, one of the participants stated, “What is really

interesting about service right now is none of the typical services has gone away and all the new adjustments that have needed to be made in response to COVID." Other comments included, "I have been telling everybody the meeting is basically tripled and became twice as long" and "increased service load. [C]ommittees, committees, committees." Some of the service responsibilities reported including altruistic acts like helping colleagues navigate online platforms (e.g., Zoom technology) and providing necessary assistance to students who are foster youth or former foster youth.

### 3.2.2 | Juggling work and family life

All participants described difficulties with navigating work, housework, caregiving, and home-based schooling responsibilities during the COVID-19 pandemic. The subthemes include (a) lack of accessible childcare and (b) mental and physical exhaustion.

#### *Lack of accessible childcare*

*Lack of accessible childcare* was considered one of the most significant challenges the participants faced during the COVID-19 pandemic. Due to the necessity of providing full-time childcare and schooling to children at home, participants highlighted their inability to work during regular working hours. As a result, they started working during evenings, nights, and weekends: "I worked until 1:00 a.m. every day and haven't had an evening to myself since this began," "I could no longer meet with my students at our normal class time on a regular basis. So, I was meeting with students on evenings on weekends," "I completed almost all of my work on nights and weekends," "I started working weekends to keep up," and "A lot of my teaching duties moved to weekends." The participants voiced their concerns that such arrangements blurred work-life balance, leaving no boundary between when they were working and when they were not working. One participant stated: "No downtime. Work is home, and home is work."

#### *Mental and physical exhaustion*

Participants reported *mental and physical exhaustion* caused by the increased workloads, limited boundaries between work and home, fear, anxiety, and stress related to the threat of coronavirus. Some comments were: "Endless all-day childcare with no help and no breaks is mentally and emotionally exhausting," "[Burnout] from being expected to work as if I am childless," "Maintaining balance and sanity. I have three full-time jobs: caretaker, house maintainer, and a professor?! It's a lot of weight to carry" and "I feel like I am drowning."

### 3.2.3 | Proposed solutions

Participants proposed solutions to help academics who are mothering during the COVID-19 pandemic to fulfill their job responsibilities. The subthemes included (a) acknowledgment; (b) flexibility; and (c) childcare and leave policies.

#### *Acknowledgment*

Participants emphasized that the burden of pandemic-induced caregiving should be acknowledged during the promotion and tenure processes. They pointed out that some institutions gave an extra year to meet tenure requirements; however, not all participants supported this initiative due to the perception that it would bring unfair advantage to academics without children and academics who father. Some comments were:

Everyone gets an extra year and their tenure clock, but many of my male colleagues with stay-at-home wives or no children are finding this time accelerating for their productivity, while for

women, and especially women with children like me, that has not been the case. Our dean simply talked about how we should all be getting this extra year since we won't be able to attend conferences in person, and never acknowledged that some of us have children.

In my department ... the only people who seem to have taken any extension on their tenure clock was one childless man, who ... lives by himself, has no kids, has no partner, even.

They [the participant's university] just gave everyone an extra year. But I look at my peers who ... do not have children, and they are using an extra year to get ahead, where someone like me is using it has this extra year, but you know, I am barely keeping my head above water.

### *Flexibility*

The participants also indicated that their institutions "need to be flexible in their expectations." They pointed out that the institutions should provide opportunities for work flexibility to academics who mother. The following comments serve as examples of their thoughts: "letting us teach one fewer class or cut back on the service commitments. Those would be some concrete things that would help a lot," "I have to focus on teaching ... then I should be expected to do less service so that I can spend a little free time on my research so that I can get tenure." In addition, participants stated that flexibility in scheduling and course modality for academics who mother would allow them to teach classes during times convenient for them and suitable to an online or hybrid mode when they have children at home they must care for. They also suggested that committee meetings should be limited to only the most essential. Moreover, the institutions should allow reinstating or extending sabbaticals for those academics whose sabbaticals were disrupted by the COVID-19 pandemic. Finally, participants maintained that their institutions should be flexible around meeting schedules and not schedule events (e.g., meetings, webinars, etc.) during times when children especially need their parents. For example, one of the participants shared the following observations:

They [participant's institution] have been hosting a lot of meetings and webinars and info sessions around the pandemic ... and they keep scheduling them at noon every day ... and that is when my children eat lunch. Lunchtime is a terrible time for me to be, cause I ... cook lunch, and I stood in my kitchen with the laptop open next to the sink ... while I am making the lunch, because I do not want to miss the important information, but I also cannot let my children go hungry.

### *Childcare and leave policies*

Participants asserted childcare was crucial for their abilities to meet their research, teaching, and service obligations, and their institutions might assist with addressing the childcare shortages resulted from the pandemic. In addition, some participants mentioned that the institutions might offer financial support to cover childcare expenses. Finally, participants acknowledged the need for leave policies. One of the participants stated:

I guess the only thing that I thought of that I might ask for my university ... is ... a little bit of leave, like not a hundred percent, but maybe like 20% off or 50% off, just because that way you can handle 50% of your responsibilities and all your childcare responsibilities.

Along the same lines, another participant said:

We need better leave policies ... there is a lot of people who would ... be willing to take more leave if they had more available ... to use it up in a time like this in case you need it, if ... you are sick or that kind of thing. ... So that would be really helpful if we have actually had paid caregiving leave.

## 4 | DISCUSSION

The following two key findings emerged in our research. First, consistent with previous research (Adams-Prassl et al., 2020; Andrew et al., 2020; Del Boca et al., 2020; Hupkau & Petrongolo, 2020; Prados & Zamarro, 2020), it is clear that participants have shouldered a disproportionately large share of domestic and childcare responsibilities since the COVID-19 pandemic started. The observed intensification of caregiving and schooling-at-home responsibilities would have long-lasting effects on our participants' career trajectories and could lead to an increase in pre-existing gender disparities in the division of unpaid childcare work between mothers and their parenting partners.

Second, our research findings suggest that significant efforts must be made to change the existed neoliberal policies and practices at the institutional level and to address the challenges academics who mother face in maintaining a level of productivity exhibited prior to the pandemic. Some of our participants expressed concerns that a commonly offered gender-neutral tenure clock extension is not sufficient to mitigate the loss of productivity due to the COVID-19 pandemic. Moreover, since the tenure clock extension is offered to all academics, it may result in more benefit to childless academics and academics who father rather than to academics who mother. Our participants also pointed out that service exemption, teaching relief, leave policies, and childcare subsidies may be particularly critical for academics who mother. In addition, institutional guidelines for merit, tenure, and promotion, as well as internal funding mechanisms, should be revised to ensure that the decreased productivity and scientific output of academics who mother will not hinder their future career advancement.

To address concerns expressed by our participants, we offer the following possible solutions for higher education institutions. Reports, blogs, and other publications written for general audiences should be considered as valuable as peer-reviewed publications. There is also a need for developing guidelines on how to quantify the impact of COVID-19 on teaching, service and research. In addition, since a quick transition to online education may negatively affect students' course evaluations the online teaching evaluation process should be adjusted. Finally, we believe that during the foreseeable 12–24 months, more assistance from institutions will be needed to address childcare shortages and the caregiving crisis. Some institutions have already started arranging alternative childcare arrangements for their faculty members. For example, the University of Chicago launched and funded a virtual babysitting and tutoring program to assist tenure-track faculty members. For this purpose, University of Chicago students with tutoring experience were hired and matched with faculty families for online sessions (Flaherty, 2020). Provision of these and similar alternative childcare programs may allow academics who mother some necessary uninterrupted work time.

### 4.1 | Limitations, implications for research

While our results provide new insights, the following research limitations require consideration. First, we collected data from only 131 participants. Moreover, most of our participants were White and Non-Hispanic/Latinx and in cisgender relationships; therefore, our findings are not generalizable across all female-identified academics who mother in the United States. Second, our research used self-reported data, providing no opportunity to verify the collected information, including the reported average number of hours spent on work and domestic responsibilities. Finally, because our participants were from the United States, the generalizability of the results to other countries is limited. In spite of these limitations, we believe that results of our research will be useful for administrators of higher education institutions and policy makers in the area of research and education, as our findings may help them to develop incentive systems to strengthen productivity among female academics during emergency situations, such as the COVID-19 pandemic

## 5 | CONCLUSION

Considering our findings and the results found in the current literature, we believe that future studies should focus on the following issues. First, currently, the research on the COVID-19 pandemic and mothers in academia is mostly cross-sectional due to the immediacy of the pandemic; longitudinal research is needed to document and understand the longer-term impacts. The results of such studies will provide a more comprehensive picture of how the COVID-19 pandemic affects the position of academics who mother in academia. Second, people of color who mother face additional challenges in academia, future research should explore how the pandemic has affected the productivity of female-identified academics of color with children. Finally, future research should document how and to what extent higher education institutions are creating and enacting policies that support academics who mother to remain successful at work during the COVID-19 pandemic.

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### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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### ENDNOTES

<sup>1</sup> In this research, we defined an “academic who mother” as a person with teaching and/or scholarly responsibilities in a higher education and academic institution and who performs childrearing responsibilities attributable by cultural and social norms to mothers.

<sup>2</sup> This criterion was included because children of this age require some form of childcare.

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