

**Gender Differences in the Mental Health of Parents**  
**During the COVID-19 Pandemic**

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## **I. Introduction**

The COVID-19 pandemic has uprooted the lives of many people globally. As of November 8, 2020, there have been approximately 1.2 million deaths by the coronavirus worldwide (World Health Organization, 2020). Along with the fatal consequences of this highly contagious virus, the lives of many people have undergone significant changes. With the institution of government restrictions and social distancing practices, there have been many repercussions for many individuals' daily lives. In particular, the mental health of many individuals has been affected by this global crisis. While there are numerous implications of this pandemic that can be studied, this paper focuses on the mental health of parents during the coronavirus. Since the response to this virus has been orders relating to social isolation or quarantine for many people, some parents have found themselves home more with their children and as a result, more responsibilities and stressors. Within the United States, it is estimated that over 50 million students enrolled in public school experienced changes to their typical school schedule, with many schools closing for the rest of the 2019-2020 school year (Education Week, 2020).

However, I hypothesize that the situation may have had more of an effect on the mental health of mothers than fathers. In this paper, I will use empirical analysis to study whether or not there is a difference in mental health between mothers and fathers during COVID-19. Given societal standards and expectations of gender roles, I estimate that mothers are more associated with worsened health during the pandemic. I will first share a thorough review of existing literature related to gender differences in mental health in general as well as within the context of COVID-19. Then, I will give a description of my conceptual model in order to explain my hypothesis within the scope of economics. I will then present the data I have chosen and my methodology for analysis. I will finish with an interpretation of my results, a discussion of the implications of my

findings, and potential ideas for future research on the subject. This paper will contribute to the present research on the mental health of parents during the COVID-19 pandemic by using data that has not been used yet for this purpose. The research in this paper differs from what I will examine in the literature by delving deeper into the mental health of parents specifically during the coronavirus crisis.

## **II. Literature Review**

Aneshensel, Frerichs, and Clark (1981) examine previous research on how women have a higher incidence of depression than men and explore how family roles could explain this difference. With data from a 1979 Los Angeles County survey of residents conducted by UCLA interviewers and the method of two-way ANOVA, they find that women exhibit significantly higher levels of depression compared to men when their familial role is more demanding. The examples they determine as more demanding of a family role are single parents living with their children or those married and living with their children. In their analysis, they examine that these gender differences in depression for these particular family compositions are attributed to more familial obligations for mothers.

Simon (1992) draws on the research from Aneshensel, Frerichs, and Clark (1981) and further explains this difference in mental health between mothers and fathers as women embracing their parental identity more than men because of societal expectations. Using data from a study of Indianapolis adults and their levels of stress, conducted in 1988 by Thoits (1992), Simon (1992) finds that because mothers identify more with their parental role, they are more prone to strain in this role in terms of their children's health and behavior than men are. Along with this, her results show that parental strain results in higher distress scores. Resultingly, mothers demonstrate more

distress than fathers, in accordance with the research conducted by Aneshensel, Frerichs, and Clark (1981). Bird (1997), using multiple regression and data from the 1990 U.S. Survey of Work, Family, and Well-Being, reaches similar conclusions. Yet, she does find that the effect of the number of children for mothers on distress is negative, so with each additional child, a mother's level of distress is lower. Yet, there is no significant effect of the number of children on fathers' mental health. Through this, she concludes that mothers benefit more psychologically from having more children than fathers do. However, there is a tradeoff because they still exhibit higher levels of distress, perhaps resulting from other factors like the costs associated with having children. In addition, it is important to note that these studies mentioned above come from between the late 1970s and 1990s, so they may not be as applicable today in 2020, especially if we consider whether or not the perceptions of gender roles have changed.

Given past research regarding this gender difference in mental health associated with parenthood, an evaluation of more current research is needed. Since this paper is looking at the difference in mental health between mothers and fathers during the initial weeks of the COVID-19 outbreak in the United States, it is important to consider data that accounts for the pandemic. Pieh, Budimir, and Probst (2020) investigate the pre-quarantine and post-quarantine levels of mental health issues in the residents of Austria. The data for their study was collected through Qualtrics a month following the government's coronavirus restrictions placed in Austria. Using a variety of statistical methods, their research finds that the mental health of residents, in general, is worse post-quarantine than pre-quarantine. Additionally, women show higher levels of mental health issues like anxiety and depression than men. While this Austrian study does not look at the question of mothers versus fathers' mental health specifically, it still demonstrates the difference in mental health between men and women broadly within the scope of COVID-19. Similarly,

Christensen et al. (2020) find that women are more afflicted with economic-related anxieties stemming from the COVID-19 situation, which they note may be in reference to more household responsibilities. They also examine that adults with children at home during the initial weeks of the pandemic in the U.S. are more likely to have depleted mental health. However, their study does not look at if there is a gender difference in mental health for parents living with their children specifically, which is what I will research in this paper using their data.

Moreover, Mazza et al. (2020) narrow in on the mental health of parents during the COVID-19 pandemic through their online survey of Italian residents, claiming this as the first publication to look at parents' mental health specifically during the pandemic. Employing mediation and moderated mediation models, they find similar results to previous studies and show that mothers have significantly higher levels of distress than fathers also during the Italian lockdown. They state that this could be related to mothers acquiring more responsibilities with childcare in response to the stay at home order. This observation is not limited to Italian residents. Prados and Zamarro (2020) find that mothers with a partner are 23 percentage points more likely than fathers with a partner to deem themselves the sole caretaker of children in the household, according to a study of the Understanding Coronavirus in America Tracking survey data. With an increase in caregiving responsibilities for children, they find that many women have had to work reduced hours, which can prompt economic-related anxiety and depleted mental health. Even though these studies occur decades later, the findings are alike, suggesting not much has changed within perceptions of gender roles.

All in all, there is an abundance of research looking at this topic broadly, and each study reaches the same conclusion that mothers are more likely than fathers to face mental health-related issues. There is some uncertainty as to why there is a gender difference, but much of it boils down

to more household and caregiving responsibilities for women, perhaps, coming from how gender roles and expectations have been established in society. Also, since the data used in the studies mentioned is non-experimental, the researchers are unable to establish causation between sex and mental health issues but rather strong associations. I, too, will face the same issue as I am using non-experimental data from Christensen et al. (2020). However, with this data, I aim to reaffirm the results of previous research suggesting that motherhood is more associated with depleted mental health than fatherhood, which to the best of my knowledge, has not been used for this purpose yet. And in doing so, I will contribute to the lack of research regarding the gender difference in parents' mental health within the context of COVID-19 in the United States.

### **III. Conceptual Model**

In order to explain my hypothesis of mothers being more associated with worsened mental health than fathers during COVID-19, I will utilize economic theory. First, I assume that due to the stay-at-home orders instituted at the beginning of COVID-19, the time that many parents spend with their children has increased. Additionally, with school closures and the transition to virtual learning, I assume that many parents have become more involved with their children's schooling. With this, I can surmise that there has been a change in the way that parents allocate their time between formal work and caregiving responsibilities. I assume that more of these caregiving responsibilities have fallen to the mothers of the household, given the gender roles established within American society. The data from Christensen et al. (2020) reflects this in that 56.8% of the fathers in the sample responded that there is someone in the household to help with childcare, while 42% of the mothers had the same response.

Given the above assumptions, I hypothesize that there is a relationship between the new allocation of time that mothers spend working and caring for their children/assisting with schooling and worsened mental health. Prior to the pandemic, a majority of children in America attended public or private schools instead of being homeschooled. In response to the pandemic, especially within the first few months of the initial outbreak in the United States, children have transitioned to school from home. I hypothesize that mothers have faced a decline in mental health since the start of COVID-19 because of these changes to their children's schedule and as a result, their own. With this, there is revealed preference for children being part of the public or private education system as opposed to being homeschooled for mothers.

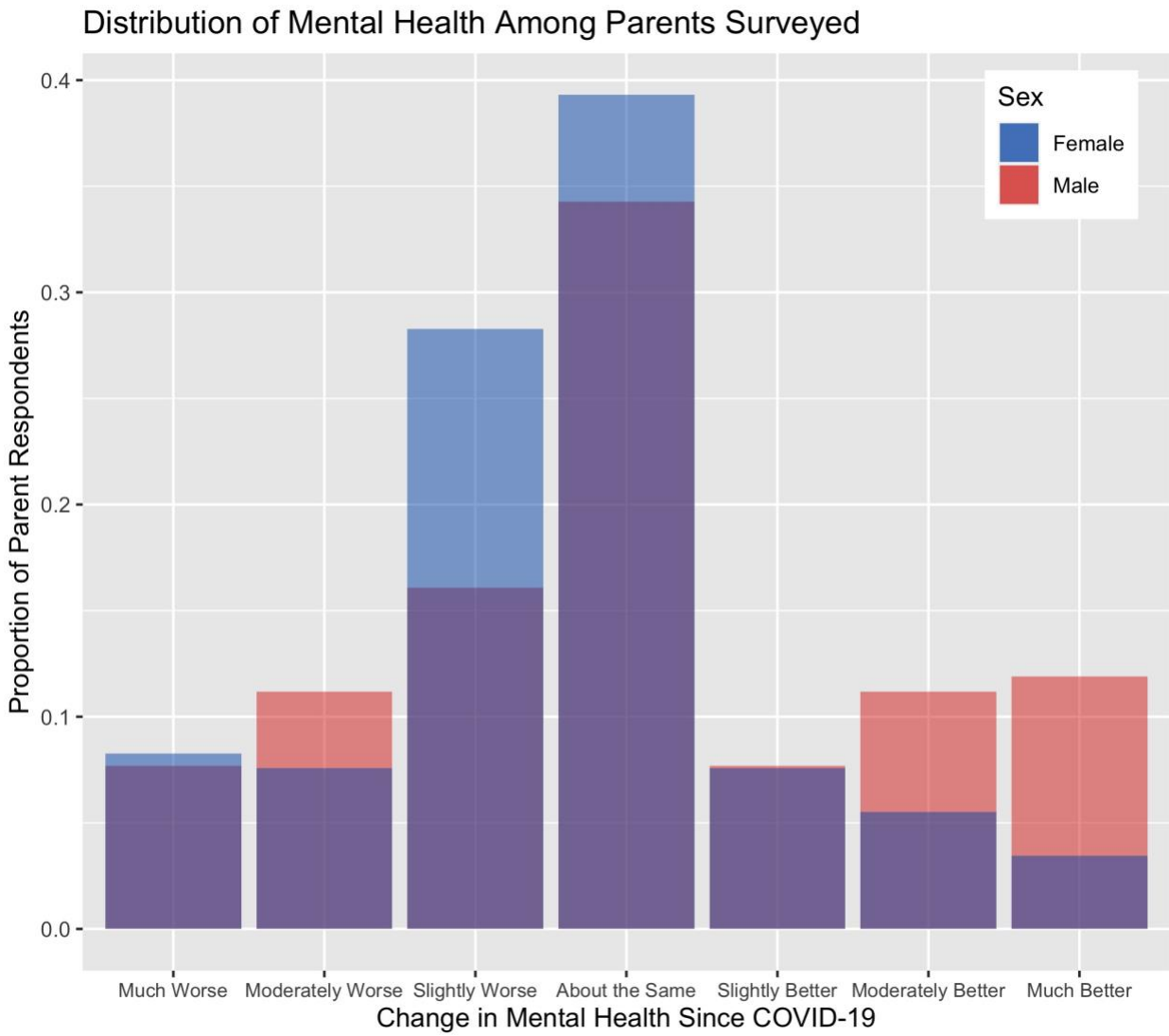
To reiterate, with children being home, the demand for mothers' care for their children has increased, which leads me to another potential explanation for a decline in mental health. Mothers who are employed may need to reallocate their labor, as mentioned before. With mothers reducing their work hours during COVID-19, as examined by Prados and Zamarro (2020), we can expect to see an increase in economic anxieties and financial burdens contributing to mothers' mental health. This demonstrates the opportunity cost of replacing time spent earning wages in a formal job with time spent caring for their children.

#### **IV. Data**

The data used to analyze the gender differences in the mental health of parents during COVID-19 comes from Christensen et al. (2020). To examine the perspectives of individuals following the first few weeks of COVID-19 restrictions, they conducted a cross-sectional survey of 1,030 adults living in the United States using a Qualtrics survey on March 31, 2020. They used U.S. Census data as a guide for representing the nation most accurately with allotments for certain

demographics. This data is non-experimental, so similar to previous papers in the literature, I will not be able to find a causal relationship.

Figure 1:



Notes: Figure shows only the parent respondents living with their children in the original dataset from Christensen et al. (2020). Data is cross-sectional, with the respondents only being surveyed on March 31, 2020. The purple region represents the overlap of female and male proportions.



Since the unit of analysis for this research is parents living with children under the age of 18, I subset the data and only look at observations of parents rather than each respondent of the original data. Because the survey does not ask respondents this question explicitly, I use two variables as indicators of parents living with children under the age of 18. The original dataset contains a variable named *ChildYN* that asks, “Do you have children under 18 living with you?” (Christensen et al., 2020). Since this question is vague and could return an observation of someone living with a younger sibling or family friend, I also use a subset of the data based on the variable called *ChRoutine*, which asks, “Please respond to the following statements on a scale from strongly agree to strongly disagree and not applicable. - My children's normal routine has been disrupted due to events related to COVID-19.” I then keep respondents that answered both “Yes” (a value of 1) for *ChildYN* and anything other than “Not Applicable” (values less than 8) for *ChRoutine*. Also, sixty observations were removed due to missing values of the covariates that will be used in the specified model for my empirical analysis.

The outcome variable I use to indicate depletion in mental health is labeled as *MentHlth* in the original dataset. This variable measures the change in the mental health of the respondents since COVID-19. Figure 1 shows the parents’ responses. It indicates the proportions of mothers and fathers for each answer and shows the overlapping regions between the sexes. Because of the varied distribution of answers as demonstrated in Figure 1, I focus on a binary outcome of whether or not mental health has depleted since the outbreak of COVID-19. Therefore, I assign the answers of “Much Worse,” “Moderately Worse,” and “Slightly Worse” a value of 1 to represent that mental health has worsened for parents, and the answers of “About the same,” “Slightly better,” “Moderately better,” and “Much better” a value of 0 to represent that mental health has not worsened. Since my method of analysis is Ordinary Least Squares (OLS) regression, using a binary

outcome variable will assist me in interpreting my results more clearly. Additionally, it is important to note that the specific outcome variable I use in this paper differs from those in other studies. For instance, I use an indicator variable to measure whether or not mental health has worsened, while Bird (1997) takes a more quantitative approach by using a score for psychological distress as the dependent variable in her regression. Because of the way that the data was collected in the original study and the aims of the present paper, I am unable to do this and use a binary outcome variable instead.

Table 1: Summary Statistics of Model Data

<i>Variable</i>	<i>Description</i>	<i>Mean</i>	<i>Standard Deviation</i>
<i>Mental Health</i>	Equal to one if parent respondent's mental health had depleted since the beginning of COVID-19.	0.386	0.488
<i>Sex</i>	Equal to one if the respondent is female.	0.452	0.499
<i>Age</i>	Age of the respondent at the time of survey.	38.785	9.935
<i>Hispanic</i>	Equal to one if the respondent is Hispanic or Latino.	0.202	0.402
<i>Race</i>	Equal to one if the respondent is part of a racial minority.	0.561	0.497
<i>Degree</i>	Equal to one if the respondent has a college degree.	0.671	0.471
<i>Assist</i>	Equal to one if the respondent or someone in the respondent's household has received government assistance with food within the past 6 months at the time of survey.	0.338	0.474
<i>Married</i>	Equal to one if the respondent is married at the time of survey.	0.671	0.471
<i>Unemployed</i>	Equal to one if the respondent is unemployed at the time of survey.	0.039	0.195
<i>Childcare</i>	Equal to one if the respondent has another person within the household who helps with childcare.	0.504	0.501

Notes: N = 228; Sixty observations were removed due to missing values.

The independent variable of interest in this paper is the *Sex* variable in the original dataset. The original dataset codes “Male” as 1 and “Female” as 2, so I recode the variable to have “Male” as 0 and “Female” as 1. This will assist me in interpreting the coefficients I obtain from my regression. The questionnaire does allow for an “Other” response to sex, but this response does not appear in the subset of observations used in this paper. Table 1 shows the variable description, mean, and standard deviation for all the variables that are included in the model specification. The mean of sex for parents is 0.452, which means that 45.2% of the parents in the sample are female. This is not completely representative of the nation’s demographics, which is approximately 50.8% (U.S. Census Bureau). Thus, care must be taken if one is interested in extrapolating the results from this paper to the entire U.S. population.

## **V. Empirical Strategy**

For my analysis of the data, I use the method of Ordinary Least Squares Regression (OLS). My model is similar to that of Bird (1997) as I include the independent variable of interest as sex and demographic variables like marital status, minority status, education, and age, as covariates. Additionally, the outcome variable I use is related to mental health as a categorical variable, whereas Bird (1997) uses a quantitative variable of psychological distress score, as mentioned previously. Bird (1997) also includes income as a covariate, but the way income level was surveyed for the dataset used herein is not ideal for my analysis. In order to the income-related variables in my analysis, I will use the variable regarding government assistance with food as an indicator of a lower income. I also include unemployment since Pieh, Budimir, and Probst (2020) examine it as having an effect on mental health during COVID-19. Finally, I include a variable about whether or not the individual has support with taking care of the children at home since this

division of childcare duties can have an effect on mental health, as examined by Prados and Zamarro (2020). My model is specified as the following:

$$Y_i = \beta_0 + \beta_1 Age_i + \beta_2 Sex_i + \beta_3 Hispanic_i + \beta_4 Race_i + \beta_5 Degree_i + \beta_6 Assist_i + \beta_7 Married_i + \beta_8 Unemployed_i + \beta_9 Childcare_i + \varepsilon_i \quad (1)$$

In Equation (1), *Age* represents the age of the respondent at the time of the survey. *Hispanic* is a binary variable equal to 1 if “Hispanic or Latino” and 0 if “Not Hispanic or Latino” or “I don’t know.” *Race* is a binary variable equal to 0 if “White” and 1 if any other answer. *Degree* is a binary variable equal to 1 for the following responses: “Associate degree in college (2-year),” “Bachelor’s degree in college (4-year),” “Master’s degree,” and “Advanced degree (JD, Ph.D., MD, etc.),” and 0 for any other level of education. *Assist* is a binary variable equal to 0 for those who have not had anyone in their household receive government assistance with food within the last six months, and a 1 to those who have. *Married* is a binary variable equal to 1 if “Married” and 0 if “Widowed,” “Divorced,” “Separated,” or “Never Married.” *Unemployed* is a binary variable equal to 1 if “Unemployed” and 0 to any other response for the work industry of the respondent. *Childcare* is a binary variable equal to 1 if the respondent has had assistance with the children in the household and 0 if not.

### **i. Limitations**

A limitation of most papers analyzing mental health is that changes in mental health are difficult to quantify because it is a personal topic and can be defined differently for many people. It is also very likely that this model in Equation (1) has omitted variable bias. For instance, the survey did not ask respondents about mental illness history, which could have a significant effect

on the respondent's mental health. Also, the ages of children in the household were not specified, nor if the children had any mental or physical disabilities, which again could contribute to more depleted mental health. However, given what was measured in the data, the model in Equation (1) is adequate for determining whether or not motherhood is more associated with depleted mental health than fatherhood during the coronavirus pandemic.

## VI. Results

Table 2: Results for the Regression of Depleted Mental Health on Sex and Covariates

	<i>Estimate</i>	<i>Standard Error</i>	<i>P-Value</i>	<i>95% Confidence Interval</i>
<i>Intercept</i>	0.352	0.1685	0.038*	(0.020, 0.684)
<i>Sex</i>	0.146	0.073	0.047*	(0.002, 0.289)
<i>Age</i>	<0.001	0.004	0.983	(-0.007, 0.007)
<i>Hispanic</i>	0.129	0.083	0.124	(-0.035, 0.293)
<i>Race</i>	-0.068	0.068	0.346	(-0.210, 0.074)
<i>Degree</i>	0.055	0.072	0.443	(-0.086, 0.197)
<i>Assist</i>	-0.104	0.069	0.133	(-0.240, 0.032)
<i>Married</i>	-0.070	0.081	0.388	(-0.228, 0.089)
<i>Unemployed</i>	0.016	0.167	0.334	(-0.168, 0.492)
<i>Childcare</i>	0.031	0.067	0.637	(-0.010, 0.163)

Notes: N = 228; \*p<0.05

Table 2 provides the parameter estimates for the model specified in Equation (1). The coefficients show that the only statistically significant variable is *Sex*. At the five percent significance level, a mother is 14.6 percentage points more likely, on average, than a father to have reported a decline in mental health since COVID-19, when controlling for other covariates. Therefore, the results indicate an association between motherhood and depleted mental health

during COVID-19, suggesting the existence of a gender gap in mental health during the crisis. As stated previously, due to the non-experimental nature of the data, no causation can be proved. My findings are consistent with the previous literature surrounding the subject.

## **VII. Conclusion**

My results do show an association between worsened mental health and motherhood during the beginning of the COVID-19 pandemic, which supports this paper's hypothesis. Since the pandemic is still occurring, it is critical that there is additional research regarding this issue. The gender difference in mental health may have changed as the pandemic has progressed, so further studies should be conducted. Mental health is an extremely important issue that can impact one's quality of life significantly, so there is a growing concern, especially for mothers who are more associated with depleted mental health since the beginning of the pandemic. There are numerous publications that hypothesize the pandemic will impede women's careers and reinforce gender stereotypes in terms of the division of childcare (Weber and Fuhrmans, 2020; Taub, 2020). As a result, studies specifically looking at the effect of the pandemic on mothers' mental health and its subsequent effect on their careers would be very valuable. Aside from the gender difference in mental health, there is a collective decrease in mental health for parents in general that needs to be addressed. Government assistance and intervention are necessary for opening schools in a safe, socially distanced manner. Having schools open would remove some of the pressure on parents and allow them to return to some normalcy with their careers and routines.

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