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Original Article

Family Disruption and Parenting During the COVID-19 Pandemic

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Abstract

Using unique data from an economically and racially diverse sample of 448 caregivers with young children (ages 4–9 years) in Ohio, we assess multiple sources of family social and economic disruptions and their associations with parenting activities during the COVID-19 stay-at-home order. Caregivers reported extensive social and economic challenges during this time, while also increasing (on average) their time spent in play/learning activities. Time spent in discipline was less likely to increase during this period. We found significant associations among disadvantaged social conditions/experiences and parenting, and that some effects were moderated by 2019 household income status. Unexpectedly, changes in economic conditions, particularly caregiver job loss, were associated with higher odds of increases in reading/telling stories time across household income groups. Overall, findings indicate that social conditions associated with the stay-at-home period of COVID-19 might have been more disruptive to parenting for caregivers with young children than the short-term economic changes.

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The COVID-19 pandemic represents an unprecedented macrosocial change and economic upheaval for families and child well-being that needs to be studied. The emergence of the COVID-19 pandemic in early 2020 and the related shutdown and stay-at-home orders have created family crises across the globe. The COVID-19 pandemic has had great social and economic impacts experienced at the family and household level due to its unique nature, which required social separation in all contexts outside of the nuclear family.

Children are likely to experience short- and long-term consequences of living through the COVID-19 crisis with respect to their development and well-being. Younger children, in particular, are highly dependent on their caregivers, and need stable, nurturing family environments to support their physical, mental, and emotional health (Bronfenbrenner, 2001). A recent publication outlines a number of pathways that COVID-19 is likely to affect children's development, including through changes in caregiver well-being, family relationships, and family organization (Prime et al., 2020). In this study, we build on this initial research, drawing from family stress and investment theories, to assess family disruption and parenting during the stay-at-home period among urban Ohio families with young children. Understanding how children and families experienced this period of rapid change and disruption is critical to addressing the potential long-term consequences of the pandemic on children and families.

Background

COVID-19 as a Social and Economic Crisis for Families with Children

In the United States, state governors made critical decisions about school and work closures as the virus rapidly spread and the death toll increased. In this study, we focus on the state of Ohio, where our study participants were located. The Ohio governor was one of the early leaders in enforcing a state-wide stay-at-home order to flatten the curve of COVID-19-related deaths. On March 12, 2020, after a fifth case of coronavirus was confirmed in Ohio, Governor DeWine ordered the closure of K-12 schools and prohibited mass gatherings. As the virus continued to spread, businesses were ordered to close, and childcare centers were put under new restrictions (many of them temporarily closed). On March 22, Governor DeWine announced an official stay-at-home

order beginning March 24, which would limit out-of-house activities to those that were essential—to get food, medical care, or work for "essential" businesses. This stay-at-home order was eventually lifted months later on May 29. However, schools remained closed, as did many businesses, and many family members remained at home in the months that followed.

The movement of work and school into the home environment, and rapid closure of businesses and recreational areas, caused social and economic shocks to families of unparalleled proportions. In terms of economic repercussions, during the early stages of the COVID-19 pandemic, an estimated 40% of United States adults suffered from economic distress (Ettman et al., 2021; Sampson et al., 2021). Other studies indicate significant social disruption as well, including worsening parental mental health, increased child behavior problems, loss of child care, and increases in food insecurity in households with children between March and June 2020 (the same time period as the current study; Patrick et al., 2020).

In addition, with the stay-at-home orders being implemented around the United States with little warning, the home environment often became a shared space for work, school, and recreational activities. The family context became the only social context readily accessible to most parents and children. A review of research on the impact of school closures (akin to stay-at-home orders for those with school-aged children) across various past infectious disease epidemics highlights the major stressors faced by families under these conditions (Cauchemez et al., 2009). Specifically, the review indicated increased parental job loss, child neglect (being left to care for themselves), and learning loss, and that these stressors were particularly relevant for economically vulnerable families (Cauchemez et al., 2009).

Early research with respect to COVID-19 suggests similar concerns, indicating increased parental worry about children falling behind in school and becoming socially isolated (Horowitz & Igielnik, 2020), and that job loss during the pandemic has the potential to increase child abuse (Lawson et al., 2020). COVID-19 family research also suggests that parent and child well-being worsened more among economically vulnerable families (Engzell et al., 2021; Gassman-Pines et al., 2020), and for female compared to male caregivers with children across settings (Wade et al., 2021). Another study of families with young children in California found that children's mental health (measured as depressive and externalizing behavior symptoms) worsened with the pandemic, along with multiple indicators of family economic and social well-being. Importantly, the study found that the maintenance of family routines was associated with better child mental health (Glynn et al., 2021). This suggests that economic and social disruptions within the family may be particularly detrimental to young children, whose development depends on stable family contexts, faced with unpredictable and changing family environments.

Taken together, this growing body of research on the early stages of the COVID-19 pandemic suggests that families experienced significant social and economic distress during the stay-at-home and school closure periods. At the same time, caregivers were faced with the need to increase their parenting time across learning activities to prevent significant learning loss and promote their children's development. Further, economic distress and low socioeconomic position may have contributed to stress, lowered parent/child well-being and, by extension, compromised parenting (e.g., Conger et al., 2000). The sudden nature of social and economic changes within the family due to the pandemic and stay-at-home orders may have been particularly impactful for families with young children (Glynn et al., 2021), which is the population of focus in our study. However, to date research has not shown which aspects of social and economic distress during this difficult time may be consequential for parenting activities (and by extension parental and child well-being) among caregivers with young children.

Study Contribution

We begin to address this gap in research by assessing parenting changes and sources of social and economic disruption that occurred among families with young children in Ohio during the initial phase of the COVID-19 pandemic. In doing so, we draw on two theoretical perspectives: The Family Stress Model (FSM) and Family Investment Model (FIM). The FSM was developed as a way of understanding how families respond to economic shocks, and how this may affect children being raised during macro-level crisis periods (Conger et al., 2000). The theoretical FSM pathway begins with economic distress causing family economic pressure, parental stress, and more negative parenting, and ends with disrupted family relations (including more negative and less stimulating parenting) affecting child outcomes (Conger & Donnellan, 2007; Linver et al., 2002). Alternatively, the FIM emphasizes the positive contributions parents may provide to their children through investments of financial, cultural, and human capital (Conger & Donnellan, 2007). The FIM tends to focus on the economic, home, and neighborhood contexts that produce advantages for children in higher-income families. Both models aim to explain the effects of economic conditions (e.g., poverty and lower family socioeconomic status) on child development.

One key area of investment is parental time spent engaged with their children (Fomby & Musick, 2018; Huston & Rosenkrantz Aronson, 2005; Kalil, Ryan, & Chor, 2014; Kalil & Mayer, 2016). In this study, we focus on caregiver time spent in interactive activities with children and how this may have changed in response to the COVID-19 crisis within a context of family stress. We ask the following research questions: (1) how did primary caregiver time spent in key activities with young children change with the onset of the COVID-19 stay-at-home order? (2) how were family social and economic

conditions associated changes in time spent on key parenting activities? (3) and do these patterns differ between lower- and higher-income households?

To address our research questions, we focus on interactive (rather than passive) parenting activities during this critical period when children's learning activities shifted into the home. We focus on three types of interactive activities: play, demonstrating or showing how to do things, reading/telling stories, helping with schoolwork, and disciplining. These parenting activities were chosen because each type of activity has been linked with child outcomes. Adult–child play has been resoundingly shown to aid in building strong parent–child bonds, and influencing early social, cognitive, and language skill development in children (e.g., Burriss & Tsao, 2002; Cohn, 1990; Fisher, 1992; Ginsburg, 2007; Henry, 1990). It is often through play that parents may demonstrate how something works or show children how to do something, but parents may also do this outside the context of play to teach their child how to do things independently around the house. Regardless of context, showing and demonstrating can be used to create opportunities for social learning by scaffolding difficult activities or creating opportunities for the child to practice imitating the actions (e.g., Csibra & Gergely, 2006; Csibra & Gergely, 2009; Gergely & Csibra, 2005).

Parents also engage in more active learning processes like reading or telling stories to their children or helping their children with schoolwork. When parents practice reading or telling stories to their children, this forms an important component of the early home literacy environment and has been shown to have positive effects on later child reading skills (e.g., Sénéchal & LeFevre, 2002). Similarly, when parents are involved in helping children with their schoolwork, this generally improves learning outcomes as well as child attitudes about learning (e.g., Hoover-Dempsey et al., 2001; Patall et al., 2008).

In addition to these learning-oriented interactions, discipline is another important parenting activity that can impact child development. While punitive discipline may lead to more anxiety and/or externalizing behaviors in children (e.g., Gershoff et al., 2010), both positive and negative parental control has been shown to help children build self-regulation and executive function skills during early childhood (e.g., Karreman et al., 2006; Kok et al., 2014).

Within the onset of the stay-at-home order, we expect that the majority of primary caregivers will have increased their active parenting time with their children to compensate for the social interactions and learning opportunities children were missing at school. However, we hypothesize that not all caregivers increased their time in all parenting activities. Family social and economic disruptions may have limited their ability to invest more time in certain activities, while caregiver stress may contribute to increased time spent disciplining children. Thus, we assess the impact of distress and disruptions on each parenting activity separately. We also aim to capture the parenting

response by caregivers around engaging in learning activities during this period, for which we sum the changes in time spent in all activities (except disciplining) for each caregiver.

While both the FSM and FIM indicate the importance of economic resources and pressures, we also assess the potential for social conditions to be key sources of change in family processes during this unprecedented macro-level crisis. We assessed social conditions as: changes in family conflict and who lives at home, level of household chaos, recent experience of family/ friend death, and whether the caregiver began working from home. Further, taken together, the FSM and FIM theories suggest that lower-income households may be particularly vulnerable to family/parental stress and have less time and resources to invest in their children (Conger et al., 2000; Conger & Donnellan, 2007) Thus, we assess the potential associations between social and economic disruptions and parenting activities separately among lower- and higher-income households.

Understanding the specific ways in which parents' time with children changed during this period is a key first step to understanding the consequences of the pandemic on children's long-term development. Recognizing that not all families experienced the pandemic stay-at-home period in the same way, we provide an initial view of the extent of variability in social and economic conditions and among Ohio families with young children, and their associations with parenting behaviors during this unprecedented time in history.

Method

Data: The COVID and Families Study

In May 2020, we surveyed caregivers with young children (aged birth to 9 years) who were actively enrolled in three ongoing longitudinal studies of families and learning environments among young children in Ohio. We fielded the survey over a 6-week period by sending links to participants' email addresses, which allowed them to consent to and enroll in the study *via* a secure link. Upon completion of the study, participants were emailed an electronic gift card. Our final sample size was 559, reflecting an overall response rate of 53% for the CFS. As two of the studies focused on low and very low-income families, and the third was a mix of lower- and higher-income families, we had sufficient variability in household income levels to assess differences in experiences between lower- and higher-income households.

Participants

Given our interest in parental engagement in learning activities, including helping with schoolwork, we excluded caregivers whose focal child were

under age 4 ($n = 86$). Our analytical sample was further reduced by excluding those with incomplete parenting activity data, which differed across the parenting activities. Though we imputed our missing independent variable data, we dropped cases missing the dependent variables after the imputation process, resulting in a final sample size of 436 for most of the regression models. Helping with schoolwork was missing an additional 10 cases ($N = 426$) and disciplining 1 case ($N = 435$).

Table 1 shows the social, economic, and demographic characteristics of our sample for the full sample ($N = 436$). On average, caregivers completed the survey within 63 days of the onset of the stay-at-home order, indicating a reasonable recall period, particularly for such a salient event. Caregivers averaged 36 years of age and 21% had obtained an educational level of high school degree or less. The racial make-up of the sample was majority White (75%), and Black caregivers were the largest non-White racial group

Table 1. Analytical Sample Descriptive Statistics. Crane Center COVID and Families Study, Children Ages 4–9 Years. With Non-Missing Parenting Outcomes. N = 436.

Variable	Mean/%
Days between March 15, 2002 and interview	63.3
Focal child characteristics	
Child age in years (range: 4–9)	6.7
Child female	45%
Caregiver characteristics	
Age (range: 20–65 years)	35.8
High school or less education	21%
Black	16%
Latinx	5%
Other race/ethnicity	4%
White	75%
Caregiver is mother	92%
Married	61%
Cohabiting	12%
Single	27%
Worked before March 15	79%
Household characteristics	
# Of children under 5 (range: 0–7)	0.71
# Of children 5–12 years (range: 0–5)	1.8
1 or more child 13–18 years	24%
Person 65+ years in household	8%
Household 2019 annual income < US$30,000	30%
Household 2019 annual income US$30,000–US$49,999	15%
Household 2019 annual income US$50,000+	55%

represented (16%). Over 90% of caregivers were mothers, and 39% were non-married (cohabiting or without a live-in partner). Almost 80% of caregivers reported working outside the home before March 2020. As expected, based on the socioeconomic make-up of the recruitment pool, the sample varied substantially by income status, with 45% of the sample reporting less than US$50,000 for their 2019 household income (hereafter: *lower-income households*).

Measures

Dependent Variables: Changes in Time Spent in Parenting Activities. We developed a brief rapid assessment of parenting time investments designed to: (1) be easy to complete; (2) categorize change in time investments; and (3) capture parenting activities that are both meaningful for children's development and likely to change due to the pandemic. We asked caregivers six questions regarding how the following time investments had changed since March 15th: (1) playing together inside, (2) playing together outside, (3) reading or telling stories, (4) demonstrating or showing how to do something, (5) helping with schoolwork, and (6) disciplining.

Caregivers were asked to select whether the amount of time spent doing each activity with the focal child increased a lot, increased a little, stayed the same, decreased a little, or decreased a lot. Caregivers were also given an option that stated: I never did/do this with my child. Based on the limited number of cases in the decrease and never did/do categories, we collapsed these into a single category with those who responded that their time spent in the activity had "stayed the same" (category value = 0). We maintained the distinction between increasing a little (category value = 1) and increasing a lot (category value = 2). Each of these categorical variables was utilized as a separate dependent variable, given the potential for social and economic conditions to have different impacts across these activities. Further, the correlations among these parenting activities were low (all below 0.4 all but two correlations below 0.3), supporting the idea that these variables represented distinct parenting activities.

We also created a summary parenting time change measure, to provide an overall view of increases in learning activities. This variable was created by adding up the scores for each of the parenting activities except disciplining. While this is not meant to be a parenting scale, it provides a measure of *total increased parenting in learning activities* variable (with play considered an important way parents support learning in young children). This variable ranged from 0 to 10, with ten indicating that the caregiver reported they "increased a lot" of their time in all play/learning activities.

Independent Variables: Family Social and Economic Conditions. To assess family social conditions, we asked about family social conditions related to conflict,

chaos, household demographic structure, exposure to deaths, and moving work into the home since March 15th. For conflict, we asked caregivers whether conflict in the household increased since the stay-at-home order went into effect (*yes* = 1, *no* = 0). Household chaos was assessed using the short form of the Household Confusion, Hubbub, and Order Scale (CHAOS-SF). Following the validated measure, caregivers were asked to rate six statements about their home using a 5-point Likert-based scale from definitely untrue to definitely true, such as: "You can't hear yourself think in our home," and "Usually a television is on somewhere in our home," which were summed to create a total score (Matheny et al., 1995). The only alteration to this measure was in referencing since March 15. To assess changes to household demographic structure, we asked caregivers whether someone moved either into or out of their home. Given the nature of the pandemic, we also asked whether caregivers had experienced the death of a close friend or family member. These variables were dichotomized, where 1 = *yes*, 0 = *no*. Finally, we included a measure of whether the caregiver changed their work to be home-based, by combining their reports of work status (currently working since March 15) and whether they changed to working from home since March 15. In doing so, we created a 3-category variable: change to working from home, stayed working away (reference category) and remained not working.

To assess family economic distress, we included reports of changes in monthly household income and job loss since March 15th. We asked caregivers to report whether their household monthly income had increased a lot, increased a little, stayed the same, decreased a little or decreased a lot. We then collapsed this measure into a dichotomous variable of economic distress—monthly income that declined a lot versus all other categories. We also asked caregivers whether they had lost their job or closed their business since March 15th. We then asked the same about whether this had happened to a close friend or family member. We included these variables separately in our models, given the potential differences in parenting repercussions based on whether the job loss was experienced by the primary caregiver or another person.

Covariates. In all regression models we included covariates at the child, caregiver, and household levels to control for potential socio-demographic conditions associated with family disruption and parenting time. Caregiver variables included: caregiver age (continuous), relation to the focal child (dichotomous: mother vs. other), race/ethnicity (categorical: Black, Latinx, Other race/ethnicity, or White), highest level of education (dichotomous: high school diploma/GED or less vs. having completed more than high school), and marital status (categorical: married, cohabitating with a partner, or single). Our household demographic variables included: the number of children in the home under age 5 years; the number of children ages 5–13 years; the presence of one or more children ages 13–18 years (dichotomous: yes vs. no); and the

presence of one or more adult age 65 or older (dichotomous: yes vs. no). To account for variation in the timing of survey completion, we included a variable indicating the number of days elapsed between March 15th and survey participation.

Finally, we also asked caregivers to report their 2019 household income, using categories in US$10,000 increments. This measure did not indicate an exact level of income nor where the income came from; however, it was sufficient, along with education status to allow us to control for prior economic level of the household. Given the non-linear distribution of this variable (with more households at the bottom and top of the 16 categories), we dichotomized this variable to capture *lower-income* (annual income below US$50,000) vs. *higher-income* (annual income US$50,000 or more) households. The US$50,000 cutoff corresponded to close to the median for the sample (45% below and 55% at or above US$50,000), allowing sufficient sample size in each group to support the creation of interaction variables used to test significance of income differences in social and economic conditions effects (described below). Furthermore, US$50,000 is a commonly used cutoff in family research (Chen et al., 2021; Crosnoe et al., 2016) and roughly corresponds to 200% of the poverty line for many families (United States Census Bureau, 2019). This is important as prior research has established that families below 200% of the poverty line commonly experience financial struggles in meeting their basic needs (Fass, 2009; Koball, et al., 2021).

Statistical Methods. Approximately 8% of the analytical sample cases were missing data on one or more independent variables. To preserve the maximum sample size, we used multiple imputation to handle missing data. Following current suggested standards in imputation, we utilized the "ice" command in Stata to be imputed across 25 datasets (Johnson & Young, 2011).

To assess associations between social/economic conditions and increases in parenting activities, we conducted multiple regression analysis for each of our dependent variables (each parenting activity) and the total increase variable. Given the ordered nature of the data on each parenting activity (from decreased/stayed the same to increased a lot), we used ordered logistic regression, estimating the cumulative odds of increased caregiver time spent in each activity (Long, 2014). For our model estimating the total parenting increase, we used a Poisson regression model given the count nature of the data (Long, 2014). For all models, we present the exponentiated coefficients, which can be interpreted as odds ratios for the ordered logit models and incidence risk ratio for the Poisson model.

For all sets of regression analyses, we included all control variables and adjusted for heteroskedasticity and clustering by zip code. To address our research question about potential differences in associations for lower-income and higher-income households, we created interaction variables between the

lower household income variable and each of the social and economic condition variables. Given the relatively small sample size, particularly when calculating interaction effects, we assessed statistical significance through two-tailed tests, reporting significance up to $p < 0.1$.

Results

Descriptive Statistics: Caregiver Time Spent in Activities With Focal Child

With respect to caregiver time investments with the focal child, Figure 1 shows the distribution in changes in each parenting activity across categories of decreased/stayed the same, increased a little, and increased a lot. Caregivers reported increasing their time "a lot" in helping their children with schoolwork (76%), playing inside with their children (50%), and showing their children how to do things (45%). Playing outside and disciplining were activities that had smaller percent of caregivers increasing these activities, and a larger percent whose time engaged in these activities with the focal child decreased or stayed the same (36% for outside play and 48% for disciplining). Reading/
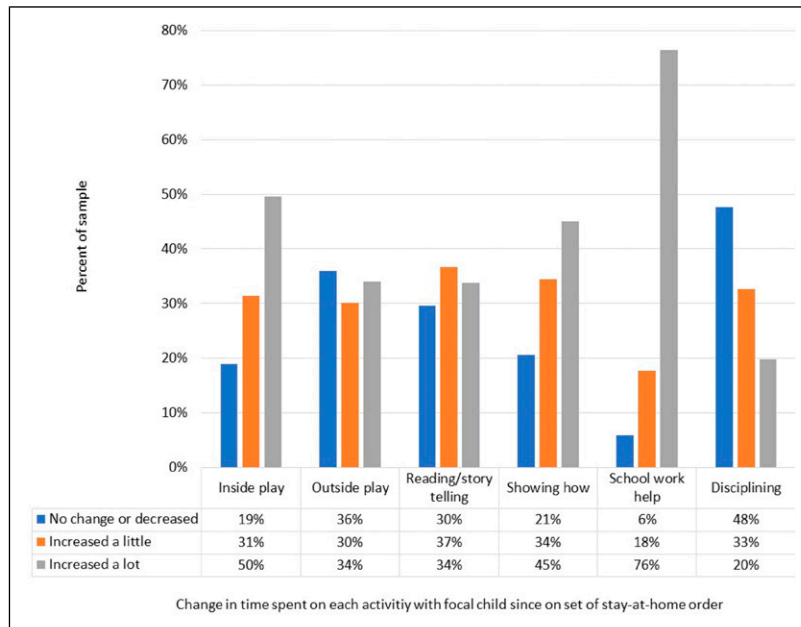

	Inside play	Outside play	Reading/story telling	Showing how	School work help	Disciplining
■ No change or decreased	19%	36%	30%	21%	6%	48%
■ Increased a little	31%	30%	37%	34%	18%	33%
■ Increased a lot	50%	34%	34%	45%	76%	20%

Change in time spent on each activitiy with focal child since on set of stay-at-home order

Figure 1. Caregiver reported change in time spent with focal child (ages 4–9) in key parenting activities.

telling stores with the focal child, a particularly important learning activity for young children, was split almost evenly across the categories of decreased/ stayed the same, increased a little, and increased a lot (see Figure 1).

Table 2 provides more information about changes in time parental care-givers spent with the focal child (ages 4–9), with additional information about differences between lower- and higher-income households. The average value, with decreasing/staying the same = 0, increasing a little = 1 and in-creasing a lot = 2, was significantly higher among higher-income households for activities related to playing outside and schoolwork. Though not shown here, decreases in outdoor play time was particularly stratified by household income, with 31% of caregivers in lower-income households, compared to 17% of caregivers in higher-income households, reporting this decrease. This may reflect neighborhood quality and higher community-level COVID-19 exposure risk among children in lower-income households. Importantly, caregivers in lower-income households had higher values on changes in reading/telling stories, indicating that they were significantly more likely to increase this activity than caregivers in higher-income households. The total change in learning activity time averaged 6 out of 10, with similar means for lower- and upper-income households.

Descriptive Statistics: Social and Economic Disruption

Table 2 also provides the means for the social and economic conditions variables, for both the full sample and by 2019 household income category. Caregivers reported experiencing social disruption related to conflict, chaos, and, to a lesser extent, changes to household demographic structure. Almost one-third of caregivers reported increased conflict at home (30%) since the stay-at-home order, with no significant difference by 2019 household income status. The mean score on the CHAOS scale was 15 on a scale of 6–30, with a slightly higher mean (15.6) in lower-income compared to higher-income households (14.9). A small percentage of our sample reported changes to their household structure, with 4% reporting that someone moved into the house (6% in lower-income and 3% in higher-income households) and 3% reporting someone moved out since March 15th. The low percentages of changes in household structure likely reflect restrictions on residential changes to reduce virus transmission.

A full 12% of the caregivers reported that a close friend or family member had died since March 15th, although this differed significantly by 2019 household income status. While 9% of caregivers in higher-income house-holds experienced a death, 16% of caregivers in lower-income households experienced this dramatic social disruption. Finally, almost one-third of caregivers reported moving their work from outside the home to being home-based. However, this differed substantially by household income level, with

Table 2. Parenting, Social, and Economic Conditions in CFS Sample Families. Mean/% Values for Full Sample, Lower-Income Households, and Higher-Income Households.

Variable	Full Sample $N = 436$	2019 Annual income < US$50,000 $n = 194$	2019 Annual income US$50,000+ $n = 242$	Means Differ for lower versus higher HH income[1]
Parenting time change (0 = none/decrease, 1 = increased a little, 2 = increased a lot)[2]				
Playing inside	1.30	1.38	1.24	*
Playing outside	0.98	0.87	1.07	**
Reading and/or telling stories	1.04	1.20	0.93	***
Showing how	1.24	1.20	1.28	
Helping with schoolwork	1.71	1.65	1.75	*
Disciplining	0.72	0.70	0.74	
Total increase in play/learning activities (range 0-10)	6.23	6.21	6.24	
Family social conditions[2]				
Increased household conflict	30%	31%	29%	
CHAOS score (range: 15–30)	15.1	15.5	14.7	*
Someone moved in	4%	5%	3%	
Someone moved out	3%	3%	2%	
A close friend or family member died	11%	15%	9%	*
Caregiver changed from working outside to at home	30%	14%	42%	***
Caregiver remained working outside home	34%	37%	32%	
Family economic conditions[2]				
Household monthly income declined by "a lot"	18%	28%	11%	***
Caregiver lost job or closed business	11%	17%	6%	***
Close friend or family member lost job/closed business	36%	46%	29%	***

[1]T-test of mean difference between lower-income (2019 annual income <US$50,000) and higher-income (2019 annual income US$50,000+) households; $+p < 0.1$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.
[2]Reference period: since March 15, 2020.

42% of caregivers in higher-income households, and only 14% of those in lower-income households, indicating this change.

Economic disruption was also evident in this sample. Unlike social disruption, economic disruption was higher among households with lower 2019 household income. While 19% of all caregivers reported monthly income declining "a lot" during this time, almost one-third of lower-income households reported this experience of economic disruption compared with 11% of higher-income households. Overall, 11% of caregivers reported losing their job or closing their business and 36% reported that this had occurred to a close friend or family member. These percentages were significantly higher in lower-income households as well. 18 percent of lower-income caregivers lost their job or closed a business (compared with 6% of higher-income households), and almost half (46%) reported a friend or family member lost their job or closed their business (compared with 29% in higher-income households).

Regression Results

We estimated several regression models to assess how social and economic disruptions were associated with parenting changes during this early stage of the pandemic. Our first set of models used ordered logistic regression to predict the odds of reporting increased time in each parenting activity (separate regression models for each parenting activity outcome), followed by a model that assessed the associations among social and economic conditions with the sum of learning activity increases (see Table 3). All control variables were included in each of the models but were not reported in Table 3 for brevity.

Social Conditions as Predictors of Parenting. As Table 3 shows, increased household conflict since March 15 was associated with higher odds of caregivers increasing time helping with schoolwork (Model 5) and disciplining (Model 6) the young, focal children. Higher level of household chaos, in turn, was consistently associated with caregiver's lower odds of increasing time in learning related activities. This is indicated by significant odds ratios under one for multiple outcomes, including time spent: playing inside, playing outside, reading/storytelling, and helping with schoolwork (Models 1–5). A similar negative association was found for the total learning count outcome (Model 7), where higher chaos scores were associated with lower rates of total parenting time increases across learning/play activities. Model 6 indicates that chaos works in the opposite direction for changes in time spent disciplining children, where increasing chaos was associated with higher odds of increasing time spent disciplining the focal child.

Household demographic changes since the stay-at-home order, while occurring in only a small percent of the sample households, indicated a

positive association with increased parenting time when someone moved in and negative association when someone moved out. While many of the associations did not reach statistical significance, having someone move in was associated with significantly more time spent in outdoor play, reading/ telling stories and total time in learning activities (Models 2, 3, and 7). Having a household member move out was significantly associated with lower odds of caregivers increasing time helping the focal child with schoolwork (Model 5, Table 3).

The experience of a death of a close family member or friend was significantly associated with increasing time spent in play. However, as Models 1 and 2 indicate, the effects are in the opposite direction for inside (positive association) and outside (negative association) play. Caregivers who experienced a death also had higher odds of increases their time spent disciplining the young focal children.

Finally, the movement of caregiver work from outside to inside the home (compared to continuing to work outside the home) was associated with increased odds of more time spent playing inside (Model 1) and showing children how to do things (Model 4); and with increases in disciplining (Model 6).

Economic Distress as Predictors of Parenting. As Table 3 also indicates, overall, we see few significant associations among our measures of economic distress (drop in monthly household income by a lot, caregiver job loss, and family member/friend job loss) and change in caregiver's time in various parenting activities. However, there was an association between caregiver job loss/ closed business since March 15 and increased time spent reading/storytelling with the focal child.

Differences Between Lower- and Higher-Income Households. The final goal of this study was to assess whether the above associations between social and economic conditions and caregivers' parenting time during the early stages of the pandemic differed between lower- and higher-income households. Table 4 shows a summary of the result of the regression models from Table 3 that included the lower-/higher-income dummy variable interacted with each of the social/economic conditions variables. For brevity and clarity, we present only results where the interaction effect was significant at p<0.1.

Of the family social conditions assessed in this study, we found that the associations with parenting differed for several indicators, including: family conflict, household chaos, and experiencing the death of a close family member or friend. Regarding household conflict, caregivers in lower-income households had higher odds of increasing outdoor play time (Model 9) and higher incidence of increasing time in total learning/play activities (Model 12) with the focal child when household conflict had increased. In higher-income

Table 3. Regression Results of Change in Time Spent in Parenting Activities Regressed on Family Social and Economic Conditions Since March 15, 2020. CFS Caregivers With Focal Child Ages 4–9 Years.

Independent Variables	Model 1 Playing inside[1]	Model 2 Playing outside[1]	Model 3 Reading/telling stories[1]	Model 4 Showing how[1]	Model 5 Helping with School work[1]	Model 6 Disciplining[1]	Model 7 Total play/ learning[2]
Social conditions							
Household conflict	1.14	1.02	1.21	1.19	1.90*	2.37**	1.06
	(0.75–1.74)	(0.53–1.96)	(0.77–1.91)	(0.84–1.70)	(1.07–3.38)	(1.32–4.24)	(0.96–1.16)
CHAOS	0.94**	0.93**	0.94*	0.96	0.90**	1.10**	0.98**
	(0.90–0.98)	(0.90–0.97)	(0.89–0.99)	(0.91–1.01)	(0.83–0.96)	(1.03–1.17)	(0.97–0.99)
Person moved in	1.55	3.05*	2.62*	2.19	1.89	0.66	1.28**
	(0.69–3.48)	(1.20–7.79)	(1.16–5.90)	(0.74–6.49)	(0.48–7.47)	(0.26–1.72)	(1.09–1.50)
Person moved out	1.06	0.81	1.15	0.89	0.28*	0.81	0.94
	(0.41–2.73)	(0.16–4.02)	(0.61–2.15)	(0.33–2.41)	(0.092–0.86)	(0.29–2.27)	(0.74–1.20)
Family/friend death	2.42**	0.51*	1.10	0.83	1.93+	1.64*	1.02
	(1.58–3.71)	(0.27–0.98)	(0.59–2.06)	(0.50–1.38)	(0.91–4.09)	(1.00–2.67)	(0.93–1.12)
Caregiver working at home[3]	1.46*	1.03	0.81	1.36+	1.17	1.42+	1.04
	(1.05–2.04)	(0.54–1.99)	(0.57–1.14)	(0.99–1.86)	(0.62–2.23)	(0.95–2.12)	(0.96–1.13)
Economic conditions							
Monthly income declined	0.85	1.52	0.86	0.89	1.25	1.19	1.01
	(0.47–1.56)	(0.89–2.60)	(0.55–1.34)	(0.54–1.47)	(0.46–3.43)	(0.72–1.96)	(0.92–1.11)

(continued)

Table 3. (continued)

Independent Variables	Model 1 Playing inside[1]	Model 2 Playing outside[1]	Model 3 Reading/telling stories[1]	Model 4 Showing how[1]	Model 5 Helping with School work[1]	Model 6 Disciplining[1]	Model 7 Total play/ learning[2]
Caregiver lost job	0.74 (0.26–2.06)	1.12 (0.50–2.52)	2.71* (1.24–5.90)	0.70 (0.32–1.53)	0.81 (0.24–2.76)	0.89 (0.41–1.94)	1.03 (0.90–1.19)
Family/friend lost job	1.33 (0.83–2.15)	0.96 (0.70–1.32)	0.95 (0.64–1.40)	1.31 (0.88–1.96)	1.40 (0.62–3.16)	0.88 (0.59–1.32)	1.04 (0.97–1.11)
Observations	436	436	436	436	424	435	436

[1]Ordered logistic regression models, odds ratios shown.
[2]Poisson regression model, incidence rate ratios shown.
[3]Reference category: remained working outside of home.
Robust 95% confidence intervals in parentheses. **$p < 0.01$, * $p < 0.05$, + $p < 0.1$. All control variables included but not reported for brevity.

households, household increases in conflict were associated with lower odds of increasing outdoor play time (Model 9).

Household chaos, in turn, differed by household income category only for helping with schoolwork time. Chaos was significantly associated with lower

Table 4. Summary of Statistically Significant Interaction Effects of Social/Economic Conditions by 2019 Household Income (Lower vs. Higher)

| | Dependent Variables[1] | | | | |
| | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 |
Independent Variables	Playing Inside[2]	Playing Outside[2]	Help School Work[2]	Disciplining[2]	Total Play/ Learning[3]
Conflict					
Lower-income households		2.08+			1.15*
Higher-income households		0.60+			0.99
CHAOS					
Lower-income households			0.84***		
Higher-income households			0.95		
Death					
Lower-income households	6.19**	0.24*		2.67**	
Higher-income households	0.97	1.36		0.9	
Caregiver lost job/closed business					
Lower-income households		0.74			
Higher-income households		3.61*			
Family/friend job loss/closed business					
Lower-income households	0.92				
Higher-income households	1.96**				

[1]Regression models with "reading/telling stories" and "showing how" as the dependent variables indicated no statistically significant interaction effects for household income with any of the social/ economic household conditions variables. Results not reported for brevity.
[2]Ordered logistic regression models, odds ratios shown.
[3]Poisson regression model, incidence rate ratios shown.
All control variables included. Results with interaction term significant at $p < 0.1$ reported in table.
Significant test of coefficient different from zero: ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

odds of increasing time in schoolwork help only among lower-income households ([Table 4](), Model 10).

Experiencing the death of a close friend/family member was only associated with parenting activities in lower-income households. As [Table 4]() shows, the experience of such a death since March 15 was associated with higher odds of caregivers increasing their inside (Model 8) and decreasing their outside (Model 9) play time with the focal children; and with increasing time spent disciplining (Model 11).

Among the economic distress indicators we considered, caregiver job loss and other close family member/friend job loss significantly differed in their impact on parenting time by household income level. The results indicate that job loss was particularly impactful (significantly different from 0) for indoor and outdoor play time in higher-income households (Models 8 and 9). These associations, however, were in a positive direction, indicating that job losses reported for higher-income households were more likely to facilitate increasing play time between young children and their caregivers than when it occurred in lower-income households.

Discussion

The COVID-19 pandemic and subsequent shutdowns across much of the United States changed social and economic conditions and normal family routines. The results of our survey of caregivers with young children in central Ohio supported this idea, indicating that most of our families experienced social and economic changes and distress during the Ohio stay-at-home period. However, important differences were reported for those in lower- and higher-income households. Caregivers in lower-income households were more likely to report economic distress related to income and job losses and experiencing a death of a close friend/family member, while those in higher-income households experienced more shifts in caregiver work into the home. These findings are consistent with other new COVID-19 studies ([Chen et al., 2021]()), although we provide more nuanced measures of the types of economic and social changes that were occurring.

Our findings also indicated that despite substantial social and economic disruption many, though not all, caregivers reported increasing time spent in active parenting of their young children. Total increased parenting (including all parenting activities except disciplining) indicated that, on average, caregivers increased their time in more than three of the five play/learning activities. This was similar for caregivers in lower-income and higher-income households, indicating that caregivers across the income spectrum found a way to invest more time in their children.

Not surprisingly, given the demands of virtual schooling, almost all caregivers reported an increase in time spent with the child on schoolwork.

Increased time spent in other activities (playing, showing how, reading/telling stories, and disciplining) was more variable. Mean differences indicated that increases in time spent reading/telling stores was higher among lower-income households. This suggests that caregivers in lower-income households may have prioritized increasing time in this activity more than in higher-income households, or that the young children in higher-income households were more likely to increase time in independent rather than caregiver-engaged reading during this stay-at-home period. However, independent child learning activities was not assessed in this study and would be a fruitful area for future research.

One parenting activity where we found caregivers reported decreases or not change in time was playing outside with children. This may have reflected decreased access to playgrounds and other recreational areas, or parents aiming to prevent exposure to the virus, during the COVID-19 shutdown period. A larger percentage of low-income caregivers reported decreasing outdoor play, suggesting that neighborhood and housing conditions (i.e., not having access to a yard) may have exacerbated the decline in outside play for more economically vulnerable children.

Time spent disciplining was another parenting activity that almost half of the caregivers reported stayed the same or decreased. However, caregivers in lower- and higher-income households were similar in their change (or lack of change) in this parenting activity.

In terms of the effects of social conditions on parenting play and learning time, our regression results indicated that social disruptions were associated with changes in caregiver parenting time, but not always in the expected directions. Higher conflict was associated with more time spent in helping with schoolwork, possibly reflecting a reverse effect of more time spent together on family conflict under these conditions. Among lower-income household, conflict was also associated with higher odds of increasing outdoor play and disciplining time, possibly reflecting parenting responses to stress in the home environment that may have been higher in lower-income families (Conger & Donnellan, 2007).

Household chaos did follow expected patterns of reducing the odds of caregivers increasing their time in playing and learning activities and increasing the odds of discipline time increases with their young children. This is potentially important, as household chaos has been linked with lower cognitive development in children (Petrill et al., 2004), and parenting time changes in various activities may account for some of this association during the stay-at-home period.

Focusing on the changes in discipline as a possible reaction to stressful family environments as the family stress model would suggest (Conger et al., 2000), we found that increasing household conflict, chaos, experiencing a death, and a caregiver changing to work inside the home were all associated with higher odds of increasing time spent disciplining the young focal

children. This may indicate stressful social experiences and change during this time created tensions in the home, increasing the use of discipline. Given that death is a more exogenous occurrence than the other social conditions, that association could be seen as more likely a social stress response. Importantly, death experiences were associated with discipline *only* in lower-income households, further indicating a combined social and economic stress effect that may increase parental disciplining. This is a potentially important area of future research on the family stress model: to consider how social and economic disruptions/distress may combine to impact parenting.

Other social conditions appeared to be beneficial rather than detrimental in terms of time spent in learning/play activities. For example, having had a person move in since March 15 was associated with higher odds of outdoor play, reading/telling stories, and total learning activity time the caregiver spent with the focal child. When caregivers reported moving their work from outside to inside the home, they also reported more time both increasing their indoor play and showing how time with their young child.

While experiencing a death was also associated with more inside play time increases, this likely reflected a trade off with outside time, which was negatively associated with a close person dying during this period. This opposite effect on indoor and outdoor play time was mainly present in lower-income households, possibly reflecting precautions caregivers who experienced a recent death were taking to avoid exposure to COVID-19 or other neighborhood dangers in low-income communities (Kimbro & Schachter, 2011).

Unlike what we would have predicted from both the family stress and investment models, economic disruption (loss of income and jobs) was not associated with lower rates of total parenting investment, although there were differences by individual parenting activity. The only significant association found was between caregiver job loss and reading/storytelling; and it was in a positive direction. This suggests that job loss may have provided caregivers with more time for parenting. The associations were similar in lower-income and higher-income households (no significant interaction effect), suggesting that caregivers across income levels who lost their jobs/business increased their time in this key learning activity. This is an important finding, which needs further research, given the prior evidence of inequalities in reading activities by parent social class and the importance of reading/storytelling for children's language and cognitive development (Logan et al., 2019; Price & Kalil, 2019).

Play time was also positively impacted by caregiver and other family/friend job loss. However, this was only evident among higher-income households. This suggests that job loss in families with more economic resources may have been less stressful or more of a choice among caregivers to increase parenting time with their young children.

Contrary to what we might predict based on the family stress model, economic disruption was not associated with the odds of increasing time spent

disciplining the focal child. This may be due in part to the fact that the economic changes were recent and had not yet produced family distress that affected disciplining. An alternate explanation is that our measure only captured discipline broadly, as opposed to harsh discipline, which is most commonly associated with economic distress (Gershoff et al., 2007).

Limitations

This study was limited in multiple ways. First, while leveraging existing study samples was essential to obtain a sample of caregivers with young children in a timely manner, this sampling procedure limits the generalizability of the findings. Our sample is essentially a convenience sample, and thus not representative of all families with young children in Ohio. However, given the diversity of families included in CFS across the three involved projects, we were able to obtain a relatively large sample with racial and income diversity, compared to other COVID-19-related studies of families with children (Chen et al., 2021).

Second, the data used in this study rely primarily on caregiver evaluations about what occurred since about March 15, 2020. We do not have prospective data on parenting or the socioeconomic conditions of these families before the stay-at home order went into effect (other than a retrospective measure of 2019 annual income). While recall bias regarding how the household and parenting had changed may be an issue, it was likely reduced by the salience of this period in the lives of families and the proximity of the survey administration to the onset of the stay-at-home and school closure orders.

Finally, given that this is a cross-sectional and observational study, we are unable to make claims about causality. As noted above, it is likely that increased parenting in certain activities (like disciplining) and social disruption (particularly chaos and conflict) influence each other. Further, selective income and job loss due to caregiver's preference for (or need to) spend more time with their children was not accounted for here. This may be part of the reason we did not see a strong negative effect of economic disruption on parenting time overall. Finally, we did not measure quality or style of parenting. Thus, while many caregivers increased their time spent with the focal child in these various parenting activities, we cannot assume that this was entirely beneficial to parents and their children.

Conclusion

Despite these limitations, this study indicates initial evidence of increased parenting investment in young children, across household income levels, amidst substantial social and economic disruptions during the Ohio stay-at-home order. Taken together, it appears that social disruption, but not short-term economic distress, may be associated with higher stress and increased

disciplining of the focal child. Social disruption may have also limited caregivers' ability to increase learning investments in their young children during this time, particularly with respect to household chaos. While short-term economic distress was less clearly associated with parenting time across activities, as certain aspects of economic distress persist over a longer period of time, we may see more of an impact on parenting time spent in learning activities and child discipline.

While not assessed in this study, these parenting patterns, along with family disruptions, may have important implications for both parental and child well-being. Given the forced nature of the shutdown and stay-at-home order, many caregivers likely increased time spent in various activities under duress. Increasing time spent with a child under these conditions, while implying increased parenting investment, may not benefit parent or child well-being as much as when parents "opt in" to this level of investment.

As day-to-day caregiver–child interactions influence almost every facet of child development, understanding how family disruption and parenting were impacted during this time of crisis will be important to understanding potential disparities in child outcomes in the months and years to come as we continue to navigate a new pandemic normal. Parents, too, will no doubt be impacted by the abrupt shift in parenting responsibilities, though it is not clear how long lasting these effects might be. Further studies over time will be needed to elucidate connections among social and economic disruption, parenting, and caregiver and child well-being during this unique period in United States history.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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