




Applying a family stress model to understand U.S. families' patterns of stress, media use, and child behavior during the COVID-19 pandemic

Stephanie M. Reich, Yujia Liu, Nestor Tulagan, Esmeralda Martin, Melissa Dahlin & Natasha Cabrera


To cite this article: Stephanie M. Reich, Yujia Liu, Nestor Tulagan, Esmeralda Martin, Melissa Dahlin & Natasha Cabrera (2023) Applying a family stress model to understand U.S. families' patterns of stress, media use, and child behavior during the COVID-19 pandemic, *Journal of Children and Media*, 17:2, 246-265, DOI: [10.1080/17482798.2023.2187853](https://doi.org/10.1080/17482798.2023.2187853)



To link to this article: <https://doi.org/10.1080/17482798.2023.2187853>

 [View supplementary material](#) 

 [Published online: 13 Mar 2023.](#)

 [Submit your article to this journal](#) 




 [Article views: 170](#)

 [View related articles](#) 

 [View Crossmark data](#) 



Applying a family stress model to understand U.S. families' patterns of stress, media use, and child behavior during the COVID-19 pandemic

Stephanie M. Reich ^a, Yujia Liu^a, Nestor Tulagan ^a, Esmeralda Martin^a,
Melissa Dahlin ^a and Natasha Cabrera^b

^aSchool of Education, University of California, Irvine, CA, USA; ^bDepartment of Human Development and Quantitative Methodology, University of Maryland, College Park, MD, USA

ABSTRACT

The COVID-19 pandemic has greatly altered family life, and research among adults and families has found increases financial stress, mental health problems, screen time, parental conflict, and child behavior problems. Given these patterns, we sought to replicate these findings with a younger and largely non-white sample. Using the Family Stress Model, we consider how these constructs might relate to each other during the pandemic. From surveys of 247 predominately Latine mothers and fathers of children under 4 years of age in the U.S., we found that financial strain was related to children's media exposure and use, largely through impacts on parents' mental health and coparenting relationship. Interestingly, only use of television in the background and during mealtimes were associated with increases in parents' perception of increases in children's behavior problems. Such findings better capture how stress may operate in a family system and offer a way to counsel parents about healthier media habits for young children.

IMPACT SUMMARY

Prior State of Knowledge: The COVID-19 pandemic increased families' feelings of financial and emotional strain as well as screen time, though most research is with affluent families and those with older children.

Novel Contributions: Among economically and ethnically diverse families with young children, we find relationships between financial strain, parental mental health, coparenting relationship quality, and parenting around media. Of children's media use, only background TV is associated with increases in behavior problems.

Practical Implications: The findings underscore the importance of supporting parents through pandemic-related stressors and consideration of how passive media viewing might relate to problematic behaviors for young children.

ARTICLE HISTORY


Received 8 November 2021
Revised 1 March 2023
Accepted 2 March 2023

KEYWORDS

Media; screen time; family stress model; coparenting; COVID-19; young children; background television; digital babysitter

Media use, in a range of forms, is commonplace for young children (Auxier et al., 2020). Though the types of devices to access media have diversified, very young children still

CONTACT Stephanie M. Reich  smreich@uci.edu  Irvine UCI School of Education, University of California, 3200 Education, Irvine, CA 92697-5500

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/17482798.2023.2187853>

© 2023 Informa UK Limited, trading as Taylor & Francis Group

consume more television-type content than any other media (e.g., TV/movies, streaming sites, and YouTube videos: Auxier et al., 2020; Rideout & Robb, 2020). Parents provide media to their young children for a range of reasons, including to occupy their children's time, provide educational content (Rideout & Robb, 2020), complete home and work obligations uninterrupted (Elias & Sulkin, 2019), and attain temporary relief when feeling stressed or unable to engage with children (Shin et al., 2021).

Studies have found increases in media use during the COVID-19 pandemic (Dore et al., 2021; Trott et al., 2022), especially with more time at home and the closure of settings for children (Zamarro & Prados, 2021). The pandemic has also been associated with increased stress and anxiety for adults, particularly parents (Adams et al., 2021; Salari et al., 2020)—feelings that are related to children's media use (Shin et al., 2021) and behaviors (McDaniel & Radesky, 2020). Thus, it is feasible that increased stressors on the family could also contribute to children's increased use of media and subsequent behavioral changes. Drawing on a well-established, robust model of how parental strain affects parenting practices and subsequent child outcomes, we assess the relationship between increased financial strain, parental mental health, coparenting conflict, parenting around media, and changes in children's behavior during the COVID-19 pandemic.

Parenting around young children's media use

Research prior to the pandemic finds that media use by young children is commonplace, with television being the most frequent (Rideout & Robb, 2020). Research also finds family demographic characteristics related to media consumption. In particular, households with low incomes tend to watch more television than more well-resourced homes (Chen & Adler, 2019; De Craemer et al., 2018) and children of color tend to consume more media than their white peers (Goode et al., 2020; Thompson et al., 2010). Interviews with parents about their young children's media habits find a diversity of reasons for use, including distraction, education, entertainment, and family time (Brito et al., 2017; Elias & Sulkin, 2019; Ochoa & Reich, 2020).

During the COVID-19 pandemic, families reported consuming more media (McArthur et al., 2021; Sultana et al., 2021), including watching more television and playing more videogames together and having children use media more on their own (Dore et al., 2021; Lee et al., 2021). Though surveys document increased media use during the pandemic, little work has connected media habits to pandemic-related stressors or child outcomes. As families are restricted in where and with whom they can interact, parenting practices around media, like the amount, frequency, and types of use may be altered, and such changes may be related to how parents are feeling strained by the pandemic.

Family stress model

Research has well established that stress, especially financial stressors, disrupts family systems (IOM & NRC, 2011). One conceptualization of how stress relates to parenting practices and child outcomes is the Family Stress Model (FSM; Conger & Conger, 2002), which describes how both acute or chronic stressors contribute to parents' and children's risk of psychological and relational problems (Masarik & Conger, 2017). Starting with economic hardship, parents' increased financial strain affects their mental health such

as increased depression, anxiety, hopelessness, somatization, and discouragement (Landers-Potts et al., 2015; Newland et al., 2013). This compromised mental health affects both coparenting relationships as well as direct interactions with children, such as harsh discipline, less responsiveness, or inconsistency (Newland et al., 2013; Nievar et al., 2014; Tissot et al., 2017). These changed parenting practices, in turn, affect children's developmental outcomes (Masarik & Conger, 2017; Zhang et al., 2020).

Utilized extensively in developmental research, the FSM robustly finds relationships between financial strain, parental mental health, coparenting, parenting practices, and child outcomes (e.g., Landers-Potts et al., 2015; Masarik & Conger, 2017; Neppl et al., 2016; Scaramella et al., 2008; Zhang et al., 2020). Moreover, FSM processes have been seen across countries (e.g., Zietz et al., 2022), child ages (e.g., Masarik & Conger, 2017), and diverse family structures and backgrounds (e.g., Holmes et al., 2020; Saasa et al., 2021). A review of studies using the FSM consistently found support for every path in the model, identifying mechanisms for how financial strain detrimentally affects the family system and children's behavioral and emotional outcomes via parental factors (Masarik & Conger, 2017).

Research finds COVID-19 pandemic effects on parents' financial strain, mental health, and some aspects of coparenting (Brown et al., 2020; Hartshorne et al., 2021; Hertz-Palmor et al., 2021), suggesting that the FSM is a promising framework by which to consider how family characteristics during a pandemic are connected and may influence children's media use and behavioral outcomes. However, the extent to which the FSM can explain the antecedents of children's media use and problem behaviors specifically during the pandemic is relatively understudied. Hence, the current study tested the FSM relations between increased financial strain, parental mental health, coparenting relationships, children's media use, and changes in children's problem behaviors. See Figure 1 for an illustration of the Family Stress Model.

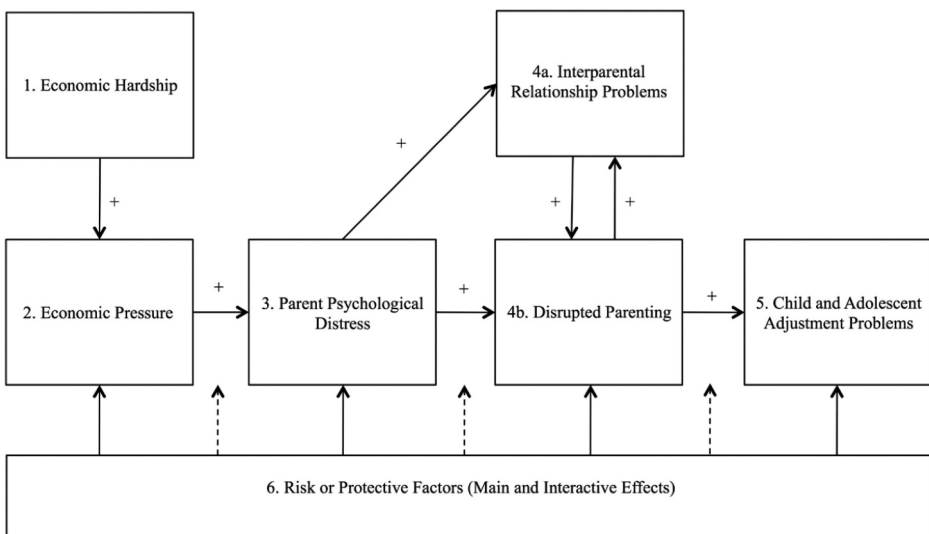


Figure 1. Family stress model. Recreated from Masarik and Conger (2017).

Family stress during COVID-19

The COVID-19 pandemic has greatly disrupted social structures that typically support parents and their children, with increased financial strain and worse mental health for adults (Hertz-Palmor et al., 2021; Salari et al., 2020; Wilson et al., 2020), especially parents (Brown et al., 2020; Fontanesi et al., 2020). Such strains may have been particularly prevalent when families were experiencing social distancing policies and reduced child-care access (Petts et al., 2021). For parents of young children, additional stressors likely emerged when vaccination was not yet available and childcare and entertainment options outside the home were sparse. Surveys of parents of young children consistently documented high mental health strains (e.g., Davidson et al., 2021).

With more time at home, parents' choices around media use might have been affected. Parents, when experiencing more stress, might try to entertain, distract, or engage with their child with more media (Bank et al., 2012; Beyens & Eggermont, 2014; Beyens et al., 2016; Shin et al., 2021). One study of affluent, predominately white families during the COVID-19 pandemic found that parents' stress was positively associated with screen time (Tang et al., 2021). This finding aligns with previous research, in which parents describe using media as a digital babysitter, providing both engagement and distraction and enabling parents to do other activities (Beyens & Eggermont, 2014; Elias & Sulkin, 2019), as well as the use of media to control behavior (Coyné et al., 2017; Elias & Sulkin, 2017).

Additionally, parents with less supportive partners, less confidence in parenting, and children with more challenging behaviors are more likely to use media for behavioral control and distraction (Nikken, 2019). Though these findings show parent-level factors that predict increased media use, little work has connected media habits to pandemic-related stressors or child outcomes like changes in problem behaviors among young children. Furthermore, prior insights into the relationship between pandemic-induced family stress and media use have not been studied in lower-resourced and non-white families.

Minority families, media use, and COVID-19 family stress

Families with low incomes and those that are non-white have not been a focus of research on family stress and media use, even though these types of families typically engage in different media uses than affluent, white families (Chen & Adler, 2019; De Craemer et al., 2018; Goode et al., 2020; Thompson et al., 2010) and, during the pandemic, appear to have increased their media use (Munzer et al., 2022). Importantly, research finds that some parenting and coparenting practices differ between families of color and white families (García Coll & Pachter, 2008) and between low-income and well-resourced families (Lareau, 2011). However, extant research disproportionately focuses on middle-class, majority white families. Our sample, in which 53% of parents are immigrants, may offer more insights into how financial strain reverberates through culturally diverse family systems.

Further, the stressors of the pandemic were more intense for Latine¹ and black than white families, with greater job loss, high-exposure risk "essential" employment, restricted access to health care and childcare, greater physical and mental illness, and high mortality (E. Lee & Parolin, 2021; Millet et al., 2020; Salgado de Snyder et al., 2021; Sanchez et al.,

2022). Given that non-white parents, families with low incomes, and parents of young children experienced high levels of stress during the pandemic (Adams et al., 2021; Brown et al., 2020; Griffith, 2022), we applied the FSM to see how these stressors connected to media exposure and use and child behavior in predominately non-white, low-income families with children under four years.

Current study

Using the FSM as a framework, we explore how diverse mothers' and fathers' feelings of stress, in the forms of increased financial strain, sadness, anxiety, parenting stress, and role overload, relate to their parenting around media, coparenting problems, and perceived changes in their young child's behavior during COVID-19 social distancing policies. Unique to our study are the focus on young children's media use as a parenting practice and the expansion of existing work with affluent families and older children to include two-parent, low-to-moderate income, and predominantly Latine families.

Mediational models are optimally tested with longitudinal data, but we apply one to available cross-sectional data. Though this prohibits causal conclusions, it can still provide insights into possible mechanisms for data uniquely available during social distancing policies of summer 2020, when childcare settings had not reopened and many were unemployed or working from home. Thus, potential stressors and associations with media use may be elevated and more detectable. Cross-sectional mediational models have utility for "well-founded theories that describe the causal direction of the processes, and for which the interpretation of the cross-sectional measures is informative about the temporal process" (Shrout, 2011, p. 857). Given the robustness of the FSM (used in about 100 publications per year), we apply it with these data from diverse and often understudied families. This provides insights into covariation between these variables with implications of possible mechanisms.

Method

Data come from an NIH-funded, bilingual (English, Spanish) parenting intervention targeting first-time mothers and fathers. Low-to-moderate-income, two-parent families were recruited when their child was 9 months and followed over 8 waves of data collection (see Reich & Díaz, 2020 for details). During the summer of 2020, we added an additional wave looking specifically at how families were being affected by the pandemic (see He et al., 2021 for details). Unlike other age-specific waves of data collection, this wave surveyed all cohorts of participating families between May and August 2020, with children ranging from 20 to 47 months. Except for the background data that we used as covariates, all data for this paper come from the 2020 wave. The procedures and materials were reviewed and approved by two university Institutional Review Boards.

Participants

At the time of the COVID-19 wave, we contacted 349 parents in the study. Of these, 254 participated (73% response rate), with 180 English-speaking or bilingual (English and another language) parents and 74 Spanish-only speaking parents. Of these, 214 parents

(84%) were a couple (mother and father completed) and 41 were the only parent in their family to participate.

Comparisons between those who participated or not found that mothers ($\chi^2[1] = 10.05, p = .002$, Cramér's $V = -.17$) and parents with less education ($t[347] = -3.84, p < .001$, Cohen's $d = -.46$) were more likely to participate. The analytic sample consisted of 247 parents (55% female; 70% Latine, 14% black, 7% white, 5% Asian, and 4% other/multi-racial; 47% U.S.-born; 41% fluent in English), with average family incomes of \$39,646 ($SD = 25,642$, median $< \$30,000$). Twenty-one-percent had a high-school education or less, 43% had some college or two-year degree, and 26% had a four-year degree or higher.

Measures

The COVID-19 survey was drafted to ask about *changes* since the pandemic began and was provided online through Qualtrics.

Increased financial strain

Three questions asked about increased financial stress: "Since the COVID-19 crisis began, has your employment changed?" Answers were dichotomized so that "lost jobs/lost hours" was scored as one and "no change" or "gained job/gained hours" as zero. Parents were also asked, "Since the COVID-19 crisis began, has your ability to 1) pay your bills (e.g., rent and utilities) and 2) buy basic needs (e.g., food and diapers) changed?" Similarly, answers were dichotomized so that "Yes, it is slightly more difficult" and "Yes, it is much more difficult" were scored as one and "no change" and "Yes, it is easier" were scored as zero. These items were summed into a financial strain variable.

Mental health

Participants were asked about their stress related to parenting, feelings of anxiety and depression, and feelings of being overloaded. Stress was measured by two averaged items from the Parenting Stress Scale (Cohen et al., 1983): "Over the last two weeks, how often have you felt 1) that you were unable to control the important things in your life, and 2) that difficulties were piling up so high that you could not overcome them?" (0=Never, 3=Very often). Three items from the PHQ-4 (Kroenke et al., 2009) were averaged and used to measure feelings of anxiety/depression: "Over the last two weeks, how often have you been bothered by 1) not being able to stop or control worrying, 2) feeling down, depressed, or hopeless, and 3) little interest or pleasure in doing things?" (0=Never, 3=Very often). Lastly, feelings of overload in the past two weeks were measured by four averaged items from the Overload Scale (Thiagarajan et al., 2006): "I have to do things that I do not really have the time or energy for," "I cannot ever seem to catch up," "There are times when I cannot meet everyone's expectations," and "I seem to have more commitments to overcome than other parents I know" (1=Strongly disagree, 5=Strongly agree).

Interparental problems

Participants' coparenting challenges were measured with four items from the Family Environment Scale-Conflict subscale (Moos & Moos, 1994), which has been used with both English- and Spanish-speaking parents (Matos-Melo & Cumba-Avilés, 2018), and five items adapted from the Coparenting Relationship Scale (Feinberg et al., 2012). The

Conflict subscale included ratings of agreement (1=*Strongly disagree* to 4=*Strongly agree*): “We fight a lot,” “We sometimes get so angry that we throw things,” “We often criticize each other,” and “We sometimes hit each other” and the coparenting problems used ratings (0=*Not true of us* to 6=*Very true of us*): “My partner likes to play with our child and then leave the dirty work to me,” “My partner and I have different ideas about how to raise our child,” “My partner tries to show that she or he is better than me at caring for our child,” “My partner does not carry his or her fair share of the parenting work,” and “My partner undermines my parenting.”

Parenting around media use

Parents were asked about their child’s media exposure and use since the COVID-19 crisis began, as a type of parenting practice, generating three media use variables: TV as background noise, screens for behavior management, and unsupervised screen time. “TV as background noise” was an average of how often parents’ home had the TV on, even if no one was watching it, and how often their child watched TV/streamed programs during mealtimes (0 = *Not at all* to 4 = *Always*). Screens for behavioral management was the average of three questions: how often parents gave their child a tablet, iPad, and/or smartphone to 1) distract them or stop their crying, 2) keep them busy so they could get things done, and 3) help child fall asleep (This last item included television as well) (0 = *Not at all* to 4 = *Always*). Lastly, unsupervised screen time was a categorical variable of time children used TV and mobile devices alone in a day. Options were as follows: not applicable, less than 1 hour, 1–2 hours, 3–4 hours, 5–6 hours, and more than 6 hours. Since all of these types of media use are part of parenting around media, either purposefully (e.g., giving device, putting on a program) or indirectly (e.g., leaving TV/not limiting use in home), they are positioned as a parenting practice in the FSM.

Increased child problem behaviors

Children’s acting out and emotional coping changes were assessed by asking parents: “As compared to before the COVID-19 crisis began, has your child been 1) engaging in aggressive behavior such as hitting, biting, scratching, and throwing objects, 2) having tantrums and angry outbursts, 3) crying, and 4) needing to be held.” Items were dichotomized so that responses “a little more” and “a lot more” were scored as one and “a lot less,” “a little less,” and “the same” were scored as zero. All items were then summed.

Analytic plan

Guided by the FSM (see [Figure 1](#)), we hypothesized that increases in financial strain would be associated with worse mental health and more interparental problems. Poor mental health and coparenting problems would be associated with less optimal parenting around media (i.e., more background TV, use of screen behavior management and more unsupervised/solo media use). Such child media use was anticipated to be associated with parents’ perception of increases in children’s problematic behavior. These hypothesized relationships were assessed using structural equation modeling (SEM) in *Mplus* 8.3 (Muthén & Muthén, 1998/2017). See [Figure 2](#).

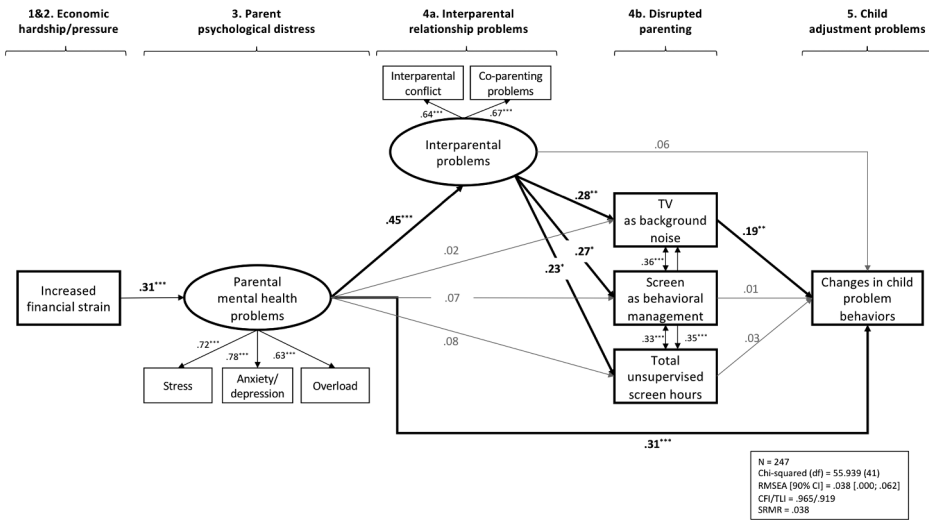


Figure 2. Latent structural equation model of family stress testing the associations between increased financial strain, parental mental health, interparental relationship problems, media use, and children’s problem behavior changes. N = 247. Estimates adjusted for child-level covariates, including parent education, nativity, gender, English proficiency, and child age. Covariates not shown for simplicity. $\chi^2(41) = 55.939, p = .060, RMSEA[90\% CI] = .038 [.000; .062], CFI = .965, TLI = .919, SRMR = .038$. Upper labels refer to Figure 1 categories derived from Masarik and Conger (2017). * $p < .05$. ** $p < .01$. *** $p < .001$.

First, we estimated direct paths from financial strain to a latent variable of parental mental health with indicators for (a) stress, (b) anxiety/depression, and (c) overload. Second, we estimated direct paths from parental mental health to a latent variable of interparental relationship problems with indicators for (a) interparental conflict and (b) coparenting problems. Third, we estimated direct paths from parental mental health and interparental problems to three dimensions of children’s media use (i.e., TV as background noise, screens as behavioral management, and total unsupervised screen time), estimating covariances across dimensions of children’s media use. Finally, we included direct paths from parental mental health and interparental problems to changes in children’s problem behaviors.

We included family income, parents’ education, nativity status, English proficiency, and gender as covariates predicting each focal variable, as well as children’s age as a covariate predicting children’s media use and perceived increase in problem behaviors. To retain the most parsimonious model, we estimated an initial, full model with all covariates. Then, we re-estimated the model, omitting covariates not predictive of any of the main study variables. To account for non-independence due to nesting of parents per child, we clustered our data within households and estimated robust standard errors. We also conducted three alternative models (reverse model, a fully reciprocal model, and a model with child behaviors as reciprocal), but none fit the data better than the FSM and all lacked the theoretical support of the FSM (see Appendix for details).

To better understand mechanisms of strain on the family system, we examined the total indirect effects from family financial strain to children’s media use and problem

behaviors using the MODEL INDIRECT command on *Mplus* 8.3 with bias-corrected bootstrapping to estimate 95% confidence intervals of these effects (Hayes, 2018; Muthén & Muthén, 2007).

Results

Missing data

Of the sample ($n = 247$), 85% ($n = 209$) had complete data, and 15% ($n = 38$) were missing 1–2 data points. Participants with complete data were more likely to be born in the U.S. ($\chi^2[1] = 4.27, p < .05$, Cramér's $V = .13$), but did not differ on education, children's age, family income (t 's[235–245] = $-.92$ – 1.11 , p 's $> .269$, Cohen's $d = -.16$ – $.20$), English proficiency, or parent or child gender ($\chi^2[1] = .07$ – 1.08 , $p > .300$, Cramér's $V = -.02$ – $.06$). We estimated our models using full information maximum likelihood in order to account for missing data (Ender, 2010).

Descriptive and correlational statistics

Descriptive and correlational statistics are in Table 1. On average, parents reported slight increases in financial strain ($M = 1.26$, $SD = 1.19$, range = 0–3) and low levels of stress ($M = .70$, $SD = .72$, range = 0–3), anxiety/depression ($M = .64$, $SD = .59$, range = 0–3), and overload ($M = 2.63$, $SD = .92$, range = 1–5). Parents also experienced low interparental conflict ($M = 1.38$, $SD = .54$, range = 1–4) and coparenting problems ($M = 1.49$, $SD = 1.19$, range = 0–6). Regarding media use, on average parents reported occasional use of TV as background noise ($M = 1.48$, $SD = 1.01$, range = 0–4) and screens for behavioral management ($M = 1.07$, $SD = .75$, range = 0–4), and that their child used screen media alone less than 1 hour a day ($M = .79$, $SD = .82$, range = 0–6 hours). Parents reported few increases in behavioral problems ($M = 1.20$, $SD = 1.37$, range = 0–4). With some exceptions, the focal variables were significantly correlated (Table 1).

Pandemic-induced family stress

For our initial pandemic-induced FSM estimation, we tested pathways from COVID-19-related financial strain increases to children's media use and problem behaviors through parents' mental health and interparental relationship problems. We present the standardized results in Figure 2. Family income did not significantly predict any of the study variables and was subsequently omitted. Our final model evidenced good to excellent fit, $\chi^2(41) = 55.94$, $p = .060$, RMSEA [90%CI] = $.04$ [.00; .06], CFI = $.965$, TLI = $.919$, SRMR = $.038$. Moreover, indicators for parental mental health and interparental relationship problems loaded sufficiently high on their respective factors. Overall, our results indicated support for the FSM, even after accounting for child- and family-level covariates.

Direct effects

First, parents with increased financial strain were more likely to report mental health problems than parents reporting fewer increases in financial strain ($\beta = .31$, $SE = .08$, $p < .001$). Second, parents who reported worse mental health were also more likely to

Table 1. Descriptive and correlational statistics of study variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Increased financial strain	—												
2. Stress	.26***	—											
3. Anxiety/depression	.25***	.58***	—										
4. Overload	.03	.42***	.49***	—									
5. Interparental conflict	.06	.19**	.19**	.23***	—								
6. Co-parenting problems	.05	.19**	.20**	.31***	.43***	—							
7. TV as background noise	-.01	.16**	.07	.16*	.18**	.21**	—						
8. Screens as behavior management	.07	.16*	.12	.18**	.16*	.25***	.41***	—					
9. Total unsupervised screen hours	-.03	.11	.18**	.10	.17*	.15*	.38***	.37***	—				
10. Increased child prob behaviors	.08	.29***	.27***	.31***	.23***	.12	.29***	.18**	.17*	—			
11. Parent education	-.23***	.06	.01	.23***	-.04	-.06	.06	-.12	.00	.08	—		
12. Family income	-.18**	-.01	-.16*	.03	.00	-.06	-.02	-.15*	-.20**	.05	.18**	—	
13. Child age (in months)	.05	.10	.05	.05	.10	.01	.09	.13*	.14*	.06	.02	-.03	—
Mean	1.26	.70	.64	2.63	1.38	1.49	1.48	1.07	.79	1.20	3.21	39.65	33.00
SD	1.19	.72	.59	.92	.54	1.19	1.01	.75	.82	1.37	1.34	25.64	6.36
Range	0-3	0-3	0-3	1-5	1-4	0-6	0-4	0-4	0-6	0-4	1-5	0-130	20-47
Reliability	.74 ^a	.62 ^b	.73 ^b	.83 ^b	.78 ^b	.71 ^b	.68 ^b	.72 ^b	.75 ^b	.75 ^b	—	—	—

* $p < .05$. ** $p < .01$. *** $p < .001$. ^aKuder-Richardson Formula 20 (KR-20) estimates reliability of scales that used binary items. ^bCronbach's alpha estimates reliability scales that used continuous items.

Table 2. Indirect effects of increased financial strain on media use and children’s problem behaviors change.

Indirect paths	β	95% CI
Increased financial strain to TV as background noise		
Total indirect	.05^a	[.006; .09]
via mental health	.01	[−.05; .06]
via mental health and interparental problem	.04^a	[.01; .08]
Increased financial strain to screens as behavioral management		
Total indirect	.06^a	[.02; .11]
via mental health	.02	[−.04; .10]
via mental health and interparental problem	.04^a	[.01; .11]
Increased financial strain to total unsupervised screen hours		
Total indirect	.06^a	[.01; .10]
via mental health	.03	[−.03; .07]
via mental health and interparental problem	.03^a	[.00; .07]
Increased financial strain to child problem behaviors change		
Total indirect	.12^a	[.06; .18]
via mental health	.10^a	[.04; .16]
via mental health and TV as background noise	.00	[−.01; .01]
via mental health and screens as behavioral management	.00	[−.004; .01]
via mental health and total unsupervised screen hours	.00	[−.004; .01]
via mental health and interparental problems	.01	[−.02; .04]
via mental health, interparental problems, TV as background noise	.01^a	[.001; .02]
via mental health, interparental problems, screens as behavioral management	.00	[−.004; .01]
via mental health, interparental problems, total unsupervised screen time	.00	[−.003; .01]

^aCoefficients with confidence intervals not encompassing 0 are considered significant.

experience more conflict with their partners ($\beta = .45, SE = .09, p < .001$) and report more problematic behaviors ($\beta = .31, SE = .08, p < .001$). However, parental mental health problems did not directly predict any dimension of media use (β 's=.02–.08, SE 's = .09–.10, p 's = .389–.833). Third, parents with higher interparental relationship problems were more likely to use TV as background noise ($\beta = .28, SE = .10, p < .01$) and screens for behavioral management ($\beta = .27, SE = .13, p < .05$), and have children with greater total unsupervised screen time ($\beta = .23, SE = .11, p < .05$). Finally, using TV as background noise predicted increased problem behaviors ($\beta = .19, SE = .06, p < .01$). However, parents’ use of screens for behavioral management and total unsupervised screen time did not significantly predict increases in children’s problem behaviors (β 's=.01–.03, SE 's = .06–.08, p 's = .678–.907).

Indirect effects

We found significant indirect effects from increased financial strain to media use and to changes in children’s problem behaviors (Table 2). First, increased financial

Table 3. Results from a multi-group analysis comparing family stress SEM between mothers and fathers.

Model	X^2	df	SCF	p -value	TRd				RMSEA	90% CI	CFI	TLI	SRMR
					Δ df	CD	p -value						
Multi-group	89.884	82	1.020	.258	—	—	—	—	.028	[.000; .059]	.981	.962	.051
Gender invariant	108.738	95	1.014	.159	19.02	13	.98	.122	.034	[.000; .061]	.968	.942	.059

Multi-group SEM allowed predictive paths to be freely estimated and varied across mothers and fathers. Gender invariant nested SEM constrained predictive paths to be equal across mothers and fathers. X^2 =chi-square value. Df=degrees of freedom. SCF=scaling correction factor. TRd=Satorra-Bentler chi-square difference. CD=difference test scaling correction. RMSEA=root mean square error of approximation. CFI=comparative fit index. TLI=Tucker-Lewis index. SRMR=standardized root mean square residual.

strain was indirectly associated with media use through parental mental health and interparental problems. That is, increased financial strain was associated with worse mental health, which was related to more self-reported interparental problems; which in turn, were associated with the use of TV as background noise ($\beta = .04$, 95%CI:[.01;.08]), screens for behavioral management ($\beta = .04$, 95% CI:[.01;.11]), and total unsupervised screen time ($\beta = .03$, 95%CI: [.00;.07]). Second, increased financial strain predicted children's increased problem behaviors indirectly via parental mental health ($\beta = .10$, 95% CI:[.04;.16]). Moreover, increased financial strain was also indirectly associated with children's problem behaviors via parental mental health, interparental problems, and the use of TV as background noise ($\beta = .01$, 95% CI:[.001;.02]).

Checks for process differences across parent types

Given that most of our sample included both mothers and fathers in each household, we conducted a multigroup analysis to test the extent to which there were differences in the predictive paths between mothers and fathers (Table 3). A multigroup model allowing predictive paths to vary across mothers and fathers exhibited good-to-excellent model fit, $\chi^2(82) = 89.88, p = .258$, RMSEA[90%CI]=.03(.00; .06), CFI = .981, TLI = .962, SRMR = .06. The gender-invariant model, constraining all paths to be equal across parents, did not significantly differ from the multigroup model, $\Delta\chi^2(13) = 19.02, p = .122$, and exhibited good to excellent model fit, $\chi^2(95) = 108.738, p = .159$, RMSEA [95% CI] = .03(.00; .06), CFI = .968, TLI = .942, SRMR = .06. Findings indicate that FSM was similar across parent types.

Discussion

The COVID-19 pandemic has altered family life, with increased financial strain (Hertz-Palmor et al., 2021), worse mental health (Brown et al., 2020; Griffith, 2022), increased screen time (Drouin et al., 2020; McArthur et al., 2021), more relationship strain (Luetke et al., 2020), and more child behavior problems (Oliva et al., 2021). We sought to replicate such findings with more diverse families with young children and consider how these constructs might be connected by using the FSM. On average, low-to-moderate income, predominantly Latine families are faring well. Though 35% had loss of employment/hours and 46% had increased trouble paying bills and for basic needs, families experienced relatively low levels of stress and anxiety/depression and moderate levels of overload on average. Other works on resilience, especially in Latine families, find structural and cultural strengths like family cohesion, multi-generational homes, and familism values. In a recent review of 35 studies, Cabrera et al. (2022) identified numerous individual, parental, and family strengths that help Latine families be resilient in the face of adversity (e.g., family values, bilingualism). Though heightened hardship among Latines during the pandemic is well-documented (Sanchez et al., 2022), our families had many of these factors associated with resiliency (e.g., bilingual and two-parent households). Notably, parents' increased sources of strain were related to their parenting practices around media (background TV, use for behavior control, solo use); however, only TV in the background was associated with increased behavior problems for these young children.

Research consistently finds that parental stress and overload contribute to the media diets of children both before and during this pandemic (McDaniel & Radesky, 2020; Seguin

et al., 2021; Stienwandt et al., 2020). We similarly found parental mental health, increased financial strain, and interparental problems to be related to total unsupervised screen time, using screens for behavior management, and simply having the TV on, at mealtime and even when no one is watching. This may be concerning given the young age of these children and the potential that screens could displace meaningful opportunities for motor, linguistic, social-emotional, and cognitive development. For instance, studies find that background television reduces the amount of language adults direct towards children (Masur et al., 2016; Pempek et al., 2014) and also reduces young children's production of language and play activities (Pempek & Kirkorian, 2020; Schmidt et al., 2008). Further, use of these devices to calm children may displace opportunities for children to cultivate self-regulation skills (Cliff et al., 2018).

Our measure of background television included TV use during mealtimes. Research finds that homes that leave the television on during meals tend to have children who eat less healthy foods, regardless of whether the TV is being watched or not (Trofholz et al., 2017). Media during mealtime is also related to all family members being distracted (Saltzman et al., 2019), which is unfortunate given that family meals are important for communication, exposure to diverse vocabulary, positive emotional interactions, and family cohesion (Fiese & Schwartz, 2008; Fruh et al., 2011). When the television is on, opportunities might be missed for rich social-emotional interactions and language development (Fiese & Schwartz, 2008; Trofholz et al., 2017).

Our study looked specifically at parental reports of changes in problematic behaviors since the pandemic began and found background television to be associated with increases. One possible explanation could be the ways in which background television might influence children's cognition. Experimental studies have demonstrated that background television can inhibit cognitive processes (Armstrong & Greenberg, 1990), reduce focus, and increase distractibility (O'toole & Kannass, 2021); cognitive skills that are associated with behavior and emotion regulation (Gollwaitzer & Bargh, 1996). Along these lines, evidence exists that cumulative television use, including background television, is related to lower executive functioning skills in young children (Nathanson et al., 2014).

The influence of background television on behavior could be related to sleep disruptions (Paavonen et al., 2006), which are associated with young children's behavior problems (Lavigne et al., 1999). Though we asked parents whether they perceived differences in their child's sleep during the pandemic, we did not assess whether children's sleep may have been disrupted, especially in relation to background TV and for children who still benefit from daytime naps.

Finally, it is feasible that children that are disruptive or not coping well during the pandemic have parents that are more likely leave the television on as a way to minimize outbursts, offer environmental distraction, or provide a "digital babysitter" (Beyens & Eggermont, 2014). In such cases, there is likely a reciprocal interaction between children's problem behavior and television use, especially for parents experiencing higher stress and needing more supports for distracting, coping, and keeping children occupied (Bank et al., 2012; Beyens et al., 2016; Shin et al., 2021). Though a recursive model was tested (see Appendix), longitudinal data are needed to evaluate continued temporal relationships, including testing the reciprocal relations between children's behaviors and their media diet.

Limitations

These data are limited in our measurement of what aspects of the environment and behaviors had changed during the pandemic. Future research should explore other domains of development, such as language, sleep, executive function, and social skills, as well as more detail about media use, such as adult versus child programming, use of media at night, and locations of televisions in homes. Further, these data were collected in the summer of 2020, when social distancing policies were relatively recent. Additional work is needed about how these patterns persisted or changed as the pandemic continued, mortality and morbidity rates rose (especially among Latine households), and childcare settings continued to be difficult to access. As these children were young and data were collected during the summer, media use was not associated with schoolwork. Though we asked about changes in employment, we did not ask about the type of job, whether the parent was an essential worker, or if they could work from home. In such cases, financial strain might be unchanged but mental health and coparenting might be affected. Importantly, these data capture a moment in time, and cross-sectional data are unable to establish causal relationship. Our aim was to connect these variables to how parents and their children were affected since the start of the pandemic. Utilizing a well-established, robust conceptual model, our data provides insights into the relations between increased parental strain, parenting around media, and changes in child behavior. Additionally, given that the FSM is an extensively used model for these constructs across a variety of child ages, settings, and family types (Masarik & Conger, 2017), our findings have utility in understanding patterns in low-to-moderate income, predominately Latine families with young children during a pandemic. Finally, these data focus on family stress, not resilience. Work is needed to better understand how families are not only coping, but also thriving, during this unprecedented time.

Conclusion

Research consistently finds that parents' experiences of stress impact their parenting practices and child outcomes (Masarik & Conger, 2017). In looking specifically at parenting around media during the pandemic, we found that increased financial strain, mental health problems, and interparental conflict all related to children's media diet. However, only background television was related to increases in children's problem behavior. Of all household media habits, getting parents to turn off the TV, at mealtimes and when no one is watching, may be the easiest to alter. Finally, parents' feelings of stress, anxiety, and overload are related to children's behavior problems directly and via parenting around media use. Thus, supporting families, financially and emotionally, during the COVID-19 pandemic is clearly warranted.

Note

1. Latine is a gender inclusive term that, unlike Latinx, can be pronounced in Spanish (see Zentella, 2017).

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

Research was supported by NICHD (Award #R01HD078547 & R03HD102448) and Children and Screens: Institute for Digital Media and Child Development COVID-19 grant. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or Children and Screens.

Notes on contributors

Stephanie M. Reich, PhD, is a Professor of Education at the University of California, Irvine, with appointments in Informatics and Psychological Science. Her research focuses on understanding and improving the social context of children's lives, with her empirical investigations centered on direct, indirect, and reciprocal influences on children, specifically through the family, digital, and school environment. Dr. Reich's work spans from infancy through college, with a particular focus on individual, familial, and community assets.

Yujia Liu, M.Ed. is a Ph.D. candidate in Education Policy and Social Context in the School of Education at the University of California, Irvine. Her research analyzes and informs policies and practices to eliminate social and educational inequality in schools and homes.

Nestor Tulagan, Ph.D. is an NSF SBE postdoctoral research scholar in the School of Education at the University of California, Irvine and an incoming (July 2023) assistant professor in the Warner School of Education and the Department of Psychology at the University of Rochester. His research examines the parenting and family socialization processes that promote the development of academic motivational beliefs and racial/ethnic identity of minoritized youth.

Esmeralda Martin, BA graduated from the University of California, Irvine with a double major in Education Sciences and Psychology and Social Behavior. She worked as the Baby Books 2 project manager and gained an interest in the ways that families use media and devices in their daily lives.

Melissa S. Dahlin, Ph.D. is a Senior Director of Research and Equity Initiatives at the Policy Equity Group, a consultancy group that supports innovation and implementation in early childhood practice, policy, and research. Dr. Dahlin's portfolio areas include family engagement, intersections between economic development and early childhood education, and evaluation of programs in communities and states. She earned her Ph.D. in the School of Education at the University of California, Irvine.

Natasha Cabrera, PhD is Professor of Human Development at the University of Maryland. Her research focuses on father involvement and children's social and cognitive development; adaptive and maladaptive factors related to parenting and cultural variation in ethnic minority families; and, the mechanisms linking early experiences to children's school readiness.

ORCID

Stephanie M. Reich  <http://orcid.org/0000-0002-8799-5236>

Nestor Tulagan  <http://orcid.org/0000-0001-9491-1929>

Melissa Dahlin  <http://orcid.org/0000-0003-2379-1303>

References

- Adams, E., Smith, D., Caccavale, L., & Bean, M. (2021). Parents are stressed! Patterns of parent stress across COVID-19. *Frontiers Psychiatry, 12*, 626456. <https://doi.org/10.3389/fpsy.2021.626456>
- Armstrong, G., & Greenberg, B. (1990). Background television as an inhibitor of cognitive processing. *Human Communication Research, 16*(3), 355–386. <https://doi.org/10.1111/j.1468-2958.1990.tb00215.x>
- Auxier, B., Anderson, M., Perrin, A., & Turner, C. (2020). *Parenting children in the age of screens*. Pew Research Center.
- Bank, A. M., Barr, R., Calvert, S., Parrott, W. G., McDonough, S. C., & Rosenblum, K. L. (2012). Maternal depression and family media use: A questionnaire and diary analysis. *Journal of Child and Family Studies, 21*, 208–216.
- Beyens, I., & Eggermont, S. (2014). Putting young children in front of the television: Antecedents and outcomes of parents' use of television as a babysitter. *Communication Quarterly, 62*(1), 57–77. <https://doi.org/10.1080/01463373.2013.860904>
- Beyens, I., Eggermont, S., & Nathanson, A. (2016). Understanding the Relationship Between Mothers' Attitudes Toward Television and Children's Television Exposure: A Longitudinal Study of Reciprocal Patterns and the Moderating Role of Maternal Stress. *Media psychology, 19*(4), 638–665. <https://doi.org/10.1080/15213269.2016.1142383>
- Brito, R., Francisco, R., Dias, P., & Chaudron, S. (2017). Family dynamics in digital homes: the role played by parental mediation in young children's digital practices around 14 European countries. *Contemporary Family Therapy, 39*(4), 271–280. <https://doi.org/10.1007/s10591-017-9431-0>
- Brown, S., Doom, J., Lechuga-Peña, S., Watamura, A., & Koppels, T. (2020). Stress and parenting during the global COVID-19 pandemic. *Child Abuse & Neglect, 110*(2), 104699. <https://doi.org/10.1016/j.chiabu.2020.104699>
- Cabrera, N., Alonso, A., Chen, Y., & Ghosh, R. (2022). *Latinx families' strengths and resilience contribute to their well-being*. National Research Center on Hispanic Children & Families.
- Chen, W., & Adler, J. (2019). Assessment of screen exposure in young children 1997-2014. *JAMA Pediatrics, 173*(4), 391–393. <https://doi.org/10.1001/jamapediatrics.2018.5546>
- Cliff, D., Howard, S., Radesky, J., McNeill, J., & Vella, S. (2018). Early childhood media exposure and self-regulation: Bidirectional longitudinal associations. *Academic Pediatrics, 18*(7), 813–819. <https://doi.org/10.1016/j.acap.2018.04.012>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385–396. <https://doi.org/10.2307/2136404>
- Conger, R., & Conger, K. (2002). Resilience in Midwestern families: Selected findings from the first decade of a prospective longitudinal study. *Journal of Marriage and Family, 64*(2), 361–373. <https://doi.org/10.1111/j.1741-3737.2002.00361.x>
- Coyne, S. M., Radesky, J., Collier, K. M., Gentile, D. A., Nathanson, A. I., Rasmussen, E. E., Rasmussen, E. E., Reich, S. M., & Rogers, J. (2017). Parenting and digital media. *Pediatrics, 140* (Supplement_2), S112–116. <https://doi.org/10.1542/peds.2016-1758N>
- Davidson, B., Schmidt, E., Mallar, C., Mahmoud, F., Rothenberg, W., Hernandez, J., Berkovits, M., Jent, J., Delamater, A., & Natale, R. (2021). Risk and resilience of well-being in caregivers of young children in response to the COVID-19 pandemic. *Translational Behavioral Medicine, 16*(2), 305–313. <https://doi.org/10.1093/tbm/ibaa124>
- De Craemer, M., Verloigne, M., Ghekiere, A., Loyen, A., Dargent-Molina, P., Brug, J., Lien, N., Froberg, K., Wedderkopp, N., Chastin, S., Cardon, G., & Van Cauwenberg, J. (2018). Changes in children's television and computer time according to parental education, parental income and ethnicity: A 6-year longitudinal EYHS study. *Plos One, 13*(9), e0203592. <https://doi.org/10.1371/journal.pone.0203592>
- Dore, R., Purtell, K., & Justice, L. M. (2021). Media use among kindergarteners from low-income households during the COVID-19 shutdown. *Developmental and Behavioral Pediatrics, 42*(8), 672–676. <https://doi.org/10.1097/DBP.0000000000000955>
- Drouin, M., McDaniel, B. T., Pater, J., & Toscos, T. (2020). How parents and their children used social media and technology at the beginning of the COVID-19 pandemic and associations with anxiety.

- CyberPsychology, Behavior & Social Networking*, 23(11), 727–736. <https://doi.org/10.1089/cyber.2020.0284>
- Elias, N., & Sulkin, I. (2017). YouTube viewers in diapers: An exploration of factors associated with amount of toddlers' online viewing. *CyberPsychology*, 11(13), article 2. <https://doi.org/10.5817/CP2017-3-2>.
- Elias, N., & Sulkin, I. (2019). Screen-assisted parenting: The relationship between toddlers' screen time and parents' use of media as a parenting tool. *Journal of Family Issues*, 40(18), 2801–2822. <https://doi.org/10.1177/0192513X19864983>
- Ender, C. (2010). *Applied missing data analysis*. The Guilford Press.
- Feinberg, M., Brown, L., & Kan, M. (2012). A multi-domain self-report measure of coparenting. *Parenting, Science and Practice*, 12(1), 1–21. <https://doi.org/10.1080/15295192.2012.638870>
- Fiese, B., & Schwartz, M. (2008). Reclaiming the family table: Mealtimes and child health and wellbeing. *SRCD Social Policy Report*, 22(4), 1–18. <https://doi.org/10.1002/j.2379-3988.2008.tb00057.x>
- Fontanesi, L., Marchetti, D., Mazza, C., DiGiandomenico, S., Roma, P., & Verrocchio, M. (2020). The effect of the COVID-19 lockdown on parents: A call to adopt urgent measures. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S79–81. <https://doi.org/10.1037/tra0000672>
- Fruh, S., Fulkerson, J., Mulekar, M., Kendrick, L., & Clanton, C. (2011). The surprising benefits of the family meal. *The Journal for Nurse Practitioners*, 7(1), 18–22. <https://doi.org/10.1016/j.nurpra.2010.04.017>
- García Coll, C., & Pachter, L. (2008). Ethnic and minority parenting. In M. H. Bornstein (Ed.), *Handbooks of parenting* (Vol. 4, pp. 1–20). Lawrence Erlbaum Assoc.
- Gollwitzer, P., & Bargh, J. (1996). *The psychology of action*. Guilford Press.
- Goode, J., Fomby, P., Millborn, S., & Limburg, A. (2020). Children's technology time in two US cohorts. *Child Indicators Research*, 13(3), 1107–1132. <https://doi.org/10.1007/s12187-019-09675-x>
- Griffith, A. (2022). Parental burnout and child maltreatment during the COVID-19 pandemic. *Journal of Family Violence*, 37(5), 725–731. <https://doi.org/10.1007/s10896-020-00172-2>
- Hartshorne, J., Huang, Y., Paredes, P., Oppenheimer, K., Robbins, P., & Velasco, M. (2021). Screen time as an index of family distress. *Current Research in Behavior Sciences*, 2, 100023. <https://doi.org/10.1016/j.crbeha.2021.100023>
- Hayes, A. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). The Guilford Press.
- He, M., Cabrera, N., Renteria, J., Chen, Y., Alonso, A., McDorman, S., & Reich, S. M. (2021). Family functioning in the time of COVID-19 among economically vulnerable families: Risks and protective factors. *Frontiers Psychology*, 12, 730447. <https://doi.org/10.3389/fpsyg.2021.730447>
- Hertz-Palmor, N., Moore, T., Gothelf, D., DiDomenico, G., Dekel, I., Greenberg, D. M., Brown, L. A., Matalon, N., Visoki, E., White, L. K., Himes, M. M., Schwartz-Lifshitz, M., Gross, R., Gur, R. C., Gur, R. E., Pessach, I. M., & Barzilay, R. (2021). Association among income loss, financial strain and depressive symptoms during COVID-19: Evidence from two longitudinal studies. *Journal of Affective Disorders*, 291, 1–8. <https://doi.org/10.1016/j.jad.2021.04.054>
- Holmes, S., Ciarleglio, M., Song, X., Clayton, A., & Smith, M. V. (2020). Testing the family stress model among black women receiving Temporary Assistance for Needy Families (TANF). *Journal of Family Studies*, 29(10), 2667–2677. <https://doi.org/10.1007/s10826-020-01791-5>
- Institute of Medicine & National Research Center. (2011). *Toward an integrated science of research on families: Workshop report. Committee on the science of research on families*. The National Academies Press; National Academies of Sciences, Engineering, and Medicine.
- Kroenke, K., Spitzer, R., Williams, J., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: The PHQ-4. *Psychosomatics*, 50(6), 613–621. [https://doi.org/10.1016/S0033-3182\(09\)70864-3](https://doi.org/10.1016/S0033-3182(09)70864-3)
- Landers-Potts, M., Wickrama, K., Simons, L., Cutrona, C., Gibbons, F., Simons, R., & Conger, R. (2015). An extension and moderational analysis of the family stress model focusing on African American adolescents. *Family Relations*, 64(2), 233–248. <https://doi.org/10.1111/fare.12117>
- Lareau, A. (2011). *Unequal childhoods: Class, race and family life*. University of California Press.

- Lavigne, J., Arend, R., Rosenbaum, D., Smith, A., Weissbluth, M., Binns, H. J., & Christoffel, K. K. (1999). Sleep and behavior problems among preschoolers. *Journal of Developmental & Behavioral Pediatrics*, 20(3), 164–169. <https://doi.org/10.1097/00004703-199906000-00005>
- Lee, E., & Parolin, Z. (2021). The care burden during COVID-19: A national database of child care closures in the United States. *Socius*, 7, 237802312110320, pre-release. <https://doi.org/10.1177/23780231211032028>
- Lee, S., Ward, K., Chang, O., & Downing, K. (2021). Parenting activities and the transition to home-based education during the COVID-19 pandemic. *Children and Youth Services Review*, 122, 105585. <https://doi.org/10.1016/j.childyouth.2020.105585>
- Luetke, M., Hensel, D., Herbenick, D., & Rosenberg, M. (2020). Romantic relationship conflict due to the COVID-19 pandemic and changes in intimate and sexual behaviors in a nationally representative sample of American adults. *Journal of Sex & Marital Therapy*, 46(8), 747–762. <https://doi.org/10.1080/0092623X.2020.1810185>
- Masarik, A., & Conger, R. (2017). Stress and child development: A review of the family stress model. *Current Opinion in Psychology*, 13, 85–90. <https://doi.org/10.1016/j.copsyc.2016.05.008>
- Masur, E., Flynn, V., & Olson, J. (2016). Infants' background television exposure during play: Negative relations to the quantity and quality of mothers' speech and infants vocabulary acquisition. *First Language*, 36(2), 109–123. <https://doi.org/10.1177/0142723716639499>
- Matos-Melo, A., & Cumba-Avilés, E. (2018). Family environment scale parental ratings of conflict among Latino families of depressed adolescents with Type 1 Diabetes. *Puerto Rico Health Sciences Journal*, 37(4), 200–207.
- McArthur, B., Racine, N., Browne, D., McDonald, S., Tough, S., & Madigan, S. (2021, June 15). Recreational screen time before and during COVID-19 in school-aged children. *ACTA Paediatrica*, 110(10), 2805–2807, preprint. <https://doi.org/10.1111/apa.15966>
- McDaniel, B. T., & Radesky, J. (2020). Longitudinal associations between early childhood externalizing behavior, parenting stress, and child media use. *CyberPsychology, Behavior & Social Networking*, 23(6), 384–391. <https://doi.org/10.1089/cyber.2019.0478>
- Millet, G., Jones, A., Benkeser, D., Al, E., Mercer, L., Beyrer, C., Honermann, B., Lankiewicz, E., Mena, L., Crowley, J. S., Sherwood, J., & Sullivan, P. S. (2020). Assessing differential impacts of COVID-19 on black communities. *Epidemiology*, 47, 37–44. <https://doi.org/10.1016/j.annepidem.2020.05.003>
- Moos, R., & Moos, B. (1994). *Family environment scale manual*. Mind Garden.
- Munzer, T., Torres, C., Se, D., Levitt, K., McCaffery, H., Schaller, A., & Radesky, J. S. (2022). Child media use during COVID-19: Associations with contextual and social-emotional factors. *Journal of Developmental and Behavioral Pediatrics*, 43(9), e573–580(578). <https://doi.org/10.1097/DBP.0000000000001125>
- Muthén, L. K., & Muthén, B. O. (1998/2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.
- Muthén, L. K., & Muthén, B. O. (2007). *Mplus: Statistical analysis with latent variables; user's guide* (5th ed.). Muthén & Muthén.
- Nathanson, A. I., Adélé, F., Sharp, M., Rasmussen, E. E., & Christy, K. (2014). The relation between television exposure and executive function among preschoolers. *Developmental Psychology*, 50(5), 1497–1506. <https://doi.org/10.1037/a0035714>
- Neppl, T., Senia, J., & Donnellan, M. (2016). Effects of economic hardship: Testing the family stress model over time. *Journal of Family Psychology*, 30(1), 12–21. <https://doi.org/10.1037/fam0000168>
- Newland, R., Crnic, K., Cox, M., & Mills-Koonce, W. (2013). The family model stress and maternal psychological symptoms: Mediated pathways from economic hardship to parenting. *Journal of Family Psychology*, 27(1), 96–105. <https://doi.org/10.1037/a0031112>
- Nievar, M., Moske, A., Johnson, D., & Chen, Q. (2014). Parenting practices in preschool leading to later cognitive competence: A family stress model. *Early Education & Development*, 25(3), 318–337. <https://doi.org/10.1080/10409289.2013.788426>
- Nikken, P. (2019). Parents' instrumental use of media in childrearing: Relationships with confidence in parenting, and health and conduct problems in children. *Journal of Child and Family Studies*, 28(2), 531–546. <https://doi.org/10.1007/s10826-018-1281-3>

- Ochoa, W., & Reich, S. M. (2020). Parents' beliefs about the benefits and detriments of mobile screen technologies for their young children's learning: A focus on diverse Latine mothers and fathers. *Frontiers in Psychology, 11*. <https://doi.org/10.3389/fpsyg.2020.570712>
- Oliva, S., Russo, G., Gili, R., Russo, L., DiMauro, A., Spagnoli, A., Alunni Fegatelli, D., Romani, M., Costa, A., Veraldi, S., & Manti, F. (2021). Risks and protective factors associated with mental health symptoms during COVID-19 home confinement in Italian children and adolescents: The #understandingkids study. *Frontiers Pediatrics, 9*, 664702. <https://doi.org/10.3389/fped.2021.664702>
- O'toole, K., & Kannass, K. (2021). Background televisions and distractibility in young children: Does program content matter? *Journal of Applied Developmental Psychology, 75*, 101280, preprint. <https://doi.org/10.1016/j.appdev.2021.101280>
- Paavonen, E., Pennonen, M., Roine, M., Valkonen, S., & Lahikainen, A. (2006). TV exposure associated with sleep disturbances in 5- to 6-year-old children. *Journal of Sleep Research, 15*(2), 154–161. <https://doi.org/10.1111/j.1365-2869.2006.00525.x>
- Pempek, T., & Kirkorian, H. (2020). Effects of background TV on early development. In D. Exolsen, M.-L. Mares, & E. Scharrer (Eds.), *The international encyclopedia of media psychology* (pp. 1–9). Wiley.
- Pempek, T., Kirkorian, H., & Anderson, D. (2014). The effects of background television on the quantity and quality of child-directed speech by parents. *Journal of Children and Media, 8*(3), 211–222. <https://doi.org/10.1080/17482798.2014.920715>
- Petts, R., Carlson, D., & Pepin, J. (2021). A gendered pandemic: Childcare, homeschooling, and parents' employment during COVID-19. *Gender, Work & Organization, 28*(S2), 515–534. <https://doi.org/10.1111/gwao.12614>
- Reich, S. M., & Diaz, G. (2020). Baby Books. In E. Gershoff & S. Lee (Eds.), *Effective approaches to reducing physical punishment and teaching disciplinary alternatives* (pp. 29–40). APA Press.
- Rideout, V., & Robb, M. (2020). *The common sense census: Media use by kids age zero to eight*. Common Sense Media.
- Saasa, S., Ward, K., Sandberg, S., & Jacobson, J. (2021). 0190-7409/© 2021 Elsevier Ltd. All rights reserved. Financial hardship, neighborhood cohesion and child externalizing behaviors: An extension of the family stress model among immigrant mothers. *Children and Youth Services Review, 128*, 106153. <https://doi.org/10.1016/j.childyouth.2021.106153>
- Salari, N., Hosseini-Far, A., Jalali, R., Al, E., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., & Khaledi-Paveh, B. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *Globalization and Health, 16*(1), 57. <https://doi.org/10.1186/s12992-020-00589-w>
- Salgado de Snyder, V., McDaniel, M., Padilla, A., & Parra-Medina, D. (2021). Impact of COVID-19 on Latinos: A social determinants of health model and scoping review of the literature. *Hispanic Journal of Behavioral Sciences, 43*(3), 174–203. <https://doi.org/10.1177/07399863211041214>
- Saltzman, J., Musaad, S., Bost, K., McBride, B., & Fiese, B. (2019). Associations between father availability, mealtime distractions and routines, and maternal feeding responsiveness: An observational study. *Journal of Family Psychology, 33*(4), 465–475. <https://doi.org/10.1037/fam0000519>
- Sanchez, G., Mayora-Calleros, B., & Pedroza, A. (2022). *How to address the devastating COVID-19 impacts on Latino families*. University of New Mexico Center for Social Policy.
- Scaramella, L. V., Sohr-Preston, S. L., Callahan, K. L., & Mirabile, S. P. (2008). A test of the family stress model on toddler-aged children's adjustment among Hurricane Katrina impacted and nonimpacted low-income families. *Journal of Clinical Child & Adolescent Psychology, 37*(3), 530–541. <https://doi.org/10.1080/15374410802148202>
- Schmidt, M., Pempek, T., Kirkorian, H., Lund, A., & Anderson, D. (2008). The effects of background television on the toy play behavior of very young children. *Child Development, 79*(4), 1137–1151. <https://doi.org/10.1111/j.1467-8624.2008.01180.x>
- Seguin, D., Kuenzel, E., Morton, J., & Duerden, E. (2021). School's out: Parenting stress and screen time use in school-age children during the COVID-19 pandemic. *Journal of Affective Disorders Reports, 6*, 100217. <https://doi.org/10.1016/j.jadr.2021.100217>
- Shin, E., Choi, K., Resor, J., & Smith, C. (2021). Why do parents use screen media with toddlers? The role of child temperament and parenting stress in early screen use. *Infant Behavior and Child Development, 64*, 101595, preprint. <https://doi.org/10.1016/j.infbeh.2021.101595>

- Shrout, P. (2011). Commentary: Mediation analysis, causal process, and cross-sectional data. *Multivariate Behavioral Research*, 46(5), 852–860. <https://doi.org/10.1080/00273171.2011.606718>
- Stienwandt, S., Cameron, E. E., Soderstrom, M., Casar, M. J., Le, C., & Roos, L. E. (2020). Keeping kids busy: Family factors associated with hands-on play and screen time during the COVID-19 pandemic. *Child Youth Care Forum*, 51(6), 1091–1115. <https://doi.org/10.1007/s10566-021-09668-4>
- Sultana, A., Tasnim, S., Hossain, M., Bhattacharya, S., & Purohit, N. (2021). Digital screen time during the COVID-19 pandemic: A public health concern. *F1000research*, 10, 81. <https://doi.org/10.12688/f1000research.50880.1>
- Tang, L., Hruska, V., Ma, D., Haines, J., & Guelph Family Health Study. (2021). Parenting under pressure: Stress is associated with mothers' and fathers' media parenting practices in Canada. *Journal of Children and Media*, 15(2), 233–248. <https://doi.org/10.1080/17482798.2020.1765821>
- Thiagarajan, P., Chakrabarty, S., & Taylor, R. (2006). A confirmatory factor analysis of Reilly's role overload scale. *Educational and Psychological Measurement*, 66(4), 657–666. <https://doi.org/10.1177/0013164405282452>
- Thompson, D., Sibinga, E., Jenning, J., Bair-Merritt, M., & Christakis, D. (2010). Television viewing by young Hispanic children: Evidence of heterogeneity. *Archives of Pediatric and Adolescent Medicine*, 164(2), 174–179. <https://doi.org/10.1001/archpediatrics.2009.257>
- Tissot, H., Favez, N., Ghisletta, P., Frascarolo, F., & Despland, J. -N. (2017). A longitudinal study of parental depressive symptoms and coparenting in the first 18 months. *Family Process*, 56(2), 445–458. <https://doi.org/10.1111/famp.12213>
- Trofholz, A., Tate, A., Miner, M., & Berge, J. (2017). Associations between TV viewing at family meals and the emotional atmosphere of the meal, meal healthfulness, child dietary intake, and child weight status. *Appetite*, 108, 361–366. <https://doi.org/10.1016/j.appet.2016.10.018>
- Trott, M., Driscoll, R., Iraldo, E., & Pardhan, S. (2022). Changes and correlates of screen time in adults and children during the COVID-19 pandemic: A systematic review and meta-analysis. *eClinicalMedicine: Lancet*, 48, 101452. <https://doi.org/10.1016/j.eclinm.2022.101452>
- Wilson, J., Lee, J., Fitzgerald, H., Oosterhoff, B., Sevi, B., & Shook, N. (2020). Job insecurity and financial concern during the COVID-19 pandemic are associated with worse mental health. *Journal of Occupational and Environmental Medicine*, 62(9), 686–691. <https://doi.org/10.1097/JOM.0000000000001962>
- Zamarro, G., & Prados, M. (2021). Gender differences in couples' division of childcare, work and mental health during COVID-19. *Review of Economics of the Household*, 19(1), 11–40. <https://doi.org/10.1007/s11150-020-09534-7>
- Zentella, A. (2017). "Limpia, fija y da esplendor": Challenging the symbolic violence of the royal Spanish academy. *Chiricú Journal: Latina/O Literatures, Arts, and Cultures*, 1(2), 21–42. <https://doi.org/10.2979/chiricu.1.2.04>
- Zhang, X., Krishnakumar, A., & Narine, L. (2020). Family economic hardship and child outcomes: Test of family stress model in the Chinese context. *Journal of Family Psychology*, 34(8), 960–968. <https://doi.org/10.1037/fam0000670>
- Zietz, S., Lansford, J. E., Liu, Q., Long, Q., Oburu, P., Pastorelli, C., Sorbring, E., Skinner, A. T., Steinberg, L., Tapanya, S., Tirado, L. M. U., Yotanyamaneewong, S., Alampay, L. P., Al-Hassan, S. M., Bacchini, D., Bornstein, M. H., Chang, L., Deater Deckard, K., DiGiunta, L. . . . Gurdal, S. (2022). A longitudinal examination of the family stress model of economic hardship in seven countries. *Children and Youth Services Review*, 143, 106661. <https://doi.org/10.1016/j.childyouth.2022.106661>