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

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Abstract

The COVID-19 pandemic has greatly altered family life, and research among adults and families is finding increases in 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 and consider how these constructs might relate to each other by using the Family Stress Model. From surveys of 247 predominately Latine mothers and fathers of children under 4 years 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 children's behavior problems. Such findings better

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capture how stress may operate in a family system and offer a way to counsel parents about healthier media habits for 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 Contribution: Among economically and ethnically diverse families with young children, we find relationships between financial strain, parental mental health, coparenting relationship, and parenting around media. Of children's media use, only background TV is associated with increases in behavior problems.

Practical Implications: 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.

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 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 of 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, Purtell, & Justice, 2021; S. 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, Krishnakumar, & Narine, 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, Senia, & Donnellan, 2016; Scaramella et al., 2008; Zhang et al., 2020). Moreover, FSM processes have been seen across countries (e.g., Zietz & 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.

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 strain may have been particularly prevalent when families were experiencing social distancing policies and reduced childcare access (Petts, Carlson, & Pepin, 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 strain (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 use of media to control behavior (Coyne 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 Latine[1] 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, Mayora-Calleros, & Pedroza, 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 (See Figure 2). 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 predominately 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

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

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 20–47 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, utilities) and 2) buy basic needs (e.g., food, 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, Kamarck, & Mermelstein, 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, Chakrabarty, & Taylor, 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, Brown, & Kan, 2012). The Conflict subscale included ratings of agreement (1=*Strongly disagree*, 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 rating (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: 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 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, which 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 screens 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 M*plus* 8.3 (Muthén & Muthén, 1998–2017).

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 M*plus* 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. (χ^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 (χ^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 (β=.31, *SE*=.08, $p<.001$). Second, parents who reported worse mental health were also more likely to experience more conflict with their partners (β=.45, *SE*=.09, $p<.001$) and report more problematic behaviors (β=.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 (β=.28, *SE*=.10, $p<.01$) and screens for behavioral management (β=.27, *SE*=.13, $p<.05$), and have children with greater total unsupervised screen time (β=.23, *SE*=.11, $p<.05$). Finally, using TV as background noise predicted increased problem behaviors (β=.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 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 use of TV as background noise (β=.04, 95%CI:[.01;.08]), screens for behavioral management (β=.04, 95% CI:[.01;.11]), and total unsupervised screen

time (β=.03, 95%CI: [.00;.07]). Second, increased financial strain predicted children's increased problem behaviors indirectly via parental mental health (β=.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 (β=.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 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 were 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 connect by using the FSM. On average, low-to-moderate income, predominately 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 work 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 and colleagues (2022) identified numerous individual, parental, and family strengths that help Latine families be resilient in the face of adversity, and many of these strengths were likely present in our families (e.g., two-parent homes, bilingualism, family values). Though heightened hardship among Latines during the pandemic is well-documented (Sanchez, Mayora-Calleros, & & Pedroza, 2022), our families had many of these factors associated with resiliency (e.g. bilingual, 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, Flynn, & Olson, 2016; Pempek, Kirkorian, & Anderson, 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 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 thriving, during this unprecendented 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 find that increased financial strain, mental health problems, and interparental conflict all relate to children's media diet. However, only background television is 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.

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Appendix

Table A1

Model Fit Comparisons between the Family Stress Model and Alternative Models

Model	χ^2	df	SCF	*p*-value	TRd	Δdf	CD	TRd *p*-value	RMSEA	90% CI	CFI	TLI	SRMR
Family Stress Model	55.939	41	1.080	.060	—	—	—	—	.038	[.000; .062]	.965	.919	.038
Alternative Model 1 – **Reverse model**	57.874	44	1.097	.078	2.325	3	1.339	**.508**	.036	[.000; .059]	.968	.930	.040
Alternative Model 2 – **Fully reciprocal**	57.248	39	1.090	.030	2.723	2	21.551	**.256**	.044	[.014; .066]	.957	.896	.042
Alternative model 3 – **Partially reciprocal**	55.864	40	1.080	.049	0.090	1	1.092	**.765**	.040	[.003; .063]	.963	.912	.038

Note. We conducted three alternative models to compare with the Family Stress Model (FSM) based on the discussion with the reviewers. The alternative model 1 is the reversed version of the FSM. The alternative model 2 changes all relations in the FSM as reciprocal. The alternative model 3 changes only the child problem behavior relationships in the FSM as reciprocal. See Figures A1, A2 and A3 in the Appendix for results of alternative models. We then conducted a series of Satorra-Bentler scaled chi-square different tests (Satorra & Bentler, 2010) across models. Results from the model fit comparisons indicated that the alternative models are statistically similar to the FSM (*p*-values >.256). We chose the original FSM because it had the strongest theoretical support based on the prior literature. χ^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.

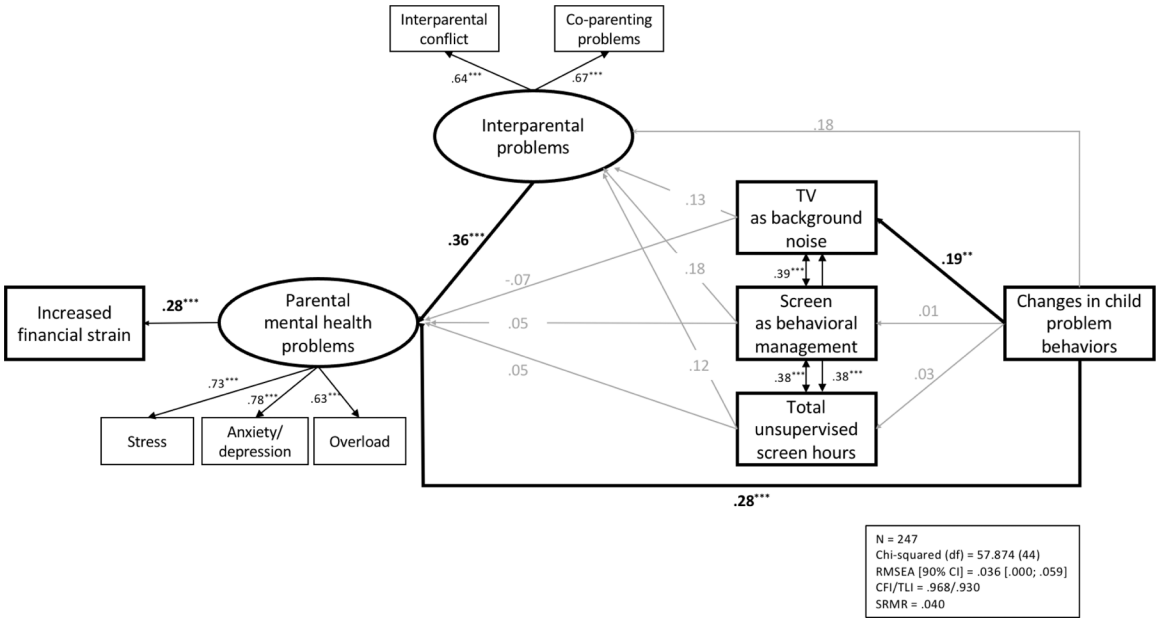

Figure A1.
Alternative Model 1: Reverse Model

Note. N = 247. The alternative model 1 is the reversed version of the FSM. Estimates adjusted for child-level covariates, including parental education, parental nativity, parent gender, parental English proficiency, and child age. Covariates not shown for simplicity. χ^2 (44) = 57.874, p = .078, RMSEA [90% CI] = .036 [.000; .059], CFI = .968, TLI = .930, SRMR = .040. See Table A1 in the Appendix for the model fit comparisons with the original FSM.

*p < .05. **p < .01. ***p < .001.

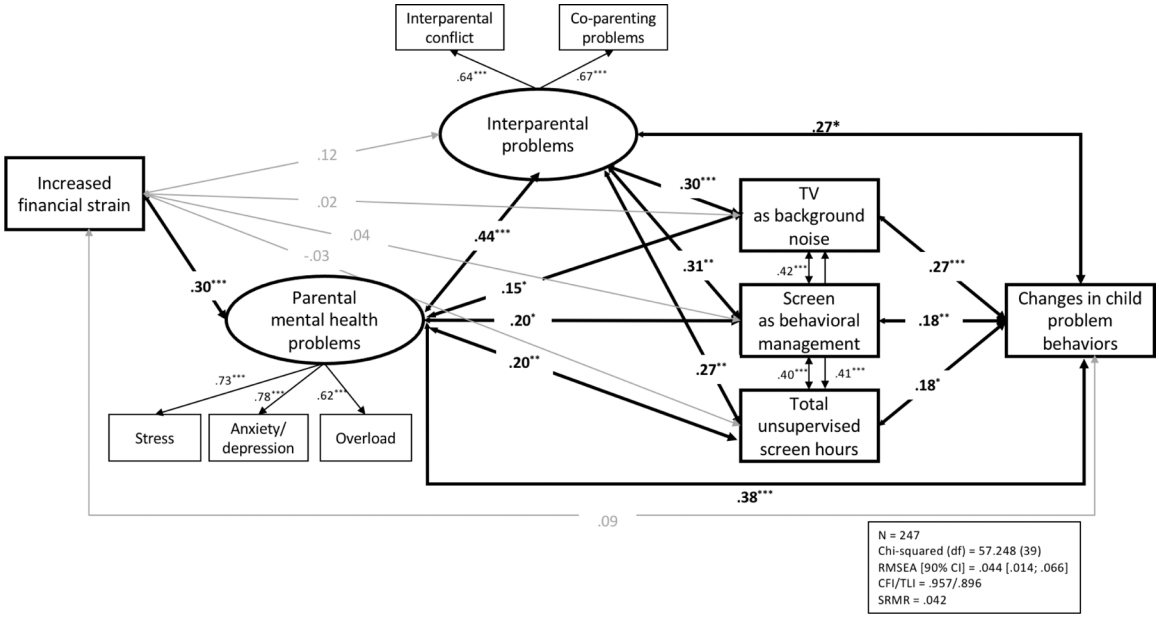

Figure A2.

Alternative Model 2: Fully Reciprocal Model

Note. N = 247. The alternative model 2 changes all relations in the FSM as reciprocal. Estimates adjusted for child-level covariates, including parental education, parental nativity, parent gender, parental English proficiency, and child age. Covariates not shown for simplicity. χ^2 (39) =57.248, p =0.030, RMSEA [90% CI] = .044 [.014; .066], CFI = .957, TLI = .896, SRMR = .042. See Table A1 in the Appendix for the model fit comparisons with the original FSM.

*p < .05. **p < .01. ***p < .001.

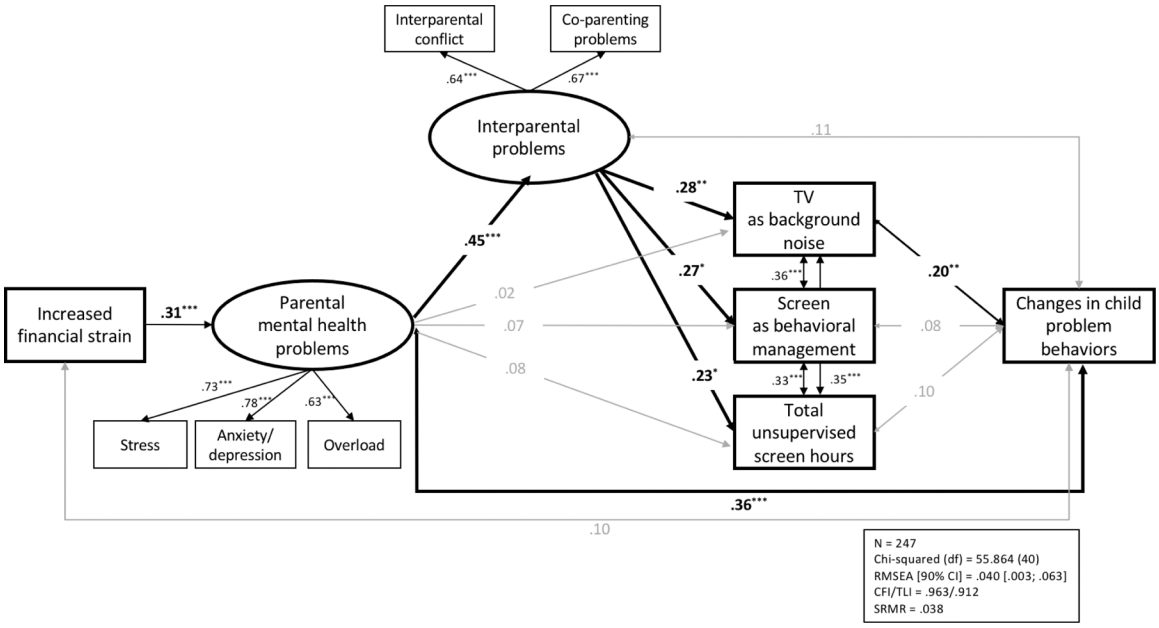

Figure A3.

Alternative Model 3: Partially Reciprocal Model

Note. N = 247. The alternative model 3 only changes the child problem behavior relationships in the FSM as reciprocal. Estimates adjusted for child-level covariates, including parental education, parental nativity, parent gender, parental English proficiency, and child age. Covariates not shown for simplicity. χ^2 (40) =55.864, p = .049, RMSEA [90% CI] = .040[.003; .063], CFI = .963, TLI = .912, SRMR = .038. See Table A1 in the Appendix for the model fit comparisons with the original FSM.

*p < .05. **p < .01. ***p < .001.

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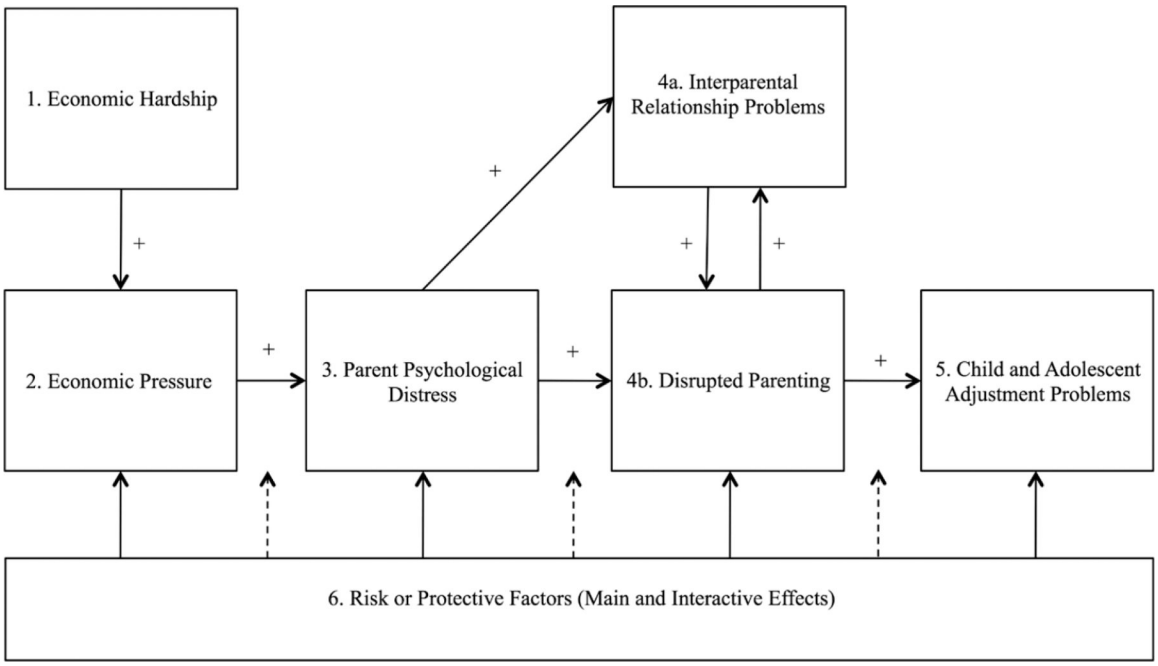

Figure 1.
Family Stress Model
Note: Recreated from Masarik & Conger (2017).

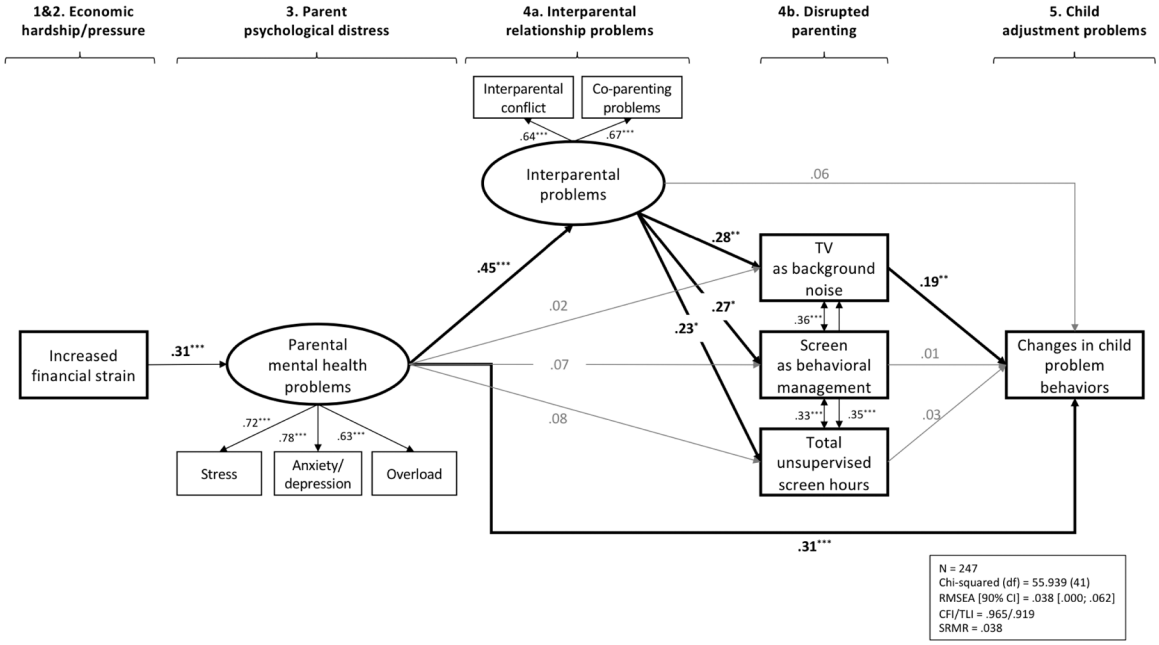

Figure 2.

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

Note. 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 & Conger (2017).

*$p<.05$. **$p<.01$. ***$p<.001$.

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[a]	—	—	—

Note.

*$p<.05$.

**$p<.01$.

***$p<.001$.

[a]Kuder-Richardson Formula 20 (KR-20) estimates reliability of scales that used binary items.

[b]Cronbach'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]

Note.

[a] Coefficients with confidence intervals not encompassing 0 are considered significant.

Table 3

Results from Multi-Group Analysis comparing Family Stress SEM between Mothers and Fathers

Model	χ^2	df	SCF	*p*-value	TRd	Δdf	CD	TRd *p*-value	RMSEA	90% CI	CFI	TLI	SRMR
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

Note. 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. χ^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.