



Parental Stress and Child Outcomes: The Mediating Role of Family Conflict

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Abstract

Although extant research demonstrates the negative impact of parental stress on child emotional and behavioral problems, the mechanisms through which parental stress influences child outcomes is less known, particularly among families at risk for child maltreatment. The purpose of this study, therefore, was to draw on past research to test the extent to which family conflict mediated the links between parental stress and child outcomes among at-risk families. Researchers conducted a longitudinal multiple regression analyses ($N = 314$) using data collected from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN). The children included in the study were 6 years of age at time 1, 12 years of age at time 2, and 14 years of age at time 3. Results indicated positive, significant bivariate associations among parental stress, family conflict and child internalizing and externalizing symptoms. Additionally, partial mediation was established among parental stress, family conflict and child outcomes, suggesting an explanatory link between parental stress and child outcomes and highlighting the systemic nature of such interactions. Findings feature the importance of considering child behavior problems in the context of family functioning and extend the literature to consider the impact of parental stress and family conflict on child internalizing and externalizing symptoms. Clinical intervention implications for mental health professionals include a focus on reducing the impact of parental stress and improving family functioning through management of family conflict to support child outcomes, particularly among families at risk for child maltreatment.

Keywords Child outcomes · Family conflict · Family systems · Parental stress · Physiological theories

Highlights

- Longitudinal analysis from key developmental time points for high-risk families.
- Family conflict was shown to mediate parent stress and problematic child outcomes.
- The present study emphasizes need for systemic clinical treatment focused at the family unit.
- Results align with physiological theories of how stress affects relationships.

Stress is a major health concern in the United States (American Psychological Association [APA], 2015) and parents report being more stressed than individuals who are not parents. Additionally, more parents report that their

stress has increased (34%) compared to non-parents (27%; APA, 2015). Parents face many forms of stress including economic hardship, relationship maintenance, work-school-home balance and continual monitoring of family health. These daily life stressors can exacerbate the challenges of parenting by placing additional demands on a parent's ability to multitask. This is important because high levels of parenting stress are linked with a greater risk for child maltreatment (Curenton et al., 2009). Extant research also demonstrates that parental stress is associated with higher family conflict (DeCarlo Santiago & Wadsworth, 2009; Hser et al., 2015), and poorer child outcomes (Crnic et al., 2005; Neece et al., 2012; Yoon et al., 2015). Despite these known associations, more research is needed to understand

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how parental stress affects child outcomes, particularly among families at higher risk for child maltreatment (Currenton et al., 2009). The purpose of this study, therefore, was to test the extent to which family conflict mediates the relationship between parental stress and child internalizing and externalizing symptoms.

Guiding Theoretical Frameworks

There are key theories that help explain how stress affects families. The ABC-X model of family stress relates protective factors that affect a family's ability to manage stress, resulting in either bonadaptive, adaptive, or maladaptive outcomes (Weber, 2011). Similarly, the Family Stress Model postulates intricate processes through which economic stressors affect psychological distress, parent relationship problems and child outcomes (Masarik & Conger, 2017). Additionally, physiological theories explain how stress impacts the body, and how interpersonal interactions can affect and be affected by another's heightened physiological reaction to stress (Johnson et al., 2015; Porges, 2007). These models show the complex relationships and impacts of stressors and family functioning.

The ABC-X and Family Stress Models

The ABC-X model of family stress aids in our understanding of family stress and outcomes (Weber, 2011). According to the ABC-X model, stressors (A) are exacerbated or mitigated by family resources (B)—such as ability to handle conflict—and the family's perception of seriousness of the stressor (C) can lead to problematic family functioning and crisis (X) experienced by the family (McCubbin & Patterson, 1983). Together these factors can lead to stress and hardship when the tension produced by them is not resolved. This model applies to the current study in that we define family functioning as a factor B, such that it can be considered as a resource, or a means of communicating and rallying the family to deal with the stressor introduced. When conflict is present, the resource of family functioning is reduced, leading to poorer outcomes. In the context of the present study, higher conflict (which hinders factor B) may be a potential mediator between parental stress (factor A) and negative child outcomes (factor X). Measuring the family's perceived seriousness of stress (factor C) is beyond the scope of this paper. The Conger Family Stress Model is focused on economic stressors and how these affect parents and children. The model has been tested with mediation analysis and results support the associations between economic stressors, disrupted parenting, and child problems (Masarik & Conger, 2017). While economic stressors greatly affect families, we also wanted to understand the

broader impact of perceived stress from many sources, and how it impacts parents and children in interconnected ways. Building off this work, we wanted to better understand how individual reactions to daily life stressors manifest through family relationships (Johnson et al., 2015).

Physiological Theories

Physiological theories also help explain how child outcomes are adversely affected by parental stress and problematic parent–child interactions. At the intrapersonal or individual level, the biological process of how stress affects the body influences emotional reactions and a person's ability to regulate emotions. This, in turn, can affect interpersonal relationships. Polyvagal theory explains how stress activates the sympathetic nervous system (SNS) triggering the fight or flight response which affects the person's body, thoughts, and emotions (Porges 2001, 2007). In a relationship, this response can lead to arguing, physical aggression or withdrawing. Such responses from a parent or child can activate the other person's SNS and lead to conflict between parties, as each one now responds to not only the initial trigger, but the reaction of the family member (Johnson et al., 2015). This escalation makes it harder to regulate emotions and calm the SNS, which may increase the likelihood for conflict in future interactions and negatively affect relationships (Johnson et al., 2015). The physiological impact of stress becomes evident through behaviors and how family members interact with one another. Specific to the parent–child relationship, stress can affect a parent's ability to regulate emotions and reduce reactivity (Porges, 2007), and recurring patterns of emotional reactivity between family members may negatively affect their relationship and further impact a parent's ability to handle stress (Johnson et al., 2015; Porges, 2007; Siegel, 2001). These difficulties, in turn, may result in child emotional or behavioral problems.

Although family stress theories feature the importance of interpersonal family dynamics, medical frameworks for the treatment of child emotional and behavioral problems focus heavily on child-centered, individual approaches rather than family level interventions (Child, 2000). Systemic models, however, situate individual functioning (e.g., child behavior problems) within the larger systemic contexts in which they are embedded. Therefore, examining the mediating role of family conflict in the known association between parental stress and negative child outcomes is an important extension of current research (Crum & Moreland, 2017).

Parental Stress and Parenting

Parents report higher levels of stress compared to adults without children. Not surprisingly, a major source of stress

reported is financial strain, with 77% of parents reporting this compared to 60% of non-parents (APA, 2015). Parents also report that their financial situations affect their ability to live a healthy lifestyle, with many reporting that to reduce stress they turn to distractions such as surfing the internet (48%) or watching television (46%), drinking alcohol (24%), or smoking (25%; APA, 2015). Other major sources of stress for parents compared to non-parents include family responsibilities (65% vs. 42%) and housing costs (54% vs. 36%; APA, 2015). Parents experiencing high stress also experience higher rates of emotional and mental symptoms such as irritability/anger (44% vs. 35%), being nervous or anxious (43% vs. 33%) and feeling overwhelmed (42% vs. 29%; APA, 2015).

Life stress and the daily hassles of parenting seem to be fairly constant across the preschool years, but as children enter school age there is often an increase in complex parenting demands and tasks (Crnic et al., 2005; Peters-Scheffer et al., 2012). Additional factors shown to influence parental stress and parenting are single parenthood, poverty, and emotional and physical health (Jackson et al., 2010; Murphy et al., 2010).

Stress is linked with less parental positive affect and more negativity directed toward one's child, and that can lead to child problems (Crnic et al., 2005). For example, among a sample of poor and near-poor African American mothers, those with higher levels of stress were more likely to spank frequently, which was related to increased child problems and greater stress a year later (Jackson et al., 2010). Similarly, parenting stress had a significant effect on parenting styles for both mothers and fathers even when marital relationship did not have an effect (Ponnet et al., 2013). When parent stress is high, it may be harder for parents to engage in positive ways with their children. This can lead to higher levels of family conflict, which exacerbate child problems and reinforce stress and conflict. For the purpose of this study parental stress was defined as how much parents worry, are upset by, or bothered by daily problems parents with children face. Specific aspects of stress identified in this study included having too many responsibilities, not having enough time, economic concerns, health of family members, disagreements on parenting, and relationship concerns.

Child Outcomes and Parental Stress

A “spillover effect” of negative parent stress can impact the way parents respond to and discipline their children, which in turn can decrease child self-regulation skills (Higgins et al., 2011), and broadly, overall child outcomes. The “spillover effect” consequently impacts how children both internalize (Hooper et al., 2015; Lohaus et al., 2017) and

externalize (Chih-Yuan Steven et al., 2011; Lohaus et al., 2017; Steeger et al., 2017) their emotions. For instance, children living in a stressful family context where multiple stressors are present may experience anxiety (i.e., internalize) because they are unable to mitigate the consequences of this stress. Children living in stressful family contexts may also act outwardly in the form of delinquent behaviors (i.e., externalize) due to high levels of stress in the home and an inability to solve these problems on their own. For the purpose of this study, internalizing symptoms included anxiety, depression, and somatic symptoms, while externalizing symptoms consisted of delinquent and aggressive behaviors.

Stress fluctuates as situations and circumstances change over time causing a rise and fall of stress. Researchers have been able to demonstrate that with the rise and fall of parental stress, children's stress will also rise and fall showing the systemic impact of stress (Keyser et al., 2017; Steeger et al., 2017). For instance, researchers found that as maternal and paternal stress increased and decreased over time, children's externalizing behaviors fluctuated alongside the parent's stress (Keyser et al., 2017). In a study looking at children between the ages of 2–7 years old, it further demonstrated the relationship between parental stress and child outcomes by finding a positive correlation between paternal stress and children's internalizing and externalizing symptoms (Lohaus et al., 2017). Similar findings suggest that parental stress is associated with higher internalizing and externalizing behavioral problems among adolescents (Kim et al., 2003; Neece et al., 2012; Steeger et al., 2017). In addition, researchers have investigated the differential outcome of parental stress on child internalizing and externalizing symptoms (Costa et al., 2008; Rodriquez, 2011). For example, Costa et al. (2008) found that in a sample of 300 parent–child dyads, child internalizing symptoms were associated with parental stress. Similarly, Rodriquez (2011) examined the influence of maternal parental stress and child internalizing symptoms, and found that child internalizing symptoms was also associated with parental stress. However, both studies acknowledge that factors such as parent psychopathology, as well as child age, gender and ethnicity also play a role in differential child outcomes. These findings collectively highlight direct links between parental stress and child outcomes across critical developmental periods. For the purpose of this study, youth ages 6, 12, and 14 were examined because of the important changes in developmental, social, and family stressors during these years (DeCarlo Santiago & Wadsworth, 2009; Lohaus et al., 2017). Significant stressors include changes in the child's social environment as children transition to elementary school (age 6), middle school (age 12), and high school (age 14). Research suggests that parents are impactful in children's school transactions, but

that stress impacts parents' ability to help their children make successful transitions (Fite et al., 2019).

Family Conflict as a Mechanism

Although the association between parental stress and child outcomes is well established, there is less research on the mechanisms through which parental stress affects child outcomes. Researchers have established, however, that family conflict may play an important role (e.g., DeCarlo Santiago & Wadsworth, 2009; Hser et al., 2015). For instance, relying on a sample of low-income families, scholars found that higher levels of stress were correlated with more family conflict, and higher levels of family conflict were associated with higher levels of youth mental health symptoms in adolescence (DeCarlo Santiago & Wadsworth, 2009). Similarly, in an effort to determine specific patterns of risk, another study found that family conflict significantly predicted higher child mental health symptoms above and beyond a maternal history of substance abuse and mental health challenges (Hser et al., 2015).

Specific to families at risk for maltreatment, using the family conflict subscale of the Self-Report Family Inventory (Beavers et al., 1990), researchers found direct effects of family conflict and poorer child mental health outcomes (English et al., 2003). Similarly, researchers have established that a vulnerable family environment in which there is high parental distress and conflict was strongly predictive of children's mental health needs (Thompson et al., 2007). Moreover, researchers found parents who report high levels of child behavior problems were more likely to be involved with child protective services (Haskett et al., 2003). Although research has established direct associations between parental stress, family conflict, and child mental health outcomes, no known study has tested family conflict as a mediator in this process among families at risk for child maltreatment. This is important because points of interventions can be determined by identifying *how* parental stress is linked with negative child outcomes among families at risk.

Current Study

Theories on stress suggest that individual physiological processes are activated under stressful conditions that influence the person's behavioral responses and can affect their interpersonal relationships. The physical expression of stress manifests in behavioral interactions between family members. These theories also explain how family systems are affected by stress and what may lead to crisis for some systems versus others. Researchers have begun to identify factors linked with parental stress and child outcomes

(Crum & Moreland, 2017; Harmeyer et al., 2016; Masarik & Conger, 2017; Murphy et al., 2010). In the present study, we extend extant research by testing the possible mediating effects of family conflict on parent stress and child outcomes among a sample at risk for child maltreatment. Using longitudinal data, we examined these associations across developmental periods spanning from child age 6 years to middle adolescence (youth ages 12 and 14 years old). Understanding how conflict mediates the linkages between parental stress and child outcomes can help researchers and practitioners intervene at the family level to reduce the impact of stress on child outcomes.

As such, the aims of the current study were to identify the relationship between parent stress and child outcomes, and to test the mediation effect of family conflict in that association (see Fig. 1) among families at risk for child maltreatment. Relying on physiological theories and the ABC-X model, we hypothesized the following.

Hypothesis (1)

Parental stress levels at age 6 would be associated with (H1a) child internalizing, (H1b) externalizing, and (H1c) total symptoms at age 14 such that when parental stress levels are high, child symptoms would also be high.

Hypothesis (2)

Parental stress affects child outcomes through family conflict such that higher levels of family conflict at age 12 would mediate the relationship between high parental stress at age 6 and (H2a) greater child internalizing, (H2b) externalizing, and (H2c) total symptoms at age 14.

Methods

Participants

Using G*Power software, we calculated required sample size based on our proposed analysis and with a Power of

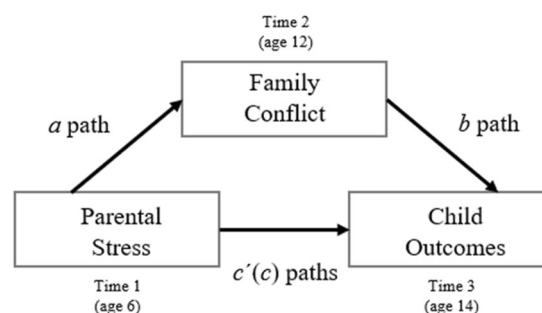


Fig. 1 Conceptual model of mediation pathways

0.95, alpha of 0.05 and a medium effect size of 0.15 we required a sample of at least 119. The children in the present study ($N = 314$) were 6 years of age at time 1, 12 years of age at time 2, and 14 years of age at time 3. These three specific time points were selected due to environmental, physiological and social factors usually associated with these ages. Of the children, 44% ($n = 139$) were females and 47% ($n = 147$) males, with 9% not reported ($n = 28$). The race and ethnicity of the children, as reported by their parents, included 52% Black ($n = 163$), 25% White ($n = 78$), 6% Hispanic ($n = 19$), 8% mixed race ($n = 24$), <1% other races ($n = 2$), and 9% not reported ($n = 28$). Their parents' race and ethnicity were 56% Black ($n = 177$), 33% White ($n = 102$), 7% Hispanic ($n = 22$), 2% mixed race ($n = 7$), and 2% other races ($n = 6$).

Time 1

Mother's marital status included 36% single ($n = 112$), 31% married ($n = 96$), 12% divorced ($n = 39$), 8% separated ($n = 26$), 2% widowed ($n = 8$), and 11% not reported ($n = 33$). Mothers' years of education ranged from 1 to 20 years ($M = 11.83$, $SD = 2.1$). Mother's employment status included 24% full time ($n = 76$), 11% part time ($n = 33$), 15% unemployed and looking for work ($n = 42$), 27% not working because of family responsibilities ($n = 75$), 22% ($n = 55$) not working for other reasons (e.g., disability, retired), and 11% not reported ($n = 33$). Family income ranged from less than \$5,000 to over \$50,000 with \$10,000–\$14,999 as the median household income range.

Time 2

Mothers' marital status included 41% married ($n = 129$), 31% single ($n = 98$), 15% divorced ($n = 47$), 8% separated ($n = 26$), and 5% widowed ($n = 14$). Mothers' years of education ranged from 0 to 20 ($M = 12.28$, $SD = 2.43$). Mothers' employment status included 45% full time ($n = 140$), 12% part time ($n = 37$), 9% unemployed looking for work ($n = 29$), and 34% ($n = 108$) not working for various reasons (e.g., family responsibilities, disabled). Family income ranged from less than \$5,000 to more than \$50,000 with a median range of \$25,000–\$29,999.

Time 3

Mothers' marital status included 38% married ($n = 120$), 32% single ($n = 99$), 16% divorced ($n = 49$), 10% separated ($n = 30$), 5% widowed ($n = 14$), and <1% missing ($n = 2$). Mothers' years of education ranged from 0 to 20 ($M = 12.38$, $SD = 2.5$). Mothers' employment status included 44% full time ($n = 137$), 12% part time ($n = 39$), 11%

unemployed but looking for work ($n = 34$), 33% ($n = 102$) not working for various reasons (e.g., family responsibilities, disabled), and <1% missing ($n = 2$). Family income ranged from less than \$5,000 to more than \$50,000 with a median range of \$25,000–\$29,999.

Procedure

Data from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN), a 14-year longitudinal study, were used to test study hypotheses. The LONGSCAN examined correlates and outcomes associated with potential child maltreatment. The LONGSCAN project was a coordinated, multi-site project involving five sites around the United States including data from over 1300 children and their caregivers. The families recruited for LONGSCAN represent a continuum of child maltreatment risk levels ranging from children who had not been maltreated but who were deemed "high risk" for maltreatment due to risk factors such as parental drug use and inadequate child growth, to children who had been maltreated and the cases substantiated by the child welfare system. The present study included longitudinal data from 314 families when the focal child was 6 years old at time 1, 12 years old at time 2, and 14 years old at time 3. Data were collected between 1993 and 2009. Our subsample of 314 families was selected by dropping cases that did not have data for the target variables. At time 1 the full LONGSCAN sample was 1145, at time 2 it was 952, and at time 3 it was 488. To determine if there were significant differences in demographic characteristics between our subsample and the full LONGSCAN sample, we ran ANOVA analyses comparing both our study sample and the full LONGSCAN sample at each of the three time points. The demographic variables of marital status, education level, employment status, and income level did not have statistically significant differences at any of the three time points between groups, with all greater than the $p > 0.05$ threshold. At time 1, marital status was $F(1, 1145) = 0.021$, $p > 0.05$, education level was $F(1, 1142) = 0.359$, $p > 0.05$, employment status was $F(1, 1142) = 0.315$, $p > 0.05$, and family income was $F(1, 1124) = 0.082$, $p > 0.05$. At time point 2 marital status was $F(1, 950) = 0.132$, $p > 0.05$, education level was $F(1, 952) = 0.595$, $p > 0.05$, employment status was $F(1, 952) = 0.420$, $p > 0.05$, and family income was $F(1, 944) = 0.885$, $p > 0.05$. At time point 3 marital status was $F(1, 488) = 0.370$, $p > 0.05$, education level was $F(1, 488) = 0.057$, $p > 0.05$, employment status was $F(1, 488) = 0.753$, $p > 0.05$, and family income was $F(1, 481) = 0.005$, $p > 0.05$. We concluded that there were no significant demographic differences between our subsample and the full LONGSCAN sample at any time point.

Measures

Parental Stress

The Everyday Stressors Index (Hall et al., 1985) was used to assess daily problems faced by parents with young children. This measure was administered to the target child's mother during the child's 6-year visit. The 20-item measure ($\alpha = 0.87$) asks caregivers "How much are you worried, upset or bothered from" concerns such as "not enough time to do the things you want to," "problems with your job or with not having a job," "disagreements with others over discipline of your child(ren)" and "problems getting along with your family" Response options are measured on a 4-point scale ranging from "not at all bothered" to "bothered a great deal." Responses are summed and higher scores indicate higher levels of daily stress. Scores range from 20 to 67 ($M = 35.15$, $SD = 10.82$).

Family Conflict

The Self-Report Family Inventory (Beavers et al., 1990) measured caregivers' perceptions of family interactions. This measure was administered to the target child's mother during the child's 12-year visit. Consistent with past research with families at risk for child maltreatment (e.g., English et al., 2003), we focused specifically on the family conflict subscale. The subscale consists of 12 items ($\alpha = 0.78$) with five response options ranging from "doesn't fit our household at all" to "fits our household very well." Sample items include: "grownups in this household compete and fight with each other," "household members put each other down," "we argue a lot and never solve our problems," "when things go wrong we blame each other," and "each person takes responsibility for his/her behavior." Some items are reversed scored so that higher scores indicate higher family conflict. Scores ranged from 12 to 51 ($M = 19.75$, $SD = 7.16$).

Child Outcomes

Child internalizing and externalizing symptom scores, along with total symptom scores were assessed using the Child Behavioral Checklist (CBCL; Achenbach, 1991), which was completed by the mother when the child was ages 6 and 14. There are 113 CBCL items (i.e., symptoms) that are scored to form two broad subscales: child internalizing and externalizing symptoms, that can be combined to calculate a total symptom score (Achenbach 1991). Individual response items range from 0 to 2 ("not true as far as I know," to "very true or often true"), where higher scores indicate higher symptoms. Internalizing ($\alpha = 0.85$), externalizing ($\alpha = 0.90$) and total symptom ($\alpha = 0.96$) scores were used in the

analyses. For age 6, total scores ranged from 0 to 129 ($M = 32.05$, $SD = 21.22$), internalizing scores ranged from 0 to 30 ($M = 6.41$, $SD = 5.83$), and externalizing scores ranged from 0 to 46 ($M = 13.10$, $SD = 8.77$). For age 14, total scores ranged from 0 to 146 ($M = 29.40$, $SD = 23.78$), internalizing scores ranged from 0 to 42 ($M = 7.54$, $SD = 7.43$), and externalizing scores ranged from 0 to 57 ($M = 11.81$, $SD = 9.74$).

Data Analyses

Preliminary analyses were conducted using SPSS to test the bivariate correlations among study variables. Multicollinearity was assessed using the variance inflation factors (VIF). Next, direct and indirect effects of the multiple mediational model with covariates was tested using the recommended SPSS Process macro v3.4 and computed in AMOS using the bootstrapping method to determine the extent to which family conflict mediated the association between parental stress and child outcomes controlling for child symptoms at time 1 (age 6), using three separate models: internalizing symptoms scores, externalizing symptoms scores, and total symptom scores. Bootstrapping analysis is a nonparametric resampling procedure involving an iterative process of computing the product-of-coefficients estimates for indirect effects based on z scores (Preacher & Hayes, 2004). In the present study, products of the path estimates for paths leading to and from the mediator were computed a total of $k = 5000$ times. We tested for mediation hypotheses using bootstrapping analyses with 95% bias-corrected confidence intervals (CIs) (Preacher & Hayes, 2004). CIs were computed for each indirect effect, including total and specific. CIs that do not include zero indicate significant effects (Efron, 1987).

Results

Bivariate correlations (Table 1) indicated significant, positive associations between parental stress, family conflict, and child internalizing, externalizing, and total symptom scores. Because of high correlations among some study variables, we assessed the degree of multicollinearity using the VIF. The highest VIF value was 8.88 which is below the threshold of 10; therefore, the performance of the study variables should not be unstable.

Next mediation analyses were conducted to determine if family conflict mediated the relationship between parental stress and child outcomes while controlling for child symptoms at age 6, as well as controlling for demographic variables of child gender, child and parent racial group, marital status, education level, employment status and family income. Regarding the model for internalizing

Table 1 Descriptive statistics of and correlations among study variables ($N = 314$)

Variables	1	2	3	4	5	6	7	8
1 Child Internalizing Symptoms age 6	—							
2 Child Externalizing Symptoms age 6	0.57**	—						
3 Child Total Symptoms age 6	0.82**	0.89**	—					
4 Parental Stress age 6	0.35**	0.35**	0.38**	—				
5 Family Conflict age 12	0.09	0.09	0.11*	0.25**	—			
6 Child Internalizing Symptoms age 14	0.37**	0.27**	0.35**	0.24**	0.20**	—		
7 Child Externalizing Symptoms age 14	0.24**	0.46**	0.41**	0.27**	0.20**	0.70**	—	
8 Child Total Symptoms age 14	0.34**	0.42**	0.46**	0.28**	0.22**	0.88**	0.91**	—
<i>M</i>	6.41	13.10	32.05	35.15	19.75	7.54	11.81	29.40
<i>SD</i>	5.83	8.78	21.22	10.82	7.16	7.43	29.40	23.78

* $p < 0.05$; ** $p < 0.01$ (two-tailed).

symptoms, the direct effect from parental stress to child internalizing symptoms (c path = 0.09, $p < 0.05$) was positive and significant (H1a). Parental stress also was positively related to family conflict (a path = 0.16, $p < 0.01$), and family conflict was positively associated with child internalizing symptoms (b path = 0.16, $p < 0.01$). Results also indicated that direct effects between parental stress and child internalizing symptoms were lessened with the inclusion of the mediator in the model (c' path = 0.06, $p > 0.05$), which is one indicator of mediation (H2a). Moreover, the 95% bias-corrected CI for the overall model [0.001, 0.01] did not include zero which also supports mediation. The control variables of child symptoms at age 6 (0.43, $p < 0.01$) and education level (0.32, $p < 0.05$) were also significant in the model.

In terms of child externalizing symptoms, again the path from parental stress to child externalizing symptoms (c path = 0.10, $p = 0.05$) was positive and significant (H1b), the a path was the same as in the model for internalizing symptoms (a path = 0.16, $p < 0.01$), and family conflict was positively associated with child externalizing symptoms (b path = 0.19, $p < 0.01$). Again, results indicated that the direct effects between parental stress and child externalizing symptoms were lessened with the inclusion of the mediator in the model (c' path = 0.07, $p > 0.05$) and the 95% bias-corrected CI for the total model [0.001, 0.02] did not include zero which also supports mediation (H2b). The control variables of child symptoms at age 6 (0.48, $p < 0.01$) and education level (0.48, $p < 0.01$) were again significant to the model.

Finally, the model for total child symptom scores was tested. Results demonstrated similar pathways such the path from parental stress to total child symptoms (c path = 0.25, $p = 0.05$) was positive and significant (H1c), the a path was the same (a path = 0.16, $p < 0.01$), and family conflict was

positively associated with total symptoms (b path = 0.53, $p < 0.01$). As with the other models, results again indicated that direct effects between parental stress and total child symptoms were lessened with the inclusion of the mediator in the model (c' path = 0.17, $p > 0.05$) and the 95% bias-corrected CI for the mediation model [0.01, 0.38] did not include zero which also supports mediation (H2c). The controls of child problems at age 6 (0.48, $p < 0.01$) and education level (1.03, $p < 0.05$) were significant.

Discussion

The purpose of this study was twofold: first, to better understand the associations between parental stress and child outcomes (H1), and second, to test the mediating effect of family conflict on those associations (H2). While current research has established direct effects of parental stress on child outcomes, mediators in that process are not as well known, particularly among families at risk for child maltreatment. Using two theoretical frameworks—physiological theories and the ABC-X family stress model—we tested the mediating role of family conflict in an at-risk sample. Our study bolsters prior research by demonstrating associations between stress, family conflict, and child outcomes (e.g., DeCarlo Santiago & Wadsworth, 2009; Hser et al., 2015), by testing longitudinal mediation pathways with a sample of lower income families at risk for maltreatment. Results supported our hypotheses of the relationship between parental stress and child outcomes, and the mediating role of family conflict between parental stress and child internalizing, externalizing, and total symptom scores.

Results of this study show longitudinal linkages between parental stress, family conflict, and child outcomes across important developmental touch points in the child's and

parent's relationship. We understand from previous research that parental stress impacts children at discrete ages (e.g., age 6, Lohaus et al., 2017 and 12, Kim et al., 2003; Neece et al., 2012; Steeger et al., 2017). However, our results demonstrate that parental stress can impact the parent–child relationship over time. These findings are significant in that while it may be difficult to change family stressors, by intervening with family conflict, children may be buffered from the adverse impact of persistent stress. The relationship between parenting stress when the target child was 6 years old and the family's conflict level at age 12 indicates that conflict increases with higher levels of stress which is consistent with the body's physiological response to stress (Johnson et al., 2015; Porges, 2007). The patterns a family forms to deal with stress early in family development may impact coping strategies years later. This relates to the ABC-X model where the family's resources (B factor), allow or prevent families from handling conflict successfully (McCubbin & Patterson, 1983). Furthermore, the relationship between family conflict at age 12 and child outcomes at age 14 again shows that family conflict is associated with higher youth externalizing and internalizing symptoms (X factor).

Findings supporting family conflict as an important mechanism in the link between parental stress and child outcomes are not surprising given the complex nature of stress in families. When parental stress is high, the child's stress is also likely to be elevated (Keyser et al., 2017; Steeger et al., 2017). While our findings are based on self-report measures, they can be understood in the theoretical context and interplay of physiological and behavioral responses. Congruent with physiological theories (Johnson et al., 2015; Porges, 2007), stress affects individuals and their relationships. Such theories suggest that the problem may not solely be the stressor or stress, but the processes through which stressors activate reactions within an individual and how it affects their interactions with others. For example, while a stressor activates the fight or flight response and increases symptoms in the individual (e.g., elevated heart rate or emotional dysregulation), these symptoms and aroused state may lead the individual to respond to benign triggers from family members in a reactive way, such as yelling. The family member then reacts on the individual physiological level as well and may respond back in a reactive way (Johnson et al., 2015). As such, family conflict may be the behavioral manifestation of the physical reaction to stress, which leads to behavioral problems in the child. These findings point to the importance of family functioning patterns in understanding the links between stress and child outcomes.

However, it should also be acknowledged that child emotional and behavioral symptoms may source from larger sociocultural and economic contexts in which our sample

may be susceptible, and not solely from parental stress alone. For example, families from lower income, single parent households may also be exposed to macrosystemic stressors such as living in higher-crime neighborhoods and less access to mental health and community resources to effectively treat symptoms. Taken together, children exposed to these multiple stressors—both within the home and out in their local communities—may respond with higher levels of internalizing and externalizing behaviors as a symptomatic, and cyclical response to stress.

The current study had the intentional focus on a higher-risk sample comprised of predominantly lower income, single parent households. This is an important focus because such families are particularly susceptible to high levels of stress (Jackson et al., 2010; Murphy et al., 2010). As such, identifying family conflict as a mechanism through which parental stress is linked with child mental health outcomes is important because it can help direct intervention efforts. Specifically, some key known risk factors associated with parents' stress (e.g., single parenthood, low family household income) cannot readily be changed; however, parental stress and family conflict can. Working with families to promote helpful stress coping strategies and positive parent–child interactions may help mitigate the negative consequences of stress (DeCarlo Santiago & Wadsworth, 2009).

Findings also highlight the complexities of family systems in the interactions between parents and children. Where some policies and interventions focus solely on training parents or improving child problems, clinicians can instead consider the whole family as a treatment unit. In future research it would be important to test the bidirectional nature and interconnectedness of the problems high stress families face (Crnic et al., 2005; Crum & Moreland, 2017). When traditional solutions are not effective, improving family functioning through family therapy may be an effective way to reduce the negative effects of stress, which may be harder to directly reduce, and helping children deal with their own and their parent's physiological responses to triggers in daily life.

While there are key strengths to the current study, there are also limitations. Of note, the constructs of parenting stress, family conflict, and child outcomes were measured by parent report. There is research indicating that there is a discrepancy between parent and youth reports of family stress. Parents may be more likely to rate their child's behavior as more severe than how the youth might report the same behavior (McWey et al., 2018). Moreover, mothers were the sole respondent. While this is consistent with past research (e.g., English et al., 2003; Murphy et al., 2010), future research should take other family members' perspectives into account. In addition, future researchers could gather physiological measures for families experiencing high

stress and conflict. Clear empirical connections between physiological theories on family interactions and measurable changes could greatly benefit this area of research, particularly in evaluating clinical interventions. More research is also needed to differentiate between the types of parental stressors (e.g., socioeconomic vs. sociocultural stressors), and how types of stressors may play a role in how families are affected by stress. It would be important to test these mediation pathways longitudinally. Thus, while this study captured longitudinal associations between parental stress and child outcomes, it did not include all the constructs of interest measured across each time point, which precludes a full understanding of how relationships unfold across time. While the study demonstrated the relationship between parental stress and child outcomes, it did not detect if specific parental stressors were more influential than others on childhood outcomes. These limitations could be addressed in future research.

Additionally, while the ABC-X models does identify protective factors that buffer the impact of stress, the current study does not identify specific positive family processes that may help to mitigate negative parent–child outcomes. Some research indicates that parent–child relationship quality buffers family stress (Chan et al., 2014). Family resiliency and cohesion may also be a parallel to family conflict as a protective factor in the ABC-X family stress model. Identification of these and other positive family processes could help systems therapists identify targeted interventions and be useful next steps in family stress research. Results from this study suggest that future research could identify key family processes and test interventions that reduce family conflict, acknowledge the context of parental stress, and provide education about the links between stress, conflict, and problem behaviors. Such interventions may be particularly beneficial for vulnerable families. Consistent with a systemic therapeutic approach, it may be important to consider child behavior problems amid the family system in which these symptoms are embedded (Carr, 2009). During the initial assessment process, for example, a systems therapist may screen for the presence of parental stress in relationship to the severity of child problem behaviors, while also taking into consideration how individual child symptoms influence or reinforce systemic conflict and difficult parent–child interactions. In fact, recent research on the treatment of individual symptoms (i.e., child internalizing and externalizing symptoms) has demonstrated that systemically-focused approaches (e.g., family therapy, evidence-based parenting interventions) are more effective in the reduction of negative child outcomes than individually-focused or treatment-as-usual approaches (see Sprenkle, 2012).

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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