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## Maternal abuse history and self-regulation difficulties in preadolescence

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### Abstract

Although poor parenting is known to be closely linked to self-regulation difficulties in early childhood, comparatively little is understood about the role of other risk factors in the early caregiving environment (such as a parent's own experiences of childhood abuse) in developmental pathways of self-regulation into adolescence. Using a longitudinal design, this study aimed to examine how a mother's history of abuse in childhood relates to her offspring's self-regulation difficulties in preadolescence. Maternal controlling parenting and exposure to intimate partner aggression in the child's first 24–36 months were examined as important early social and environmental influences that may explain the proposed connection between maternal abuse history and preadolescent self-regulation. An ethnically diverse sample of mothers ( $N = 488$ ) who were identified as at-risk for child maltreatment was recruited at the time of their children's birth. Mothers and their children were assessed annually from the child's birth through 36 months, and at age 9–11 years. Structural equation modeling and bootstrap tests of indirect effects were conducted to address the study aims. Findings indicated that maternal abuse history indirectly predicted their children's self-regulation difficulties in preadolescence mainly through maternal controlling parenting in early childhood, but not through maternal exposure to aggression by an intimate partner. Maternal history of childhood abuse and maternal controlling parenting in her child's early life may have long-term developmental implications for child self-regulation.

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## Keywords

maternal abuse history; parenting characteristics; self-regulation; preadolescence; intergenerational transmission

The development of self-regulation in childhood and adolescence is an important predictor of psychosocial outcomes across the lifespan. As the ability to regulate behaviors, cognitions, and emotions, self-regulation includes executive functions such as planning, controlling attention, and inhibiting behaviors that interfere with goals or norms (Barrett, 2013; Holodynski, Seeger, Kortas-Hartmann, & Wörmann, 2013). Children with strong self-regulation capacity demonstrate better academic and professional attainment (Blair & Diamond, 2008; Evans & Fuller-Rowell, 2013), while poor self-regulation capacity predicts a range of negative outcomes including substance dependence, physical health problems, and criminal offending into adulthood (Moffitt et al., 2011). Although it has been well established that parents who were abused by caregivers in childhood are more likely to use poor parenting skills that subsequently result in poor outcomes in their offspring (Bailey, DeOliveira, Wolfe, Evans, & Hartwick, 2012; Collishaw et al., 2007), less is known about specific developmental pathways that link maternal abuse history and their children's self-regulatory development across the transition to adolescence. In the present study, we examined the association between maternal history of abuse and child self-regulation difficulties across the transition to adolescence, a developmental phase marked by increased regulatory challenges. We proposed that maternal controlling parenting and exposure to victimization by an intimate partner—each known to be closely associated with maternal abuse history—are important early social and environmental influences that may explain the relationship between maternal abuse history and children's self-regulatory outcomes in preadolescence. If maternal controlling parenting and exposure to victimization by an intimate partner in the child's first 2–3 years are associated with preadolescent self-regulation difficulties, these influences may prove to be important targets of early intervention, particularly for children exposed to poverty and other dimensions of early adversity, who are at increased risk for negative psychosocial outcomes (Healey & Fisher, 2011).

## Self-Regulation is Important for Adjustment in Preadolescence

Although self-regulation exerts a powerful influence throughout the lifespan, it may be particularly important for adjustment as children enter adolescence. Preadolescence (approximately ages 9–12) is a developmental turning point marked by a range of normative biological and social challenges, including increased autonomy from parents, the transition to middle school, and for some children, the onset of puberty (Larson & Richard, 1999; Wigfield, Lutz, & Wagner, 2005). Positive adjustment during preadolescence can set the stage for social and academic success into high school (Pears, Kim, & Leve, 2012), while negative adjustment can contribute to academic disengagement, affiliation with antisocial peers, and risk-taking behaviors (Crockett, Raffaelli, & Shen, 2006; Shortt, Capaldi, Dishion, Bank, & Owen, 2003). Within this context, self-regulation is thought to play a key role in facilitating positive adjustment outcomes. For instance, higher self-regulation in

preadolescence predicts greater social competence and well-being in later adolescence (King, Lengua, & Monahan, 2013). Likewise, self-regulation in middle school has been found to explain more variance in selective high school admission, high school attendance, and final grades than IQ (Duckworth & Seligman, 2005). Some evidence suggests that promoting positive developmental trajectories in preadolescence will be particularly beneficial for children at risk for negative outcomes due to early adversity (Chen & Miller, 2012; Reinke, Eddy, Dishion, & Reid, 2012).

## Parenting Young Children in the Context of Maternal Abuse History

A substantial body of research has focused on parenting as a key mechanism of the development of self-regulation (Galarce & Kawachi, 2013; Karreman, van Tuijl, van Aken, & Dekovi, 2006). Mothers who were abused in childhood tend to be more negative in their own parenting (Appleyard, Berlin, Rosanbalm, & Dodge, 2011; Cohen, Hien, & Batchelder, 2008; Cort, Toth, Cerulli, & Rogosch, 2011), a finding with implications for child self-regulatory development. For adult women abused as children, the repeated coercion and control exercised by their own caregivers may have undermined their sense of efficacy in interpersonal contexts. Mothers with a history of childhood abuse by caregivers have reported less confidence, self-efficacy, and disciplinary consistency as parents (Banyard, 1997; Cole, Woolger, Power, & Smith, 1992), perhaps contributing to uncertainty and reactivity in response to challenging child behaviors (Bailey et al., 2012). To the extent that mothers frequently attempt to control young children's challenging behaviors rather than preemptively scaffolding and limit-setting in ways that support positive behaviors, children may have difficulty formulating and internalizing rules to guide behavior (Karreman et al., 2006). In keeping with this assumption, controlling parenting around child age 2 to 3 (especially by mothers), including harsh physical discipline and punitiveness, is significantly related to child aggression (Weiss, Dodge, Bates, & Pettit, 1992) and school-age conduct problems in boys (Shaw, Gilliom, Ingoldsby, & Nagin, 2003). Although evidence suggests that high levels of maternal controlling parenting can be detrimental for the child's self-regulatory outcomes in middle childhood (Colman, Hardy, Albert, Raffaelli, & Crockett, 2006), it is unclear whether these effects extend prospectively across the transition to adolescence.

## Victimization by an Intimate Partner in the Context of Maternal Abuse

### History

A history of childhood abuse is closely linked to involvement in subsequent abusive relationships (Gobin & Freyd, 2009; van der Kolk, 1989; Widom, Czaja, & Dutton, 2008), increasing the likelihood that children will witness the mother's exposure to aggression by her partner or intimate partner violence (Gewirtz & Edleson, 2007). In particular, children aged birth to 5 are more likely to witness interparental conflict than older children (Fantuzzo & Fusco, 2007). Exposure to interparental conflict can be frightening and confusing for young children, particularly when the caregiver is unable to help modulate the child's stress-related arousal (van der Kolk, 2005). In addition, the spillover hypothesis suggests that negative affect expressed in the parent's relationship may transfer into the parent-child relationship (Erel & Burman, 1995). Consistent with this hypothesis, intimate partner

physical and psychological aggression experienced by women has been found to predict more negative prenatal perceptions of the infant and the self as mother (Huth-Bocks, Levendorsky, Theran, & Bogat, 2004). Victimization by an intimate partner may strain women's emotional resources for meeting the demands of parenting a young child (Holt, Buckley, & Whelan, 2008). This may in turn challenge women's abilities to use warm and nurturing strategies with their children. Instead, mothers may rely on primarily control-based strategies with their young children (Deater-Deckard, 2005). As mentioned previously, this may interfere with children's developing self-regulation skills. In keeping with this hypothesis, a meta-analytic review found that child and adolescent witnesses to domestic violence showed worse outcomes than did non-witnesses across a range of psychological, social, and academic measures (Kitzmann, Gaylord, Holt, & Kenny, 2003).

## The Present Study

In this study, we aimed to examine how a mother's history of abuse by caregivers in childhood relates to her offspring's self-regulation difficulties in preadolescence, employing data from a longitudinal study that followed families from the child's birth through preadolescence. Mothers were recruited at the index child's birth on the basis of risk for Child Welfare System involvement, resulting in a sample exposed to considerable psychosocial adversity and socioeconomic disadvantage. We hypothesized that maternal history of abuse would predict maternal controlling parenting and exposure to aggression by intimate partners at child age 24–36 months. In turn, we hypothesized that maternal controlling parenting and aggression by partner would predict children's self-regulation difficulties in preadolescence, as we expected that the effect of maternal abuse history on preadolescent self-regulation would be partially mediated through controlling parenting and mothers' exposure to aggression by partner. We included child gender and mothers' accumulated experiences of psychosocial risk for child maltreatment as control variables. Based on prior research with preadolescents, we anticipated that boys would exhibit more self-regulation difficulties than girls (Forehand, Neighbors, & Rieron, 1991; Raffaelli, Crockett, & Shen, 2005). We also anticipated that maternal accumulated psychosocial risk would predict both controlling parenting and partner aggression.

The present study extends existing research in several ways. First, we examined self-regulation in a sample of children exposed to early and persistent socioeconomic disadvantage. Increased understanding of the predictors of self-regulation difficulties in this population is critical, due to evidence that strong self-regulation across the transition to adolescence can protect children from the negative effects of poverty on psychological functioning (Buckner, Mezzacappa, & Beardslee, 2003; Evans & Fuller-Rowell, 2013). Second, we measured and controlled for the presence of cumulative maternal adversity around the time of the child's birth. The prospective measurement of psychosocial adversity allowed us to disentangle the potential effects of contextual risk on early parenting and partner aggression from the specific effects of maternal abuse history. Finally, the prospective, longitudinal design of this study permitted us to evaluate the long-term effects of early parenting on self-regulation difficulties in preadolescence. We focused on maternal (as opposed to paternal) experiences and maternal parenting because mothers spend more time caring for children relative to fathers (Phares, Fields, & Kamboukos, 2009), and

mother-headed, single-parent households are more likely to experience high rates of poverty (American Psychological Association, 2007).

## Method

### Participants and Procedure

The data for this study came from the Healthy Families America (HFA) San Diego study. The HFA San Diego study was a randomized clinical trial of paraprofessional home visitation services for families at risk for child maltreatment. At the index child's birth, 488 at-risk mothers were recruited at a single hospital from February 1996 to March 1997 (Landsverk, Carrilio, Connelly, Ganger, & Slymen, 2002). Consistent with other evaluations of the HFA program (e.g., Duggan et al., 2000), mothers who met the eligibility criteria (able to speak English or Spanish, not active to Child Protective Services, reside within San Diego County) were administered the Hawaii Risk Indicators checklist (Hawaii Family Stress Center, 1994) in the first stage of screening and the Kempe Family Stress Inventory (KFSI; Kempe & Kempe, 1976) in the second stage. Families with a score of 25 or higher on the KFSI were deemed "overburdened" and invited to participate. Approximately 70% of families who were invited to participate agreed to participate, signed informed consent, and were randomized to either the intervention group ( $n = 247$ ) or the control group ( $n = 241$ ) (see Landsverk et al., 2002 for detailed information on the HFA San Diego program). All procedures were approved by the Institutional Review Boards at Child and Adolescent Services Research Center in San Diego and Children's Hospital of San Diego.

At the index child's birth (51.2% female), 45.3% of mothers were 21 years of age or younger ( $M = 23.44$ ,  $SD = 6.09$ ). A total household income of less than \$10,000 per year was reported by 46.5% of the sample and approximately 45.7% the mothers had completed at least high school or a GED. Seventy-two percent of the mothers were in a stable romantic relationship and 14.5% of mothers were married. Mothers self-reported their race/ethnicity and language preference as Hispanic/English-speaking (26.8%), Hispanic/Spanish-speaking (19.3%), Anglo (24.2%), African-American (19.5%), and Asian or Other ethnicity (10.2%).

Annual assessments of mothers and children were conducted in their homes at four time-points: baseline (within 1–2 weeks of the target child's birth) and at child age 12, 24, and 36 months. Trained research assistants conducted all screening and assessment procedures without knowledge of family intervention status. Mothers received \$25 following the completion of each annual interview. About 20% of families requested Spanish-speaking interviewers for the four assessments. Retention rates for the three annual follow-up assessments were 89%, 83%, and 85%. No differential attrition between HFA intervention and control groups was observed (Landsverk et al., 2002).

In addition to these four assessments in infancy/early childhood, a long-term follow-up assessment was conducted on a subsample ( $n = 240$ ) when target children (53.3% female) were age 9 to 12 ( $M = 11.02$ ,  $SD = .72$ ). All follow-up data collection procedures were approved by the Institutional Review Boards of the participating research institutions. Parent consent and child assent were obtained prior to participation. Parents and their children were assessed in the family's homes ( $n = 194$ ) or over the phone ( $n = 46$ ) for families who had

moved from the area. Assessments were conducted in Spanish ( $n = 30$ ) or English based on family preference.

Families who participated in the long-term follow-up study did not differ significantly from those who did not participate in terms of child gender, maternal abuse history, psychosocial risk, aggression by partner, or controlling parenting at 24–36 months. HFA intervention families participated in the long-term follow-up study ( $n = 119$ ; 48.18% of intervention families) in no higher a proportion than control families ( $n = 119$ ; 49.38% of control families),  $\chi^2(1) = 0.07, n.s.$

## Measures

**Maternal psychosocial risk**—The Kempe Family Stress Inventory (KFSI; Kempe & Kempe, 1976) is a 10-item, semi-structured interview that assesses maternal psychosocial vulnerability. Items cover a range of lifetime psychosocial stressors associated with risk for child maltreatment, including criminal history, “violent temper outbursts,” and unrealistic expectation of children’s behaviors. Items are rated on an 11-point scale, ranging from 0 (*not problematic*) to 10 (*severely problematic*), with a range of possible scores from 0 to 100. In this sample, 42.4% of mothers scored at or above the cutoff of 40 used in prior research to index “high risk” of later child maltreatment (Murphy, Orkow, & Nicola, 1985). The KFSI has demonstrated excellent inter-rater reliability (.93) and good predictive validity (Korfmacher, 2000).

**Maternal history of childhood abuse**—At child age 36 months, mothers self-reported on their experiences of emotional and physical abuse by caregivers prior to age 18, using an adapted version of the Conflict Tactics Scales Parent-Child (CTSPC; Straus, Hamby, & Warren, 2003). CTSPC instructions were adapted such that questions referred to the respondent’s parent’s behaviors, rather than the respondent’s parenting behaviors. Sample items are “Said they would send you away or kick you out of the house?” and “Threw or knocked you down?” Prior research with adult women who are mothers (Mah, Van Ijzendoorn, Smith, & Bakermans-Kranenburg, 2013) and women who are exposed to intimate partner violence (Downs & Rindels, 2004) has measured maternal abuse history retrospectively with the CTSPC. Each of these studies reported good internal reliability of the CTSPC. In the present study, we included frequencies for the 5 items constituting psychological aggression (e.g., derogatory name-calling) and the 13 items constituting physical abuse (e.g., hitting, choking). As suggested by the measure’s authors, response categories were recoded: 0 (*none*), 1 (*1–2 times*), 3 (*3–5 times*), 6 (*6–10 times*), 11 (*11–20 times*) or 20 (*more than 20 times*) (Straus et al., 2003). Internal reliabilities were .81 and .87 for emotional and physical abuse, respectively. The scales were significantly intercorrelated ( $r = 0.75, p < .001$ ) and were combined into a single measure of maternal abuse history prior to age 18 for subsequent analyses.

**Aggression by intimate partner at child age 24 and 36 months**—Maternal reports of aggression by partner (i.e., victimization) in the child’s early life were assessed with the Conflict Tactics Scales-2 (CTS-2; Straus et al., 2003) at child age 24 and 36 months. Partner aggression against mother was rated with eight items from the Psychological Aggression

subscale; 12 items from the Physical Assault subscale; and six items from the Injury subscale. In accordance with the CTS-2 authors (Straus et al., 2003), responses to each item were coded to represent a range of frequencies from 0 (*never*) to 25 (*more than 20 times*) and then summed within each subscale. All subscales at 24 months were summed to create a partner aggression score at child age 24 months, and all subscales at 36 months were summed to create a partner aggression score at child age 36 months. The 24- and 36-month composites were significantly correlated ( $r = 0.53, p < .001$ ) and were combined for the analysis to create a composite score for mothers' victimization by their intimate partners across the child's early life ( $\alpha = .71$ ).

**Maternal controlling parenting at child age 24 to 36 months**—We assessed maternal controlling parenting in early childhood with the CTSPC (Straus et al., 2003). The CTSPC is a widely-used measure that has been administered in previous research on the impact of maternal history of childhood abuse on maternal parenting (Cohen et al., 2008). We computed a composite measure of maternal controlling parenting from four items from the psychological aggression subscale (e.g., swearing or cursing at the child), five corporal punishment items from the physical assault subscale (e.g., slapping), and four items from the nonviolent discipline subscale (e.g., deprivation of privileges, “time out”). These 24- and 36-month CTSPC composites were significantly correlated ( $r = 0.65, p < .001$ ) and were combined for the analysis into a single measure of maternal controlling parenting across child early childhood. Internal consistency of the 13 24-month items ( $\alpha = .81$ ) and the 13 36-month items ( $\alpha = .81$ ) was good. Internal consistency of all 26 items was excellent ( $\alpha = .88$ ).

**Self-regulation difficulties in preadolescence**—At the long-term follow-up assessment, the target youth's self-regulation difficulty during preadolescence was assessed as a multidimensional construct consisting of difficulties with selective attention and response control, behavioral regulation, and externalizing symptoms. Measures similar to those included in our self-regulation difficulties composite have been used in prior research with children exposed to early adversity (Pears et al., 2013).

**Selective attention and response control:** A computer-based “flanker task” was administered to assess preadolescents' ability to selectively attend and respond to target stimuli in the presence of interfering stimuli (McDermott, Perez-Edgar, & Fox, 2007). The flanker task has been used as a behavioral indicator of self-regulation in prior research (Duckworth & Kern, 2011). In the present study, following a warning cue (200 ms) and fixation (300 ms), a horizontal row of 5 shapes (triangles and/or stars) was presented for 500 ms, and the youth were instructed to press the button corresponding to the central shape regardless of the flanking shapes. The response interval was 1100 ms. The task included a total of 188 trials: 8 practice trials, 90 congruent trials (5 triangles or 5 stars), and 90 incongruent trials (1 central triangle flanked by 4 stars or 1 central star flanked by 4 triangles). After the practice trials, youth completed 3 blocks of 60 trials presented in pseudo-random order. Percentage of errors of commission on the incongruent trials was used as an indicator of difficulties with selective attention and response control.

**Behavioral regulation:** The 28-item Behavioral Regulation index of the Behavior Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, Guy, & Kenworthy, 2000) was administered to assess preadolescents' ability to (1) control impulses and stop behavior at the appropriate time, (2) to transition and solve problems in a flexible manner, and (3) modulate emotional responses appropriately. Parents were asked to rate executive function problems in their children 1 (*never*), 2 (*sometimes*), or 3 (*often*). An index score was computed by summing the 28 items, with higher scores indicating more problems with behavioral regulation. The index demonstrated excellent internal reliability ( $\alpha = .97$ ).

**Externalizing symptoms:** The externalizing subscale of the Child Behavior Checklist (CBCL; Achenbach, 1991) was used to assess externalizing symptoms in preadolescence. Parents were asked 35 questions about their children's emotional, behavioral, and social problems in the past six months. Responses to items on the CBCL are coded 0 (*not true*), 1 (*somewhat true or sometimes true*), or 2 (*very true or often true*). The subscale demonstrated excellent internal reliability ( $\alpha = .94$ ).

Both parent-reported measures of self-regulation were significantly correlated with each other and with preadolescents' error scores on the flanker task, a behavioral indicator of self-regulation (see Table 1). The magnitude of the correlations between flanker task errors and externalizing symptoms ( $r = 0.26, p < .001$ ) and between flanker task errors and behavioral regulation difficulties ( $r = 0.27, p < .001$ ) is consistent with meta-analytic findings on the convergent validity of behavioral and self-report measures of self-regulation (Duckworth & Kern, 2011). Scores on the three indicators of self-regulation difficulties were standardized and mean-scored (summed and divided by the number of indicators) to create a single continuous measure of self-regulation difficulties during preadolescence.

## Analysis Plan

Data screening was conducted prior to hypothesis testing. One participant's error of commission score on the flanker was more than 3 *SDs* greater than the mean (54.55% incorrect); thus it was recoded to the nearest value within 3 *SDs* above the mean (46.67% incorrect).

Although there was no significant intervention effect on reducing child maltreatment in the HFA San Diego study (Landsverk et al., 2002), we examined mean differences in study variables by intervention status prior to evaluating the proposed model. There were no statistically significant differences between HFA intervention and control groups on any of the study variables, including maternal abuse history, maternal psychosocial risk, aggression by partner, controlling parenting, and preadolescent self-regulation. We also examined intervention status as a possible moderator of the associations between study variables specified in the path model. These null findings are explained in the Results section.

We evaluated study hypotheses in three stages. First, we estimated the hypothesized path model depicted in Figure 1, using Mplus Version 7.11 (Muthén & Muthén, 1998–2012). Second, we used bootstrapping analysis to test the significance of indirect paths from maternal abuse history to preadolescent self-regulation difficulties through aggression by partner, and controlling parenting. Bootstrapped standard errors for the estimates of indirect



effects and bootstrap confidence intervals for these parameters were computed using 1000 bootstrap samples, an amount recommended when constructing confidence intervals (Lockwood & MacKinnon, 1998). Confidence intervals reported are bias-corrected bootstrap confidence intervals for the standardized indirect effects. Finally, we conducted multiple group analyses to exclude the possibility that HFA intervention status moderated the associations among study variables. For each pathway depicted in Figure 1, two competing models were tested: a null model that specified no difference between HFA intervention and control groups on the pathway in question, and an unrestricted comparison model that allowed the path to differ by group status (Satorra & Bentler, 1999). If the Satorra-Bentler scaled  $\chi^2$  difference in model fit between the null (nested) and comparison model is not significant, we can accept the null hypothesis that the parameter estimate in question does not differ between groups (Satorra & Bentler, 1999).

Analyses were conducted using full information maximum likelihood (FIML), an Mplus function that accommodates missing observations, permitting the inclusion of participants with partial data on dependent variables. As a result, data from all 488 families were included in the analyses. When data are missing completely at random or missing at random, FIML has been shown to provide unbiased estimates and standard errors (Arbuckle, 1996). Results of Little's MCAR test (Little, 1988) conducted in PASW Statistics Version 18 showed that data are missing at random,  $\chi^2(35)=44.47, n.s.$  This MCAR test included all model variables from the four study measurement occasions, intervention status, and three other variables that might reasonably be assumed to correlate with attrition: maternal education, maternal ethnicity, and total household income at baseline. Taken together, these attrition analyses suggest that generalization of study findings to the population of mothers sampled in this study is less likely to be seriously compromised.

## Results

### Preliminary Analyses

Means, standard deviations, and bivariate correlations of maternal and child variables are presented in Table 1. Consistent with prior literature (e.g., Raffaelli et al., 2005), boys ( $M = .16, SD = .95$ ) exhibited greater levels of self-regulation difficulties during preadolescence than girls ( $M = -.12, SD = .67$ ),  $t(238) = -2.70, p < .01$ . Thus, the direct effect of male gender on self-regulation difficulties was included in the model as a covariate.

This sample was characterized by a range of severity in maternal abuse history and aggression by intimate partners. Overall, 75% of women reported having experienced one or more emotional or physical abuse types (e.g., derogatory name calling, slapping, shaking) prior to age 18. Participants reported a mean of four types of childhood emotional or physical abuse, with a range from 0–16 types. The most common type of emotional abuse was parental shouting, yelling, or screaming, reported by 43.24% of the sample, and the most common type of physical abuse was being hit with a brush, belt, stick, or hard object, reported by 36.07% of the sample. The mean frequency of incidents of childhood abuse of any type was “more than 20 times,” the maximum category of the nominal response scale. In addition, between 38.93% and 42.62% of the sample experienced psychological aggression by an intimate partner at child age 24–36 months; between 9.43% and 16.60% experienced

physical assault; and between 3.28% and 5.74% experienced physical injury due to a partner assault. At child age 24 and 36 months, 87.70% of mothers in the sample reported at least one type of controlling parenting behaviors.

In preadolescence, the majority of children scored below the clinical cutoff of 60 on the CBCL externalizing subscale; 27 children (5.53%) scored in the “borderline” range; and 23 children (4.71%) scored in the “clinical” range (Achenbach, 1991). In addition, the majority of preadolescents scored below the BRIEF’s threshold for clinically significant behavioral regulation difficulties. Fourteen preadolescents (2.87%) scored at or above threshold, a *T*-score = 65.

### Pathways from Maternal Abuse History to Self-Regulation Difficulties

The proposed model presented in Figure 1 fit the data well,  $\chi^2(6) = 4.05, p = .671$ ; CFI = 1.0; RMSEA = 0.00. Maternal history of childhood abuse significantly predicted higher rates of maternal controlling parenting and aggression by an intimate partner at child age 24–36 months. Maternal controlling parenting (but not aggression by partner) at child age 24–36 months significantly predicted greater self-regulation difficulties in preadolescence, controlling for the direct effect of male child gender. Maternal controlling parenting and aggression by partner covaried significantly. Maternal lifetime psychosocial risk did not predict either maternal controlling parenting or aggression by partner.

### Tests of Indirect Effects

We hypothesized that maternal history of abuse in childhood would indirectly predict preadolescent self-regulation difficulties via two possible pathways:

- Maternal abuse history → maternal controlling parenting → preadolescent self-regulation difficulties;
- Maternal abuse history → aggression by intimate partners → preadolescent self-regulation difficulties;

Bootstrap analysis of the total indirect effect of maternal abuse history on preadolescent self-regulation difficulties revealed a significant total indirect effect (standardized  $\beta = .056, SE = .026, p = .035, 95\% \text{ CI } [0.004 \text{ to } 0.107]$ ). However, only the path from maternal abuse history to maternal controlling parenting and to preadolescent self-regulation difficulties was significant (standardized  $\beta = .061, SE = .029, p = .038, 95\% \text{ CI } [0.003 \text{ to } 0.118]$ ). Mothers who reported heightened emotional and physical abuse histories exhibited greater frequency of controlling behaviors at child age 24–36 months, which in turn predicted greater levels of preadolescent self-regulation difficulties, controlling for the direct effect of male gender. Aggression by partner (standardized  $\beta = -.005, SE = .011, ns, 95\% \text{ CI } [-0.026 \text{ to } 0.016]$ ) did not contribute to the indirect effect of maternal abuse history on preadolescent self-regulation difficulties. The overall model explained 17% of the variance in maternal controlling parenting ( $R^2 = 0.17$ ) and 5% of the variance in preadolescent self-regulation difficulties ( $R^2 = 0.05$ ).

Multiple group analyses assessed HFA intervention status as a moderator of the paths identified in Figure 1. Unconstrained comparison models that allowed parameter estimates

to vary by intervention status did not improve overall model fit, compared to null models that specified pathways to be equal across groups. Specifically, the paths from maternal abuse history to maternal controlling parenting [  $\chi^2(1) = 1.58, n.s.$ ], maternal abuse history to aggression by partner [  $\chi^2(1) = 0.049, n.s.$ ], maternal psychosocial risk to maternal controlling parenting [  $\chi^2(1) = 0.60, n.s.$ ], maternal psychosocial risk to aggression by partner [  $\chi^2(1) = 0.2, n.s.$ ], maternal controlling parenting to preadolescent self-regulation difficulties [  $\chi^2(1) = 0.17, n.s.$ ], aggression by partner to preadolescent self-regulation difficulties [  $\chi^2(1) = 0.31, n.s.$ ], and male gender on self-regulation difficulties [  $\chi^2(1) = 0.66, n.s.$ ] did not differ by intervention status.

## Discussion

The development of self-regulation across childhood and adolescence emerges in the context of early interactions and relationships with parents. Parental history of early adversity may undermine the ability of some parents to provide more positive, consistent interactions that help promote children's self-regulation skills. Furthermore, when parents continue to face ongoing and additional adverse experiences into adulthood, its effects could be detrimental to child and adolescent outcomes. In this longitudinal study, we examined the association between maternal history of abuse in her childhood and child self-regulation difficulties in preadolescence, using prospective longitudinal data that span the child's birth through preadolescence.

Consistent with research on intergenerational continuity in parenting practices (Van IJzendoorn, 1992) and revictimization (Widom et al., 2008), maternal history of childhood physical and emotional abuse by caregivers predicted controlling parenting behaviors in the child's early life and maternal victimization by intimate partners. Extending prior research, in this study maternal controlling parenting explained the association between maternal abuse history and child self-regulation difficulties in preadolescence. By contrast, aggression by the mother's intimate partner did not explain the association of maternal abuse history with self-regulation difficulties. This finding suggests that maternal parenting behaviors may have more long-term implications for child self-regulatory development than other proximal risk factors, such as maternal exposure to interpersonal aggression. However, since aggression by intimate partners did correlate with more controlling parenting behavior, maternal victimization in the child's early life may still adversely impact the child, albeit indirectly.

The maternal controlling parenting construct in this study encompasses psychological aggression, corporal punishment, and several non-violent disciplinary strategies. Among the behaviors included in the controlling parenting construct are shouting and yelling at the child, spanking or threatening to spank the child, threatening to leave the child, slapping, and cursing at the child (Straus et al., 2003). As measured in this study, controlling parenting also included such non-violent disciplinary strategies as time out, deprivation of privileges, explanation of why a behavior was "wrong," and provision of "something else to do" instead of what the child was doing wrong. Although the CTSPC authors describe such non-violent disciplinary strategies as "a good repertoire of alternatives to abusive disciplinary strategies" (p. 84, Straus et al., 2003), they may not be beneficial for the long-term development of

children's ability to self-regulate behavior when they are implemented alongside abusive strategies (Vostanis et al., 2006) or are implemented ineffectively (Patterson, 2002). For instance, when parents implement positive discipline strategies reactively during conflictual interactions with the child, this can serve to reinforce child negative behaviors rather than preemptively support positive behaviors (Patterson, 2002). Along similar lines, an extensive meta-analytic and theoretical review of corporal punishment found that parents tend to be emotionally aroused and angry when they use corporal punishment (Gershoff, 2002). As such, corporal punishment, psychological aggression (e.g., cursing at the child), and ineffectively implemented positive discipline may actually represent a dysregulation of parental behavior. It is easy to see how a child would have difficulty learning to self-regulate emotions and behavior in the context of dysregulated parent-child interactions. However, this study did not measure the interactive context in which parenting behaviors occurred. Further research with mothers at risk for child maltreatment must clarify the interactive context of maternal controlling parenting, and quantify the use of pre-teaching, limit-setting, and other proactive behavior management strategies.

Notably, maternal history of childhood abuse was associated with maternal controlling parenting even when accounting for the role of maternal psychosocial risk for child maltreatment. In fact, maternal lifetime psychosocial risk for child maltreatment (measured with the Kempe Family Stress Inventory [KFSI]; Kempe & Kempe, 1976) did not predict controlling parenting when maternal history of childhood abuse was included in the analysis. This suggests that by tracking the intergenerational transmission of parenting, above and beyond more global indices of risk, intervention scientists working with high-risk families may be able to anticipate and prevent long-term child developmental outcomes such as self-regulation difficulties. Preventive interventions for high-risk families may consider assessing maternal abuse history to supplement the use of screening measures such as the KSFI (Korfmacher, 2000). Although the KFSI includes an item that assesses childhood abuse history ("parent beaten or deprived as a child?"), this single item may be limited to adequately represent mothers' abuse history. The finding that maternal controlling parenting mediated the effects of maternal history of child abuse on their children's self-regulation difficulties bears enormous public health implications, given significant associations between poor self-regulation skills and subsequent problems (Moffitt et al., 2011). If the self-regulation capacities of youth exposed to early adversity can be strengthened through targeted interventions on early parenting, these youth may be protected from the negative effects of early adversity on long-term adjustment (Evans & Kim, 2013).

It is also important to note that there may be multiple, complex mechanisms involved in the association between maternal abuse history and preadolescent self-regulation, other than the pathway through early controlling behavior. One possible mechanism that should be explored in future research is that early maternal experiences of abuse by caregivers, combined with ongoing adversity associated with socioeconomic disadvantages, may exert excessive activation of the body's stress response system (Gunnar, Fisher, & The Early Stress and Prevention Network, 2006; van der Kolk, 2003). This activation may compromise the development of areas of the prefrontal cortex and limbic system involved in specific executive function (e.g., inhibitory control) and self-regulation skills that help caregivers maintain well-regulated environments for their families.

Several methodological limitations must be considered. First, although attrition analyses suggested that the longitudinal data in this study are missing for random reasons, it remains possible that follow-up data are missing for an unknowable or unmeasured reason. Therefore, generalizability of study findings should be further evaluated. Second, this study relied on a single reporter for many of the measures of interest and thus it is possible that the observed associations were influenced by shared method variance. In particular, maternal abuse history was retrospectively assessed with similar items from the same questionnaire (CTSPC; Straus et al., 2003) at the same time-point as one of the two assessments of maternal controlling parenting in early childhood. Therefore, the present finding should be interpreted with caution. Third, maternal history of childhood abuse was measured retrospectively. Several decades of research have found that failure to report abuse that actually occurred is common (Hardt & Rutter, 2004; Widom & Morris, 1997). As such, we expect that maternal retrospective reports of abuse in this sample were under- rather than over-reported. It is worth noting that measurement of maternal abuse history with court or clinic records would not resolve under-reporting, as abuse perpetrated by caregivers is often not reported to authorities in childhood due to the child's dependence on the perpetrator for survival (Freyd, DePrince, & Gleaves, 2007).

In addition, although the temporal separation between measurement occasions in this study's prospective design provides advantages for understanding development over time, we acknowledge that the directionality of effects should be interpreted with caution. Our model of self-regulation in preadolescence does not control for children's prior levels of self-regulation. Maternal controlling parenting behavior may have been a response to (rather than a cause of) child self-regulation difficulties that emerged in early childhood and continued into preadolescence. Alternatively, early parent-child interactions may have unfolded in an escalating bidirectional cycle of coercive control and child behavior challenges (Snyder & Stoolmiller, 2002). Additional research will be needed to confirm the evidence provided in this study. Future research on the long-term effects of childhood abuse by caregivers should also explore the contribution of maternal self-regulation capacities to early parenting and the development of child self-regulation.

## Conclusion

Among families exposed to poverty and low socioeconomic status, maternal history of childhood abuse is a prevalent phenomenon (Stevens, Ammerman, Putman, & Van Ginkel, 2002; Valentino, Nuttall, Comas, Borkowski, & Akai, 2012) that is infrequently examined in relation to child outcomes. In this longitudinal study of 488 high-risk mothers and their children, three-quarters of women reported having experienced at least one form of emotional or physical abuse by their own caregivers before age 18. The long-term implications of maternal abuse history for child self-regulatory development, evident across the child's transition to adolescence, are particularly notable. Our findings provide evidence that maternal parenting behavior in the child's early years is an important pathway by which maternal abuse history leads to child self-regulation in preadolescence. For mothers with a history of childhood abuse, preventative interventions that target maternal controlling parenting behavior during early childhood may help interrupt the intergenerational transmission of negative parenting. As more research studies include measures of maternal

abuse history, the relevance of this experience for maternal and child outcomes will be better understood.

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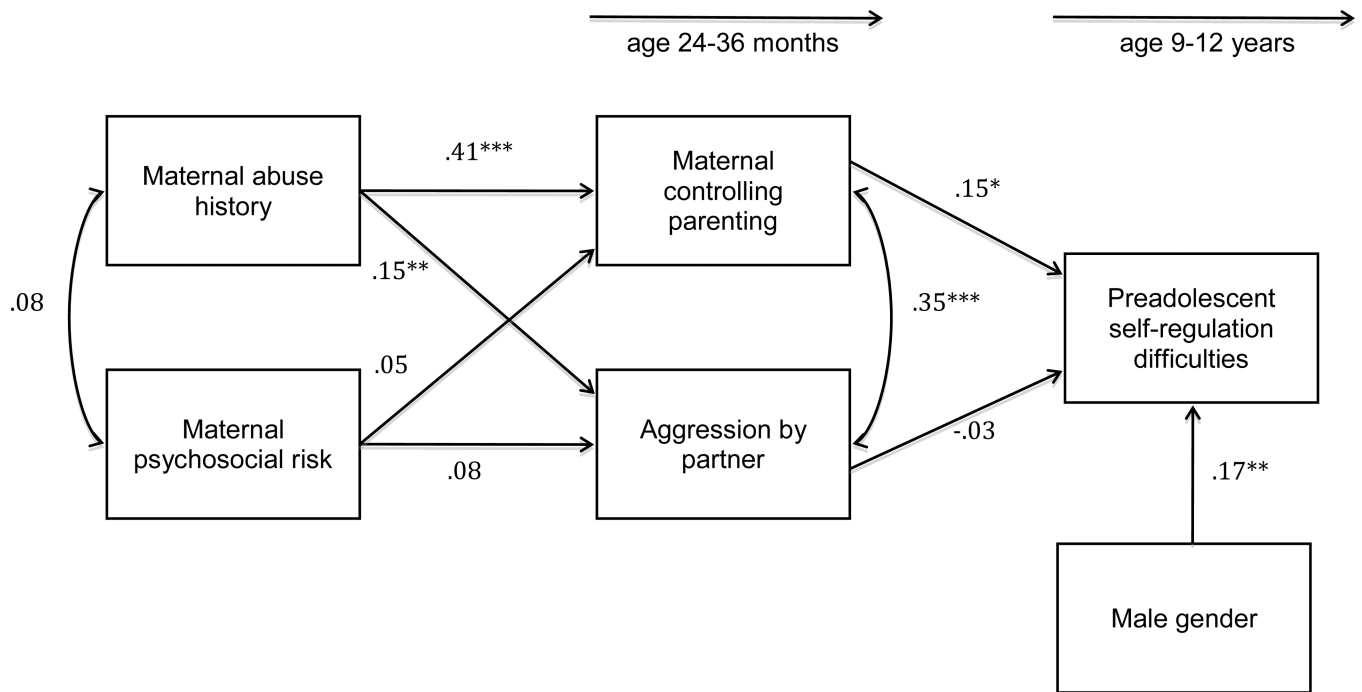
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**Figure 1.** Structural equation model of the indirect effects of effects of maternal abuse history on child self-regulation in preadolescence,  $\chi^2(6) = 4.05, p = .671$ ; CFI = 1.0; RMSEA = 0.00. Coefficients are standardized estimates. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table 1**  
Intercorrelations, Means, and Standard Deviations for Maternal and Child Variables

| Measure                         | 1      | 2    | 3     | 4    | 5     | M     | SD    |
|---------------------------------|--------|------|-------|------|-------|-------|-------|
| 1. Maternal abuse history       |        |      |       |      |       | 2.51  | 3.58  |
| 2. Lifetime psychosocial risk   | .08    |      |       |      |       | 36.47 | 11.73 |
| 3. Aggression by partner        | .15**  | .08  |       |      |       | .00   | 1.91  |
| 4. Maternal control             | .40*** | .08  | .37** |      |       | 4.34  | 3.19  |
| 5. Child gender male            | .02    | -.01 | .07   | .06  |       | 48.8% | --    |
| 6. Self-regulation difficulties | .05    | .08  | .01   | .13* | .17** | .01   | .82   |

*Note.* Maternal lifetime psychosocial risk was measured at baseline, the target child's birth; maternal control and aggression by partner were measured at child age 24 and 36 months; maternal abuse history was measured at child age 36 months; and preadolescent self-regulation difficulties were measured at child age 9–12. Aggression by partner and self-regulation difficulties are both standardized variables; values +/- 1-.96 are 2 standard deviations from the mean.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .