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Marital Hostility, Hostile Parenting, and Child Aggression: Associations From Toddlerhood to School-Age

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Abstract

Objective—The spillover hypothesis suggests that childhood aggression results from spillover of inter-parental conflict to poor parenting, which promotes aggressive child behavior. This study was designed to examine the spillover hypothesis in non-genetically related parent – child dyads from the toddler period through age 6.

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Method—A sample of 361 sets of children, adoptive parents, and birth parents from the Early Growth and Development Study (EGDS) was assessed from child age 9 months to 6 years on measures of adoptive parent financial strain, antisocial traits, marital hostility, hostile parenting, and child aggression. Structural equation modeling was used to examine links from financial strain, parent antisocial traits, and marital hostility in infancy and toddlerhood to hostile parenting and child aggression at age 4.5 and 6 years.

Results—Spillover of marital conflict from child age 18 to 27 months was associated with more parental hostility in mothers and fathers at 27 months. In turn, adoptive fathers' parental hostility, but not mothers', was associated with aggression in children at age 4.5 years. However, there was no significant spillover from hostile parenting at 4.5 years to child aggression at 6 years. Birth mother antisocial traits were unassociated with child aggression.

Conclusion—This study is the first to examine spillover of marital hostility to parenting to child aggression from toddlerhood through age 6 years in an adoption design, highlighting the impact of these environmental factors from the toddler to preschool period. The findings support the potential benefit of early identification of marital hostility.

Keywords

spillover; marital hostility; hostile parenting; child aggression; adoption

INTRODUCTION

Aggression is a serious problem in childhood and adolescence with significant associations to a wide variety of negative outcomes.^{1,2} The spillover hypothesis has been studied over the last several decades and proposes that conflict and negative emotion in one family subsystem (husband-wife) can negatively impact another subsystem (parent-child).³ This would imply that childhood aggression may in part result from spillover of inter-parental conflict to poor parenting practices, which promotes aggressive behavior.³ This study tests the spillover hypothesis by examining associations among marital hostility, parental hostility, and child aggression from the toddler to school-age period. We use a longitudinal adoption design of children placed with non-relative adoptive families at birth to identify those associations that cannot be attributable to genes shared by rearing parents and their offspring.

Links from Marital Conflict to Parent to Child Aggression

Several meta-analytic studies have found moderate effects sizes for the spillover from marital conflict to negative parenting behaviors and from parenting to child aggression.^{4,5} Spillover effects from marital conflict to childhood behavior may be a result of the emotional distress caused by poor inter-parental relationship quality, which erodes parenting, or the direct influence of witnessing high levels of parents' negative emotions, including verbal and/or physical aggression.^{6,7} Many of the prior studies of the spillover hypothesis are in school-aged and adolescent samples.⁷⁻¹⁰ Studies examining the full spillover model from marital to parenting to child aggression specifically in early childhood using genetically informed designs are scarce.

To our knowledge, three studies have examined pathways from marital conflict to parenting to childhood outcomes in early childhood using genetically informed designs. Using the current sample, the first assessed relationships among marital conflict, parental harsh discipline, and childhood anger/frustration in a sample of toddlers¹¹ and found an indirect relationship from marital conflict at child age 9 months to child anger/frustration at 18 months via parental harsh discipline. The second, also using the current sample, examined the spillover of marital to parenting hostility to child aggression for both mothers and fathers when children were 27 months old¹². Results indicated a significant unique contribution of spillover from marital hostility to parenting hostility to child aggression for both adoptive mothers and adoptive fathers. Last, a study of 6-year-old children and their families using data from both the current sample and a sample of families that utilized in vitro fertilization found indirect associations of inter-parental conflict to childhood externalizing problems at age 6 via parent-to-child hostility for both mothers and fathers in genetically related and genetically unrelated parent-child units.¹³ Consistently, twin studies indicate non-shared environmental effects account for a greater proportion (64%) of the variance in global family conflict than genetic influences.¹⁴ These studies all lend support for the spillover hypothesis, but they are primarily cross-sectional.

There is evidence to suggest younger children may be more likely to exhibit distress as a result of marital conflict through aggressive behaviors,¹⁵ but aggressive behaviors typically subside as children enter school age,¹⁶ since children learn to regulate their emotions and reduce aggressive behaviors in preschool before they enter formal schooling.¹⁷ No studies have examined whether marital hostility in infancy and toddlerhood will impact child aggression as children progress through preschool and enter kindergarten when aggression is expected to have decreased. Understanding the longitudinal impact of marital hostility and hostile parenting in early childhood on later aggression in childhood can further inform intervention and prevention efforts for child conduct and aggression problems.

Additional Factors that Contribute to Spillover

Socioeconomic distress has been consistently linked to marital discord and conflict.^{18,19} Financial strain is defined as the subjective experience of financial burden not necessarily linked to a lack of money. Individuals may earn sufficient income to meet basic needs but be overburdened by bills or expenses. Subjective financial strain has been associated directly with marital hostility and indirectly to poor parenting through marital hostility.^{12,20} Parental traits also have been linked to marital and parenting behaviors. Studies have indicated parental antisocial traits in particular contribute to negative marital and parenting behaviors.^{21,22}

Shared genetic influences can also impact associations between parenting and child aggression. The same genetic factors that influence parenting behaviors may affect child behavior. Heritability of aggression²³ and parenting behaviors²⁴ has been found to be in the moderate range. The current sample of unrelated parent-offspring dyads, along with inclusion of birth mother antisocial traits in statistical models, will allow for examination of family environmental factors without shared genes between parents and children, as well as inherited contributions to child aggressive behaviors.

This study seeks to add to the evidence for the spillover hypothesis as children transition from toddlerhood through the preschool years and formal school entry by examining: (a) contextual factors of financial strain and parent antisocial traits and their associations with marital hostility and hostile parenting and (b) testing the spillover hypothesis over time from marital hostility to hostile parenting at child age 27 months to later child aggression at age 4.5 and age 6, while controlling for birth mother antisocial traits.

METHOD

Participants

The sample consisted of 361 sets of adopted children, adoptive parents, and birth parents from the Early Growth and Development Study (EGDS), a longitudinal multisite study.²⁵ The full sample of two cohorts consists of 561 family sets; however, only Cohort I had complete data collection at child age 6 years at the writing of this report. Hence, the sample used in this study included the 361 families from Cohort I only.

Study participants were representative of those completing adoption plans at the participating agencies during the recruitment period.²⁶ Based on the goal of this study—to examine relations among marital hostility, child aggression, and parental hostility for both mothers and fathers—individuals with same-sex (two adoptive fathers, $n = 12$; two adoptive mothers, $n = 8$) or single parents ($n = 5$) were excluded from the sample, resulting in a sample of 336 sets for analysis.

The EGDS Cohort I sample consists of 57% male adopted children with a mean age of seven days ($SD = 13$ days) at the time of adoption. The adoptive parents had been married or living together in a committed relationship for an average of 17 years ($SD = 5.2$ years) at the time of adoption, and were typically college educated and middle class. Both birth mothers and birth fathers typically had a high school or trade school education level and household incomes less than \$25,000. Additional demographic data related to birth and adoptive parents are presented in Table 1 and in other reports.²⁵ Although data were available for a subset of birth fathers ($n = 121$), their data were not used in the current analyses due to the need for a larger sample size given the complex modeling. There were no significant differences in demographic characteristics between the full EGDS sample and the participants in Cohort I used in the current analyses.

Procedure

The present analyses used data from birth mothers at child age 3–6 months, 18 months, and 4.5 years, and from adoptive families at child age 18 months, 27 months, 4.5 years, and 6 years. All participants were paid for their time. Following informed consent procedures, interviewers asked participants computer-assisted interview questions, and each participant independently completed a set of questionnaires. Full details on the EGDS study recruitment procedures, sample, and assessment methods are reported elsewhere.²⁶

Measures

Marital hostility—Marital hostility was assessed using the 13-item hostility index of the Behavior Affective Rating Scale.²⁷ Adoptive mothers (AMs) and adoptive fathers (AFs) were asked to report on their partners' hostility toward them at child age 18 months, 27 months, and 4.5 years. Each parent reported on a 7-point Likert hostility subscale how often in the last year his/her partner acted in a hostile way on items such as "Criticized you or your ideas," "Hit, pushed, grabbed or shoved you," and "Ignored you when you tried to talk to him/her." The mean across items of the subscale served as a marital hostility score for AM ($\alpha = .89$ – $.90$ across waves) and AF ($\alpha = .89$ – $.90$ across waves), with higher scores indicating more hostility. Given evidence for the deleterious impact of marital hostility in early childhood on child behavior during school age and adolescence,^{28,29} we aimed to create a marital hostility variable that would provide a summary of the marital hostility within the environment in toddlerhood based on both maternal and paternal reports. To best account for marital hostility, latent variables were created to account for marital hostility in the toddler period and then from the toddler period into preschool with the indicators of both AM and AF report across waves (see the model diagrams in Figures 1 and 2). Marital hostility across time was highly stable for both AM and AF reports ($r > .74$), and the correlations between AM and AF reports were moderate ($r > .42$).

Hostile parenting—The AMs and AFs reported on their behaviors on the 7-point Likert hostility subscale of the Iowa Family Interaction Rating Scales of his/her behavior toward the child over the last month³⁰ when the child was 27 months and 4.5 years of age. Items included "Criticized him/her," "Shouted at him/her when you were mad," and "Hit, pushed, or shoved him/her." The hostility subscale served as the outcome for AM and AF hostile parenting at 27 months (AM $\alpha = .77$ and AF $\alpha = .70$) and 4.5 years (AM $\alpha = .78$ and AF $\alpha = .77$), with higher scores indicating more hostile parenting.

Child aggression—Child aggression was reported by the adoptive parents using the Aggression scale of the Child Behavior Checklist when the child was 27 months, 4.5, and 6 years of age.^{31,32} Scores were standardized T-scores, with higher scores indicating a higher level of aggression. To best account for both AMs' and AFs' reports on child aggression and to reduce rater bias, latent variables were used in the study with the indicators of AM and AF scores at 4.5 years and 6 years, respectively (see the model diagrams in Figures 1 and 2.). AM and AF scores were significantly correlated at each wave (all $r_s > .52$, $p_s < .001$). Alphas were high at each wave for AM ($\alpha = .85, .91, .92$) and AF ($\alpha = .87, .92, .92$).

Adoptive parent financial strain—Financial strain was reported by AM and AF when the child was 18 months old. This measure was used in previous studies^{33,34} and asked parents to report separately (on a 5-point Likert scale): How much difficulty have you had paying bills each month; How much trouble have you had making ends meet? The mean of the scale served as the outcome for AMs ($\alpha = .73$) and AFs ($\alpha = .71$), with higher scores indicating greater subjective experiences of financial strain.

Adoptive parent antisocial traits—Adoptive parent antisocial traits were measured when the child was 18 months of age using a 13-item adaptation of the Antisocial Action

Scale³⁵ on a 4-point Likert scale. Sample items include: “I cheat at work or other places,” “I use other people’s credit cards without permission,” and “I tell lies to people.” The mean of the scale served as the outcome for AM antisocial traits ($\alpha = .56$) and AF antisocial traits ($\alpha = .51$), with higher scores indicating more antisocial behaviors.

Adoption openness—Openness was a composite of standardized birth mother’s, AM’s, and AF’s reports of perceived openness in the adoption (e.g. contact with and knowledge about their counterpart), with higher scores indicating more openness at child age 18 months. Inter-rater agreement was high and ranged from .66 to .81 (all $ps < .001$).³⁶

Birth mother antisocial traits—Birth mother antisocial traits were the sum of three measures collected at multiple times of assessment: delinquency, substance use, and antisocial behaviors.

Birth mother delinquency: Self-reports of birth mother engagement in various delinquent behaviors over the previous 12 months on the Elliott Youth Questionnaire³⁷ were collected at 3–6 months, 18 months, and 54 months postpartum. Item scores were summed at each time (all $\alpha s > .82$) and log-transformed to reduce skewness. Lastly, birth mother reports at the three times were averaged to create a composite for delinquency, given the reports were significantly correlated across time points and were quite stable (all $rs > .43$, $ps < .001$). The composite measure ranged from $-.76$ to 3.44 , with higher scores indicating more delinquent activity.

Birth mother substance use: A variable representing birth mothers’ serious use of substances was generated from the Composite International Diagnostic Interview–Short Form (CIDI-SF³⁸). Birth mothers reported their lifetime use of a list of drugs at 3–6 months postpartum. Any report of yes to any of the drugs was coded into a dichotomous variable, with the value of 0 indicating no serious use of any drug type and the value of 1 indicating yes, with serious drug use of at least one type.

Birth mother antisocial behavior: Birth mother antisocial behavior was measured using the Computerized Diagnostic Interview Schedule³⁹ at 18 months postpartum. Data was coded to create a dichotomous variable with the values of 0 = no antisocial symptoms and 1 = antisocial symptoms were present.

Analytic Strategy

Two structural equation models were estimated in Mplus 6, using the maximum likelihood estimation with robust standard errors (MLR) for non-normal continuous variables with missing data. For all variables in the study, there was approximately 4–30% missing data under the assumption of missing at random. To evaluate model fit, we used multiple indices, including the model chi-square (χ^2), the comparative fit index (CFI),⁴⁰ the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA).⁴¹ According to Kline⁴², the combination of model chi-square values accompanying p values greater than .05, CFI values greater than .95, RMSEA values less than .06, and SRMR values less than .08 indicates a good model fit.

RESULTS

Model Variable Correlations

Means, SD, and Pearson's bivariate correlations among all study variables were reported in Table 2. Results show that marital hostility was associated with parents' antisocial traits and AFs' financial strain. Marital hostility was related to child aggression and AFs' hostile parenting across time, as well as AMs' hostile parenting when the child was 27 months and 4.5 years old. In addition, AMs' hostile parenting across time was related to their antisocial traits and financial strain. In contrast, AFs' hostile parenting was related to their antisocial traits across time and with financial strain when the child was 27 months and 4.5 years old. Lastly, child aggression was significantly associated with both AMs' hostile parenting and AFs' hostile parenting across time. Adoption openness was not significantly associated with any of our variables of interest and therefore was not included in the SEM models presented below.

Spillover Models

We first tested the relationships among adoptive parents' antisocial traits, financial strain, marital hostility, and hostile parenting when the child was 27 months and their relationship to child aggression at age 4.5 years (see Figure 1). The model fit the data acceptably ($\chi^2_{(63)} = 136.22, p = .00$; CFI = .95; RMSEA = .04, 90% CI = [.03, .06]; SRMR = .07). The model significantly explained 13.3% of the variance in AFs' hostile parenting, 78% of the variance of the latent variable of child aggression at 4.5 years, and 10.6% of the variance of the latent variable of marital hostility.

As Figure 1 indicates, AFs' antisocial traits at 18 months were related to parents' marital hostility from 18 to 27 months, which was positively associated with AFs' hostile parenting when the child was 27 months. Meanwhile, AFs' hostile parenting at age 27 months was also significantly associated with their financial strain and antisocial traits, after controlling for marital hostility. Moreover, AFs' parenting hostility at child age 27 months was significantly positively related to child aggression at age 4.5. Examining the indirect effects in the model, child aggression at age 4.5 was indirectly related to marital hostility ($\beta = .08, p < .05$) through AFs' hostile parenting at child age 27 months, after controlling for the other predictors.

The subsequent model tested the relationships among adoptive parents' antisocial traits, financial strain at 18 months, marital hostility from child age 27 months to 4.5 years, hostile parenting when the child was 4.5 years old and child aggression at age 6 (see Figure 2). The model fit the data acceptably ($\chi^2_{(63)} = 124.13, p = .00$; CFI = .94; RMSEA = .04, 90% CI = [.03, .05]; SRMR = .07). The model significantly explained 4.9% of the variance in AMs' hostile parenting as well as 11.8% of the variance in AFs' hostile parenting, 88% of the variance of the latent variable of child aggression at 6 years, and 12.1% of the variance of the latent variable of marital hostility.

As the standardized coefficients in Figure 2 indicate, AFs' antisocial traits were associated with their marital hostility from 27 to 54 months, which positively related with fathers' hostile parenting when the child was age 4.5. Meanwhile, AFs' hostile parenting at child age

4.5 was also significantly associated with their financial strain after controlling for marital hostility. However, neither AFs' parenting hostility nor AMs' parenting hostility at child age 4.5 were linked to child aggression at age 6. Child aggression at age 4.5 significantly predicted child aggression at age 6.

DISCUSSION

This study was designed to examine the spillover hypothesis, the contention that marital conflict increases childhood aggression via influences on parenting, from early to middle childhood using an adoption design. This paper expanded on previous work in toddlerhood^{11,12} by examining spillover pathways from toddler to preschool and formal school entry. Parental antisocial traits and perceived financial strain contributed to marital conflict in the toddler period. These same factors contributed directly to hostile parenting at child age 27 months for fathers but not mothers. In turn, fathers' hostile parenting was associated with child aggression at age 4.5 years. These two factors contribute to negativity both in marital and parenting behaviors for fathers. The majority of research on the topic suggests that fathers exhibit more negative parenting behaviors as a consequence of marital conflict.⁴³⁻⁴⁶ The lack of significant associations for mothers may be explained by differences in coping behavior: Women are more likely to use a wider variety of coping mechanisms than men in response to relationship difficulties, including several positive coping strategies, such as active problem solving, seeking social support, and positive self-talk,⁴⁷ which may enable them to handle conflict without detriment to their parenting behavior. Studies have also suggested that fathers' parenting may be influenced more by the marital relationship and behavior of the mother.^{9,48}

The model examining spillover from parenting to child aggression at age 6 revealed long-lasting associations between fathers' feelings of financial strain at child age 18 months to their parenting at 4.5 years. Previous work suggests that financial strain contributes to both marital discord and poorer parenting^{12,20}, and it is an important risk factor to measure in families in the early toddler period. Subjective financial strain may help identify those at risk for marital hostility and fathers' hostile parenting. Parental antisocial traits in early toddlerhood predicted parenting behavior in the preschool years. The relationship between antisocial traits and hostile parenting has been commonly found in previous research, e.g.,^{12,49} indicating an important marker for parenting risk.

Importantly, there was no significant spillover from hostile parenting at child age 4.5 years to child aggression at age 6 for either mothers or fathers. Other studies that have found significant spillover for children at age 6 have been cross-sectional¹³ or were conducted with biologically related families.⁸ The model did account for 88% of the variance in child aggression at age 6, which seemed to be largely accounted for by child aggression at age 4.5. The model also suggests significant associations between child aggression and hostile parenting and vice versa at age 4.5, suggesting bidirectional pathways with each member of the parent-child dyad contributing to the other's behaviors. Other studies have found child difficult behaviors and aggression to contribute to hostile and negative parenting behaviors.^{50,51}

Our indicators of birth mother antisocial traits, selected to partially control for heritable aspects of aggression, did not predict child aggression. Adult antisocial behavior is quite different from early childhood aggression and may not have served as an ideal proxy for inherited influences on child aggression. It may be that direct associations may emerge as the children become adolescents because the construct of adolescent aggression is likely closer to adult antisocial behavior than is preschool and early school-age aggression. We also did not have sufficient data to include birth father antisocial traits, which would be important in future studies. Alternatively, the lack of association may be explained by the ameliorative effects of the rearing environment in offsetting inherited risks.

These findings have implications for both prevention and intervention. Assessing financial distress and marital hostility in very early childhood may allow for intervention that could impact hostile parenting. These data indicate this focus may be particularly important for fathers of young children. Recent meta-analytic findings have suggested that parenting programs aimed at reducing conduct problems are more effective when fathers are included.⁵² Programs that focus on co-parenting communication with both parents seem to be particularly effective at improving outcomes for families at risk.^{53–56}

These findings are qualified by a few limitations. First, most of the study variables were measured via self-report. Although several of our key measures had reports from both parents, observational or clinical evaluation measures of child aggression or marital conflict would add to the validity of the study. Next, we also chose to use a latent variable including mother and father reports of child aggression. It is possible that examining each parent separately may yield differential patterns of results. Also, we were only able to include indicators of birth mother antisocial behavior because of a smaller sample of birth fathers (i.e., available for only 34% of biological fathers). Inclusion of both birth mother and birth father data to represent inherited risk would strengthen future studies. Last, our sample had a large proportion of children with aggression levels within the normal range who are being raised by older adoptive parents (mean age of 38 at the time of adoption). Findings may not generalize to samples of younger parents or to clinical populations.

This study is the first to examine spillover of marital hostility to parenting to child aggression from toddlerhood to early school age in genetically unrelated parents and children. Spillover of subjective financial strain and marital conflict in the toddler period may be associated with more hostile parenting behaviors in fathers. In turn, these hostile parenting behaviors in the toddler period may contribute to later aggression in preschool children. These findings support the need for early identification and intervention for families experiencing marital hostility. Interventions attempting to improve parenting and child behaviors may benefit from addressing family stressors.

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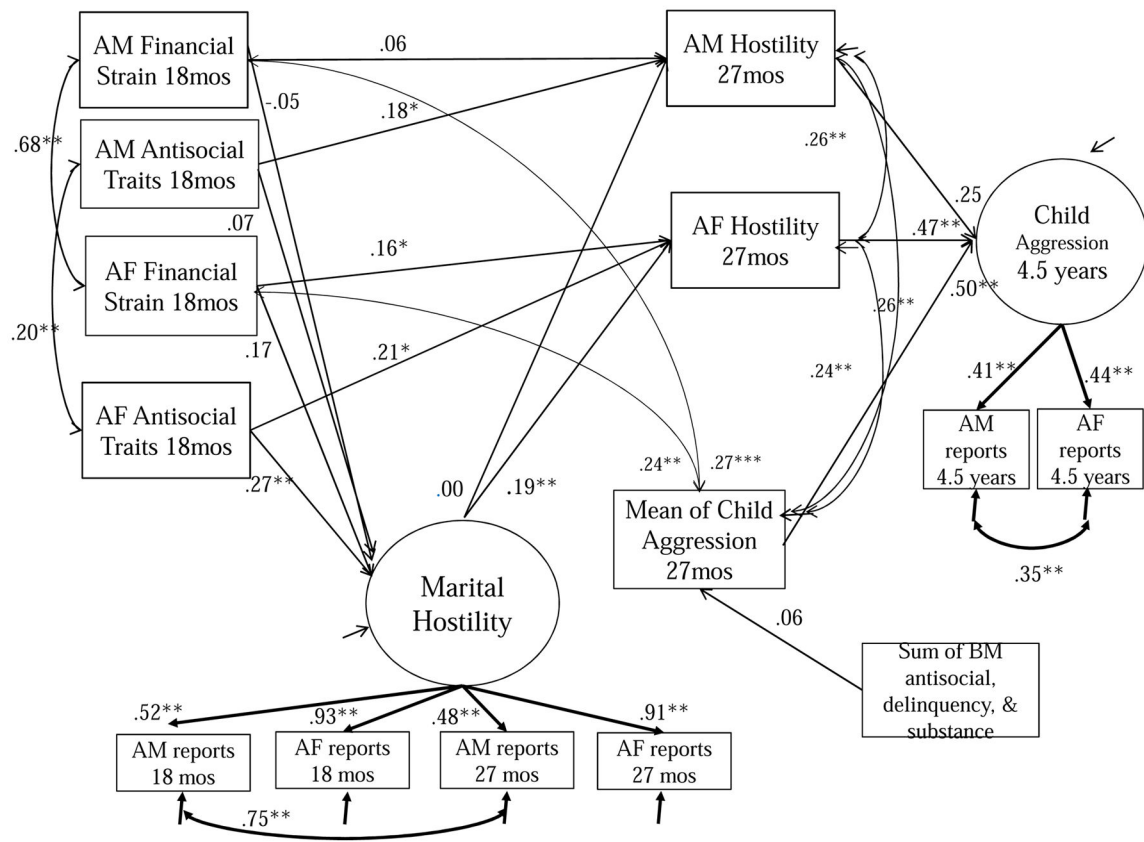


Figure 1. Parents’ personality, financial strain, marriage, parenting at 27 months, and child aggression at age 4.5. Note: Standardized path coefficients. AF = adoptive father; AM = adoptive mother; BM = Birth Mother. * $p < .05$. ** $p < .01$.

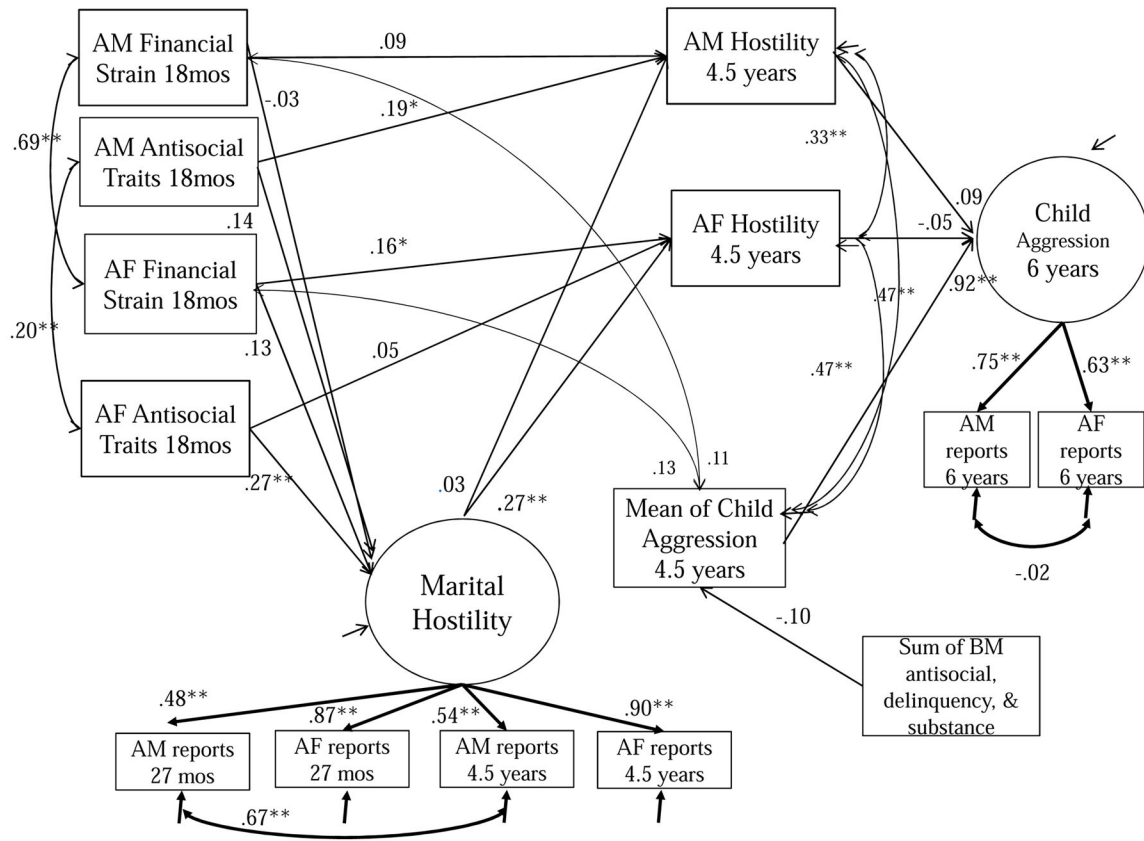


Figure 2. Parents’ personality, strain, marriage, parenting at 4.5 years, and child aggression at 6 years. Note: Standardized path coefficients. AF = adoptive father; AM = adoptive mother; BM = Birth Mother. * $p < .05$. ** $p < .01$.

Demographic Characteristics of the Sample

Table 1

	Mean Age	Caucasian	African American	Multiethnic	Hispanic/Latino	American Indian	Other
Adoptive Mother	38	92	4	1	2	<1	<1
Adoptive Father	38	91	5	<1	<1	<1	<1
Birth Mother	24	72	11	4	7	3	3
Birth Father	25	75	9	5	<1	1	10

Note: N=361; all data shown as percentages except for "Mean Age."

Table 2

Correlations and Descriptive Statistics for All Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1 AM FINANCIAL	1.00																			
2 AM ANTI-SOCIAL	.16*	1.00																		
3 AF FINANCIAL	.68***	-.02	1.00																	
4 AF ANTI-SOCIAL	.01	.19**	.09	1.00																
5 BM ANTI-SOCIAL	-.05	.06	-.08	-.02	1.00															
6 AM MARITAL HOS. 18M	.13*	.40***	.12*	.27*	-.06	1.00														
7 AM MARITAL HOS. 27M	.08	.31**	.08	.19*	.02	.81***	1.00													
8 AM MARITAL HOS. 4.5Y	.09	.28**	.04	.15*	.02	.74***	.75***	1.00												
9 AF MARITAL HOS. 18M	.08	.07	.14*	.24*	-.03	.50***	.44***	.43***	1.00											
10 AF MARITAL HOS. 27M	.06	.09	.16**	.27*	-.04	.45***	.45***	.46***	.85***	1.00										
11 AF MARITAL HOS. 4.5Y	.10	.14*	.12	.29*	-.13*	.43***	.41***	.50***	.71***	.77***	1.00									
12 AM CHILD AGG4.5Y	.14*	.06	.16**	.14*	-.04	.20**	.11	-.00	.15**	.11	.03	1.00								
13 AMCHILD AGG6Y	.15*	-.02	.17**	.19**	-.05	.10	.07	.03	.09	.06	.03	.74***	1.00							
14 AM PARENTING 27M	.11*	.20**	.09	.11*	-.05	.11*	.13*	.13*	.04	.05	.19**	.21**	.23**	1.00						
15 AFCHILD AGG4.5Y	.09	-.03	.16*	.14*	-.12	.11	.03	-.07	.15**	.16**	.11	.52***	.45***	.22**	1.00					
16 AFCHILD AGG6Y	.04	.07	.08	.17**	-.08	.15*	.11	.02	.22**	.19**	.18**	.36***	.59***	.20**	.66***	1.00				
17 AM PARENT4.5Y	.18**	.24**	.16**	.18**	-.02	.18**	.14**	.14**	.07	.12*	.14**	.44**	.32**	.50***	.39***	.31***	1.00			
18 AF PARENT 27M	.06	.03	.16**	.29**	.08	.14**	.11*	.03	.25***	.27***	.16**	.22**	.17**	.33***	.28***	.30***	.23**	1.00		
19 AF PARENT4.5Y	.14*	.10	.19**	.25**	.03	.16**	.10	.10	.23***	.28***	.27***	.32***	.28**	.23***	.44***	.32***	.34**	.23**	1.00	
MEAN	3.62	1.30	3.52	1.31	1.06	25.01	24.40	25.14	28.39	27.74	28.81	53.78	51.85	9.05	52.11	52.83	10.99	8.90	10.3	
SD	1.50	.19	1.40	.20	1.43	7.93	7.76	8.59	9.08	9.39	9.75	5.23	4.13	2.58	3.86	4.60	3.02	2.47	2.88	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
N	313	313	300	302	234	337	325	282	324	317	276	265	220	314	247	239	268	297	244

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Note. AF = adoptive father; Agg = Aggression; AM = adoptive mother; BM = birth mother; Hos = Hostility.

* $p < .05$,

** $p < .01$,

*** $p < .001$