

# Maternal Predictors of Rejecting Parenting and Early Adolescent Antisocial Behavior

Christopher J. Trentacosta · Daniel S. Shaw

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**Abstract** The present study examined relations among maternal psychological resources, rejecting parenting, and early adolescent antisocial behavior in a sample of 231 low-income mothers and their sons with longitudinal assessments from age 18 months to 12 years. The maternal resources examined were age at first birth, aggressive personality, and empathy. Each of the maternal resources predicted rejecting parenting during early childhood in structural equation models that controlled for toddler difficult temperament, and rejecting parenting in early childhood predicted antisocial behavior in early adolescence. Rejecting parenting accounted for the indirect effect of each of the maternal resources on antisocial behavior, but a direct effect was also supported between maternal aggressive personality and youth antisocial behavior. Results highlight the importance of these relatively understudied maternal resources and have implications for prevention and intervention programs that focus on parenting during early childhood.

**Keywords** Age at first birth · Maternal personality · Empathy · Rejecting parenting · Antisocial behavior

## Maternal Predictors of Rejecting Parenting and Early Adolescent Antisocial Behavior

Belsky (1984) has suggested that specific types of parental attributes, termed psychological resources, are one of three primary determinants of parenting and include factors such

as personality, psychopathology, and level of maturity (Belsky 1984; Belsky and Jaffee 2006). Empirical work on associations between maternal psychological resources, parenting, and child adjustment has focused extensively on a fairly narrow range of psychological resources. For example, across a large number of studies, depressed mothers demonstrate low levels of sensitivity in their care of young children and have children with a wide range of behavioral and emotional problems (e.g., NICHD Early Child Care Research Network 1999; Zahn-Waxler et al. 1990; for a review see Downey and Coyne 1990). Other maternal psychological resources that may be potentially important predictors of parenting and child adjustment have received relatively less attention. The present study sought to examine how three important but relatively under-represented maternal psychological resources might be related to rejecting parenting during the toddler period and antisocial behavior in early adolescence. The three psychological resources were maternal age at first birth, aggressive personality, and empathy. These three resources were chosen based on their theoretical and empirical links to rejecting parenting during the toddler period. Thus, a first goal of the study was to examine these resources as predictors of early childhood rejecting parenting while controlling for toddler difficult temperament.

Rejecting parenting also has been associated with acrimony in later parent–child relationships and has found to be predictive of later antisocial behavior and delinquency (Ingoldsby et al. 2006). Therefore, a second goal of the study was to examine how rejecting parenting might mediate associations between these maternal psychological resources and antisocial behavior in their children during early adolescence. Based on the proximal role parenting has been hypothesized to play in associations between parental psychological resources and child adjustment (Belsky

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C. J. Trentacosta (✉) · D. S. Shaw  
Pitt Mother-Child Project, University of Pittsburgh,  
210 S Bouquet Street,  
Pittsburgh, PA 15260, USA  
e-mail: trentacostacj@upmc.edu

1984), we examined whether rejecting parenting served as a mediator in associations between maternal age at first birth, aggressive personality, empathy, and youth antisocial behavior. In contrast to previous research on predictors of adolescent antisocial behavior that has examined parenting based primarily on maternal reports during middle childhood or early adolescence (e.g., Thornberry et al. 2003), assessments of rejecting parenting in the present study were based primarily on independent observations in early childhood. Several perspectives, ranging from social learning (e.g., Reid et al. 2002) to attachment (Sroufe and Fleeson 1988) models, have suggested that parenting during early childhood plays a critical role in the development of early antisocial behavior, and moreover, that associations between parental attributes and child behavior should be mediated by caregiving practices.

### Rejecting Parenting in Early Childhood

Rejecting parenting includes the tendency to engage in hostile, negative, and controlling responses to child noncompliance and other parenting challenges. Parenting characterized by hostility and rejection is often coupled with inflexible and inconsistent discipline, and predicts externalizing problems in early childhood (Shaw et al. 1998). Shaw and colleagues (Shaw and Bell 1993; Shaw et al. 2000) propose a model of antisocial behavior that melds attachment and social learning perspectives and highlights the role of rejecting parenting in early childhood. The model suggests that affectively negative parent–child relationships are present during infancy in families characterized by insensitive caregiving and insecure attachment. Early negative parent–child interactions are then posited to influence parents' ability to cope with the onset of mobility and noncompliance during the toddler period. Parents' frustration and lack of skill with the onset of toddler mobility and noncompliance, particularly when coupled with a challenging young child, lead to negative, aversive interactions between the caregiver and toddler and set the stage for coercive exchanges (Martin 1981). These negative, coercive exchanges often lead to further noncompliance, oppositional behavior, and increasing levels of antisocial behavior across childhood and adolescence (Patterson 1982; Shaw et al. 2000).

### Identifying Maternal Predictors of Rejecting Parenting

Rejecting parenting in early childhood likely results from both parent and child factors (Shaw et al. 2000). The present study focused on the maternal predictors most likely to predict rejecting parenting and subsequent antisocial behavior. We examined maternal factors in accord with Belsky's model that emphasizes, relative to other sources of

influence on parenting, parental psychological resources as the best buffer against maladaptive parenting (Belsky 1984; Belsky and Jaffee 2006). Because rejecting parenting is characterized by hostility and low levels of positive affect, we were most concerned with maternal psychological resources closely associated with these aspects of parenting. Dix's (1991) affective model of parenting suggests that negative emotions disruptive to the parent–child relationship result when parents have difficulty managing their own emotions, heavily favor self-oriented concerns over child-oriented concerns, and lack adequate skills necessary for parenting. Supporting this perspective, Egeland and Farber (1984) demonstrated that high levels of maternal irritability, disinterest in parenting, and deficient caregiving skills were associated with avoidant attachments during infancy, an insecure classification that was related to later externalizing problems during preschool and school-age in the same sample (Erickson et al. 1985; Renken et al. 1989). Similar relations may be even more striking during the toddler period when noncompliance becomes more frequent and behavior is often difficult to control. Thus, we examined maternal psychological resources that were likely to (a) increase the propensity toward poorly regulated, hostile, and uncaring patterns of social interaction and (b) be associated with unskilled decision-making, particularly in challenging or stressful situations. For these reasons, we investigated maternal age at first birth, aggressive personality, and empathy as potential predictors of rejecting parenting. As discussed in more detail below, each of these resources has some empirical support as a predictor of parenting practices. Because child behavior contributes to the likelihood of negative and harsh forms of parenting (Bell 1968; Martin 1981; Shaw et al. 2000), we examined these resources and parenting while also accounting for toddler difficult temperament.

*Age at First Birth* Young first-time mothers are posited to demonstrate greater levels of harsh, unskilled parenting for a few reasons. First, younger mothers' early experiences as parents occur during their adolescent years when important developmental processes involving self-regulation are still underway (Dahl 2004). Thus, younger first-time mothers are prone to more lapses in decision-making that may impair their parenting and increase the likelihood of hostility and rejection toward their young child. Consistent relations between early childbearing and maladaptive parenting practices are supportive evidence of this assertion. In a large sample of Caucasian working class families in the UK, mothers who began childbearing in their teenage years demonstrated poorer supervision, more physical neglect, and less interest in their child's education than mothers who began childbearing after age 21 (Nagin et al. 1997). Furthermore, in a study of primarily African

American adolescents, “ineffective parenting,” a composite that included inconsistent discipline, was more prevalent among younger mothers (Pogarsky et al. 2006).

Secondly, early childrearing likely reflects not only a developmental lag but also stable, personality-driven patterns of antisocial behavior and deficits in self-control (Nagin et al. 1997), and empirical evidence supports age at first birth as an element of a latent factor of parental antisocial behavior (Capaldi and Patterson 1991). As further support of early childbearing as a component of a more stable antisocial characteristic, issues for initially young parents with caregiving persist over time and influence subsequent caregiving (Jaffee et al. 2001; Nagin et al. 1997). For example, age at first birth was more predictive of negative outcomes than age at birth of the focal child within a given parent–child relationship (Nagin et al. 1997).

*Aggressive personality* The tendency to be highly angry and irritated and to become involved in verbal and physical fights is a second hypothesized predictor of rejecting parenting. Although anger and irritation are an everyday part of human life, particularly for the parent of a challenging young child, mothers who experience higher rates of anger and aggression are more prone to experience and express these emotions and behavioral responses during parenting challenges. Due to the relatively high frequency of child disruptive behavior during the terrible twos, mothers with a tendency to become aggressive may have great difficulty maintaining a calm and consistent parenting style with their toddlers (Egeland and Farber 1984; Fagot and Kavanaugh 1993; Shaw and Bell 1993). Thus, rejecting parenting may be one avenue through which parental aggressive tendencies are transmitted from generation to generation.

Previous research on maternal personality risk supports relations between constructs such as anger, aggression, and hostility and parenting practices. In a recent study of parents of young children in a large suburban sample, parental reports of their tendency to overtly express anger predicted overreactive discipline (Leung and Slep 2006). Similarly, mother’s hostile personality predicted her concurrent use of harsh parenting practices in another large sample of primarily middle income rural and small town families (Simons et al. 1991). In a separate study of predominantly rural, White families, parental hostility assessed during the prenatal period predicted use of physical punishment during the toddler period (Kanoy et al. 2003).

*Empathy* In general, empathy relates to the formation of positive social bonds (Davis 1983), and the absence of empathy is an element of the callousness underlying antisocial and psychopathic personality traits (Hare et al. 1991). When examined as a predictor of parenting, this

perspective on empathy suggests that mothers lacking empathy, particularly in relation to their child’s needs, will be less likely to form positive and sensitive relationships with their child and more likely to have harsh, negative interactions. In support of the role of empathy in parenting, maternal empathy predicted an index of responsive parenting in a sample of primarily Caucasian mothers and their infants (Kochanska et al. 2004). Similarly, in an examination of dyadic relationship constructs among mothers and their young children, mothers reporting higher levels of empathy demonstrated relationships that were characterized as more mutually responsive (Kochanska 1997).

The studies summarized above focused on empathy in relation to positive aspects of the parent–child relationship, but there is also empirical and theoretical justification to support relations between empathy and negative, rejecting forms of parenting. A previous meta-analysis and qualitative review of a small number of studies provided some support for relations between low parental empathy and physical abuse (Miller and Eisenberg 1988). It is likely that maternal empathy relates to less severe forms of negative parenting because mothers lacking concern for their children are likely to choose harsh methods of discipline even if they do not cross the line to physical abuse. Furthermore, mothers lacking concern and empathy are also more prone to resort to hostility and coercion in challenging parenting situations that do not specifically involve discipline responses to child noncompliance. For example, a mother lacking adequate empathy for her child may experience a child’s distress as a negative signal to be immediately suppressed. Also, she may not have appropriate perspective taking skills about normative toddler curiosity and exploration, and may respond to toddler exploration with an excessively punitive response rather than an approach that supports the child’s curiosity and independence.

#### Maternal Psychological Resources and Youth Antisocial Behavior

In addition to the relations between rejecting parenting and child behavior problems described above (Shaw et al. 1998), there is evidence to suggest that these maternal psychological resources are associated with antisocial outcomes among adolescent offspring. For example, extensive research from both large longitudinal samples and clinical samples demonstrates links between maternal age at first birth and a diagnosis of conduct disorder, drug use, and gang membership among offspring (Nagin et al. 1997; Pogarsky et al. 2006; Wakschlag et al. 2000). Similarly, a recent study demonstrated relatively consistent concurrent relations between maternal ratings of their trait anger and outward expression of anger and child and adolescent externalizing

problems, particularly among boys (Renk et al. 1999). Also, in a longitudinal study of low income children, an index of maternal personality risk, encompassing aggressiveness, defiance, and low social desirability, assessed when children were 18 months old, was associated with maternal reports of child externalizing problems at age 5 (Shaw et al. 1996). Less is known about links between maternal empathy and child antisocial behavior; however, relations between these constructs are likely given that the absence of empathy is often described as a characteristic of the most serious forms of child antisocial behavior (Frick et al. 2005).

In addition to exploring direct relations between maternal psychological resources and both rejecting parenting and later child antisocial outcomes, the present study was designed to examine observed rejecting parenting during early childhood as a potential mediator of relations between the maternal psychological resources and antisocial behavior during early adolescence. However, the data supporting parenting as a mediator of the relation between maternal resources and youth antisocial outcomes are sparse and somewhat inconsistent. For example, measures of ineffective parenting were not consistent mediators of the relation between age at first birth and adolescent outcomes in the studies described above (Nagin et al. 1997; Pogarsky et al. 2006).

This lack of consistent mediation could be explained by a number of factors. For example, relations between these maternal psychological resources and youth antisocial outcomes may be partially explained by underlying genetic contributions that are not directly related to parenting behavior. With a substantial genetic contribution, maternal characteristics may continue to directly predict antisocial outcomes in analyses containing rejecting parenting (or other environmental variables) as a mediator. The lack of findings consistent with a mediational model could also be explained by methodological approaches of previous research. Previous research primarily utilized maternal reports of parenting to examine mediation of the relations between maternal characteristics and child antisocial outcomes, and parenting was typically examined in middle childhood or adolescence rather than early childhood. Also, parenting assessments often did not primarily focus on the negative or rejecting patterns that are most closely associated with the development of externalizing behavior problems.

Even with the inconsistent findings on the potential mediating role of parenting, the bivariate relations between these maternal resources, parenting constructs, and antisocial outcomes support further investigation of rejecting parenting as a mediator. Furthermore, some of the most widely referenced theories on the development of antisocial behavior, such as Patterson's social learning model (Patterson 1982; Reid et al. 2002), emphasize parenting as a mediator of numerous contextual factors on youth antisocial outcomes, including maternal factors (for a review, see Reid

et al. 2002). More recent models have mapped out how parent-child coercive processes leading to child antisocial outcomes may be initiated in early childhood (Shaw and Bell 1993; Shaw et al. 2000), for which empirical validation has been repeatedly found (Aguilar et al. 2000; Martin 1981; Shaw et al. 2003; see Shaw and Gross 2007). Multiple intervention programs with an emphasis on modifying parenting attitudes and behaviors during early childhood have been associated with reductions in antisocial behavior from preschool to adolescence (Olds 2002; Shaw et al. 2006; Webster-Stratton and Hammond 1997).

In sum, the first primary hypothesis in the present study concerned maternal psychological resources and rejecting parenting. We hypothesized that three maternal resources, age at first birth, aggressive personality, and empathy, would be directly related to rejecting parenting, even when simultaneously accounting for the other resources and maternal ratings of toddler difficult temperament. The second hypothesis concerned early childhood rejecting parenting as a mediator of the relations between these maternal resources and youth antisocial behavior. We expected an index of rejecting parenting during early childhood, based primarily on independent observations, to mediate associations between maternal resources (maternal age at first birth, aggressive personality, and empathy) and youth antisocial behavior. These hypotheses were examined in a sample of boys from predominantly low SES backgrounds, for which rates of early childbearing and youth antisocial behavior are typically greater than in higher SES families (Dodge et al. 1994; Jaffee et al. 2001), with assessments that spanned from toddlerhood to early adolescence.

## Materials and Methods

### Participants

Participants in the present study were 231 boys originally recruited into the Pittsburgh Mother and Child Project (PMCP) through Women, Infants, and Children (WIC) programs in the Pittsburgh metropolitan area (Shaw et al. 2003). The PMCP was approved by the Institutional Review Board at the University of Pittsburgh, and participating primary caregivers provided informed consent. Recruitment occurred at WIC centers across 2 years, and boys were between 6 and 17 months old when their families were initially approached to enter the study. The initial PMCP assessment occurred when boys were 18 months old, and 310 boys completed this initial assessment out of 421 families initially approached to participate in the study. This initial sample was 51% European American, 39% African American, 0.3% Hispanic, and 9% from other ethnicities. The mean Hollingshead (1979) socioeconomic status was

23.32 (SD=9.29), which represents the working class nature of the PMCP sample.

PMCP follow-up assessments occurred regularly during childhood and adolescence, with attrition being generally low throughout the duration of the study. For example, data were available on 302 boys at the 24-month assessment (97%) and 89% had assessments at ages 10, 11, or 12. The assessments providing data for the present study occurred at ages 18 months, 24 months, and 11 and/or 12 years. Boys with complete data ( $n=231$ ) were compared with boys who were initially recruited into the PMCP but did not have complete data for the present study. *T* tests revealed no significant differences on demographic factors collected at 18 months or on the measures used in the present study with two exceptions: families with complete data had slightly higher maternal education ( $t(305)=-2.49, p<0.05$ ) and HOME Nurturance scores ( $t(287)=-2.52, p<0.05$ ).

### Procedure

The PMCP included laboratory and/or home visits at assessments when boys were 18, 24, and 42 months of age and when they were 5, 5.5, 6, 8, 10, 11, and 12 years of age. For the present study, maternal age at first birth was measured during a demographic interview at the age 18 month assessment. Maternal aggressive personality and toddler difficult temperament were also measured at the 18 month assessment. At the 24 month assessment, rejecting parenting was assessed observationally in the child's home and during structured laboratory tasks, and mothers completed a measure of their empathy. At ages 11 and 12 years, boys completed self-report measures of their antisocial behavior.

### Measures

**Toddler Difficult Temperament** Difficult temperament was assessed at 18 months with the Difficultness factor from the Infant Characteristics Questionnaire (ICQ; Bates et al. 1979). The ICQ is maternal report measure of temperament, and this measure has demonstrated adequate reliability and validity and predicted later behavior problems in other samples of young children (Bates et al. 1985). The Difficultness factor assesses child negative emotionality, and the scale demonstrated good internal reliability in the present sample ( $\alpha=0.80$ ).

**Maternal Aggressive Personality** An author-approved, abridged, three-factor version of the Personality Research Form (PRF; Jackson 1989) was administered at the 18-month assessment to measure personality characteristics that would differentiate caregiving skills. These included factors for aggression, defiance (i.e. suspiciousness of other's

motives), and social desirability (i.e. reverse-scored). Because of the theoretical link to rejecting parenting, for the purposes of the present study we focused on the Aggression subscale, which consists of 16 true–false statements. For eight items such as “I've been known to fly into a rage if things didn't go as I had planned,” true responses indicated aggression. For the other eight items such as “I rarely get angry either at myself or other people,” false responses indicated aggression, and these items were reverse-scored and added to the true item scores to attain the total Aggression subscale score. In the PMCP, the Aggression subscale demonstrated adequate internal reliability ( $\alpha=0.63$ ). In a sample that was demographically similar to the PMCP, the Aggression subscale demonstrated a test–retest reliability of 0.59 over a period of 7–12 months (Shaw et al. 1996).

**Maternal Empathy** To assess maternal empathy, the Adolescent Parenting Inventory (API; Bavolek et al. 1977) was administered to mothers when children were 24 months of age. The API was originally designed to identify maternal characteristics and beliefs associated with child maltreatment. It includes scales measuring inappropriate child expectations, beliefs in punishment, role reversal attitudes, and empathic awareness of the child. The empathy factor contains eight items such as “parents who are sensitive to their children's feelings and moods often spoil their children” and “parents spoil their children by picking them up and comforting them when they cry.” In the PMCP, the empathy factor exhibited good internal consistency ( $\alpha=0.81$ ).

**Rejecting Parenting** Two methods were used to measure parenting during the age 24 month assessment. First, the Home Observation for Measurement of the Environment (HOME; Caldwell and Bradley 1984) was used to assess parental nurturance during the home visit. The HOME contains a combination of observational ratings for examiners and interview questions for parents and has demonstrated good reliability and validity (Caldwell and Bradley 1984). A parental nurturance score was obtained by creating a sum of the 11-item Responsivity subscale and the eight-item Acceptance subscale. The Responsivity subscale includes items such as “parent responds verbally to child's verbalizations” and “parent spontaneously praises child at least twice.” The Acceptance subscale includes items such as “parent does not shout at child” and “parent does not express overt annoyance with or hostility to the child.”

Second, trained observers coded parenting behaviors from videotapes of a structured laboratory clean-up task at age 24 months using the Early Parenting Coding System (ECPS; Winslow and Shaw 1995). The ECPS consists of nine molecular ratings and six global ratings. For the present study, we used the ECPS codes pertaining to harsh

and rejecting parenting. These codes included molecular ratings of verbal and physical approval and critical statements and global ratings of hostility, warmth, and punitiveness. Physical approval was defined as the use of physical gestures such as head nods or laughter to show acceptance to the child, and verbal approval was defined as the use of praise or verbal affirmations such as “Way to go!” Critical statements were verbal statements that criticized the child’s behavior or character such as “You’re bad” or verbal statements to prohibit behavior such as “Stop it.” Global ratings of hostility measured the emotional expression of anger toward the child in tone of voice and facial expressions, and ratings of warmth measured positive emotion in a similar manner. Global ratings of punitiveness measured the degree that the parent was too strict, demanding, or harsh given the child’s behavior during the task. Cohen’s kappa coefficients of interrater reliability for the individual ratings were 0.87 for approval, 0.79 for critical statements, 0.93 for hostility, 0.83 for warmth, and 0.94 for punitiveness. These individual ECPS ratings were standardized and aggregated to form an index of observed harsh and rejecting parenting.

**Youth Antisocial Behavior** Youth completed an adaptation of the Self-Reported Delinquency (SRD) measure at ages 11 and 12 (Elliot et al. 1985). The SRD assesses the context and frequency of offending and examines overt, covert, destructive, and nondestructive offenses. Measures of delinquency relying on self-report have good psychometric properties, with test–retest reliabilities ranging from 0.75 to 0.98 and internal consistency alphas from 0.65 to 0.92 (Krueger et al. 1994). The SRD is considered a highly respected self-report assessment of delinquency with good psychometric properties.

Thirty three items in the adapted version of the SRD pertain to the youth’s report of his own involvement in antisocial activities within the past year (e.g., “In the past year, have you taken something from a store without paying for it?”). Response options were 0 (*never*), 1 (*once or twice*), or 2 (*more often*). For the present study, a composite score was created by summing 23 of 33 items pertaining to the boy’s self-reported delinquent and antisocial acts. Ten items were excluded due to base rates of less than 2% in the PMCP sample at either the age 11 or age 12 assessments (e.g., items pertaining to sniffing glue and purse snatching). The composite score demonstrated good internal reliability ( $\alpha=0.78$  at age 11 and age 12). For boys who completed both the age 11 and 12 assessments ( $n=187$ ), the mean of the age 11 and 12 SRD composite scores was used to index antisocial behavior. For all other boys ( $n=44$ ), the composite score from a single time point (either age 11 or age 12) was used to index antisocial behavior. SRD scores used in analyses did not differ between the group of boys with SRD

data at both time points and the boys with SRD data at a single time point ( $t(229)=0.61, p>0.05$ ).

Table 1 presents descriptive statistics for the SRD and other variables included in the present study. Because the SRD measure was originally designed by criminologists for use in large epidemiological samples, this measure does not have T-score conversions or clinical cut-offs. However, many of the items on the measure map onto symptoms of the disruptive behavior disorders, and the mean SRD score of 3.41 indicates that many of the boys endorsed items indicative of symptoms of conduct disorder. For example, 17% of boys endorsed “once or twice” or “more often” for at least two of the SRD items pertaining to the destruction of property, and 8% of boys endorsed “once or twice” or “more often” for at least two of the items pertaining to theft of nontrivial items. Furthermore, although self-reports typically provide a more accurate report of youth antisocial acts than parent or teacher reports, it is also important to include a validity check of self-reports whenever possible (Farrington 1999). In the PMCP, we were able to conduct a validity check using the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Kaufman et al. 1997) symptom interview with primary caregivers. Based on the results of K-SADS interview, 20% of the 231 boys had a diagnosis of conduct disorder (CD) or oppositional defiant disorder (ODD) at age 11 and/or 12, and boys with a CD or ODD diagnosis had significantly higher SRD scores ( $M=5.47$ ) than boys without a diagnosis ( $M=2.90; t(229)=-5.55, p<0.05$ ).

## Results

Table 2 presents intercorrelations between the variables. For the most part, bivariate correlations were statistically

**Table 1** Means, standard deviations, and range of scores for study variables

Variable	Minimum	Maximum	<i>M</i>	<i>SD</i>
Toddler difficult temperament	9	44	23.59	6.51
Maternal age at first birth	13	40	21.55	4.56
Maternal aggressive personality	1	15	6.99	2.89
Maternal empathy	18	40	31.15	4.67
Parental nurturance	5	19	13.75	3.10
Parental rejection	-5.25	15.74	0.02	3.53
Youth antisocial behavior	0	18	3.41	2.98

Toddler Difficult Temperament=ICQ Difficultness Factor; Maternal Aggressive Personality=PRF Aggression scale; Maternal Empathy=API Empathy factor; Parental Nurturance=HOME Nurturance scale; Parental Rejection=ECPS Rejecting Parenting composite; Youth Antisocial Behavior=SRD 23-item scale.

**Table 2** Intercorrelations among variables

	1	2	3	4	5	6
1. Toddler difficult temperament						
2. Maternal age at first birth	-0.05					
3. Maternal aggressive personality	0.17**	-0.17**				
4. Maternal empathy	0.03	0.25**	-0.19**			
5. Parental nurturance	-0.19**	0.30**	-0.27**	0.39**		
6. Parental rejection	-0.07	-0.18**	0.15*	-0.28**	-0.33**	
7. Youth antisocial behavior	0.13*	-0.17**	0.27**	-0.11	-0.25**	0.08

Toddler Difficult Temperament=ICQ Difficultness factor; Maternal Aggressive Personality=PRF Aggression scale; Maternal Empathy=API Empathy factor; Parental Nurturance=HOME Nurturance scale; Parental Rejection=ECPS Rejecting Parenting composite; Youth Antisocial Behavior=SRD 23-item composite score.

\* $p < 0.05$   
 \*\* $p < 0.01$

significant. Toddler difficult temperament was positively correlated with maternal aggressive personality and negatively correlated with the HOME nurturance score. Age at first birth correlated negatively with aggressive personality and positively with empathy, and aggressive personality was negatively correlated with empathy. However, it is also important to note that the statistically significant correlations between these maternal resources were small to medium in magnitude. Each maternal predictor was significantly correlated in the expected direction with each indicator of rejecting parenting. The two indicators of rejecting parenting were negatively correlated.

In terms of correlations with adolescent antisocial behavior, there was a small but significant positive correlation between difficult temperament at 18 months and youth reports of antisocial behavior in early adolescence. There was a negative correlation between maternal age at first birth and youth antisocial behavior and a positive correlation between maternal aggressive personality and youth antisocial behavior. Also, the HOME nurturance score was negatively correlated with youth antisocial behavior. Maternal empathy and the ECPS rejection measure were not significantly related to youth antisocial behavior, although each correlation was in the predicted direction.

**Model Estimation**

Structural equation models were examined with maximum likelihood estimation using AMOS 5.0 (Arbuckle 2003). The fit statistics for the models are presented in Table 3. Model 1 (see Fig. 1) was created to examine predictors of antisocial behavior in early adolescence. This model included four exogenous predictors, difficult temperament and the three maternal resources (age at first birth, aggressive personality, and empathy). Given the modest magnitude of the bivariate correlations, these maternal

resources were examined as separate exogenous predictors rather than a single latent construct. In addition, two indicators of rejecting parenting, HOME nurturance and ECPS rejection, were included to form a rejecting parenting latent construct. A path was included from each exogenous variable to the rejecting parenting construct to test our hypothesis that the maternal resources would be associated with rejecting parenting while simultaneously accounting for the other maternal resources and difficult temperament. A path was also included from the rejecting parenting latent construct to youth antisocial behavior to test our hypothesis that rejecting parenting would also predict youth antisocial behavior and serve as a mediator of relations between the maternal variables and antisocial behavior in early adolescence. Lastly, a path was included from difficult temperament to antisocial behavior to control for effects of child behavior over time.

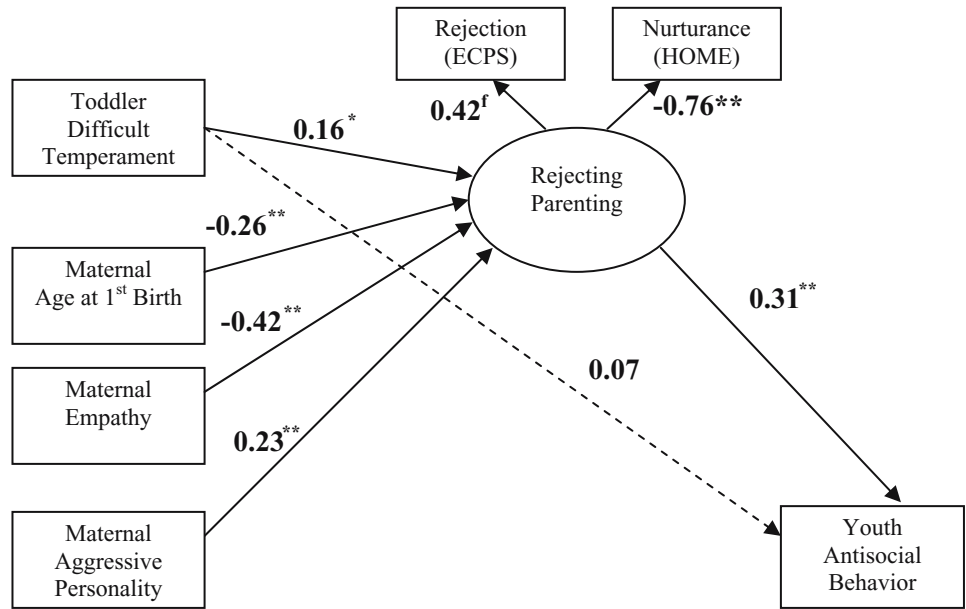
Model fit for Model 1 was tested with multiple indices. The chi-square goodness of fit index tests exact model fit, and a nonsignificant chi-square value supports model fit. There are also a number of relative fit indices. The Root Mean Square Error of Approximation (RMSEA) is one such measure of relative fit, and RMSEA values below 0.06 support good model fit (Hu and Bentler 1999). Two other statistics, the Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI), measure the absolute fit of the model in comparison to the absolute fit of an independence model, and values above 0.95 for the CFI and TLI indicate good model fit (Hu and Bentler 1999).

**Table 3** Fit statistics for structural equation models

Model	$\chi^2$	RMSEA	CFI	TLI
Model 1	16.84*	0.078	0.934	0.802
Model 2	2.918	0.000	1.00	1.072

\* $p < 0.05$

**Fig. 1** Model 1: Initial model of relations between temperament, maternal resources, rejecting parenting, and adolescent anti-social behavior

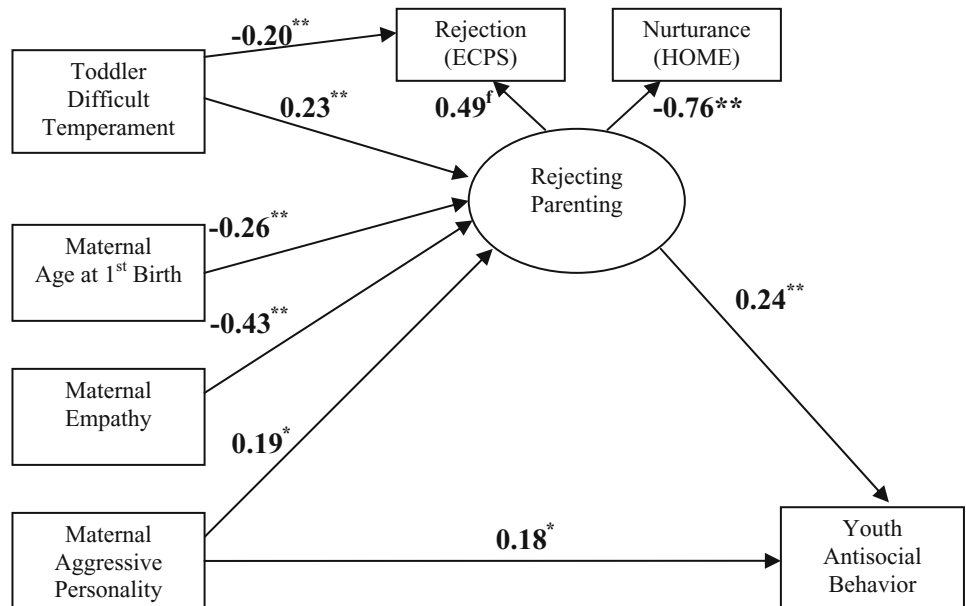


<sup>f</sup> = fixed path. \*  $p < 0.05$ . \*\*  $p < 0.01$ .

The standardized coefficients for paths specified in Model 1 are presented in Fig. 1. Based on the path coefficients, Model 1 supported direct paths from each maternal resource to the rejecting parenting latent construct and from difficult temperament to the rejecting parenting construct. In addition, the model supported a direct path from the rejecting parenting construct to youth antisocial behavior. However, the model did not support a direct path

from difficult temperament to antisocial behavior. Furthermore, Model 1 did not demonstrate adequate model fit based on the fit indices with  $\chi^2=16.84$  ( $p < 0.05$ ), RMSEA=0.078, CFI=0.934, and TLI=0.802. In addition, modification indices supported adding a direct path from maternal aggressive personality to youth antisocial behavior and a path from difficult temperament to the ECPS rejection variable to improve model fit.

**Fig. 2** Model 2: Final model of relations between temperament, maternal resources, rejecting parenting, and adolescent anti-social behavior



<sup>f</sup> = fixed path. \*  $p < 0.05$ . \*\*  $p < 0.01$ .

By deleting the nonsignificant path from difficult temperament to antisocial behavior and adding the paths suggested by the modification indices, the new model, Model 2 (see Fig. 2), demonstrated good model fit with  $\chi^2=2.92$ , RMSEA=0.00, CFI=1.00, and TLI=1.072. Furthermore, based on the significant chi-square difference test ( $\Delta\chi^2=13.923$ ,  $\Delta df=1$ ,  $p<0.01$ ), Model 2 demonstrated improved model fit over Model 1. All paths in Model 2 were significant, and predictors in the model explained 45% of the variance in the rejecting parenting construct and 12% of the variance in youth antisocial behavior. In sum, Model 2 supported toddler difficult temperament, maternal age at first birth, aggressive personality, and empathy as predictors of rejecting parenting and rejecting parenting as a predictor of youth antisocial behavior. In addition, Model 2 supported maternal aggressive personality as a direct predictor of antisocial behavior in early adolescence.

#### Further Investigation of Model 2: Indirect Effects

To more closely examine the prediction of early adolescent antisocial behavior from the maternal resources in Model 2, we evaluated the individual indirect effects of maternal age at first birth, aggressive personality, and empathy on youth antisocial behavior through the rejecting parenting latent construct. The Shrout and Bolger (2002) bootstrap method approach was utilized to examine these indirect effects. Following the procedures described by Shrout and Bolger, 95% confidence intervals for indirect effects were estimated for Model 2 using bias-corrected bootstrap sampling methods over 1,000 iterations. The confidence intervals (lower limit=-0.127 and upper limit=-0.021) for the standardized indirect effect of maternal age at first birth on youth antisocial behavior did not overlap with zero, and the indirect effect was statistically significant ( $p<0.01$ ). In addition, the confidence intervals (lower limit=-0.179 and upper limit=-0.037) for the standardized indirect effect of maternal empathy on youth antisocial behavior did not overlap with zero, and the indirect effect was statistically significant ( $p<0.01$ ). Lastly, the confidence intervals (lower limit=0.008 and upper limit=0.121) for the standardized indirect effect of maternal aggressive personality on youth antisocial behavior did not overlap with zero, and the indirect effect was statistically significant ( $p<0.05$ ). Thus, Model 2 supported indirect relations between each of the maternal resources (age at first birth, aggressive personality, and empathy) and antisocial behavior in early adolescence. Also of note, Model 2 supported an indirect effect of difficult temperament on antisocial behavior with confidence intervals (lower limit=0.014 and upper limit=0.135) that did not overlap with zero and a statistically significant indirect effect ( $p<0.01$ ).

#### Discussion

The present study supported three maternal psychological resources and toddler temperament as predictors of rejecting parenting during early childhood and also supported rejecting parenting as a predictor of antisocial behavior during early adolescence. The four predictors of the rejecting parenting construct accounted for nearly half of the variance in rejecting parenting, supporting the strength of these child and maternal factors for early parenting. Although the magnitude of the variance accounted for in antisocial behavior was not as large, the consistency of the prediction to antisocial behavior was also notable given the span of nearly one decade between the parenting assessment and boys' reports of their antisocial behavior in early adolescence.

The findings for maternal aggressive personality and empathy suggest that a tendency toward hostility and anger and fewer positive feelings toward the child each play a unique role in parenting. These findings fit with an assertion by Dix (1991) that both negative and positive emotion experiences influence parenting. Furthermore, the association between maternal age at first birth and rejecting parenting are suggestive of a lack of parenting skill that may accompany younger first-time parenting and/or an underlying behavioral and emotion regulation deficit that leads to both early childbearing and rejecting parenting. Bivariate correlations between each of the maternal resources were statistically significant but small to medium in magnitude, and relations between each maternal resource and rejecting parenting were maintained in structural equation models accounting for the other resources and difficult temperament. Thus, early first-time childbearing, frequent expression of anger and aggression, and a lack of empathy each contributed independently to negative and controlling interactions with toddlers even while accounting for relations between temperament and parenting. These findings are supportive of the models presented by Belsky and Dix in that there were multiple unique predictors of rejecting parenting rather than a single underlying core deficit. The findings also fit with models that emphasize the toddler period as a period of unique and important challenges that may tax the limited resources of low income mothers (e.g., Shaw and Bell 1993; Shaw et al. 2000).

Rejecting parenting also accounted for indirect effects of each of the maternal resources and toddler difficult temperament on antisocial behavior. The prediction of rejecting parenting during early childhood to youth antisocial behavior in early adolescence supports the long-ranging effects that detrimental early parenting processes can have on child behavioral outcomes. These results are consistent with models of externalizing behavior problems that emphasize the role of early parenting in the initiation and

maintenance of coercive cycles of discipline, child non-compliance, and later behavior problems (Shaw et al. 2000). Unlike much previous research on relations among maternal characteristics, parenting, and youth antisocial behavior and delinquency, the present study relied on observational methods to collect parenting data that relied on both micro-level coding and global observer impressions of parenting. Thus, the relation between rejecting parenting and youth antisocial behavior is particularly robust given the substantial time lag between assessments and the fact that parenting was based primarily on independent observations rather than maternal reports that can be biased or influenced by social desirability.

Direct relations were not supported between difficult temperament during toddlerhood and antisocial behavior in early adolescence. Although previous research with the present sample and other longitudinal research supports direct or interactive links between difficult temperament and externalizing behavior problems (e.g., Bates et al. 1998, Shaw et al. 1998), the long span between measurement of temperament and antisocial behavior in the present study may have attenuated direct relations. Furthermore, the results of the present study suggest that toddler difficult temperament may elicit negative and controlling parenting behaviors that in turn predict later delinquent behaviors.

Furthermore, direct relations between two of the maternal resources, age at first birth and empathy, and antisocial behavior were not supported in structural equation models. Findings from the present study also suggest that parenting during early childhood may represent the primary process through which age at first birth and maternal empathy increase the likelihood of antisocial behavior among offspring. Younger first-time mothers, either through a developmental lag in self-regulation, antisocial personality processes, or both, place their children at risk for negative caregiving experiences that may exacerbate toddler noncompliance and aggressive behavior. Considering that this study focused on age at *first* birth rather than age at birth of the study's target child, the results are more clearly in line with young first-time childbearing as an indicator of broader antisocial tendencies as shown in previous research (e.g., Capaldi and Patterson 1991). However, many of the mothers in this study were adolescents or young adults at the age 24-month assessment. Thus, a developmental lag in maternal self-regulation may also contribute to rejecting parenting.

Maternal empathy was not a direct predictor of youth antisocial behavior in bivariate correlations, but maternal empathy predicted rejecting parenting and therefore, indirectly predicted later youth antisocial behavior. Maternal empathy not only fosters positive parenting behaviors such as responsiveness (Kochanska et al. 2004), but adequate levels of empathy for the child's feelings, needs, and capabilities also appear to reduce the likelihood of engaging

in harsh and negative parenting processes that can lead to youth antisocial behavior. Because the parenting measures in the present study focused largely on negative forms of interactions between parent and child, we cannot adequately determine whether empathy has unique effects on negative aspects of parenting versus positive aspects of parenting such as responsiveness or proactive approaches. Because empathy fosters helpful, socially competent behavior (Eisenberg and Miller 1987) and the lack of empathy is generally associated with aggressive behaviors (Miller and Eisenberg 1988), empathy may have relations with both supportive and deleterious aspects of parenting.

Results supported direct and indirect relations between maternal aggressive personality and youth antisocial behavior. Part of the effect of maternal aggressive personality on antisocial behavior was mediated by rejecting parenting in early childhood. It is not surprising that mothers with a tendency toward anger and irritation engaged in more harsh and controlling processes with their toddlers, and it appears that these rejecting parenting processes are one route through which aggressive tendencies are transmitted from generation to generation. However, structural equation models also supported a direct link between maternal aggressive personality and offspring antisocial behavior in early adolescence. This direct path may reflect underlying genetic similarities that contribute to mother's tendency toward hostility and aggression and son's tendency toward antisocial behavior. In support of this possibility, there is evidence for a genetic etiology of "early starter" forms of antisocial behavior (Taylor et al. 2000). Although the present study was not an examination of early versus late starter models of antisocial behavior, the timing of our antisocial behavior assessments coincides more closely with earlier emerging antisocial behavior. Furthermore, the measures of maternal aggressive personality and youth antisocial behavior share some common features such as a tendency to engage in fighting or other forms of physical aggression, and endorsement of similar item content may reflect some of the underlying genetic concordance in personality between mothers and sons. On the other hand, endorsement of similar item content may also reflect sons' modeling of mothers' aggressive behavioral tendencies in social interactions that extend beyond the parenting context. Future research should more closely examine relations between maternal personality and child delinquent and antisocial behavior from a behavioral genetics perspective.

#### Limitations

The present study was conducted with a sample of low income boys from urban contexts and therefore, the results may not generalize to girls or boys and girls from rural, suburban, or middle class samples. Relations among maternal character-

istics, rejecting parenting, and youth antisocial behavior may have differed had we used a sample of girls. For example, mothers' lack of empathy may be more directly predictive of antisocial behavior among girls because females may learn more about empathic perspective-taking from their same-sex parent than boys do from their opposite-sex parent. On a related note, the present study lacked data on fathers' characteristics, and the inclusion of similar data from fathers would have allowed an examination of unique effects of mothers relative to fathers and the joint contribution of maternal and paternal psychological resources to parenting and boys' antisocial behavior.

Although we consider the observational assessments of rejecting parenting during early childhood to be a strength of the present study, our study was unable to determine whether effects of maternal resources relate to parenting later in childhood and into adolescence. In previous studies, parenting measures in later childhood and adolescence have been examined in relation to maternal age at first birth and, to a limited degree, maternal personality characteristics associated with aggression and hostility (e.g., Pogarsky et al. 2006; Simons et al. 1991). However, evidence is lacking on relations between maternal empathy and parenting of older children or young adolescents.

In addition to the heavy reliance on independent observations of parenting, the present study utilized a single respondent per construct. Although we selected respondents for each construct to maximize the likelihood of receiving a reliable and valid report, a multi-method, multi-rater approach could have strengthened confidence in the results and increased generalizability. Furthermore, our focus on predictors of rejecting parenting and early adolescent antisocial behavior was limited to maternal psychological resources and toddler difficult temperament even though broader contextual factors also play a role in predicting parenting and child adjustment (Belsky 1984; Belsky and Jaffee 2006).

### Implications and Future Directions

The present research suggests that some maternal psychological resources have been relatively overlooked in relation to parenting and child adjustment, and these maternal resources may have particular importance as risk factors for rejecting forms of parenting (Dix 1991; Egeland and Farber 1984). As such, these maternal resources may be unique indicators of a propensity toward potentially detrimental parenting practices often characterized by hostility and behaviors associated with negative affect. Importantly, the present findings also suggest that if parenting is not sufficiently addressed among at-risk mothers possessing these characteristics, coercive cycles of parent–child conflict may become entrenched with early rejecting parenting leading to later youth antisocial and

delinquent behavior (Shaw and Gross 2007). Therefore, parenting prevention and intervention programs may benefit from targeted efforts to involve young first-time mothers, mothers prone to aggression and hostility, and mothers lacking in empathy for their children. Mothers with these characteristics may be particularly difficult to engage in prevention and intervention programs, but successful efforts to enhance their comfort with developmentally appropriate parenting skills could prove beneficial to their children's later behavioral development. Recent evidence suggests that mothers with limited internal resources and increased anger and hostility can benefit from a parenting intervention during infancy (Smith et al. 2005), and future research should extend investigations of maternal resources as moderators of intervention outcomes to the toddler period. In addition to addressing parenting skills, efforts targeted at the toddler period could also focus on the emotional challenges of coping with an increasingly mobile and noncompliant toddler, a topic that is likely to be particularly relevant for low-income mothers facing numerous other life stressors and competing demands.

Future longitudinal and applied research should more closely examine these maternal resources in conjunction with other risk factors in predicting hostile and rejecting parenting and child adjustment. For example, higher levels of social support may attenuate the relations between young first-time childbearing and rejecting parenting, and aggressive personality features combined with high levels of interparental conflict may be particularly detrimental to the parenting context and child adjustment. Also, investigations of whether preventive efforts directly targeting these maternal resources are as beneficial as programs targeting parenting among at-risk groups could inform policy and broader early prevention efforts.

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